Question:

An 85-year-old woman presents to the emergency department with a 2-hour history of reduced consciousness.

Past medical history:

Hypertension

Osteoarthritis

Atrial fibrillation

Drug history:

Amlodipine

Warfarin sodium

Paracetamol

Her current GCS is 11 (E3, V3, M5), and all other nursing observations are within normal range. Head CT is performed which is reported as showing signs of intracerebral haemorrhage.

What is the next most appropriate management step for this patient?

A.Discussion with neurosurgery

B.IV prothrombin complex concentrate

C.IV vitamin K

D.IV vitamin K and prothrombin complex concentrate

E.Omit next warfarin dose and measure INR

Answer:IV vitamin K and prothrombin complex concentrate

Explanation:

Intracranial haemorrhage on warfarin → give IV vitamin K 5mg + prothrombin complex concentrate

Important for meLess important

This patient is experiencing an intracerebral haemorrhage while taking warfarin sodium. Therefore the correct answer is IV vitamin K and prothrombin complex concentrate. NICE guidelines recommend IV vitamin K and prothrombin complex concentrate are given together in the case of major bleeding while taking warfarin.

Discussion with neurosurgery is the wrong answer. This option would be important in the management of this patient, as it should be discussed to see if neurosurgical management could be indicated in this patient. However, this would not be the most appropriate initial step, as the warfarin must be reversed first to prevent further bleeding.

IV prothrombin complex concentrate is the wrong answer as NICE guidelines recommend IV vitamin K AND prothrombin complex concentrate are given together in the case of major bleeding while taking warfarin.

IV vitamin K is the wrong answer as NICE guidelines recommend IV vitamin K AND prothrombin complex concentrate are given together in the case of major bleeding while taking warfarin.

Omit next warfarin dose and measure INR is the wrong answer. It would be important to omit the next dose of warfarin and it would be useful to measure the current INR. This would be done in clinical practice; however, it is the incorrect answer, in this case, as it is not the most appropriate next step. Giving vitamin K and prothrombin complex concentrate is the priority.

Question:

A 55-year-old man presents to the emergency department with a 2-hour history of acute shortness of breath and pleuritic chest pain. He has had one episode of haemoptysis. His past medical history comprises asthma, diabetes mellitus, a fractured femur from a road traffic accident 3 weeks ago, and an appendectomy 30 years ago. He takes salbutamol and metformin.

His pulse is 115 bpm, his respiratory rate is 28 /min, his blood pressure is 132/75 mmHg, and he is afebrile. An ECG shows sinus tachycardia and a chest x-ray is unremarkable.

Given the likely diagnosis, what is the most appropriate treatment option?

A.Apixaban for 6 months

B.Enoxaparin for 3 months

C.Enoxaparin for 6 months

D.Rivaroxaban for 3 months

E.Rivaroxaban for 6 months

Answer:Rivaroxaban for 3 months

Explanation:

'Provoked' pulmonary embolisms are typically treated for 3 months

Important for meLess important

Acute shortness of breath, pleuritic chest pain, and haemoptysis suggest a diagnosis of pulmonary embolism (PE). Sinus tachycardia and a clear chest x-ray support this diagnosis as they are PE's most common investigation findings. Given that this patient recently had a fractured neck of the femur 3 weeks ago, this PE is likely to be described as provoked, meaning a risk factor for PE is present. Other risk factors suggesting a provoked PE include surgery, trauma, immobility, pregnancy, and the postpartum period. The first-line treatment options for PE in patients without contraindications are direct oral anticoagulants (DOACs) such as rivaroxaban and apixaban. Given that as outlined before this patient had a provoked PE, the correct length of treatment will be three months.

Rivaroxaban for 3 months is correct as the first-line option for treating a provoked PE is a DOAC (such as rivaroxaban) for 3 months.

Apixaban for 6 months is incorrect. Although apixaban is a DOAC and would be an appropriate drug choice, this patient's PE is provoked due to the recently fractured neck of the femur. Therefore, the treatment option should be 3 months, not 6 months. If this were to be unprovoked (none of the above risk factors is present), 6 months would be appropriate.

Enoxaparin for 3 months is incorrect as although the duration of treatment is appropriate, enoxaparin is a low molecular weight heparin (LMWH), which is not the first-line option for managing PE in patients without any contraindications to DOACs. This would be appropriate if DOACs were not appropriate, such as severe renal impairment, which is not the case here.

Enoxaparin for 6 months is incorrect as enoxaparin is an LMWH, which is used if DOACs such as rivaroxaban and apixaban are inappropriate (such as in severe renal impairment), which is not the case here. Furthermore, since this is a provoked PE, treatment should be given for 3 months, not 6.

Rivaroxaban for 6 months is incorrect. Although the drug choice is correct (as rivaroxaban is a DOAC), this PE is provoked, therefore, treatment should be for 3 months, not 6.

Question:

A 19-year-old woman presents to her GP complaining of 2 days of left-sided ear pain. On examination the tragus is tender, the ear canal is erythematous, and the tympanic membrane is intact. She is normally fit and well and has not suffered any recent trauma to the area. She recently completed a swimming competition 4 days earlier.

What is the most appropriate management?

A.IV tazocin

B.Neomycin with dexamethasone ear spray

C.Oral amoxicillin

D.Oral ciprofloxacin

E.Topical hydrocortisone cream

Answer:Neomycin with dexamethasone ear spray

Explanation:

Recent swimming is a common trigger of otitis externa

Important for meLess important

This patient is presenting with symptoms and signs consistent with otitis externa . Tragal tenderness and an erythematous ear canal are common signs seen due to infection of the external aspect of the ear. It is a common diagnosis, with a slightly higher prevalence in women. Swimming is a recognised risk factor due to the repeated removal of ear wax allowing pathogen infiltration, often bacteria such as Staphylococcus aureus or Pseudomonas aeruginosa .

Neomycin with dexamethasone (Otomize) ear spray is a treatment option for acute otitis externa. There are a wide variety of topical options which can include a combination of steroids, acetic acid, and an antibiotic (aminoglycoside or fluoroquinolones). Additional management includes supportive care such as keeping the ears clean and dry and preventative management such as ear plugs when swimming.

IV tazocin is not required for simple otitis externa. This would be an option if the patient was presenting with necrotising otitis externa (NOE). It is characterised by bony involvement. Unlike in this scenario, NOE is classically seen in elderly diabetics and is intensely painful, occasionally with hearing loss, and is refractory to topical antibiotics.

Oral amoxicillin is also not indicated in this scenario. This can be an option for individuals with otitis externa who are at higher risk of complications, such as bilateral infections. This patient's symptoms are consistent with otitis externa and there is no effusion seen behind the tympanic membrane which would be indicative of otitis media.

Oral ciprofloxacin is not the correct answer. As mentioned, this patient is showing evidence of otitis externa which is managed with antibiotic/steroid drops or spray. Oral ciprofloxacin exposes the patient to systemic adverse effects such as an increased risk of tendonitis. It may be used as a step-down after IV antibiotics in NOE patients.

Topical hydrocortisone cream is not a correct answer. This patient has otitis externa and will need antibiotic/steroid drops or spray in order to reach the affected area. A cream would not reach the appropriate area.

Question:

A 71-year-old woman presents to the emergency department because her newly created stoma bag has got blocked. She recently underwent surgery due to bowel cancer, which required resection of a segment of her bowel.

The stoma bag is located on the upper left quadrant of her abdomen. The bag is completely empty, and you can notice that the proximal portion of the resected bowel is flush to the skin. Her abdomen is distended and you can hear tinkling bowel sounds.

What type of stoma does this patient have?

A.End colostomy

B.End ileostomy

C.Loop ileostomy

D.Loop jejunostomy

E.Percutaneous jejunostomy

Answer:End colostomy

Explanation:

A colostomy is flush to the skin, as the enzymes in the colon are less alkaline than those in the small intestine and so are less damaging to the skin.

Important for meLess important

The correct answer is end colostomy. This patient is presenting with obstruction, a common complication following surgery and stoma creation. Stoma bags take their name from the type of surgery that has been used to create them and the piece of bowel which has been resected.

To differentiate between a colostomy and a small intestine stoma 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 contents are not irritant. Additionally, the faecal material will be liquid in an ileostomy, whilst a colostomy would contain more solid contents.

An end ileostomy is usually done following complete excision of the colon or where the ileocolic anastomosis is not planned. It may be used to defunction the colon, but a reversal is difficult. It would look spouted, whilst in this case, it looks flush to the skin.

A loop ileostomy involves taking a loop of the ileum, performing a horizontal incision and bringing it up to the skin. It is indicated to defunction the colon, for example, after rectal cancer surgery. Eventually, it can be reversed. It would look spouted, whilst in this case, it looks flush to the skin.

A loop jejunostomy is used as a very high output stoma. It may be used following emergency laparotomy with planned early closure. It would look spouted, whilst in this case, it looks flush to the skin.

A percutaneous jejunostomy involves the insertion of a feeding tube directly into the jejunum. You would notice a tube on the abdomen of the patient rather than a stoma bag.

Question:

A 58-year-old woman presents to her GP with episodes of exertional chest pain over the last month which are self-limiting. Her past medical history is significant for asthma and she has no allergies.

She is started on PRN sublingual glyceryl trinitrate (GTN) and regular atorvastatin and aspirin.

What would be an appropriate first-line medication to prevent future episodes?

A.Atenolol

B.Isosorbide mononitrate

C.Nicorandil

D.Ranolazine

E.Verapamil

Answer:Verapamil

Explanation:

A beta-blocker or a calcium channel blocker is used first-line to prevent angina attacks

Important for meLess important

Verapamil is correct. This patient is likely to have angina based on her episodic exertional chest pain which resolves. NICE guidelines recommend that a calcium-channel blocker or beta-blocker should be used first-line as a preventative medication for stable angina. The patient's history of asthma contra-indicates the use of beta-blockers and so the first-line treatment should be a calcium-channel blocker. NICE also states that if calcium-channel blockers are used as monotherapy, they should be rate-limiting ones such as verapamil and diltiazem.

Atenolol is incorrect. Although this is a first-line option in managing angina, this patient has a history of asthma, making beta-blockers including atenolol contraindicated.

Isosorbide mononitrate is incorrect. This is a long-acting nitrate and is a second-line treatment in angina if calcium-channel blockers and beta-blockers are contraindicated or not tolerated.

Nicorandil and Ranolazine are incorrect as similarly to the above, they are also second-line treatments that are considered if calcium-channel blockers and beta-blockers are ineffective or contraindicated.

Question:

A 33-year-old woman visits her general practitioner complaining of inability to conceive after two years of trying with a regular partner. She has a body mass index of 28 kg/m² and an existing diagnosis of polycystic ovarian syndrome. Which of the following drugs is most likely to help restore normal ovulation in this case?

A.Thyroxine

B.Folic acid

C.Estradiol

D.Mestranol

E.Metformin

Answer:Metformin

Explanation:

Weight loss is the first-line treatment for overweight or obese women with polycystic ovarian syndrome (PCOS) who are struggling to conceive. If this fails - either because the woman is unable to lose weight or because she cannot conceive in spite of losing weight - then metformin can be added as an adjunct. Metformin has been shown to have a beneficial effect on ovulation and conception rates in patients with PCOS.

Thyroxine might help a hypothyroid patient conceive but there is no particular indication in the above question that this patient has hypothyroidism. Folic acid does not aid conception. Estradiol and mestranol are oestrogens and will thus inhibit ovulation,

Question:

A 43-year-old female presents to your clinic with frequent headaches. Each headache lasts for 15 minutes and is focussed around her left eye. The headaches are described as intense and 'stabbing' in nature. She also explains that her eyes water whilst the headaches occur. These headaches occur around 2-3 times per day for the past 5 weeks.

Which one of the following drugs is most appropriate for long-term prophylaxis of this condition?

A.Codeine

B.Propranolol

C.Sumatriptan (oral)

D.Sumatriptan (subcutaneous)

E.Verapamil

Answer:Verapamil

Explanation:

Verapamil is used for long-term prophylaxis of cluster headaches

Important for meLess important

It is evident from the question stem that this is a cluster headache, due to the following features: episodes lasting approximately 15 minutes; intense stabbing pain; always around the same eye; and associated lacrimation. The timeframe of 5 weeks supports this diagnosis too.

Verapamil is the drug of choice for long-term prophylaxis of cluster headaches. It works by blocking the entry of calcium ions into smooth muscle which subsequently reduces blood vessel dilation, which is what is responsible for the severe pain seen in these headaches.

Subcutaneous sumatriptan is used for acute treatment of cluster headaches, but is not used for prophylaxis.

Oral sumatriptan is used in the treatment of migraines, not cluster headaches.

Propranolol can be used as prophylaxis for migraines, not cluster headaches.

Codeine is an analgesic that can be used in the acute treatment of headaches. However, over usage of pain relief can often be a precipitant of headaches rather than a successful treatment.

Question:

A 35-year-old man presents to the GP with a 12-month history of headaches, nausea, and anxiety. He has visited different healthcare providers and has been given codeine pain relief, which he has run out of. An examination is unremarkable and private investigations he ordered including a CT and MRI of the head are normal.

Despite repeated reassurance, he is worried a problem has been missed and is adamant that he has a brain tumour and would like further investigations as well as something to relieve the pain. His paternal grandfather passed away from a brain tumour.

What is the most likely diagnosis?

A.Conversion disorder

B.Factitious disorder

C.Hypochondriasis

D.Malingering

E.Somatisation disorder

Answer:Hypochondriasis

Explanation:

Illness anxiety disorder (hypochondriasis) is the persistent belief in the presence of an underlying serious disease, e.g. cancer

Important for meLess important

Hypochondriasis is correct. This patient has visited multiple healthcare providers with worries regarding an underlying serious condition (a brain tumour) and refuses to accept reassurance despite negative test results. Hypochondriasis (or illness anxiety disorder) describes a persistent belief in the presence of an underlying serious disease, which applies to this scenario. A helpful way of remembering this is hypochondriasis is worrying about cancer (as they both contain the letter C and it is an example of a serious underlying disease).

Conversion disorder is incorrect. These are functional neurological symptoms such as numbness, paralysis, and seizures with no associated clear cause often traced back to a clear psychological trigger. These patients are not consciously feigning the symptoms or seeking material gain and may even be indifferent to their apparent disorder. In this scenario, this patient is well aware of their symptoms and worries and does not have these features.

Factitious disorder is incorrect. Also known as Munchausen's syndrome, this describes the intentional production of physical or psychological problems typically with the intent to assume a sick role or be deceptive towards the healthcare provider. Patients tend to have a history of recurrent hospitalisation, travelling to see different doctors and dramatic and exaggerated stories of their past experiences. This patient is not trying to deceive the examiner nor is there any clear benefit as to why they would be faking their symptoms, if they were to be doing so, and is more worried about a serious underlying condition being missed rather than assuming the sick role, making this diagnosis less likely.

Malingering is incorrect. This is a fraudulent simulation or exaggeration of symptoms with the intention of financial or other gains, such as pain relief. It would not be a surprise that this patient has been offered stronger pain relief given the timeframe and severity of their symptoms, and it is reasonable to ask for more. This patient is not exaggerating their symptoms with the intent of asking for more pain relief, nor does the stem mention any other possible gain he may desire (e.g. sick notes). They are more worried about a serious underlying condition being missed, making this diagnosis less likely.

Somatisation disorder is incorrect. This is characterised by the persistent belief of multiple physical symptoms lasting for at least 2 years despite being given reassurance and negative test results. This is different to hypochondriasis, as hypochondriasis is the persistent belief in the presence of a serious underlying disease (in this case, a brain tumour) despite reassurance and negative tests, rather than a set of symptoms. A helpful way of remembering this is hypochondriasis is worrying about cancer (as they both contain the letter C and it is an example of a serious underlying disease) and somatisation disorder is worrying about multiple physical symptoms (as they both contain the letter S).

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 29-year-old female undergoes a cervical smear test as part of the UK cervical screening programme. Her results come back as hrHPV positive.

The sample is examined cytologically, which is reported as normal.

What is the most appropriate action?

A.Colposcopy

B.Return to normal recall

C.Repeat the test within 3 months

D.Repeat the test in 6 months

E.Repeat the test in 12 months

Answer:Repeat the test in 12 months

Explanation:

Cervical cancer screening: if sample is hrHPV +ve + cytologically normal → repeat smear at 12 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 negative for hrHPV, they are returned to normal recall. If hrHPV positive, they are then examined cytologically. If cytology is abnormal, colposcopy should be performed. However, if cytology is normal, the test should be repeated in 12 months.

There is no requirement to perform colposcopy in this case as her cytology results are normal. Colposcopy is performed if cytology is abnormal.

Return to normal recall is incorrect as this would lead to a repeat smear test in 3 years time, which is too long. As her hrHPV was positive she is has a higher risk, therefore a repeat smear test should be repeated sooner, in 12 months.

There is no indication to repeat the test within 3 months, this is too soon.

Repeating the test in 6 months would also be inappropriate as this is too soon.

Question:

A 45-year-old man is diagnosed as having pulmonary tuberculosis. He currently lives in the UK and his sputum is positive for acid-fast bacilli. His past medical history includes hypertension for which he takes bendroflumethiazide and amlodipine. Which of the following combination of medications should he be taking initially?

A.Rifampicin, isoniazid, pyrazinamide and ethambutol

B.Isoniazid, pyrazinamide and ethambutol

C.Rifampicin, isoniazid and pyrazinamide

D.Rifampicin, isoniazid, pyrazinamide, ethambutol and streptomycin

E.Rifampicin and isoniazid

Answer:Rifampicin, isoniazid, pyrazinamide and ethambutol

Explanation:

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?

A.Give 1 shock immediately

B.Give 3 shocks immediately

C.Give adrenaline 1 mg

D.Give amiodarone 150 mg

E.Give amiodarone 300 mg

Answer:Give 1 shock immediately

Explanation:

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:

A 57-year-old man presents to his GP with shortness of breath and a cough. He is sent to the hospital for a chest x-ray which shows a significant pleural effusion. Upon aspiration, it is revealed to be tuberculosis and he is admitted to the local infectious diseases unit. Unfortunately, he continues to deteriorate and has to be intubated and ventilated. Before this, he stated he did not wish anyone to know about his condition.

Can the medical team disclose what has happened to him to anyone?

A.No - before intubation he stated he wished no one to know

B.No - the patient cannot consent to it

C.No - the patient's right to confidentiality takes priority

D.Yes - by being admitted to the infectious disease unit he gave implied consent to the any necessary disclosures

E.Yes - the disease is communicable

Answer:Yes - the disease is communicable

Explanation:

Disclosures about communicable diseases can be made without the patient's consent

Important for meLess important

The correct answer is Yes - the disease is communicable . Although in this scenario, the patient stated he did not wish anyone to know about his disease, tuberculosis is classed as notifiable by Public Health England. Medical professionals are legally responsible for reporting these diseases to ensure patients can be appropriately identified and treated. If patients do not or cannot consent, medical professionals must declare anyway. It is good practice to inform the patient before making the disclosure.

No - the patient cannot consent is incorrect. As discussed above, disclosing this patient's notifiable disease is a legal requirement, so it must be disclosed regardless of the patient's wishes.

No - the patient's right to confidentiality takes priority is incorrect. In this scenario, while the patient's right to privacy should always be considered, as mentioned above, disclosing in this circumstance is a legal requirement.

Yes - by being admitted to the infectious disease unit, he gave implied consent to the disclosure is incorrect. While some things can be done by implied consent, this is not one of them. Furthermore, in this scenario, consent is not required. However, it is still good practice to inform the patient if possible.

No - before intubation, he stated he wished no one to know. is incorrect. While he stated he didn't want anyone to know, disclosing is a legal responsibility.

Question:

A 28-year-old man is involved in a road traffic accident and sustains a flail chest injury. On arrival in the emergency department he is hypotensive. On examination he has an elevated jugular venous pulse and auscultation of the heart reveals quiet heard sounds. What is the most likely diagnosis?

A.Pneumothorax

B.Dissecting aortic aneurysm

C.Cardiac tamponade

D.Haemothorax

E.Constrictive pericarditis

Answer:Cardiac tamponade

Explanation:

The presence of a cardiac tamponade is suggested by Becks Triad:

Hypotension

Muffled heart sounds

Raised JVP

Question:

A 36-year-old female healthcare assistant presents to general practice having difficulty concentrating at work. For the past four days, she has been very chatty with patients when taking their blood. It has not been affecting her job performance, but she feels that it is out of character for her; preferring to appear calm and collected while doing her work. The patient also reports that they have never felt better and does not need as much sleep as in the past. She denies any impulsive behaviour, sexual promiscuity, or drug use. She has no previous medical history although her mother has a history of depression.

What is the most appropriate course of action?

A.Prescribe quetiapine

B.Prescribe fluoxetine

C.Prescribe lithium

D.Routine referral to the community mental health team

E.Urgent referral to the community mental health team

Answer:Routine referral to the community mental health team

Explanation:

Symptoms of hypomania in primary care: routine referral to CMHT

Important for meLess important

Although quetiapine is often used first-line in the acute phase of bipolar disorder, the patient should be routinely referred to the community mental health team to confirm the diagnosis first.

SSRIs are not recommended for depressive episodes of bipolar, however, in rarer circumstances, olanzapine and fluoxetine can be given in combination for acute depression in bipolar disorder. Regardless, this patient is presenting with hypomania and SSRIs are not the most appropriate course of action.

Lithium is commonly prescribed for bipolar disorder, however, the diagnosis needs to be confirmed first.

Routine referral to the community mental health team is advised for patients presenting with hypomania in primary care.

Urgent referral may be advised if the patient is at risk of self-harm or danger to others. This is not the case in this question. Additionally, patients can be referred if they demonstrate poor judgment in regards to their employment, personal relationships, finances, driving, sexual activity, or drug use.

Question:

A 40-year-old male is seen on the surgical ward round, five days after his abdominal surgery.

He reports that when moving in bed, he felt a strange sensation over the wound. Dressings were removed to find that the wound is wide open, with visible viscera. His observations are all within normal range and he does not appear distressed by this.

The wound is covered with saline impregnated gauze.

What else should be given most urgently whilst awaiting further surgical input?

A.High flow oxygen

B.IV ceftriaxone and metronidazole

C.IV flucloxacillin

D.IV morphine

E.1000ml bolus of NaCl 0.9% over 10-15 minutes

Answer:IV ceftriaxone and metronidazole

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

This patient has wound dehiscence. He should receive broad-spectrum antibiotics, such as IV ceftriaxone and metronidazole.

Flucloxacillin is a narrower spectrum antibiotic than the combination of ceftriaxone and metronidazole and would not cover a sufficient range of organisms. Flucloxacillin is classically used in the treatment of beta-lactamase-producing staphylococci, such as Staph. aureus cellulitis.

Fluids are important in the management of any post-operative patient, but the patient is currently haemodynamically stable, and a 1L stat bolus at this stage is excessive. Immediate antibiotics are required more urgently in this case, to prevent peritonitis and sepsis.

There is no specific mention of pain, and he does not appear distressed. However, suitable analgesia should be provided as pain is likely to occur at some point. In this case, however, this would be less urgent than the antibiotics.

There is no suggestion that the patient has a requirement for oxygen in the question stem, and his observations are normal. This would be an inappropriate immediate management option.

Question:

A 10-year-old boy is found to have haemophilia A following investigation for a haemoarthrosis. Which one of his relatives is most likely to have the condition?

A.Father

B.Mother's brother

C.Father's sister

D.Mother

E.Father's brother

Answer:Mother's brother

Explanation:

X-linked recessive conditions are only seen in males which therefore excludes two of the options. As male to male transmission is not seen this means the answer is mother's brother.

Question:

You are attending labour for an emergency Caesarean section for failure to progress. The operation goes on without any complications. The baby cries immediately after birth and there is 30 seconds of delayed cord clamping. On examination, baby is centrally pink with blueish hands and feet. Saturation probes are attached to the baby and show an oxygen saturation of 73% at 1 minute. What is the most appropriate next step in management?

A.Intubation

B.Urgent chest x-ray

C.Ventilation breaths

D.Observe and reassess at next interval

E.No further assessment required

Answer:Observe and reassess at next interval

Explanation:

In first 10 minutes of life, suboptimal SpO2 readings can be expected from a healthy neonate.

Important for meLess important

Transient cyanosis is very common initially after birth. It does not require any further management as it usually self-resolves.

APGAR scores, including appearance/colour, should be assessed at 1 min, then reassessed at 5 and 10 minutes.

Question:

A 78-year-old man is brought to the emergency department with sudden onset severe chest pain. He gets an ECG, which shows ST elevation mainly in I and aVL, and slightly in V5+V6 too.

Which coronary artery is most likely affected?

A.Left anterior descending

B.Left coronary

C.Left circumflex

D.Right coronary

E.Right circumflex

Answer:Left circumflex

Explanation:

Lateral MI is generally caused by a left circumflex artery lesion

Important for meLess important

This is a lateral myocardial infarction (MI)- sudden onset chest pain with ST elevation in I, aVL, V5 and V6. Lateral MIs are caused by lesion in the left circumflex artery. A lesion in the LAD will cause an anterolateral MI, right coronary will cause an inferior MI, and there is no right circumflex artery.

Question:

You are an FY2 working in the Emergency Department and have just reviewed a 63-year-old woman presenting with urticaria and difficulty breathing after a recent medication change. Her past medical history includes osteoporosis, hypertension, refractory rheumatoid arthritis and gastro-oesophageal reflux disease. She is known to be allergic to pollen, aspirin and plaster adhesives.

Which of the following medications is most likely to have contributed to this presentation?

A.Ramipril

B.Sulfasalazine

C.Cetirizine

D.Omeprazole

E.Azathioprine

Answer:Sulfasalazine

Explanation:

Patients who are allergic to aspirin may also react to sulfasalazine

Important for meLess important

Although it is possible to have allergic reactions to many medications, sulfasalazine is contraindicated in patients with salicylate hypersensitivity, e.g. aspirin. Sulfasalazine is a disease-modifying anti-rheumatic drug (DMARD) used in the treatment of rheumatoid arthritis, often after other first-line treatments have failed. This woman has refractory rheumatoid arthritis, giving a clue that the recent medication change is a rheumatic agent.

ACE inhibitors such as ramipril can cause angioedema, which would account for the difficult breathing, but this is not usually associated with urticaria. This is because the mechanism for drug-induced angioedema, e.g. with ACE inhibitor use, is driven by bradykinin, not histamine.

Cetirizine is an antihistamine used for the relief of symptoms such as urticaria, histamine-mediated angioedema, and anaphylactic reactions.

Omeprazole is a proton pump inhibitor (PPI) used to suppress acidic gastric secretions in the treatment of conditions such as gastro-oesophageal reflux disease. Although skin reactions can occur with the use of omeprazole, bronchospasm is listed as rare or very rare in the BNF. In this case, the most likely causative agent is sulfasalazine given her known aspirin allergy.

Azathioprine is another DMARD that can be used in the management of refractory rheumatoid arthritis. Its use is contraindicated in patients with hypersensitivity to mercaptopurine, not salicylates.

Question:

A 54-year-old male presents to the GP following trouble falling asleep. He thinks that he may have chronic insomnia, which he has read about on the internet.

The patient says that he has tried everything to get to sleep, including meditation and a warm bath before bed. He feels like he has too many thoughts in his head, and cannot 'switch off'. This happens at least three days a week, and has been ongoing for one month.

What feature would suggest that this patient has self-diagnosed incorrectly?

A.The insomnia must occur most nights of the week, rather than just three

B.Insomnia refers to 'waking up' in the night, not difficulty falling asleep

C.Chronic insomnia can only be diagnosed in patients below 50

D.Chronic insomnia must be associated with other features, such as sleep apnoea

E.The duration of insomnia is too brief; it must be over 3 months

Answer:The duration of insomnia is too brief; it must be over 3 months

Explanation:

Chronic insomnia may be diagnosed after three months, if a person has trouble falling asleep or staying asleep at least three nights per week

Important for meLess important

This patient is describing one form of insomnia, where they are having difficulty falling asleep. This can occur together with, or separate from, difficulty staying asleep. Either can be present for the diagnosis to be made.

For the insomnia to be classed as 'chronic', it must be present for at least three months. However, it only needs to be present for 3 out of 7 nights in the week.

Chronic insomnia can be diagnosed in patients of any age.

Question:

A 59-year-old presents to the GP surgery with a one-week history of painful burning sensations in her chest, most commonly after she eats. She also reports feeling rather bloated. She has never experienced this before. The GP notes some abdominal tenderness on examination and requests an upper GI endoscopy. Her current medications are aspirin, metformin and omeprazole. What advice should the GP provide her with regarding the procedure?

A.Stop the omeprazole two weeks before the procedure

B.Stop the omeprazole two days before the procedure

C.Stop the metformin one week before the procedure

D.Continue all medications as normal

E.Stay on the omeprazole but stop the aspirin and metformin

Answer:Stop the omeprazole two weeks before the procedure

Explanation:

Proton pump inhibitors should be stopped 2 weeks before an upper GI endoscopy

Important for meLess important

As this patient is having an upper GI endoscopy, she should stop her omeprazole, a proton pump inhibitor, two weeks before her procedure. The reason for this is so that the pathology can be identified during the procedure.

Question:

A 71-year-old woman with metastatic breast cancer comes to surgery with her husband. She is known to have bone metastases in her pelvis and ribs but her pain is not controlled with a combination of paracetamol, diclofenac and MST 30mg bd. Her husband reports she is using 10mg of oral morphine solution around 6-7 times a day for breakthrough pain. The palliative care team at the hospice tried using a bisphosphonate but this unfortunately resulted in persistent myalgia and arthralgia. What is the most appropriate next step?

A.Switch to oxycodone

B.Increase MST

C.Increase MST + add dexamethasone

D.Increase MST + suggest course of complimentary therapies

E.Increase MST + refer for radiotherapy

Answer:Increase MST + refer for radiotherapy

Explanation:

Metastatic bone pain may respond to analgesia, bisphosphonates or radiotherapy

Important for meLess important

Dexamethasone should be considered if the metastatic spinal cord compression, but this is not a feature given the location of the lesions.

Question:

A 28-year-old man who is known to have ulcerative colitis presents to his GP with an acute flare of his symptoms. He has passed 5 stools per day over the last 3 days, sometimes with a small amount of rectal bleeding. He feels well in himself. On examination, his abdomen is soft and non-tender, his heart rate is 80 beats per minute and his temperature is 36.6ºC.

The patient has not had a flare of his symptoms for 5 years and is not taking any maintenance treatment.

The GP prescribes rectal mesalazine. Unfortunately, at review four weeks later, he is still passing 4-5 stools per day.

What is the most appropriate management?

A.Add azathioprine

B.Add oral mesalazine

C.Add oral prednisolone

D.Add rectal prednisolone

E.Admit to hospital for intravenous hydrocortisone

Answer:Add oral mesalazine

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

Add oral mesalazine is correct because an oral aminosalicylate should be added if a patient has a mild-moderate flare of distal ulcerative colitis that doesn't respond to rectal aminosalicylates. In this case, the patient's flare is moderate, as he is passing over 4 (but less than 6) stools per day with varying amounts of blood and no systemic upset.

Add azathioprine is incorrect because azathioprine is used for maintaining remission in patients with ulcerative colitis. It is not used to induce remission.

Add oral prednisolone is incorrect. Topical or oral steroids would be added if remission is not achieved after four weeks of oral aminosalicylate. As this patient has only had rectal aminosalicylates, oral should be trialled first.

Add rectal prednisolone is incorrect. Topical or oral steroids would be added if remission is not achieved after four weeks of oral aminosalicylate. As this patient has only had rectal aminosalicylates, oral should be trialled first.

Admit to hospital for intravenous hydrocortisone is incorrect. This would be required if the patient was having a severe flare of ulcerative colitis. This patient's flare would be severe if he was passing six or more bloody stools a day and had one of either fever, tachycardia, anaemia or raised inflammatory markers. This does not apply to this patient.

Question:

A 47-year-old man presents to the emergency department with 12 hours of central, pleuritic chest pain and one episode of haemoptysis. Auscultation of the heart and lungs is unremarkable and his calves are symmetrical in size, and non-tender. He has no past medical history and has never smoked. A chest x-ray is unremarkable.

His observations are listed below:

Respiratory rate- 22bpm

Heart rate- 78bpm

Blood pressure- 134/89mmHg

Temperature- 37.2ºC

Oxygen saturation- 98% on room air

What is the next most appropriate investigation?

A.COVID-19 swab

B.CT chest

C.CT pulmonary angiogram

D.Send a d-dimer level

E.Sputum culture

Answer:Send a d-dimer level

Explanation:

Suspected PE with a Wells PE score ≤4 - D-dimer is investigation of choice

Important for meLess important

This vignette raises suspicion of a pulmonary embolism due to new sudden onset pleuritic chest pain and haemoptysis in an otherwise healthy man.

When calculating his Wells' score the score would be 4 for suspicion of PE (+3) and haemoptysis (+1). There are no other factors that score (malignancy, immobilisation/surgery, tachycardia, signs of DVT, previous DVT/PE). As this patient's score is less than 5, the next investigation is to send a d-dimer level .

A COVID-19 swab would be useful but is not the next most appropriate investigation given the suspicion of PE. Haemoptysis is not typical of COVID-19 and the lack of sore throat or fever also points away from this diagnosis.

CT chest would give a better visualisation of the lungs if the chest x-ray is unremarkable. However, it does not look at perfusion of the pulmonary arteries and so lacks sensitivity for pulmonary emboli detection. Regardless, a d-dimer should be sent first for this patient.

CT pulmonary angiogram would be indicated if the d-dimer is raised. However, as this patient's Wells' score is not greater than 4, it is not currently indicated.

Sputum culture is not indicated as the patient does not have a productive cough and there are no signs of lower respiratory tract infection on examination. If these symptoms were present or a chest x-ray had demonstrated consolidation then this option would be more appropriate.

Question:

A 17-year-old student from Poland is attending his 'new-starter' occupational health (OH) appointment at medical school in London. He provides a list of his vaccinations, which includes vaccination against tuberculosis. A Mantoux test is conducted and assessed a few days later. It appears that the student has a negative result.

Which of the following is the most likely cause of this patient's false negative Mantoux test?

A.Well-managed ulcerative colitis

B.Well managed chronic obstructive pulmonary disease (COPD)

C.Eczema managed with emollients

D.Obesity

E.Smoking

Answer:Well-managed ulcerative colitis

Explanation:

Long term prednisolone use can result in a false negative Mantoux test

Important for meLess important

Cause of false negative Mantoux tests include and are not limited to:

TB

AIDS

Long-term steroid use

Lymphoma

Sarcoidosis

Extremes of age

Fever

Hypoalbuminaemia

Anaemia

Ulcerative colitis maintenance therapy can include the long-term use of corticosteroids, which can compromise the body's immune response and result in a false negative Mantoux test result. Similarly, the long-term management of COPD involves corticosteroids, however COPD is unlikely in a patient of this age. The other causes are not known to cause false negative Mantoux test results.

Question:

Zoe is a 21-year-old woman who does not use any form of regular contraception. Yesterday she had unprotected sexual intercourse. She has taken levonorgestrel 2 hours ago and has vomited once since.

You have a telephone consultation with Zoe and she is unsure about what she should do next.

With regards to her risk of pregnancy, what is the most important advice to give to Zoe?

A.Commence the combined oral contraceptive pill (COCP) as soon as possible

B.Reassure Zoe that levonorgestrel will prevent pregnancy and no further action is required

C.Recommend the copper intrauterine device (IUD)

D.Take a second dose of levonorgestrel as soon as possible

E.Take a single dose of ulipristal acetate immediately

Answer:Take a second dose of levonorgestrel as soon as possible

Explanation:

If a patient vomits within 3 hours of taking the levonorgestrel, she should take another dose

Important for meLess important

NICE guidelines state:

If a woman vomits within 3 hours of taking levonorgestrel or ulipristal acetate, prescribe a second dose of emergency hormonal contraception to be taken as soon as possible.

Reassuring Zoe is incorrect because she may not be protected from becoming pregnant as she has vomited within 3 hours of taking levonorgestrel.

Commencing the COCP as soon as possible is incorrect, as although it may be advisable for Zoe to commence a regular form of contraception, this is not the most important advice to give initially. Furthermore, this will require a discussion and Zoe should be offered choices of contraception including long-acting reversible contraceptives.

Recommending other forms of emergency contraception such as ulipristal acetate and the IUD is incorrect as Zoe has taken levonorgestrel already and the guidelines are clear that a second dose of this should be taken in this circumstance. If she was experiencing persistent vomiting (or diarrhoea) for more than 24 hours after taking emergency hormonal contraception, then the IUD may be offered.

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 16-year-old boy presents with a 3-month history of pain in his lower back and left heel causing walking to be painful and difficult. Each morning his back is painful and stiff, this stiffness lasts for around 1 hour and improves throughout the day with exercise. He tells you that he has never had anything like this before and that it suddenly started around 3 months ago.

On examination, he has reduced lateral and forward flexion of the spine, tenderness on palpation of the sacroiliac joints and reduced chest expansion.

Given the likely diagnosis, what else may be associated with this?

A.Aortic stenosis

B.Apical fibrosis

C.Conjunctivitis

D.Keratoderma blennorrhagica

E.Onycholysis

Answer:Apical fibrosis

Explanation:

Ankylosing spondylitis features - the 'A's

Apical fibrosis

Anterior uveitis

Aortic regurgitation

Achilles tendonitis

AV node block

Amyloidosis

Important for meLess important

This boy has a 3-month history of sudden-onset back pain that is worse in the morning and eases with exercise. He has reduced lateral flexion, forward flexion, and chest expansion and has tenderness over the sacroiliac joints. As well as this he has heel pain and difficulty walking due to the pain, which could be suggestive of plantar fasciitis or Achilles tendinopathy. These symptoms are features of ankylosing spondylitis (AS), which would be the most likely diagnosis in this scenario. Apical fibrosis of the lungs is associated with AS, the exact mechanism is unclear, but it is thought to be due to reduced chest expansion and chronic interstitial inflammation over time.

Aortic stenosis is not associated with AS, but aortic regurgitation is. This is due to the proliferation of the smooth muscle cells or fibroblasts in AS occluding the proximal aorta vaso vasora, causing aortitis and aortic regurgitation.

Conjunctivitis is inflammation of the conjunctiva and is commonly seen in patients with reactive arthritis. The ocular manifestation that is commonly associated with AS patients is anterior uveitis.

Keratoderma blennorhagica is a rash that occurs on the hands and feet that may resemble psoriasis and is associated with reactive arthritis, not AS.

Onycholysis is the separation of the nail plate from the nailbed and is commonly associated with psoriasis, not AS.

Question:

A patient on a psychiatric ward has been complaining of muscle cramps and feeling unwell for the last 12 hours. The nursing staff report that the patient has been more agitated and confused and they wonder if he needs to increase his regular quetiapine, although this has been increased recently. He seems sweaty. He has just had his observations recorded and he has a fever, his blood pressure has increased and he is tachycardic.

You wonder if the patient might have neuroleptic malignant syndrome.

What pattern of abnormal blood tests would be most likely seen with this diagnosis?

A.Raised creatine kinase and raised white cell count

B.Raised creatine kinase and decreased white cell count

C.Hypokalaemia

D.Hypercalcaemia

E.Raised creatine kinase and hypokalaemia

Answer:Raised creatine kinase and raised white cell count

Explanation:

Neuroleptic malignant syndrome often presents with raised CK and leukocytosis

Important for meLess important

Whilst no blood test is diagnostic for neuroleptic malignant syndrome, the most common pattern seen would be raised white cell count with raised creatine kinase.

Patients may have high potassium, not usually low, due to the muscle damage seen.

Patients would more typically have low calcium on blood tests, not a high calcium level.

Question:

A 64-year-old male with non-Hodgkin lymphoma (NHL) attends the emergency department with fever, shivering, and feeling generally unwell. Observations reveal a temperature of 38.6ºC, pulse rate of 116 beats/min, blood pressure of 102/62mmHg, and a respiratory rate of 24 beats/min. On chest auscultation, there are crackles and bronchial breathing in the left upper zone. Urine dip is negative for leucocytes and blood tests show a neutrophil count of 0.4. His last cycle of chemotherapy was 10 days ago.

What is the most appropriate antibiotic treatment to start for this patient?

A.Intravenous amoxicillin and gentamicin

B.Intravenous aztreonam and vancomycin

C.Intravenous co-amoxiclav

D.Intravenous piperacillin with tazobactam (Tazocin)

E.Oral co-amoxiclav

Answer:Intravenous piperacillin with tazobactam (Tazocin)

Explanation:

Piperacillin with tazobactam (Tazocin) is the empirical antibiotic of choice for neutropenic sepsis

Important for meLess important

The above patient is unwell with neutropenic sepsis, a life-threatening emergency requiring antibiotics within an hour of the suspected diagnosis. Although the source of infection is likely pneumonia, the patient's observations and high fever are indicative of sepsis. Neutrophils are white blood cells responsible for the destruction of invading micro-organisms. If levels of neutrophils drop too low (for example from myelosuppressive chemotherapy), bacterial infection can quickly overwhelm the patient, resulting in septic shock, multiorgan failure, and, ultimately, death.

Piperacillin with tazobactam (Tazocin) is the antibiotic of choice for neutropenic sepsis. This is typically commenced before neutropenia is confirmed on blood testing. Piperacillin is a penicillin, and therefore works by breaking down the peptidoglycan cell walls of bacteria. Tazobactam inhibits the breakdown of penicillins by bacterial β-lactamases, therefore preventing bacterial resistance to piperacillin when given in combination.

For patients unable to tolerate Tazocin (for example due to penicillin allergy), local guidelines or microbiology advice should be followed for the most appropriate alternative.

Amoxicillin is a penicillin with a narrower spectrum compared to piperacillin. When combined with the β-lactamase inhibitor clavulanic acid, it is called co-amoxiclav. Gentamicin is an aminoglycoside that blocks protein synthesis by binding to bacterial ribosomes. It is a Gram-negative antibiotic and must be used with caution due to the risk of kidney damage and ototoxicity. Combining intravenous co-amoxiclav with gentamicin typically provides sufficient antibacterial cover for severe infections such as urosepsis or cholangitis, but is unlikely to the best treatment choice for neutropenic sepsis.

Aztreonam is a monobactam antibiotic with Gram-negative activity, inhibiting bacterial cell wall synthesis by adhering to penicillin-binding protein-3. Vancomycin is a glycopeptide antibiotic that also impairs peptidoglycan cell wall synthesis and does so by binding to peptide chains which prevent hydrogen bond formation. Vancomycin is effective against Gram-positive bacteria only. Aztreonam and vancomycin can be used in combination for the management of neutropenic sepsis when Tazocin is contraindicated, although a third antibiotic such as gentamicin might be added for additional cover.

Question:

Mr Bevan is a 52-year-old patient with type 2 diabetes. He was unable to tolerate metformin due to nausea. He has been doing some of his own research into other options and suggests an SGLT-2 inhibitor, empagliflozin, because he has read it might help him lose weight and improve his blood pressure, as well as improve his blood sugar.

What is the mechanism of action of this drug?

A.Increase insulin release from pancreas

B.Decrease glucose absorption in the gut

C.Decrease glucagon release from pancreas

D.Increase urinary glucose excretion

E.Slows gastric emptying

Answer:Increase urinary glucose excretion

Explanation:

SGLT-2 inhibitors work by increasing urinary excretion of glucose

(Important as it is the cause of main side effects - increased urine output, weight loss, UTI)

Important for meLess important

Increase insulin release from pancreas - this is the mechanism of action of sulphonylureas e.g. gliclazide.

Decrease glucose absorption in the gut - this is the mechanism of action of acarbose, which is not routinely prescribed in the UK.

Decrease glucagon release from pancreas - DPP4-inhibitors reduce the breakdown of incretins, which thereby decreases glucagon secretion.

SGLT-2 inhibitors such as empagliflozin work by reducing glucose reabsorption in the proximal convoluted tubule, therefore increasing the amount of glucose excreted in the urine. An additional 70g of glucose a day (approximately) is excreted; as well as improving blood sugar this is also likely to lead to weight loss, in contrast to some other diabetic medications such as sulphonylureas and insulin which cause weight gain. The slight diuresis caused by increased glucose excretion may also improve blood pressure. Unfortunately, increased glucose in the urine can also cause adverse events such as urinary tract or genital infections.

SGLT-2 inhibitors do not slow gastric emptying.

Question:

A 28-year-old G1P0 woman presents with her husband for her routine 25-week appointment. She reports that the pregnancy has been going well so far, and the ultrasound scan at 20 weeks was normal. Screening tests for maternal infections have been negative. She has no past medical history.

On examination, the uterus is palpable above the umbilicus and fundal height is measured at 26 cm. Foetal heart rate is 140 beats/min. Maternal blood pressure is found to be 150/92 mmHg (125/83 mmHg at 16 weeks). Urine dipstick is negative for protein and other blood tests are normal.

What treatment should be initiated?

A.Amlodipine

B.Aspirin

C.Hydralazine

D.Labetalol

E.Nifedipine

Answer:Labetalol

Explanation:

Labetalol is first-line for pregnancy-induced hypertension

Important for meLess important

The correct answer is labetalol. This woman has new-onset hypertension after 20 weeks of gestation and does not have signs of proteinuria or end-organ dysfunction, which is classified as gestational or pregnancy-induced hypertension. Labetalol is recommended as first-line for women with gestational hypertension if it is not otherwise contraindicated, and NICE guidelines suggest prescribing it if the blood pressure remains over 140/90 mmHg. If the patient had a history of asthma, labetalol would be contraindicated due to the risk of bronchospasm, and an alternative agent should be used.

Amlodipine is incorrect. This is a dihydropyridine calcium channel blocker that is commonly used for essential hypertension, but not in pregnant women. The first-line medication for gestational hypertension is labetalol. A calcium channel blocker can be considered second line or if labetalol is contraindicated, but nifedipine is generally used for this purpose.

Aspirin is incorrect. While aspirin is used as a preventative agent for pre-eclampsia, it is only used in those at high risk and should be initiated ideally before 16 weeks of gestation. It is not used as an antihypertensive medication.

Hydralazine is incorrect. This is a vasodilator that can be given intravenously to lower blood pressure acutely in hypertensive emergencies, including during pregnancy, but this woman’s hypertension is mild and not an emergency. Labetalol is used as the first-line for gestational hypertension.

Nifedipine is incorrect, as this calcium channel blocker is recommended as a second-line agent if labetalol is contraindicated. The patient has no history of asthma or other contraindications, therefore labetalol should be given first.

Question:

A 17 year old girl presents with a history of amenorrhoea, having never started her period. On further questioning she has developed secondary sexual characteristics, such as growth of breast tissue and pubic hair. She also complains of pelvic pain and some bloating.

Which of the following is likely to be the cause?

A.History of systemic chemotherapy at a young age

B.Polycystic ovarian syndrome (PCOS)

C.Turner's syndrome (45XO)

D.Imperforate hymen

E.Excessive exercise

Answer:Imperforate hymen

Explanation:

In a teenager with primary amenorrhoea, but who experiences regular painful cycles, an imperforate hymen is a leading differential diagnosis

Important for meLess important

An imperforate hymen would block passage of menses, causing amenorrhoea without affecting development of secondary characteristics such as pubic hair and breast development. This can cause a build up of menstrual blood in the vagina (haematocolpos), causing pelvic pain and bloating through a pressure effect.

Chemotherapy at a young age has the potential to damage the hypothalamic-pituitary-ovarian axis, while Turner's syndrome can cause premature ovarian failure. PCOS is a common cause of secondary amenorrhoea. In these conditions the development of secondary characteristics by oestrogen is impaired. Excessive exercise and/or rapid loss of body weight can also cause a reduction in oestrogen secretion.

(source: NICE Clinical Knowledge Summaries, http://cks.nice.org.uk/amenorrhoea)

Question:

A 90-year-old lady is brought to the emergency department by ambulance after falling over the rug in her bedroom. On examination, her left leg is shortened and internally rotated. Her carer states that the patient underwent left total hip arthroplasty four years ago and is taking amitriptyline for pain.

What is the most likely cause of the patient's clinical findings?

A.Left sided hip dislocation

B.Left sided femoral shaft fracture

C.Left sided neck of femur fracture

D.Pelvis fracture

E.Periprosthetic joint infection

Answer:Left sided hip dislocation

Explanation:

Posterior hip dislocations present with a shortened and internally rotated leg

Important for meLess important

A shortened, internally rotated leg suggests dislocation. Consider the anatomy of the hip joint and the approach the femoral head has to the acetabulum. A dislocation is likely to result in posterior displacement of the femoral head and therefore internal rotation of the femur.

Neck of femur fractures result in a shortened, externally rotated leg. The Garden classification system is used to describe different patterns of fracture affecting the hip joint. These are easy to include in examinations. It is useful to revise these.

Femoral shaft fractures are unlikely to cause rotation of the leg, as the strength afforded to the hip joint by its musculature is minimally affected by a shaft fracture. The limb length is likely to be affected if there are a) several fracture segments, and b) considerable displacement of the fracture ends. As with chest radiographs, developing a systematic way to approach interpreting MSK radiographs is important.

The clinical examination findings are more consistent with a left-sided hip dislocation. There are no specific details to suggest that this is an isolated pelvic fracture. However, a pelvic radiograph may be included when requesting imaging of the hips. Pelvic trauma and urethral damage are important things to consider also, especially in an elderly population with increasing incidence of kidney disease.

Periprosthetic joint infections are unlikely to result from falls. They result as a complication of joint replacements, and despite being a common complication are rarely due to an isolated fall.

Question:

A 20-year-old pregnant lady is found to be anaemic at 10 weeks gestation. A full blood count is ordered:

Hb 85 g/L

MCV 95 fL

The lab also reports a high reticulocyte count. A blood film shows target cells and Howell-Jolly bodies. What is the most likely cause of the anaemia?

A.Folate deficiency

B.Anaemia of chronic disease

C.Iron deficiency

D.B12 deficiency

E.Sickle cell disease

Answer:Sickle cell disease

Explanation:

The full blood count confirms a normocytic anaemia. Folate and B12 deficiency cause megaloblastic anaemia which is characterised by macrocytosis. Iron deficiency and thalassaemia typically cause microcytosis. Therefore, based on the MCV it can be inferred that sickle cell disease is the most likely answer.

In addition, the Howell-Jolly bodies suggest hyposplenism which can occur in Sickle cell disease due to splenic infarctions.

The high reticulocyte count suggests increased destruction (e.g. haemolysis) or increased loss (e.g. bleeding) of red cells. Sickle cell disease results in a chronic haemolytic anaemia due to premature destruction of abnormally shaped red cells. This would result in a high reticulocyte count.

Question:

A 15-year-old boy presents to his general practitioner with a 4-month history of a growing lump on the posterior aspect of his right thigh, which has become extremely painful over the last two weeks. A radiograph is ordered, which identifies a lytic lesion in the diaphysis of the right femur with an 'onion skin' appearance.

What is the most likely diagnosis?

A.Chondrosarcoma

B.Ewing's sarcoma

C.Osteoma

D.Osteochondroma

E.Osteosarcoma

Answer:Ewing's sarcoma

Explanation:

Ewing's sarcoma - malignant tumour that occurs most frequently in the diaphysis of the pelvis and long bones

Important for meLess important

The correct answer is Ewing's sarcoma.

Ewing's sarcoma is a malignant bone tumour mainly affecting children and adolescents. Lesions occur most frequently in the pelvis, and long bones and these often cause severe pain. Other factors which suggest this diagnosis include the 'onion skin' appearance on X-ray. For reference, fine-needle aspiration of this lesion would likely be performed, a key finding of which in cases of Ewings sarcoma is the presence of EWS-FLI1 protein.

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.

Osteoma is incorrect. This is characterised by benign 'overgrowth' of bone, most typically occurring within the skull. This condition is also classically associated with Gardner's syndrome (a variant of familial adenomatous polyposis, FAP).

Osteochondroma is incorrect. This is the most common benign bone tumour. 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.

Osteosarcoma is incorrect. This is the most common primary malignant bone tumour. While it also is seen mainly in children and adolescents, it occurs most frequently in the metaphyseal region of long bones prior to epiphyseal closure. It also shows a 'sunburst' pattern on x-ray and is most commonly associated with mutations in the retinoblastoma gene (and hence retinoblastoma tumours).

Question:

A 41-year-old man presents with recurrent headaches. These typically occur 2-3 times a day and are associated with sweating and palpitations. As he was concerned that it may be due to blood pressure he borrowed his fathers home monitor. During these episodes his blood pressure is around 210/110 mmHg. Given the likely diagnosis, what is the most appropriate next test?

A.Ultrasound adrenals

B.Phenoxybenzamine suppression test

C.24 hour blood pressure monitoring

D.24 hour urinary collection of metanephrines

E.24 hour urinary collection of catecholamines

Answer:24 hour urinary collection of metanephrines

Explanation:

Phaeochromocytoma: do 24 hr urinary metanephrines, not catecholamines

Important for meLess important

Three 24 hour collections are needed as some patients have intermittently raised levels

Question:

A 55-year-old man attends the GP surgery for lower back pain. He reports that the pain has become gradually worse over the past 5 years. The GP sees him and performs a comprehensive back examination which includes testing for a straight leg raise. The straight leg test is performed by asking the patient to lie down and then the GP raises his leg up, at which point the patient complains of worsening pain in his leg.

Which one of the following pathologies does a positive straight leg raise suggest?

A.Spinal stenosis

B.Ankylosing spondylitis

C.Vertebral compression fracture

D.Sciatic nerve pain

E.Intervertebral facet joint pain

Answer:Sciatic nerve pain

Explanation:

A positive straight leg raise is performed by raising the leg whilst it is straight if this causes pain in the distribution of the sciatic nerve then the test is positive.

Ankylosing spondylitis is a chronic inflammatory rheumatic disease which results in lower back pain that is worse in the mornings and typically improved by exercise. The condition usually begins in early adulthood and is associated with human leukocyte antigen B27 (HLA-B27).

Spinal stenosis presents with back and/or leg pain that is associated with numbness, and weakness that worsens on walking but is relieved by rest. Facet joint pain is back pain that is felt over the facets (superior and inferior processes of each vertebra). It most commonly occurs in the cervical and lumbar vertebrae and is typically worsened by stress on the facet joints, e.g. by extending the back. A vertebral compression fracture is usually due to osteoporosis, trauma or malignancy and presents with acute or chronic back pain and can be diagnosed by an x-ray.

Question:

A 3-year-old girl is brought to her general practitioner by her mother. She has had a dry cough and runny nose for the last 7 days, with a 6-day history of fevers up to 38.7ºC that have been resistant to paracetamol and ibuprofen.

On examination, she appears miserable and generally unwell. Her tongue appears bright red and there is a maculopapular rash on her trunk. There is bilateral conjunctival injection with no obvious discharge. There is palpable submandibular lymphadenopathy.

Given the likely diagnosis, what investigation should be used to screen for long-term complications?

A.CT coronary angiogram

B.ECG

C.Echocardiogram

D.Serial antistreptolysin O antibody titres

E.Urinary albumin:creatinine ratio

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

To fulfil the diagnostic criteria for Kawasaki disease, a child must have a fever for at least 5 days with 4/5 of the following criteria met:

Oropharyngeal changes.

Changes in the peripheries such as oedema or peeling.

Bilateral nonpurulent conjunctivitis

Polymorphic rash.

Cervical lymphadenopathy.

This child has had a fever for more than 5 days and meets all 5 diagnostic criteria, confirming the diagnosis of Kawasaki disease. Kawasaki disease is the most common cause of acquired cardiac disease in childhood, with coronary artery aneurysms an important complication to exclude.

The correct answer is echocardiogram. Coronary artery aneurysms associated with Kawasaki disease are a major source of morbidity and mortality and should be screened for in all patients with a confirmed diagnosis. Echocardiograms are a noninvasive investigation with no exposure to ionising radiation, making them an appropriate screening modality for coronary artery aneurysms associated with Kawasaki disease.

Antistreptolysin O antibody titres is incorrect, as these may be used to support the diagnosis of post-streptococcal glomerulonephritis. Antistreptolysin O antibody titres cannot screen for coronary artery aneurysms secondary to Kawasaki disease.

CT coronary angiogram is incorrect, as ionising radiation makes this an inappropriate screening modality for children. CT coronary angiography has no role in the screening or diagnosis of coronary artery aneurysms in children with Kawasaki disease.

ECG is incorrect, as this is not an appropriate investigation to screen for coronary artery aneurysms. ECGs may show signs of myocarditis, such as ST elevation and QT prolongation, in children with Kawasaki disease, though they cannot differentiate nonspecific cardiac inflammation from coronary artery aneurysms. Ultrasound can detect both coronary artery aneurysms and signs of myocarditis, making ECG an incorrect answer.

Urinary albumin:creatinine ratio is incorrect, as this may be used to quantify proteinuria, not screen for coronary artery aneurysms secondary to Kawasaki disease. Urinary albumin:creatinine ratios are commonly used to quantify proteinuria detected on urine dipstick, such as in the evaluation of nephrotic syndrome or diabetic nephropathy.

Question:

A 23-year-old man presents to his GP with a 2-day history of pain in his right eye, photophobia, and blurred vision.

He has no past medical history but states that he has had lower back pain that improves with exercise for the last 12 months.

On examination there is hyperaemia of the sclera and yellow crusting on the patient's eyelashes. He finds it difficult to follow your finger with his eyes on cranial nerve examination due to pain. There is some oedema of his eyelids and miosis of the right pupil.

Given the likely diagnosis, what is the most appropriate next step?

A.High-dose oral steroids

B.Ocular steroid drops

C.Systemic antibiotics

D.Topical chloramphenicol

E.Urgent ophthalmology review

Answer:Urgent ophthalmology review

Explanation:

The most appropriate treatment of a patient with signs and symptoms consistent with anterior uveitis is urgent, same day referral for assessment by an opthalmologist

Important for meLess important

This patient is presenting with signs and symptoms of anterior uveitis as evidenced by blurred vision (caused by turbidity of the aqueous), photophobia and miosis (caused by ciliary muscle spasm) and pain (caused by ciliary muscle spasm and or raised intraocular pressures).

Anterior uveitis is an important differential in the acute and painful red eye. In the stem, the patient states he has had lower back pain that improves with exercise, this is a classic feature of ankylosing spondylitis. Anterior uveitis itself is a feature of spondyloarthropathies.

An urgent ophthalmology review is the most appropriate treatment / next step here. Anterior uveitis can have high morbidity and urgent specialist assessment is key. History taking and thorough evaluation are imperative so that underlying causes, if present, can be addressed. The mainstay of treatment for anterior uveitis itself is the use of topical steroids, mydriatics, non-steroidal anti-inflammatory drugs, and cycloplegics. Immunosuppression under specialist guidance can also be used.

Ocular steroid drops is not the correct answer. These can be used for treatment of inflammatory eye diseases, but this would usually be on the advice of ophthalmology specialists due to the increased risks of cataract formation.

Systemic antibiotics are not appropriate here. Systemic antibiotics do not give good penetration into the ocular structures and there is no mention of evidence of systemic infection in the stem. Infection can be a cause of anterior uveitis; e.g. reactive arthritis, herpes or syphilis, but there is no evidence to suggest any of these in the stem.

Topical chloramphenicol is a good choice to treat or prevent conjunctivitis. However, it would not treat anterior uveitis itself and so is not the best answer here.

High-dose oral steroids would not be the correct answer. Although topical steroids can be used in anterior uveitis, oral steroids are not commonly given in clinical practice. If the patient was presenting with signs or symptoms of giant cell arteritis (GCA), it would be appropriate to start high-dose steroids. The patient in the stem is not in the age group usually affected by GCA and there is no associated headache, temporal artery tenderness, or jaw claudication.

Question:

A 77-year-old man with a background of diabetes, hypertension, hypercholesterolaemia and previous myocardial infarction (MI) sees his GP about intermittent abdominal pain that he has been having for two months. It is dull in nature and radiates to his lower back. On examination, he has a pulsatile expansile mass in the central abdomen. He has had a previous US abdomen 6 months ago which showed an abdominal aortic diameter of 5.1cm. His GP repeats the US abdomen and refers to vascular clinic. The vascular surgeon sees the patient with the US report:

US abdomen No focal pancreatic, liver or gall-bladder disease. Trace free fluid. Abdominal aorta has diameter of 5.4cm. No biliary duct dilation. Kidneys look normal-sized and mildly echogenic.

What factor in the history most suggests that this patient needs surgery?

A.Abdominal pain

B.Abdominal aortic diameter 5.4cm

C.Trace free fluid

D.Cardiovascular risk factors (e.g. diabetes, hypertension etc.)

E.Velocity of increase of abdominal aortic diameter

Answer:Abdominal pain

Explanation:

Symptomatic AAA have high rupture risk and should undergo endovascular repair (EVAR)

Important for meLess important

The presence of abdominal pain (1) indicates a symptomatic AAA which has a high risk of rupture, and these need surgical intervention rather than watching/medical treatment

(2) Abdominal aortic diameter needs to be >5.5cm to be classified as high rupture risk (it is close!)

(3) Trace free fluid can generally be considered a normal finding

(4) Cardiovascular risk factors should be tackled through conservative measures (e.g. stop smoking)

(5) The velocity of growth is 0.3cm over 6 months which equates to 0.6cm over 1 year, a high-risk AAA due to velocity of growth would only be indicated if increase >1cm/year

Of course, the decision to proceed with elective surgery (e.g. endovascular repair/EVAR) is between the patient and surgeon and is multi-faceted.

Question:

A 3-year-old boy presents to the GP with a widespread, blanching, erythematous rash over his torso, arms and legs. He has had a fever and has been generally irritable and lethargic for around a week. He has also been complaining of abdominal pain for the last few days. On examination, the skin on his palms and soles is desquamated, and his tongue is red with a white coating.

What is the most likely diagnosis?

A.Meningitis

B.Scarlet fever

C.Henoch-Schonlein purpura

D.Kawasaki disease

E.Glandular fever

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

Kawasaki disease has a wide range of features, but it is often the combination of symptoms together which leads you to the diagnosis. In particular, any fever lasting >5 days should lead you to suspect Kawasaki disease, especially with desquamation and strawberry tongue.

Scarlet fever also causes skin desquamation and strawberry tongue, but not such a prolonged fever. The rash of meningitis would be non-blanching and the child would be more unwell. Henoch-Schonlein purpura causes a non-blanching rash and abdominal pain, but would also classically present with haematuria and joint pain. Glandular fever causes sore throat and lymphadenopathy but not desquamation or prolonged fever.

Question:

A 31-year-old woman presents with a positive urine pregnancy test. Blood tests are organised and lifestyle advice is given. She has no significant medical history. On examination, the following observations are noted:

Heart rate 94 beats per minute

Blood pressure 124/77 mmHg

Oxygen saturation 99% on room air

Temperature 36.5ºC

Respiratory rate 15 breaths per minute

BMI 31 kg/m²

What supplementation should be recommended for this woman?

A.Ferrous sulfate daily

B.Folic acid 0.4mg daily

C.Folic acid 5mg daily

D.Vitamin B12 daily

E.Vitamin D daily

Answer:Folic acid 5mg daily

Explanation:

Pregnant obese women (BMI >30 kg/m2), should be given high dose 5mg folic acid

Important for meLess important

This is a pregnant woman who is obese. She requires high-dose folic acid supplementation during pregnancy regardless of her medical history. This is important in preventing neural tube defects.

Iron supplementation may be required in a pregnant woman who has iron-deficiency anaemia. If suspected, the patient's iron levels can be checked but at this stage, there is no requirement for this.

Low-dose folic acid supplementation would be considered in this case if this patient was not obese and would also be effective in preventing neural tube defects.

Vitamin B12 supplementation is required in pregnant women with B12 deficiency. If suspected, the patient's B12 levels can be checked but at this stage, there is no requirement for this.

Vitamin D supplementation can also be required in pregnant women who have a deficiency. There is no indication in this case that the patient suffers from a deficiency and it is not worth checking unless she has risk factors like dark skin and modest clothing.

Question:

A 25-year-old male attended the emergency department after dislocating his shoulder while playing rugby. His shoulder was reduced in the emergency department and then put into a sling. Following this, the emergency department doctor tested for sensation in the ' regimental badge area', which was normal. Which nerve is commonly injured during a dislocation of the shoulder joint, and the one in which the emergency department doctor was testing?

A.Radial nerve

B.Musculocutaneous nerve

C.Ulnar nerve

D.Axillary nerve

E.Median nerve

Answer:Axillary nerve

Explanation:

Anterior dislocation of shoulder

most common type of dislocation

may follow a fall on arm or shoulder

always check pulses and nerves (particularly AXILLARY - as commonly injured)

Always do a radiograph

Treatment: reduction (many methods), analgesia and sling

Posterior dislocation of shoulder

rare, caused by seizure or electrocution

'lightbulb sign' on x-ray

refer to orthopaedic surgeons

Reference: Oxford Handbook of Clinical Specialties; 9th Edition; Page 740

Question:

A 57-year-old man presents to his GP complaining of a hoarse voice for 5 weeks. He has no other symptoms of note and can not recall any trauma to his throat, or any reason for the hoarse voice. His past medical history includes COPD and hypertension. He has a 40-pack-year smoking history and drinks socially.

What is the next most appropriate step in management by the GP?

A.Order a CT chest

B.Order an MRI neck

C.Send a full set of bloods

D.Urgent referral to ENT

E.Urgent referral to respiratory clinic

Answer:Urgent referral to ENT

Explanation:

Persistent unexplained hoarseness in a patient aged >45 years old: consider urgent referral to ENT

Important for meLess important

This patient is over 45 and is presenting with persistent unexplained hoarseness. This is a red flag for laryngeal cancer and warrants an urgent referral to ENT .

A CT chest would likely be ordered by ENT to exclude a lung tumour invading into laryngeal nerves. However, this would not be ordered by the GP.

An MRI neck is inappropriate in this scenario. Whilst it would be needed for staging if a laryngeal malignancy is found, it would be ordered by ENT, not the GP.

A full set of bloods would be useful to exclude other causes such as infection. However, given the lack of symptoms in this scenario it is not the most concerning diagnosis and so is not the most appropriate next step.

Urgent referral to a respiratory clinic is not the first step. Given the hoarse voice, the concern is a malignancy involving laryngeal nerves. This requires an urgent ENT referral. If investigations should demonstrate a primary lung malignancy, or if the initial symptoms were suggestive of pulmonary involvement, then an urgent respiratory referral would be needed.

Question:

A 58-year-old man with refractory ascites was recently treated with an intrahepatic shunt. Whilst in hospital, he starts to become very rapidly confused. The confusion worsens and he starts to lose consciousness. Several moments later he has a seizure and then is unable to be awakened. Which grade of hepatic encephalopathy is this man currently in?

A.Grade III

B.Grade II

C.Grade I

D.Grade V

E.Grade IV

Answer:Grade IV

Explanation:

Coma is only a feature of grade IV hepatic encephalopathy

Important for meLess important

This man is suffering from hepatic encephalopathy and given the fact that he is unable to be awakened, this suggests he has gone into a coma. As coma is only seen in grade IV, this is the correct answer to the question.

There is no grade V, just Grade I-IV

Question:

A 62-year-old lawyer has a transurethral resection of the prostate (TURP) which took 1 hour to perform. The ST2 contacts you as the patient has become agitated. He has a heart rate of 105 bpm and his blood pressure is 170/100 mmHg. He is fluid overloaded. His blood results reveal a sodium of 120mmol/l.

What is the most likely cause?

A.Over administration of 0.9% Normal Saline

B.Syndrome of inappropriate antidiuretic hormone secretion

C.Congestive cardiac failure

D.Transurethral resection of the prostate (TURP) syndrome

E.Acute kidney injury

Answer:Transurethral resection of the prostate (TURP) syndrome

Explanation:

Complications of Transurethral Resection: TURP

T ur syndrome

U rethral stricture/UTI

R etrograde ejaculation

P erforation of the prostate

Important for meLess important

Transurethral resection of the prostate (TURP) syndrome occurs when irrigation fluid enters the systemic circulation. The triad of features are:

1. Hyponatraemia: dilutional

2. Fluid overload

3. Glycine toxicity

Management involves fluid restriction and the treatment of the complications associated with the hyponatraemia.

Question:

A 65-year-old man comes to see you as he has noticed that he has become increasingly short of breath and has to sleep with 3 or 4 pillows to help him breathe at night. He also reports feeling more breathless after climbing 1 flight of stairs. His past medical history includes high cholesterol and myocardial infarction.

On examination, you auscultate bibasal crepitations and note that his ankles appear swollen.

Which one of the following is the most appropriate next investigation?

A.CT chest

B.24 hour ECG tape

C.Echocardiogram

D.B-type Natriuretic Peptide (BNP)

E.Cardiac exercise testing

Answer:B-type Natriuretic Peptide (BNP)

Explanation:

All patients with suspected chronic heart failure should have an NT‑proBNP test first-line

Important for meLess important

The 2018 update to NICE guidelines now advocates testing natriuretic peptide levels first-line, regardless of whether the patient has had a previous myocardial infarction or not.

All patient with suspected heart failure should have a 12-lead ECG in all people.

A CT chest would not usually be done in a patient with suspected heart failure, however, a chest x-ray could be done to exclude other conditions.

Cardiac exercise testing is usually done to investigate a diagnosis of suspected angina further.

Question:

A 65-year-old man is admitted to the hospital after being found at home in a confused state. He is unable to explain his condition but states that he was admitted for 10 days last month despite records showing his last admission to be 7 months ago. He is unable to recall what secondary school he attended and, after 1 week on the ward, he does not recognise his main doctor's face. He has a background of hypertension, ischemic stroke and alcoholic liver disease.

Examination shows normal tone, upgoing plantar reflexes on the right and a broad-based gait. There are bilateral cranial nerve 6 (CN 6) palsies associated with nystagmus.

What is the likely diagnosis in this patient?

A.Brain tumor

B.Korsakoff's syndrome

C.Lewy body dementia

D.Transient global amnesia

E.Vascular dementia

Answer:Korsakoff's syndrome

Explanation:

Korsakoff’s syndrome is a complication of Wernicke’s encephalopathy. It's features include: anterograde amnesia, retrograde amnesia, and confabulation

Important for meLess important

This patient has the triad of confusion, ataxia and ophthalmoplegia, as well as anterograde and retrograde amnesia with confabulation. This is suggestive of Wernicke's encephalopathy that has progressed to Korsakoff's syndrome. Wernicke's encephalopathy is a neurological condition due to longstanding thiamine (vitamin B1) deficiency, commonly due to chronic alcohol abuse or malnutrition. It manifests as the triad of confusion, ataxia (broad-based gait) and oculomotor dysfunction (seen in this patient as CN 6 palsies and nystagmus). A known complication of untreated Wernicke's encephalopathy is Korsakoff's syndrome, which manifests as anterograde and retrograde amnesia as well as confabulation (a patient unconsciously makes up stories to fill a gap in their memory) such as this patient thinking he was admitted to the ward the previous week.

Given that this patient has the triad of Wernicke's encephalopathy and symptoms of Korsakoff's syndrome on a background of alcohol abuse, it makes Korsakoff's syndrome more likely. Brain tumours most commonly present with early signs of increased intracranial pressure (headache, vomiting) and focal neurological deficits.

This patient's symptoms are not suggestive of Lewy body dementia. Lewy body dementia can be diagnosed by a patient with decreased cognition having 2 or more of the following symptoms: parkinsonism, visual hallucination, waxing-and-waning levels of consciousness and rapid-eye-movement (REM) sleep behaviour disorder.

Transient global amnesia involves retrograde and anterograde amnesia occurring to an individual following a stressful event and lasting commonly between 2-8 hours, but less than 24 hours. This patient's symptoms and history suggest Korsakoff's syndrome.

Vascular dementia presents with a step-wise decline in cognition, with early deficits in executive function. It does not cause bilateral CN 6 palsies, nystagmus and ataxia.

Question:

A 65-year-old man presents to neurology outpatients after being referred by his GP for muscle weakness.

Over the last few months, he has experienced weakness and clumsiness, such as dropping items and tripping while walking. He has also noticed he is coughing when eating. His symptoms have been gradually worsening and do not vary significantly throughout the day.

He is finding it difficult to continue with his daily activities and is requiring assistance from his wife, who commented that his arms and legs look thinner than usual.

What features on examination would support the most likely diagnosis?

A.Dysdiadochokinesia and ataxia

B.Extraocular muscle weakness on repeated eye movement

C.Fasciculations and hypertonia

D.Reduced proprioception

E.Sensory loss and paraesthesia

Answer:Fasciculations and hypertonia

Explanation:

Amyotrophic lateral sclerosis is associated with mixed UMN and LMN signs (usually no sensory deficits)

Important for meLess important

The most likely diagnosis, given the presence of gradually worsening muscle weakness, and a history suggestive of swallowing difficulties and muscle wasting, is amyotrophic lateral sclerosis. Therefore the correct answer is fasciculations and hypertonia. Hypertonia is an UMN sign and fasciculations are a LMN sign. These are correct because amyotrophic lateral sclerosis classically presents with UMN and LMN signs with typically no sensory deficit.

Dysdiadochokinesia and ataxia is the wrong answer. These are cerebellar signs, which are not present in motor neurone disease. There is no suggestion in the history of other cerebellar signs and symptoms, such as tremors, visual changes or vertigo. This possible cause may be something to consider when examining the patient, but the most likely diagnosis, given the history, is motor neurone disease, with a cerebellar cause being less likely.

Extraocular muscle weakness on repeated eye movement is the wrong answer and would be more likely in myasthenia gravis. This patient is not likely to have myasthenia gravis as there is no history of variability in his symptoms throughout the day, therefore there is no evidence of fatigability. Extraocular muscles are not usually affected in motor neurone disease.

Reduced proprioception is the wrong answer as it is a sign indicative of sensory involvement. Motor neurone disease solely affects upper and lower motor neurones, without any sensory involvement.

Sensory loss and paraesthesia is the wrong answer as it is a sign indicative of sensory involvement. Motor neurone disease solely affects upper and lower motor neurones, without any sensory involvement.

Question:

A 24 year-old woman, who is 35 weeks pregnant is found to have a blood pressure of 165/108 mmHg at a routine GP appointment. She is otherwise well. Her only regular medication is 200mg labetalol. Urinalysis reveals 2+ proteinuria. Cardiotocography is normal.

Blood tests are as follows:

Hb 140 g/l

Platelets 270 \* 109/l

WBC 5.6 \* 109/l

Na+ 140 mmol/l

K+ 3.9 mmol/l

Urea 2.4 mmol/l

Creatinine 21 µmol/l

What is the most appropriate step in her management?

A.Refer patient for a routine check-up in one week's time at GP

B.Increase labetalol and organise a follow up with the community midwife

C.Admit the patient to hospital as an emergency

D.Switch the labetalol to methyldopa

E.Increase the labetalol dose and review in one week's time at GP

Answer:Admit the patient to hospital as an emergency

Explanation:

Even though the patient is asymptomatic, she has a raised blood pressure above 160/100 mmHg combined with the significant proteinuria. Furthermore, this is despite receiving labetalol treatment. She will need emergency admission for monitoring and management of the hypertension in a controlled environment, with delivery being an option if there is no improvement.

Question:

A 55-year-old lady is found in cardiac arrest with the following blood result:

Sodium 130mmol/l (135-145)

Potassium 7.3mmol/l (3.5-5.0)

Urea 9.1mmol/l (2.5-7.0)

Creatinine 167mmol/l (60-110)

She is initially given IV calcium gluconate.

What does this medication do to the electrolyte levels?

A.Reduces potassium

B.No change

C.Lowers potassium and sodium

D.Lowers potassium and raises sodium

E.Lowers potassium, sodium and calcium

Answer:No change

Explanation:

Hyperkalaemia + ECG changes: IV calcium gluconate is given for stabilisation of the cardiac membrane

Important for meLess important

Initially the calcium gluconate is given to stabilise the membrane so the level of potassium doesn't increase.

It is the combination of insulin and dextrose or the use of nebulised salbutamol that causes the removal of potassium from the extracellular space to the intracellular space.

Potassium is then excreted from the body via calcium resonium.

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?

A.No treatment

B.1L intravenous 0.9% sodium chloride

C.1L oral water

D.250mL intravenous Hartmann’s solution

E.500mL intravenous 5% glucose

Answer:1L intravenous 0.9% sodium chloride

Explanation:

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:

An 18-year-old girl is brought into the emergency department with pyrexia, headache, vomiting, a widespread erythematous rash with desquamation of the rash, particularly on the palms and soles of her feet and confusion. Her temperature is 39.2ºC, oxygen saturation 93% on air, heart rate 123 beats per minute, respiratory rate of 24 breaths per minute and blood pressure 82/50 mmHg.

What confers the highest risk for her presentation?

A.Excessive vaginal cleaning

B.Multiple sexual partners

C.Progestogen-only implant

D.Tampon use

E.Use of male condoms during intercourse

Answer:Tampon use

Explanation:

Tampon use is a risk factor for staphylococcal toxic shock syndrome

Important for meLess important

Tampon use is correct. This patient has typical symptoms of staphylococcal toxic shock syndrome (e.g. fever > 38.9ºC and systolic blood pressure < 90 mmHg) with multiple system involvement (gastrointestinal, CNS, skin). This condition describes a severe systemic reaction to staphylococcal exotoxins which typically affects young women and is associated with tampon use, particularly 'super-absorbent' tampons. People using tampons should be advised to never have more than 1 tampon in at a time, always use tampons with the lowest absorbency suitable for their period, change tampons regularly and alternate use of tampons and sanitary towels to reduce the risk of staphylococcal toxic shock syndrome.

Excessive vaginal cleaning is incorrect. This is a risk factor for bacterial vaginosis due to imbalances in vaginal pH, not staphylococcal toxic shock syndrome.

Multiple sexual partners is incorrect. Studies thus far have shown that rates of staphylococcal toxic shock syndrome are not influenced by the number of sexual partners a patient has.

Progestogen-only implant is incorrect. The use of female barrier contraception is a risk factor for staphylococcal toxic shock syndrome (via the same mechanism as an infected tampon) and very rare cases of staphylococcal toxic shock syndrome have been reported with intra-uterine contraceptive devices; however, the progestogen-only implant is not a risk factor for this condition.

Use of male condoms during intercourse is incorrect. This is not a risk factor for staphylococcal toxic shock syndrome; however, the use of female barrier contraception is a risk factor. Women using female barrier contraception should carefully follow the manufacturer's guidance regarding how long they can leave it in place. Furthermore, patients with a previous episode of staphylococcal toxic shock syndrome are advised to avoid tampons and female barrier contraception use.

Question:

A 21-year-old female presents to surgery as she is 10 weeks pregnant and upset that her midwife has advised she discontinue her sertraline. She says she continued it throughout her previous two pregnancies and now has two healthy children. She demands to know what the risks of are.

What is there an increased risk of in the first trimester with sertraline?

A.Congenital heart defects

B.Ebstein's anomaly

C.Spina bifida

D.Cleft lip and palate

E.Diaphragmatic hernia

Answer:Congenital heart defects

Explanation:

SSRI use in first trimester - small increased chance of congenital heart defects

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 32-year-old man presents to the emergency department with a 6-week history of weight loss, haemoptysis, night sweats and cough. He mentions that his cough was initially dry but is now productive. He denies any recent travel history and lives at home with his wife and two children none of whom have displayed any symptoms.

You perform a Mantoux test and 3 days later it shows a palpable raised hardened area measuring 18mm in diameter.

A chest X-ray shows bilateral hilar lymphadenopathy.

What is the most likely diagnosis?

A.Histoplasmosis

B.Lung cancer

C.Pneumonia

D.Sarcoidosis

E.Tuberculosis

Answer:Tuberculosis

Explanation:

Tuberculosis is one of the most common causes of bilateral hilar lymphadenopathy

Important for meLess important

This is a typical exam scenario for Tuberculosis (TB). Usually, chest X-rays reveal upper zone opacities but atypical presentations of TB are seen where the only finding on chest X-ray is bilateral hilar lymphadenopathy. Other atypical presentations on chest X-ray are middle/lower lobe opacities and unilateral pleural effusion.

Histoplasmosis - extremely unlikely given the lack of travel history. It is a fungal infection that can present with arthralgia, erythema nodosum and have chest X-ray findings similar to TB.

Lung cancer - very unlikely given the age of the patient despite presenting with red flag signs of lung cancer. Chest X-ray would usually show a suspicious lesion as well.

Pneumonia - usually presents more acutely and unlikely to suffer from haemoptysis. Respiratory examination would reveal decreased breath sounds, bronchial breathing and reduced chest expansion. Chest X-ray would reveal consolidation.

Sarcoidosis - a common cause for bilateral hilar lymphadenopathy. Presenting features can mimic TB and is common in this age group as well. However, there is commonly multi-system involvement at presentation including polyarthralgia, erythema nodosum, lupus pernio. There is usually no haemoptysis and the cough tends to be non-productive.

Question:

A 35-year-old woman presents to the hospital with severe epigastric pain and profuse vomiting. She has a history of sarcoidosis currently being treated with prednisolone. She drinks 45 units of alcohol per week. Bloods showed a serum amylase of 3150 U/L. The patient is treated with IV fluids and anti-emetics and is admitted under general surgery.

You are asked to review the patient overnight due to concerns she is deteriorating. You send urgent blood tests including an arterial blood gas (ABG).

Which blood result is most concerning and would make you consider an intensive care review?

A.Blood glucose of 3.7 mmol/L

B.Hypertriglyceridemia

C.Hypocalcaemia

D.Neutropenia

E.Serum lipase >3x upper limit of normal

Answer:Hypocalcaemia

Explanation:

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity

Important for meLess important

This patient has acute pancreatitis - she has multiple risk factors for pancreatitis: steroid use, alcohol excess and possible hypercalcaemia secondary to sarcoidosis.

The Glasgow-Imrie criteria are indicators of severity. Having three or more of the criteria is an indicator of severe acute pancreatitis, and would warrant intensive care review. Of the above, only hypocalcaemia (with serum calcium <2 mmol/L) is one of the criteria. Of note, hypercalcaemia is a cause of pancreatitis but does not indicate severity.

Blood glucose of 3.7 mmol/L: hyperglycaemia is an indicator of severity.

Hypertriglyceridemia is a cause of pancreatitis but is not an indicator of severity.

Neutropenia: leucocytosis (WBC >15 x 109/L) is an indicator of severity.

Serum lipase >3x upper limit of normal: although serum lipase is diagnostic for pancreatitis, the level of lipase does not correlate with severity. This is also the case with serum amylase.

The Glasgow-Imrie criteria are listed below. Each criterion met scores 1 point. 3 or more points indicate a high risk for severe pancreatitis.

PaO2 <7.9 kPa

Age >55 years

White blood cells >15 x 109/L

Serum calcium <2 mmol/L

Serum urea >16 mmol/L

Serum LDH >600 IU/L

Serum albumin <32 g/L

Serum glucose >10 mmol/L

Question:

A 30-year-old smoker has been treated in hospital for a primary spontaneous pneumothorax. Before discharge, he has a chest x-ray that confirms the resolution of the pneumothorax. On discharge home, the doctor gives him advice regarding recurrence.

Which of the following pieces of advice would be would be correct?

A.Giving up smoking will improve his overall respiratory health but will have little effect on his risk of recurrent pneumothorax

B.He should avoid air travel for one year

C.He should avoid deep sea diving indefinitely

D.His risk of recurrence is higher than it would have been if he had had a secondary spontaneous pneumothorax

E.In general there is a low risk of recurrence following a spontaneous pneumothorax. Risk of recurrence at one year would be less than 5%

Answer:He should avoid deep sea diving indefinitely

Explanation:

Pneumothorax -> life long ban on deep sea diving

Important for meLess important

It is recommended that patients who have had a pneumothorax avoid deep-sea diving indefinitely as it increases the risk of recurrence due to change in atmospheric pressure.

Air travel only needs to avoided until there has been confirmation of the resolution of the pneumothorax. This man has had resolution confirmed on chest x-ray so is not a concern.

This patient had a primary spontaneous pneumothorax (PSP) which carries a lower risk of recurrence than a secondary spontaneous pneumothorax (SSP). Recurrence at one year from a PSP is 15.8% and from an SSP it's 31.2%. However, the risk of recurrence is considered to be high following a PSP, with a 5% recurrence rate at 1 year and up to 54% recurrence rate at 4 years, meaning that the two pieces of advice regarding recurrence are incorrect.

Smoking cessation reduces the absolute risk of a recurrent PSP from 70% in those who continue to smoke, to 40% in those who stop, meaning that this advice is incorrect too.

Question:

For a patient undergoing an elective splenectomy, when is the optimal time to give the pneumococcal vaccine?

A.Two weeks before surgery

B.One week before surgery

C.Immediately following surgery

D.Two weeks after surgery

E.At least one month after surgery

Answer:Two weeks before surgery

Explanation:

The current British National Formulary recommends giving the vaccine at least 2 weeks before elective splenectomy

Question:

A 75-year-old man presents with lower back pain that comes on when he walks. After taking a full history and completing a neurological and vascular examination which is normal a diagnosis of spinal stenosis is suspected. After prescribing analgesia, what is the most appropriate next step?

A.Lumbar spine x-ray

B.Arrange physiotherapy

C.Refer for duplex scan

D.Refer for MRI

E.Perform a myeloma screen

Answer:Refer for MRI

Explanation:

This presentation requires a MRI to confirm the diagnosis of spinal stenosis and exclude other causes such as metastatic disease.

The history of lower back pain which is worse on walking is very characteristic of spinal stenosis.

Question:

A 55-year-old lady comes to see you as she is suffering from hot flushes. She finds these come on randomly and are interfering with her work as a barrister, particularly if she gets them whilst she is in court.

She is reluctant to try hormone replace therapy due to the side effects but was wondering if there is anything else that could help her. Which one of the following medications can she be prescribed?

A.Evening primrose oil

B.Fluoxetine

C.Pregabalin

D.Folic acid

E.Oestrogen cream

Answer:Fluoxetine

Explanation:

NICE guidelines advise that menopausal women suffering from vasomotor symptoms can be given a selective serotonin uptake inhibitor (SSRI) such as fluoxetine. Clonidine is also licensed for the treatment of vasomotor symptoms in menopause, however, there is limited evidence of its efficacy, and it is associated with side effects including dry mouth, sedation, depression and fluid retention. Gabapentin may also be effective for reducing hot flushes, however, further research is currently being done on this.

Question:

A 24-year-old G2P2 woman gives birth at home to a baby boy at 39 weeks gestation. Pregnancy and birth were uneventful, but she did not receive any antenatal care.

After a day, she feels that something is 'not right' so brings him to the emergency department, pale and unsettled. Observations include a temperature of 35.6ºC, tachypnoea (70 breaths/min), tachycardia (180 beats/min), systolic blood pressure of 60 mmHg, oxygen saturation of 99%, normal blood glucose and palpable femoral pulses.

Her first child had been similarly unwell and recovered in intensive care.

What is the most likely cause of this infant’s condition?

A.Listeria monocytogenes sepsis

B.Coarctation of the aorta

C.Galactosaemia

D.Group B Streptococcus (GBS) sepsis

E.Herpes simplex virus (HSV) sepsis

Answer:Group B Streptococcus (GBS) sepsis

Explanation:

Maternal Group B Streptoccocus is a risk factor for neonatal sepsis

Important for meLess important

The correct answer is Group B Streptococcus (GBS) sepsis. This neonate is very unwell – he is tachypnoeic and peripherally shut down with a low core body temperature. The treating doctor should immediately commence the neonatal sepsis protocol, and identification of the pathogen is only done after the infant is stabilised. The absence of fever does not rule out a systemic infection, as especially very young infants are at risk of afebrile or hypothermic sepsis. While meningococcal and HSV infection cannot be ruled out (and therefore should be covered with empiric antibiotics/antivirals), the commonest of these in the first days of life is GBS, whereby an infection in the mother can pass to the child during birth. Prevention of neonatal GBS sepsis is through early identification of asymptomatic infections and prophylactic antibiotics according to local guidelines.

Listeria monocytogenes sepsis is incorrect. This is an important differential to think about for neonatal sepsis presentations, and appropriate antibiotics should be given to cover this infection. Neonatal listeriosis is acquired by cross-placental infection or during delivery and can result in granulomatous disease (if transmitted across the placenta). While this is a possible diagnosis, the history of no antenatal care and the prevalence of GBS make listeriosis a less likely diagnosis compared to GBS sepsis.

Coarctation of the aorta is incorrect, as the infant is presenting with hypothermic sepsis. Coarctation of the aorta would present in the first few weeks of life as poor feeding, tachypnoea, and lethargy with weak femoral pulses and brachial-femoral blood pressure discrepancy – although it is worth noting that neonates may not consistently have these findings while the ductus arteriosus remains patent. A low core temperature, normal oxygen saturations, palpable femoral pulses, and the timing of his presentation make sepsis more likely, and this is the more concerning differential that should be dealt with first. Congenital cardiac abnormalities can have sepsis-like presentations, therefore an urgent echo should be considered in the next stage of the investigation.

Galactosaemia is incorrect. An inborn error of metabolism makes up part of the differential for unwell neonates - galactosaemia occurs when the infant cannot metabolise galactose in milk due to a genetic deficiency; this condition usually presents in the first few days after birth with jaundice, vomiting, hepatomegaly, failure to thrive, and other features. However, the infant in question has a clinical picture that is more suggestive of sepsis. Sepsis can occur as a result of galactosaemia, but this is most commonly E. coli sepsis, it is rare, and does not usually occur within 24 hours of birth.

Herpes simplex virus (HSV) sepsis is incorrect. This is an important differential to think about for neonatal sepsis presentations but is less common than GBS sepsis. However, intravenous aciclovir should still be given to cover this, as the infant is extremely unwell and HSV infection remains a possibility. The finding of vesicular lesions on the mother or infant is not required for diagnosis of HSV sepsis. As a previous child has possibly had a similar illness, the lack of other factors suggestive of HSV, and as GBS sepsis has a higher incidence, HSV sepsis is incorrect.

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?

A.Admit to neonatal unit and give glucose gel in addition to formula feeds

B.Encourage breastfeeding

C.Give glucose gel in addition to breastfeeding

D.Give formula feed and repeat capillary blood glucose in 2 hours

E.Admit to neonatal unit and start 10% dextrose infusion

Answer:Admit to neonatal unit and start 10% dextrose infusion

Explanation:

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 37-year-old man presents to the renal clinic after being referred by his general practitioner. He has a known family history of a genetic condition which affects the kidneys, and he has been deteriorating quickly.

On examination, he looks alert and comfortable. An abdominal examination highlights hepatomegaly and ballottable kidneys. A recent blood test shows that his eGFR is 37 ml/min.

He has a past medical history of refractory hypertension and migraines.

Given the most likely diagnosis, which medication should be prescribed to slow down the progression of his condition?

A.Amlodipine

B.Candesartan

C.Ibuprofen

D.Ramipril

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 correct. This patient is presenting with the classical features of autosomal dominant polycystic kidney disease (ADPKD), an inherited condition which runs in families and affects kidney function. It causes the kidney to enlarge due to cysts, so they become ballottable, as in this case. Additionally, the most common extra-renal manifestation is cysts on the liver, explaining hepatomegaly. It also causes refractory hypertension and can lead to chronic kidney disease, as shown by the reduced eGFR.

Tolvaptan is a selective vasopressin antagonist. By inhibiting the binding of vasopressin to the V2 receptors, tolvaptan reduces cell proliferation, cyst formation and fluid excretion. This reduces kidney growth and protects kidney function. It is the only medication which has been shown to reduce the progression of the disease, rather than merely reducing the symptoms.

Amlodipine is incorrect. This is a calcium-channel blocker used to manage hypertension in patients with ADPKD. It has been shown to reduce blood pressure, but it has not been proven to reduce disease progression.

Candesartan is incorrect. This is an angiotensin receptor blocker used to manage hypertension in patients with ADPKD. The medication has been shown to reduce blood pressure, but it has not been proven to reduce disease progression.

Ibuprofen is incorrect. This drug is a non-steroidal anti-inflammatory drug used as a painkiller. It is contraindicated in those with ADPKD, due to the risk of developing acute kidney injury and worsening kidney function.

Ramipril is incorrect. This drug is an angiotensin-converting enzyme inhibitor used to manage hypertension in patients with ADPKD. It has been shown to reduce blood pressure, but it has not been proven to reduce disease progression.

Question:

A 31-year-old gentleman with known epilepsy, depression and type 1 diabetes presents to his GP with a 1-week history of fatigue. He also says his gums have sometimes bled when he brushes his teeth. The GP requests some blood tests, which show the following:

Haemoglobin 92 g/L

Mean Cell Volume 92 fL

White Cell Count (WCC) 1.9 x 10 9 /L

Platelet count 29 x 10 9 /L

Which drug is most likely to explain the patient's symptoms and blood test results?

A.Phenytoin

B.Sodium valproate

C.Lamotrigine

D.Sertraline

E.Insulin

Answer:Phenytoin

Explanation:

Phenytoin is a cause of aplastic anaemia

Important for meLess important

The blood tests show a normocytic anaemia, leukopenia and thrombocytopenia, which is the definition of aplastic anaemia. This is corroborated by the patient's symptoms, which are highly suggestive of bone marrow failure.

Of all the medications he is likely to be taking due to his past medical history, only phenytoin is known to cause this. Note: sodium valproate can cause anaemia and thrombocytopenia but does not cause leukopenia.

Doctors at any level of training must be aware of the severe side-effects (like aplastic anaemia) for commonly used drugs, such as phenytoin. This is because not only does the aplastic anaemia need to be treated, but the offending drug must be stopped; this information must also be added to the patient’s medical notes so it is never prescribed again.

Other important drug causes of aplastic anaemia are: cytotoxics, chloramphenicol, and sulphonamides.

Question:

Mrs Jones in a 70-year-old lady who has been investigated for a recent change in bowel habit and subsequently diagnosed with bowel cancer. She has been explained various treatment options by the medical and surgical teams. She states she does not wish to have surgery and she wants to die at home.

Which of the following is the most appropriate action to take?

A.Refer to the surgical team, explaining she lacks capacity and should have surgery

B.Send her home with surgical outpatient follow-up

C.Discharge her with community palliative care follow-up

D.Try to convince her to have the surgery

E.Discuss her previously expressed wishes with her extended family

Answer:Discharge her with community palliative care follow-up

Explanation:

We have no reason to assume this lady does not have capacity to make the decision regarding surgery. As such, the next steps should involve addressing her wishes to die at home by referring to the palliative care team.

Surgical outpatient follow-up is not suitable given that she has declined surgery. However, this may be suitable at a later date if she changes her mind.

Convincing her to have the surgery is incorrect as coercion of patients is not acceptable medical practice.

Discussing her previously expressed wishes with her extended family would not help you provide adequate care for her and is a breach of confidentiality if done without her consent.

Question:

A 42-year-old woman is admitted to surgery with acute cholecystitis. She is known to have hypertension, rheumatoid arthritis and polymyalgia rheumatica. Her medical therapy includes:

Paracetamol 1g qds

Codeine phosphate 30mg qds

Bendrofluazide 2.5 mg od

Ramipril 10mg od

Methotrexate 7.5mg once a week

Prednisolone 5mg od

You are called by the staff nurse to assess this lady as she has become delirious and hypotensive 2h after surgery. Her blood results reveal:

Na+ 132 mmol/l

K+ 5.3 mmol/l

Urea 7 mmol/l

Creatinine 108 µmol/l

Hb 12.4 g/dl

Platelets 178 \* 109/l

WBC 15.4 \* 109/l

What management is needed immediately?

A.Ceftriaxone IV

B.Thiamine 100mg IV

C.CT scan abdomen

D.Urgent exploratory laparotomy

E.Hydrocortisone 100mg IV

Answer:Hydrocortisone 100mg IV

Explanation:

This patient has acute adrenal insufficiency and urgently needs steroid replacement. She has been on long term corticosteroid therapy and is undergoing considerable physiological stress - her steroid dose should be doubled/converted to IV hydrocortisone during such a period.

The elevated WBC is consistent with acute cholecystitis/being post-op. It may be that both IV antibiotics and further surgery are required but by far the most important, immediate step is to treat the adrenal insufficiency.

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 patient in their mid-30s arrives via ambulance to the emergency department at 2:30am. The paramedic informs you that the patient was found on a residential street lying in the road. Apart from this, very little collateral history has been obtained.

On initial assessment, the patient has fluctuating consciousness but when awake is anxious and aggressive. He smells strongly of alcohol and urine. There is a deep 10cm laceration in the medial aspect of the lower leg which is bleeding. His blood pressure is 97/67 mmHg and temperature is 34.3ºC. He is resisting all further attempts to assess him and he is refusing all treatment.

The urgent and immediate treatment of this patient is governed by which legal framework?

A.Common law

B.Deprivation of Liberty Safeguards (DoLS)

C.Hippocratic Oath

D.Mental Capacity Act

E.Mental Health Act

Answer:Common law

Explanation:

Common law is the framework that governs the emergency management of patients who refuse treatment

Important for meLess important

This patient has a fluctuating GCS, hypotension, hypothermia and is actively bleeding. This case should therefore be managed as an emergency. There is little time to assess this patient's capacity or obtain a full medical or psychiatric history meaning this patient can be treated under common law despite refusing treatment. If this was a less urgent scenario, a formal capacity assessment could be performed and the patient treated under the Mental Capacity Act.

DoLS is an amendment to the Mental Capacity Act which is used if extra safeguards are needed if the restrictions and restraint used will deprive a person of their liberty. For example, one safeguard states that the patient should have someone appointed with legal powers to represent them. This may be required at some point for this patient, but would not be used in an emergency scenario.

The Hippocratic Oath is not a legal framework.

The Mental Capacity Act allows patients to be treated for physical disorders which affect their brain function if they refuse treatment.

The Mental Health Act allows patients to be treated for established mental health disorders if they refuse treatment.

Question:

A 74-year-old man presents to the emergency department with intense genital pain and skin changes affecting the surrounding area.

On examination there is oedema of the perineum with some necrotic areas. The patient denies any other systemic symptoms. He is known to have diabetes and states that he has recently been started on a new tablet.

Which of the following medications is likely to have caused this?

A.Dapagliflozin

B.Gliclazide

C.Humulin

D.Linagliptin

E.Metformin

Answer:Dapagliflozin

Explanation:

SGLT-2 inhibitors have been linked to necrotising fasciitis of the genitalia or perineum (Fournier's Gangrene)

Important for meLess important

This patient has most likely been started on a SGLT-2 inhibitor such as dapagliflozin, as they are linked to necrotising fasciitis of the genitalia and or perineum, known as Fournier's gangrene. This usually presents as intense genital pain and associated oedema of the overlying skin which can progress to a gangrenous state.

Gliclazide is a sulphonylurea which can lead to hypoglycaemic episodes, weight gain, SIADH and liver dysfunction.

Humulin is a type of insulin, in this scenario the patient stated that they had been started on a new oral medication.

The main notable adverse effect of gliptins (linagliptin) is pancreatitis.

Metformin commonly causes GI side effects and is linked with lactic acidosis.

Question:

A 19-year-old man is brought to the emergency department by the police after being found trying to convince passing-by men in the street that they are his doppelgänger.

He has a past medical history of schizoaffective disorder.

In the emergency department, a mental state exam reveals marked delusional thought process. An official capacity assessment is performed and he is deemed to not have capacity.

After a liaison psychiatry review, they recommend beginning regular antipsychotic treatment to avoid potential risk of harm to himself. However, the patient refuses this.

What legislation will most likely be used to treat this patient against his will?

A.Common Law

B.Mental Capacity Act

C.Mental Capacity Act and Mental Health Act

D.Mental Health Act

E.Mental Treatment Act

Answer:Mental Health Act

Explanation:

The Mental Health Act overrides the Mental Capacity Act and enables people with capacity to be given treatment against their will

Important for meLess important

The correct answer is The Mental Health Act 2007.

This is a patient who is deemed to have no capacity to consent to treatment and a known mental illness. The relevant healthcare professionals appear to believe that treatment is in the best interests of the patient. The Mental Health Act 2007 is the piece of legislation that allows treatment of a mental disorder where an individual has a mental illness, as long as there is treatment available, the individual has impaired decision-making abilities in regards to treatment and there is likely to be harmful to self or others if left untreated.

Common Law is a piece of legislation that allows emergency treatment, for the immediate and urgent protection of one's own, or someone else's welfare. An example of this would be rapid tranquillisation protocols. There is no evidence that this patient is an immediate threat to self or others, and the type of treatment being offered is more regular routine treatment rather than emergency treatment.

The Mental Capacity Act can be used to treat patients who lack capacity to make decisions about their own treatment. However, this is only for the treatment of physical disorders. In terms of treating mental illness, the Mental Health Act overrides this act.

It is not true that both the Mental Capacity Act and the Mental Health Act can be used. As described above, the Mental Capacity Act is not relevant here as it is due to the treatment of physical disorders. Furthermore, the Mental Health Act can overrule the Mental Capacity Act. Therefore, this cannot be the correct answer.

The Mental Treatment Act is a historic version of the Mental Health Act, which is no longer in use, and therefore this cannot be the correct answer.

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 67-year-old female taken to the emergency department by her daughter. She appears very confused, which is out of character for her. Her daughter stated that earlier on in the day her mother was complaining of a headache and mild nausea. While in the emergency department her Glasgow Coma Scale drops and she starts to have a seizure. Her blood results show hyponatraemia. Which of the following is a cause of hyponatraemia?

A.Cushing's disease

B.SIADH

C.Diabetes insipidus

D.ACE-inhibitor side-effect

E.Primary aldosteronism

Answer:SIADH

Explanation:

1) Cushing's disease is not a known cause of hyponatraemia. However, Addison's disease is a known cause

2) CORRECT

3) Diabetes insipidus causes hypernatraemia

4) ACE- inhibitors are not a recorded cause of hyponatraemia. However, diuretics are a known cause

5) Primary aldosteronism causes hypernatraemia

Reference - Oxford Handbook of Clinical Medicine; 9th Edition; Page 686-687

Question:

A 55-year-old woman presents to her general practitioner complaining of fatigue. She has a past medical history of depression. She takes sertraline. She does not smoke cigarettes or drink alcohol.

Blood tests:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 399 \* 109/L (150 - 400)

WBC 4.6 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

Bilirubin 12 µmol/L (3 - 17)

ALP 189 u/L (30 - 100)

ALT 22 u/L (3 - 40)

γGT 143 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

Her general practitioner arranges some additional investigations.

ANA negative

Anti mitochondrial antibody positive

Anti smooth muscle antibody negative

HIV negative

Hepatitis C antibody negative

Hepatitis B surface antigen negative

Vitamin D 78 ng/ml (>50)

Calcium 2.26 mmol/L (2.2-2.6)

Parathyroid hormone 2.2 pmol/L (1.6-6.9)

Immunoglobulin A 1.1 g/L (0.6-5.0)

Immunoglobulin G 6.8 g/L (6.6-15.9)

Immunoglobulin M 3.2 g/L (0.53-2.47)

An ultrasound abdomen demonstrates normal liver architecture.

Given the likely diagnosis, what is the appropriate management?

A.Cholestyramine

B.Liver transplant

C.Prednisolone

D.Ursodeoxycholic acid

E.Watchful waiting

Answer:Ursodeoxycholic acid

Explanation:

Ursodeoxycholic acid is the first-line medication for primary biliary cholangitis

Important for meLess important

Ursodeoxycholic acid is the correct answer. This patient has primary biliary cholangitis (PBC) as evidenced by fatigue, cholestatic liver biochemistry, positive mitochondrial antibodies and raised IgM. All patients with PBC should be started on ursodeoxycholic acid. This has been shown to improve liver biochemistry and histological progression. It has not been proven to aid all-cause mortality, risk of liver transplantation, pruritus, or fatigue.

Cholestyramine is incorrect. This medication is used to treat itch in primary biliary cirrhosis, which this patient does not have. It is a bile acid sequestrant.

Liver transplant is incorrect. This would only be considered after failure of medical therapy and in the setting of liver failure or severe, refractory pruritus.

Prednisolone is incorrect. There is no evidence to suggest this treatment works in PBC. It has a role in the treatment of other autoimmune liver diseases such as autoimmune hepatitis.

Watchful waiting is incorrect. All patients should be started on ursodeoxycholic acid and have their liver biochemistry response assessed at one year to determine whether they are responding to treatment.

Question:

A 41-year-old man presents to the GP surgery complaining of painless jaundice.

Initial examination confirms scleral jaundice, and you note healed laparoscopy scars on the patient's abdomen. He states he underwent a Roux-en-Y gastric bypass 4 months ago as his body mass index was 41 kg/m². He has lost 32 kg since. There are no other signs of hepatic failure.

Blood tests you order show the following:

Total Bilirubin 170 µmol/L (3 - 17)

Conjugated bilirubin 152 µmol/L (3 - 17)

Unconjugated bilirubin 18 µmol/L (3 - 17)

ALP 189 u/L (30 - 100)

ALT 143 u/L (3 - 40)

HBsAg Neg -

HBsAb Pos -

HBcAb Neg -

HCV Ab Neg -

ANA Neg -

ASMA Neg -

ALKM Neg -

He denies using any supplements and does not drink alcohol or use recreational drugs.

What is the likely cause of his presenting complaint?

A.Acute hepatitis B

B.Acute on chronic non-alcoholic fatty liver disease

C.Autoimmune hepatitis

D.Gilbert syndrome

E.Alcoholic cirrhosis

Answer:Acute on chronic non-alcoholic fatty liver disease

Explanation:

Sudden weight loss is associated with non-alcoholic fatty liver disease

Important for meLess important

Sudden weight loss is associated with acute exacerbations of non-alcoholic fatty liver disease. This is particularly relevant in the context of obese patients with metabolic syndrome undergoing bariatric surgery and sudden weight fluctuations. Weight loss triggers catabolism of peripheral adipose reserves and importation of toxic lipids to the liver which trigger steatosis, inflammation and hepatocyte cell death. This manifests with deranged serum liver enzymes and raised bilirubin.

Hepatitis B, autoimmune hepatitis and alcoholic hepatitis can all manifest as an acute hepatitis similar to the one described by the patient. However, acute hepatitis B infection presents with icterus in only 30 percent of cases, and is unlikely in the context of negative hepatitis B surface antigen. Similarly, autoimmune hepatitis is unlikely with negative serum autoantibodies. There is no history suggestive of chronic alcohol consumption, a caveat to development of alcoholic cirrhosis.

Like non-alcoholic fatty liver disease, Gilbert syndrome can also present as jaundice following fasting. Indeed, dehydration, intercurrent disease, menstruation, and strenuous exertion can all trigger episodes in predisposed patients. In Gilbert syndrome, however, unconjugated bilirubin is typically elevated, whilst liver enzymes concentrations are normal. This is because Gilbert syndrome is caused by a mutation in the enzyme responsible of bilirubin conjugation with glucoronic acid (UGT1A1). When stressors increasing bilirubin production are present, UGT1A1 is overwhelmed and serum unconjugated bilirubin rises.

Question:

A 71-year-old man presents to his GP with a 3-month history of tiredness, back pain and both increased urination and thirst. The GP requests a urine protein electrophoresis and a serum-free light-chain assay, which confirm the diagnosis.

What finding is most likely on this patient's blood film?

A.Heinz bodies

B.Howell-Jolly bodies

C.Increased number of reticulocytes

D.Rouleaux formation

E.Schistocytes

Answer:Rouleaux formation

Explanation:

Rouleaux formation is seen in myeloma

Important for meLess important

This patient has presented with symptoms of multiple myeloma, including hypercalcaemia (increased urination and thirst), anaemia (tiredness) and back pain. Myeloma is diagnosed by urine protein electrophoresis and serum-free light-chain assay.

Rouleaux formation is the correct answer. They appear as stacks of red blood cells (RBC) on a blood film. This occurs due to an increase in acute-phase proteins, which are positively charged. The negative charge of the RBCs attracts the acute phase proteins, which attract more RBCs. It is important to note that a rouleaux formation is seen in various inflammatory conditions and is not exclusive to lymphoproliferative disorders, such as myeloma. The aforementioned mechanism is also measured clinically by the erythrocyte sedimentation rate blood test.

Heinz bodies is incorrect- these are not seen in myeloma but are associated with G6PD deficiency. They are caused by damage to haemoglobin from oxidative stress, which results in the denaturing of each haemoglobin molecule (which becomes visible on microscopy).

Howell-Jolly bodies is the wrong answer. These are usually present in hyposplenic or asplenic disorders, including megaloblastic anaemia and post-splenectomy patients.

Increased number of reticulocytes is incorrect. Reticulocytes are immature RBCs which are typically raised when RBC turnover is increased. This could be due to haemolysis (acute haemolytic anaemia) or significant blood loss.

Schistocytes is the wrong answer. These are fragmented and irregularly-shaped red blood cells which occur in patients with metallic heart valves or haemolytic anaemia.

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 54-year-old woman attends the clinic with a 6-month history of abdominal pain and excess thirst. Systematic enquiry and examination were otherwise unremarkable. The patient has an unremarkable past medical history. In particular, there is no history of vitamin D deficiency or chronic kidney disease.

Blood results are as follows:

Hb 128 g/L Male: (135-180)

Female: (115 - 160)

Platelets 168 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

Na+ 145 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 8.8 mmol/L (2.0 - 7.0)

Creatinine 130 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Calcium 2.8 mmol/L (2.1-2.6)

Phosphate 0.7 mmol/L (0.8-1.4)

PTH 10.2 pmol/L (1.6 - 6.9)

What is the most likely diagnosis?

A.Myeloma

B.Primary hyperparathyroidism

C.Secondary hyperparathyroidism

D.Solid organ malignancy

E.Tertiary hyperparathyroidism

Answer:Primary hyperparathyroidism

Explanation:

Raised serum calcium, low serum phosphate, raised ALP and raised PTH - primary hyperparathyroidism

Important for meLess important

Primary hyperparathyroidism is the correct answer. Hypercalcaemia with a raised PTH is most likely due to primary hyperparathyroidism. PTH levels are generally elevated in primary hyperparathyroidism, although approximately 10% to 20% of individuals will have 'inappropriately normal' levels.

Secondary hyperparathyroidism is incorrect. This occurs as the physiological response to hypocalcemia. Kidney failure and vitamin D deficiency are the most common causes of secondary hyperparathyroidism. It would present with hypocalcemia and a raised PTH.

Tertiary hyperparathyroidism is incorrect. This occurs when an excess of PTH is secreted by the parathyroid glands, usually after longstanding secondary hyperparathyroidism results in hyperplasia of the parathyroid glands. It will biochemically present the same as primary hyperparathyroidism with raised calcium and elevated PTH. Tertiary hyperparathyroidism is less likely as there is no evidence of a predisposing condition (e.g. CKD and chronic severe vitamin D deficiency) in the vignette.

Solid organ malignancy and myeloma are incorrect. Hypercalcaemia associated with these conditions presents with suppressed PTH due to calcium homeostasis. Metastatic invasion of bone results in calcium release, causing hypercalcemia and secondary reduction of PTH release from the parathyroid glands through negative feedback.

Question:

A 34-year-old woman attends her GP surgery as she is worried about having forgotten to change her combined contraceptive patch. She is 24 hours late in changing the patch and has had sexual intercourse during this time. This is the first time it has happened. What advice will you give her?

A.Apply a new patch and use additional contraception for 7 days

B.Stop using the patch and change to a different contraceptive

C.Offer emergency contraception

D.Apply a new patch immediately, no further precautions needed

E.Offer a pregnancy test

Answer:Apply a new patch immediately, no further precautions needed

Explanation:

Question:

A 43-year-old man attends hospital for a routine surgical procedure under local anaesthetic. Shortly after the administration of lidocaine, he becomes restless and agitated. He develops muscle twitching and becomes drowsy, bradycardic and hypotensive.

What is the most appropriate management?

A.Bicarbonate

B.Flumazenil

C.Fomepizole

D.Glucagon

E.Lipid emulsion

Answer:Lipid emulsion

Explanation:

Local anesthetic toxicity can be treated with IV 20% lipid emulsion

Important for meLess important

The correct answer is lipid emulsion. The patient has experienced local anaesthetic toxicity. This either occurs due to intravenous administration or excess usage. The risk is increased if the patient has liver dysfunction or a low protein state. There is initial overactivity of the central nervous system (CNS) and subsequently depression. It can be successfully treated with intravenous 20% lipid emulsion (the most commonly used brand is Intralipid).

Bicarbonate is used for the treatment of several toxicity states, including tricyclic antidepressants and lithium (although limited evidence). These would both present differently to the scenario here, and a clear picture of lidocaine administration is described.

Flumazenil is an agent used for benzodiazepine overdose. Whilst some overlap with features - primarily that of nervous system depression, no history of benzodiazepine use is given here.

Fomepizole is used in the management of ethylene glycol and methanol poisoning. These would not present with the symptoms seen here, nor the clear usage of lidocaine.

Glucagon is sometimes used in the management of beta-blocker overdose, if resistant to initial treatment with atropine. It is not used for local anaesthetic toxicity.

Question:

A 32-year-old male presents to his GP with swelling of his feet and hands and feeling lethargic. On examination, he has pitting oedema in both his upper and lower limbs and he appears to have peri-orbital oedema. His abdomen is distended and shifting dullness is present and there are coarse crackles audible on auscultation of both lung bases. A urine dip shows the following:

Leucocytes negative

Nitrites negative

Blood negative

Protein +++

pH 6

Glucose negative

What is the most likely underlying pathology?

A.Granulomatosis with polyangiitis

B.Goodpasture's disease

C.Focal segmental glomerulosclerosis

D.Minimal change disease

E.Mesangiocapillary glomerulonephritis

Answer:Focal segmental glomerulosclerosis

Explanation:

The lack of blood in the urine indicates this to be a purely nephrotic syndrome. Given the patient's age, the most likely cause of nephrotic syndrome is focal segmental glomerulosclerosis or membranous glomerulopathy, accounting for approximately a third of cases each.

Minimal change disease would have been the most likely differential of nephrotic syndrome were the patient a child.

Mesangiocapillary glomerulonephritis causes a nephritic syndrome with at least a small amount of blood being present in the urine, which is absent in this patient.

Granulomatosis with polyangiitis is associated with a more nephritic picture.

Goodpasture's is associated with haematuria and concurrent pulmonary disease in which haemoptysis is a feature, neither of which this patient has.

Question:

A 57-year-old Caucasian male attends for his annual type 2 diabetes review. He has been stable on metformin and gliclazide for 2 years with no reported side effects. His BMI is 28kg/m² and his blood pressure is measured at 130/87 mmHg (sitting) and 127/85 mmHg (standing).

His most recent test results are below:

Na+ 140 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Urea 5 mmol/L (2.0 - 7.0)

Creatinine 90 µmol/L (55 - 120)

HBA1c 50 mmol/mol (<48)

Urinary albumin:creatinine ratio (ACR) 3.5 mg/mmol (<2.5)

What is the most appropriate medication to prescribe for this patient?

A.Amlodipine

B.Dapagliflozin

C.Furosemide

D.Indapamide

E.Ramipril

Answer:Ramipril

Explanation:

All diabetic patients with a urinary ACR of 3 mg/mmol or more should be started on an ACE inhibitor or angiotensin-II receptor antagonist

Important for meLess important

This patient has undergone routine screening for diabetic nephropathy, which has shown a raised urinary ACR (suggesting microalbuminuria). This is a sign of early kidney damage and research has shown that using an ACE inhibitor or angiotensin-II receptor antagonist in these patients can be renoprotective, although the exact mechanism is still unclear. This is recommended by NICE regardless of the patient's blood pressure.

Ramipril is the correct answer. ACE inhibitors and angiotensin receptor blockers are used for the management of microalbuminuria in patients with type 2 diabetes. It is also used for step 1 treatment of hypertension in non-diabetic patients aged under 55 who are not Black-African or African-Caribbean.

Amlodipine is incorrect. It is a calcium channel blocker recommended for step 1 (first-line) treatment of hypertension in non-diabetic patients aged over 55 and in non-diabetic Black-African or African-Caribbean patients of any age. However, amlodipine isn't used for treating microalbuminuria in type 2 diabetic patients.

Dapagliflozin is incorrect because it is a SGLT-2 inhibitor that is used for urinary microalbuminuria in a specific group of patients. It wouldn't be appropriate for this patient because the urinary ACR is not yet higher than 30 mg/mmol.

Furosemide is incorrect. It is a loop diuretic which is used for symptomatic relief of fluid overload in patients with heart failure and some patients with treatment-resistant hypertension. It is not used for the treatment of microalbuminuria.

Indapamide is incorrect. It is a thiazide-like diuretic used for step 1 treatment of patients with hypertension secondary to heart failure or step 2 treatment of patients with primary hypertension. Diuretics are not used for the management of microalbuminuria in patients with type 2 diabetes.

Question:

A 47-year-old woman attends the emergency department with a fever. She is a known intravenous drug user. As a part of the investigations, hepatitis B serology is requested. She recalls having had previous immunisation to hepatitis B, with no previous infection.

What blood result supports this?

A.HBsAg negative, anti-HBs negative, IgG anti-HBc negative

B.HBsAg negative, anti-HBs positive, IgG anti-HBc negative

C.HBsAg negative, anti-HBs positive, IgG anti-HBc positive

D.HBsAg positive, anti-HBs negative, HBeAg positive

E.HBsAg positive, anti-HBs negative, IgG anti-HBc positive

Answer:HBsAg negative, anti-HBs positive, IgG anti-HBc negative

Explanation:

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

Important for meLess important

HBsAg negative, anti-HBs positive, IgG anti-HBc negative is the correct answer. HBsAg and anti-HBc are both negative implying no active or chronic infection. Anti-HBs positive implies previous immunisation.

HBsAg negative, anti-HBs negative, IgG anti-HBc negative is incorrect. This implies no immunisation or previous infection.

HBsAg negative, anti-HBs positive, IgG anti-HBc positive is incorrect. This implies previous immunisation and previous infection as IgG anti-HBc is positive. This persists after previous infections, whilst IgM anti-HBc appears during acute or recent hepatitis B.

HBsAg positive, anti-HBs negative, HBeAg positive is incorrect. This implies current infection and no immunisation. HBeAg is a breakdown of anti-HBc which can be a marker of current or previous infection.

HBsAg positive, anti-HBs negative, IgM anti-HBc positive is incorrect. This also implies current infection as IgM is an acute marker of infection. This patient has no immunisation to hepatitis B as anti-HBs is negative.

Question:

A 70-year-old man is brought to hospital by his wife after he fell 2 hours ago. She reports sudden weakness on his left side; he then collapsed and did not lose consciousness, but was unable to get up again.

He is alert and comprehends you but has slurring with a left lower facial droop. There is muscle weakness, spasticity, and hyperreflexia in the left arm and leg with reduced sensation, coordination is intact, and there is a left hemineglect.

He is otherwise well. CT angiography shows a proximal large artery occlusion in the anterior circulation with no haemorrhage.

What is the most appropriate management?

A.Anticoagulation

B.Aspirin

C.Mechanical clot retrieval

D.Thrombolysis

E.Thrombolysis + mechanical clot retrieval

Answer:Thrombolysis + mechanical clot retrieval

Explanation:

Large artery acute ischaemic stroke? Consider mechanical clot retrieval

Important for meLess important

The correct answer is thrombolysis + mechanical clot retrieval. This man has had a large ischaemic stroke of his non-dominant hemisphere, where a thrombus or embolus has become lodged within one of his proximal cerebral arteries and caused brain ischaemia. Patients who do not have any of the exclusion criteria for either thrombolysis or mechanical clot retrieval can receive both of these to reperfuse the brain distal to the clot, provided CT angiography shows a retrievable clot. They are given thrombolysis first, followed by clot retrieval. This allows the clot to be partially dissolved by the thrombolytic agent first, and more time for reperfusion.

Anticoagulation is incorrect. Anticoagulant agents such as warfarin or dabigatran are used for stroke prevention rather than acute stroke treatment, and this man qualifies for reperfusion therapy so should not be given any anticoagulant agents as this increases his risk of haemorrhage.

Aspirin is incorrect. While antiplatelets are an important aspect of stroke prevention, if the patient qualifies for thrombolysis or mechanical clot retrieval, they should not be given any antiplatelets prior to this or for the first 24 hours after intravenous thrombolysis. However, if the man did not qualify for reperfusion therapy, aspirin should be given as soon as possible.

Mechanical clot retrieval is incorrect. As this man has presented within 24 hours of symptom onset and has no known exclusion factors, he is eligible for mechanical clot retrieval. However, since he also qualifies for thrombolysis, the combination of these therapies has been shown to have better outcomes and thus both should be initiated.

Thrombolysis is incorrect. As this man has presented within 4.5 hours of symptom onset and has no known exclusion factors, he is eligible for thrombolysis. However, since he also qualifies for mechanical clot retrieval, the combination of these therapies has been shown to have better outcomes and thus both should be initiated.

Question:

A 29-year-old woman attends the emergency department with increased nausea and vomiting. She is currently at 10 weeks gestation with her second child. On review of her notes, you see that she weighed 60kg before pregnancy. She currently smokes 2 cigarettes a day.

On examination, there is reduced skin turgor and dry mucous membranes. Her uterus is palpable to the umbilicus consistent with a partial hydatidiform mole. Her current weight is 55kg.

Her bloods show:

Na+ 130 mmol/L (135 - 145)

K+ 3.0 mmol/L (3.5 - 5.0)

Bicarbonate 22 mmol/L (22 - 29)

Urea 9 mmol/L (2.0 - 7.0)

Creatinine 150 µmol/L (55 - 120)

What is a risk factor for her condition?

A.Low pre-pregnancy weight

B.Multigravida

C.Partial hydatidiform mole

D.Singleton pregnancy

E.Smoking

Answer:Partial hydatidiform mole

Explanation:

Trophoblastic disease is a risk factor for hyperemesis gravidarum

Important for meLess important

Partial hydatidiform mole is the correct answer. This patient has a diagnosis consistent with hyperemesis gravidarum, which is supported by more than a 5% pre-pregnancy weight loss, electrolyte imbalance seen in her blood, and evidence of dehydration on examination. Hyperemesis gravidarum is a severe form of nausea and vomiting in pregnancy, and an important risk factor for this condition is trophoblastic disease, such as a partial hydatidiform mole. A partial hydatidiform mole is a type of gestational trophoblastic disease that occurs when an abnormal fertilization event leads to the formation of a mass of abnormal placental tissue. This results in the production of increased serum levels of beta-human chorionic gonadotropin (bHCG), a hormone that can stimulate the vomiting centres in the brain. The elevated bHCG levels are responsible for the exacerbated nausea and vomiting seen in hyperemesis gravidarum. It is important to note that pathologies resulting in increased levels of bHCG produced by the placenta, such as partial hydatidiform moles, are associated with an increased risk of vomiting during pregnancy due to the effect bHCG has on the vomiting centres. Other factors that may contribute to the severity of hyperemesis gravidarum include a woman's genetic predisposition, a history of motion sickness, and a history of hyperemesis in previous pregnancies.

Low pre-pregnancy weight is incorrect. Obesity is a risk factor as opposed to low pre-pregnancy weight.

Multigravida is incorrect. Nulliparity is a risk factor for hyperemesis gravidarum as opposed to multigravida.

Singleton pregnancy is incorrect. Multiple pregnancies are a risk factor for hyperemesis gravidarum secondary to the increased level of bHCG produced.

Smoking is incorrect. Smoking actually decreases the risk of hyperemesis gravidarum. However, smoking is associated with many other risks in pregnancy.

Question:

A 60-year-old woman presents to her GP complaining of dysuria and urinary frequency. She has a longstanding history of rheumatoid arthritis and takes methotrexate once weekly. Otherwise, she has no other health problems, takes no other regular medication, and has no known allergies. Her vital signs are normal, and she does not have any flank pain.

A urine dipstick is positive for nitrites and leukocytes, and she is diagnosed with a urinary tract infection. A urine sample is sent for culture, and the doctor gives her a prescription for an antibiotic.

What drug is absolutely contraindicated for this patient?

A.Cefalexin

B.Co-amoxiclav

C.Co-trimoxazole

D.Nitrofurantoin

E.She has no contraindications to antibiotics

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, as this is a combination drug including both sulfamethoxazole and trimethoprim. The concerning interaction is the combination of the antimetabolite methotrexate and trimethoprim because these are both inhibitors of dihydrofolate reductase and if taken together, the risk of bone marrow aplasia is significantly increased. Trimethoprim is contraindicated in patients taking methotrexate, so an alternative antibiotic should be used.

Cefalexin is incorrect. This is a cephalosporin antibiotic that is only recommended by NICE for the treatment of lower urinary tract infections (UTIs) for sensitive infections in pregnant women as a second-line agent. It is not recommended for non-pregnant adult women for lower UTI, but it is not absolutely contraindicated for this patient. If she had a known penicillin or cephalosporin hypersensitivity reaction, it would be contraindicated.

Co-amoxiclav is incorrect, as this is a combination drug including both amoxicillin and clavulanate. This is a recommended agent for the treatment of pyelonephritis in adults if culture results indicate susceptibility. Amoxicillin alone is only recommended by NICE for the treatment of lower UTI for sensitive infections in pregnant women as a second-line agent. This patient does not have any contraindications to co-amoxiclav such as a penicillin allergy, but other agents should be tried first.

Nitrofurantoin is incorrect. This is the recommended first-line agent by NICE guidelines for lower UTI in non-pregnant women who have adequate renal function. Contraindications to nitrofurantoin include glucose-6-phosphate dehydrogenase deficiency and third-trimester pregnancy, neither of which is the case for this patient.

She has no contraindications to antibiotics is incorrect because patients who are taking methotrexate should not take trimethoprim or combination drugs that include trimethoprim (i.e. co-trimoxazole).

Question:

A 65-year-old man with heart failure presents to his GP with some questions about some of his medications. He would like to know which of his drugs will help him to live longer and not just improve his symptoms.

What is the most appropriate response?

A.ACE inhibitors, beta blockers and spironolactone

B.ACE inhibitors, beta blockers, spironolactone and furosemide

C.ACE inhibitors, beta blockers and furosemide

D.ACE inhibitors, spironolactone and furosemide

E.Beta blockers, spironolactone and furosemide

Answer:ACE inhibitors, beta blockers and spironolactone

Explanation:

Diuretics only improve symptoms of heart failure and have no effect on mortality

Important for meLess important

This question is asking about the medications that reduce the mortality in heart failure. Many medications can be used in heart failure however the use of furosemide is for symptomatic control alone. Other medications listed above e.g. ACE inhibitors, beta blockers, and spironolactone all help to reduce long-term mortality and slow disease progression and therefore patients should make sure they continue these medications even when symptoms subside.

Question:

An 18-year-old girl with a known Chiari 1 malformation presents to her General Practitioner with loss of sensation in both of her arms and forearms, and on the back of her neck. On testing, she specifically can't feel pain and temperature but can detect fine touch, proprioception and vibration.

Which of the following abnormalities has this patient most likely have?

A.Syringomyelia

B.Hydrocephalus

C.Brain stem compression

D.Cerebellar compression

E.Peripheral neuropathy

Answer:Syringomyelia

Explanation:

Chiari malformations are often associated with syringomyelia due to disturbed cerebrospinal fluid flow at the foramen magnum

Important for meLess important

Chiari 1 malformation is a condition characterised by herniation of the cerebellar tonsils through the foramen magnum. It causes symptoms by compressing the brainstem, cerebellum and by disturbing the flow of cerebrospinal fluid (CSF). Disturbed CSF flow either causes hydrocephalus (uncommon) or syringomyelia (common; ~50%).

Syringomyelia is a dilatation of a CSF space within the spinal cord. It occurs within the cervical and thoracic segments and causes compression of the spinothalamic tracts decussating in the anterior white commissure. This results in dissociative loss of sensation of pain, temperature and non-discriminative touch. There is classically a 'cape-like' distribution of this sensory loss.

Question:

A 64-year-old female presents to the accident and emergency department complaining of severe upper abdominal pain of sudden onset.

Upon examination, she looks unwell and has a heart rate of 112/min with a blood pressure of 146/86 mmHg. Her abdomen is rigid and particularly tender in the epigastrium. A direct rectal examination shows some soft stools in the rectum.

The patient has osteoarthritis and was previously treated for peptic ulcer disease. She is known to be poorly compliant with her medications.

What is the most appropriate initial management step?

A.Abdominal x-ray

B.Erect chest x-ray

C.Insertion of NG tube for decompression

D.Refer for emergency oesophagogastroduodenoscopy (OGD)

E.Refer to surgeons for emergency laparotomy

Answer:Erect chest x-ray

Explanation:

An erect chest x-ray is a key investigation for a suspected perforated peptic ulcer

Important for meLess important

An acute presentation of abdominal pain with peritonism in a patient with known peptic ulcer disease is highly suggestive of gastrointestinal perforation.

An erect chest x-ray is a key initial investigation for a suspected perforated peptic ulcer as it can demonstrate the presence of free air under the diaphragm- pneumoperitoneum- highly suggestive of perforation. This modality of imaging is advantageous as relatively easy and cheap to perform. A positive result should be followed by further imaging with a CT, which is also highly sensitive and specific for free intra-abdominal air, and can provide more detailed information on the anatomical location of a potential perforation.

An abdominal x-ray is a valid investigation in the context of an acute surgical abdomen, especially when acute bowel obstruction or a volvulus are suspected. Compared to an erect chest x-ray, however, it is less specific for pneumoperitoneum and is likely to show only larger quantities of air in the abdomen.

Passing an NG tube is part of the initial management of acute bowel obstruction, providing decompression to the gastrointestinal tract.

Oesophagogastroduodenoscopy (OGD) would likely be contraindicated in the presence of a large perforation, and such lesion would not be amenable to endoscopic therapy.

Given the suspicion of a perforated peptic ulcer, an emergency referral to general surgeons would be warranted. Peptic ulcer perforations, however, can also be managed via laparoscopy and with a conservative approach, especially in patients unfit for surgery or with small perforations.

Question:

A baby born 15 hours ago in an uncomplicated birth has become jaundiced. The mother delivered the baby at home and has been breastfeeding since but was worried about the colour of the baby. Gestation at delivery was 37 weeks. What is the appropriate management option?

A.Referral for paediatric assessment

B.Stop breastfeeding

C.Switch to bottle feeding

D.Continue breast feeding as normal

E.Encourage more frequent breast feeding

Answer:Referral for paediatric assessment

Explanation:

As the baby is only 15 hours old this means that the jaundice is pathological in nature. Therefore it is nothing to do with breastfeeding and the correct management would be to seek an immediate paediatric assessment.

Question:

A 33-year-old woman attends her GP surgery for urgent advice because she had unprotected sexual intercourse last night. She has recently been started on the combined oral contraceptive pill, however, she missed 2 pills because she was on holiday and had forgotten to bring her pills with her. She is currently supposed to be in the first week of a new pack.

What should her GP do next?

A.Advise her to take an extra pill today, no extra precautions needed

B.Advise her to take an extra pill today, use barrier contraception for the next 2 days

C.Advise her to take an extra pill today, use barrier contraception for the next 7 days and prescribe emergency contraception

D.Advise her to take an extra pill today, use barrier contraception for the next 7 days, no emergency contraception needed

E.Advise her to take her 2 missed pills on top of her pill today, and use barrier contraception for the next 7 days

Answer:Advise her to take an extra pill today, use barrier contraception for the next 7 days and prescribe emergency contraception

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

This patient needs to take the last pill she has missed and use condoms for the next 7 days. Also, due to her missing more than 2 pills in week 1 of the pack, she needs to take emergency contraception on top of that as she has had unprotected sex in the past 7 days.

For patients who have only missed 1 pill in their pack, they should take their missed dose as soon as possible, no extra precautions will be needed.

If there is a need for extra barrier contraception for patients on the combined oral contraceptive pill, they should be on it for at least 7 days. Unlike those on the progesterone-only pill (POP), who only need barrier contraception for 2 days. This is because it takes 2 days for the cervical mucus to thicken, which is the main mechanism of action for the POP.

Patients are generally protected against pregnancy if they miss 1 pill at any time throughout a pack of pills, or if they start a new pack 1 day late. They will need to take the missed dose as soon as possible and continue the rest of the pack as per normal. No extra contraception method would be needed.

It is not advisable to take more than 2 contraceptive pills in a day. Taking an excessive amount of pills not only doesn't achieve extra contraceptive effects, but it may also cause extra side effects like nausea and headache.

Question:

You are reviewing a 24-year-old woman who is 10 weeks pregnant. Unfortunately, she is suffering from excessive vomiting and struggling to keep fluids down. What is the most appropriate way to assess the severity of her symptoms?

A.24-hour recording of vomitus volume

B.Serial beta hCG levels

C.Serial haematocrit levels

D.Serial creatinine levels

E.Pregnancy-Unique Quantification of Emesis (PUQE) scoring system

Answer:Pregnancy-Unique Quantification of Emesis (PUQE) scoring system

Explanation:

The Pregnancy-Unique Quantification of Emesis (PUQE) score can be used to classify the severity of nausea and vomiting in pregnancy

Important for meLess important

Question:

A 21-year-old lady who has just started her second year at medical school presented to the emergency department with a temperature of 38°C, severe headache, and aversion to bright light. Upon physical examination, the junior doctor on call notices that the lady has difficulty bending her neck forward and also notice a non-blanching rash on the lady's arm. The junior doctor is worried about the lady's condition and after finding a raised white cell count on an initial blood test, he decides to start the lady on some treatment without delay. Which of these is the recommended treatment to start the lady on?

A.Intravenous ceftriaxone

B.Intravenous cefuroxime

C.Intravenous piperacillin

D.Intravenous acyclovir

E.Intramuscular benzylpenicillin

Answer:Intravenous ceftriaxone

Explanation:

In young adults with signs and symptoms of meningitis and the presence of a non-blanching rash, current NICE guidelines CG102 recommend the use of intravenous ceftriaxone as an initial therapy before the identification of the causative organism. Intravenous piperacillin and intravenous acyclovir are not used in the treatment of bacterial meningitis as per the current guidelines. Intramuscular benzylpenicillin is used if meningococcal disease is suspected in a pre-hospital setting (for e.g. a GP surgery), as long as the transit to the hospital is not delayed.

Question:

Please review the chest x-ray below:

© Image used on license from Radiopaedia

Which one of the following is most likely to account for this finding?

A.Cystic fibrosis

B.Left ventricular aneurysm

C.Bowel perforation

D.Pulmonary fibrosis

E.Tuberculosis

Answer:Tuberculosis

Explanation:

Bilateral hilar lymphadenopathy can be seen on this film. The main differential diagnosis is sarcoidosis.

Question:

A 23-year-old man attends a routine military physical. He is planning to sign up to the army and requires a medical examination beforehand. On auscultation, the army doctor finds a third heart sound, however, the rest of the examination is normal. He is otherwise well with no symptoms or past medical history. Which of the following may be causing this?

A.Atrial fibrillation

B.Heart failure

C.Normal physiological extra heart sound

D.Hypertrophic obstructive cardiomyopathy (HOCM)

E.Aortic stenosis

Answer:Normal physiological extra heart sound

Explanation:

S3 (third heart sound) is considered normal if < 30 years old

Important for meLess important

This question is asking about the cause of a third heart sound in an otherwise well 23-year-old. In this case, the most likely cause is physiological extra heart sounds, which can be normal up to the age of 30.

Heart failure is another cause for a third heart sound, however, in this young man with no previous history or symptoms, it would be very unlikely.

Atrial fibrillation would not cause an extra heart sound, and HOCM or aortic stenosis would cause a fourth heart sound, not a third.

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?

A.Ultrasound scan (US)

B.Joint aspiration

C.Plain film radiograph (X-ray)

D.Magnetic resonance imaging (MRI)

E.HLA-B27 testing

Answer:Magnetic resonance imaging (MRI)

Explanation:

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 23-year-old man has attended the emergency department 3 hours after reportedly taking approximately 80 of his father's 'heart tablets' after breaking up with his partner. Currently he is feeling lethargic, has palpitations and has noticed a yellow-green tinge to his vision. You arrange observations, ECG and urgent bloods.

The ECG shows sinus tachycardia.

Oxygen saturations on air: 99%

Heart rate: 110

Blood pressure: 125/84 mmHg

Respiratory rate: 14

Na+ 136 mmol/L (135 - 145)

K+ 6.3 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 6 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Besides treating the hyperkalemia, what is the appropriate definitive management?

A.Watch and wait

B.Administer Digibind

C.Admit to ITU for monitoring

D.EDTA

E.Activated charcoal

Answer:Administer Digibind

Explanation:

Digibind is the first line treatment for severe digoxin toxicity

Important for meLess important

There are several features in the stem that indicate that this man has taken a digoxin overdose, notably the yellow-green tinge to vision and lethargy. When such a large overdose is suspected the appropriate management would be to administer Digibind.

There is evidence that 50g activated charcoal is of use if administered within 1 hours of ingestion, however this patient is outside of that window.

Watch and wait is not appropriate given the quantity of overdose.

This man's vital signs are all currently normal, with the exception of being tachycardic. He may require admission to ITU for monitoring in the future, however, given the nature of the overdose, the first point of referral is likely to be to a coronary care unit (CCU).

EDTA is a chelating agent used in the treatment of heavy metal poisoning.

Question:

A 64-year-old man has a routine health assessment. He feels well, has recently quit smoking, and has no complaints. The examination is unremarkable. Investigations reveal microscopic haematuria in the urine and the following results. He has no pain, dysuria and was not exercising prior to collection.

Hb 145 g/L Male: (135-180)

Female: (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 13 \* 109/L (4.0 - 11.0)

What is the most appropriate option going forward in this situation?

A.CT kidneys, ureter and bladder

B.Routine referral to a urologist

C.Reassure and re-check in 2 weeks

D.Urgent (2-week) referral to a urologist

E.Reassure and re-check in 6 weeks

Answer:Urgent (2-week) referral to a urologist

Explanation:

A patient >= 60 years of age with unexplained non-visible haematuria and either dysuria or a raised white cell count on a blood test should be referred using the suspected cancer pathway (within 2 weeks) to exclude bladder cancer

Important for meLess important

This is a patient over 60 with a history of smoking and unexplained microscopic haematuria. In the first instance, he requires exclusion of bladder cancer. This requires referral to the urologist within 2 weeks. Some urologists prefer investigations to be done prior and these may include a urine red cell morphology (dysmorphic red blood cells indicate a renal cause requiring nephrology input), CT intravenous pyelogram and urine cytology.

CT kidneys, ureter and bladder is inappropriate at this stage. This is a non-contrast study that assesses radio-opaque stones in the renal tract. This patient has no symptoms of stones and more urgent issues need to be addressed prior to considering this.

Routine referral to a urologist is not ideal if the patient is suspected to have bladder cancer. In resource-poor settings, while waiting for the urology appointment, the GP should commence relevant investigations for bladder cancer.

Reassuring and re-checking in two weeks could be considered in a lower risk case. For example, if the patient was less than 60 years old with no history of smoking and no other concerning features.

Reassuring and re-checking in 6 weeks could, again, be considered in a lower risk case. For example, a 20-year-old patient with microscopic haematuria after vigorous exercise.

Question:

A 70-year-old man is investigated for blurred vision. Fundoscopy reveals drusen, retinal epithelial and macular neovascularisation. A diagnosis of age related macular degeneration is suspected. What is the most appopriate next investigation?

A.Vitreous fluid sampling

B.MRI orbits

C.Ocular tonometry

D.Fluorescein angiography

E.Kinetic perimetry

Answer:Fluorescein angiography

Explanation:

Question:

A 97-year-old woman is admitted to hospital following a fall. The patient remembers standing up before the fall but not the fall itself. She reported no pain anywhere and can mobilise with her regular walking aids. Her medical history is significant for Parkinson's disease. She currently takes co-careldopa.

Examination of the neurological and musculoskeletal systems is normal, as is the auscultation of the heart and lungs. An ECG is unremarkable.

What single test is most likely to reveal the cause of this patient’s fall?

A.CT head

B.Chest X-ray

C.Echocardiogram

D.Lying and standing blood pressures (mmHg)

E.Troponin T

Answer:Lying and standing blood pressures (mmHg)

Explanation:

Lying/standing blood pressure is a very important investigation in the elderly who present with falls

Important for meLess important

The correct answer is lying and standing blood pressure. In this scenario, a 97-year-old patient presented with a history suggestive of a syncopal fall. This is suggested by the patient falling after standing and not remembering the fall. Furthermore, the patient's co-carledopa can cause postural hypotension and, thus syncope. A simple way of diagnosing postural hypotension is lying and standing blood pressure. It is an easy test to perform that can be done at the bedside.

A chest X-ray is incorrect. While a chest X-ray would be useful to assess for respiratory pathology or trauma to the ribs, it will not reveal the likely underlying cause of the patient’s fall in this scenario.

CT head is incorrect. Again, while a CT head may be performed to rule out fractures to the skull or intracranial bleeding caused by the fall, it will not reveal the underlying diagnosis of postural hypotension.

An echocardiogram is incorrect. It would be reasonable to perform an echocardiogram on this patient to rule out valvular disease or cardiac failure, as these conditions can both cause syncope. However, postural hypotension is a very common cause of falls in the elderly and needs to be ruled out before assessing heart function. It can be quickly performed at the bedside before ordering additional investigations. If auscultation of the heart had demonstrated a murmur, an echocardiogram would be indicated. It would also be an appropriate investigation if no evidence of postural hypotension was found on the assessment of lying and standing blood pressures.

Troponin T is incorrect. This would be indicated if there was suspicion of myocardial infarction causing the fall. Whilst this patient does have a past medical history of angina, syncope alone is an atypical presentation of myocardial infarction and the ECG was unremarkable. If lying and standing blood pressures were normal then a troponin T could be ordered. However, given the likely cause of the fall, it would not be the most helpful initial investigation.

Question:

A 78-year-old man presents to the emergency department reporting severe back pain. He has a known diagnosis of prostate cancer with bony metastases. His blood results are as follows:

Na 139 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 193 µmol/L (55 - 120)

eGFR 51 ml/min (>90)

What analgesia would be the most appropriate for his pain management?

A.Diamorphine

B.IV morphine

C.Naproxen

D.Oramorph

E.Oxycodone

Answer:Oxycodone

Explanation:

Oxycodone is preferred to morphine in palliative patients with mild-moderate renal impairment

Important for meLess important

Oxycodone is the opioid of choice in patients with moderate renal impairment as in this patient. It is metabolized in the liver to noroxycodone and oxymorphine and ten percent of unmetabolized oxycodone is renally excreted. Whilst noroxycodone and oxymorphine are renally excreted, generally, their accumulation does not lead to any adverse effects and oxycodone has been monitored as safe to use at half doses with low creatinine clearances.

Naproxen is not generally an appropriate starting mediation. The assertion that NSAIDs are particularly effective for metastatic bone pain is not supported by studies. Strong opioids have the lowest number needed to treat for relieving the pain and can provide quick relief.

IV morphine , diamorphine and oramorph are incorrect options. Morphine is less appropriate than oxycodone for this patient given his moderate renal impairment. This is because certain opioids including morphine produce toxic metabolites which require renal excretion. Morphine itself produces glucuronide metabolites which hence accumulate in renal failure.

Question:

A 40-year-old woman is seen in the endocrinology clinic with a 4-week history of milky nipple discharge. There is no history of breast pain or fever. She also complains of intermittent abdominal pain and constipation despite drinking plenty of water and eating a high fibre diet. Her past medical history includes gastric reflux for which she takes lansoprazole daily. She takes no other medications and has no allergies.

Investigations:

Hb 122 g/L (115 - 160)

Platelets 223 \* 109/L (150 - 400)

WBC 6.3 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 6.1 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Calcium 2.8 mmol/L (2.1-2.6)

Phosphate 1.2 mmol/L (0.8-1.4)

Magnesium 0.9 mmol/L (0.7-1.0)

B-HCG < 1 mIU/mL (< 1 mIU/mL)

What is the most likely diagnosis?

A.Pituitary adenoma

B.Von-Hippel-Lindau syndrome

C.Multiple endocrine neoplasia type 1

D.Multiple endocrine neoplasia type 2a

E.Multiple endocrine neoplasia type 2b

Answer:Multiple endocrine neoplasia type 1

Explanation:

Peptic ulceration, galactorrhoea, hypercalcaemia - multiple endocrine neoplasia type I

Important for meLess important

This patient has multiple endocrine neoplasia (MEN) type 1. MEN type 1 is associated with hyperparathyroidism, pituitary disease and pancreatic disease such as insulinomas or gastrinomas. This patient has evidence of hypercalcaemia from her laboratory tests and symptoms of constipation and abdominal pain. Her abdominal pain may also be exacerbated by likely underlying peptic ulcer disease for which she is taking lansoprazole. Galactorrhoea is the term given to a milky nipple discharge that arises secondary to excess prolactin.

A pituitary adenoma would explain this patient's galactorrhoea as commonly pituitary disease is secondary to prolactinomas. A raised prolactin level stimulates milk production in the breast tissue. However, a pituitary adenoma alone would not explain her hypercalcaemia and gastric disease.

Von-Hippel-Lindau syndrome is an autosomal dominant disorder characterised by multiple visceral cysts affecting the central nervous system, kidneys, pancreas, adrenal glands, liver and lung. The most common presenting features are haemangioblastomas are seen in the brain, spinal cord and retina causing headaches, neurological disturbance and visual changes. These symptoms do not reflect what are seen in the question stem and suggest an alternative diagnosis.

MEN type 2a is characterised by phaeochromocytoma and hyperparathyroidism. Typically, such patients may be hypertensive and have symptoms of excess sympathetic drive such as tachycardia, sweating and flushes. It does not explain her galactorrhoea or symptoms of peptic ulcer disease.

MEN type 2b is associated with phaeochromocytoma along with a marfanoid body habitus and neuromas. Medullary thyroid carcinoma is also associated with MEN type 2a and 2b.

Question:

A 68-year-old male presented to the emergency department with lethargy and dyspnoea on exertion. He had a background medical history of polycythaemia rubra vera.

His full blood count was reported as follows:

Hb 84 g/L Male: (135-180)

Female: (115 - 160)

Platelets 46 \* 109/L (150 - 400)

WBC 38.8 \* 109/L (4.0 - 11.0)

What is the most likely diagnosis?

A.Acute lymphoblastic leukaemia

B.Acute myeloid leukaemia

C.Chronic lymphocytic leukaemia

D.Chronic myeloid leukaemia

E.Infectious mononucleosis

Answer:Acute myeloid leukaemia

Explanation:

Polycythaemia rubra vera - around 5-15% progress to myelofibrosis or AML

Important for meLess important

Acute myeloid leukaemia is the correct answer. Acute myeloid leukaemia is associated with polycythaemia rubra vera, around 5-15% of those with polycythaemia rubra vera progress to acute myeloid leukaemia.

Acute lymphoblastic leukaemia, chronic lymphocytic leukaemia, and chronic myeloid leukaemia are incorrect answers. They are not as commonly associated with polycythaemia rubra vera as acute myeloid leukaemia.

Infectious mononucleosis is an incorrect answer. Infectious mononucleosis is far less likely than acute myeloid leukaemia to cause anaemia, thrombocytopenia and leukocytosis to the levels in this scenario. The association between acute myeloid leukaemia and polycythaemia rubra vera also makes it the more likely diagnosis.

Question:

An 89-year-old female presents to the emergency department following a collapse. On arrival, an ECG is performed which shows a complete heart block with a heart rate of 35 bpm. The patient also complains of feeling lightheaded. She is given 500 micrograms of IV atropine which shows no change. This is repeated another five times, and her heart rate does not rise above 40 bpm. Transcutaneous pacing is attempted but is ineffective.

Which of these is the next management step according to the Resuscitation Council (UK) guidelines?

A.Further dose of IV atropine

B.Intravenous amiodarone

C.Refer to local interventional cardiology centre

D.Repeated trial of transcutaneous pacing

E.Transvenous pacing

Answer:Transvenous pacing

Explanation:

Transvenous pacing should be considered if a bradycardia doesn't respond to drugs or transcutaneous pacing

Important for meLess important

According to the advanced life support (ALS) bradycardia algorithm, transvenous pacing follows atropine and transcutaneous pacing if bradycardia persists.

The maximum dose of atropine is 3mg which the patient has already received; therefore, this option is incorrect. Atropine increases the heart rate and improves the atrioventricular conduction by blocking parasympathetic stimulation.

Amiodarone is used to treat tachycardia (e.g. atrial fibrillation with rapid ventricular response) and not bradycardia. In addition, amiodarone is a class III antiarrhythmic that acts as a potassium channel blocker, thus increasing the refractory period in the cardiac cycle and slowing the heart rate. This would undoubtedly worsen the patient's condition.

The definitive management for complete heart block or Mobitz type II is a dual‑chamber pacemaker. It is essential to stabilise the patient first before transfer for pacemaker insertion. This patient is currently unstable, and so pacemaker insertion is not currently appropriate.

If transcutaneous pacing has been unsuccessful, the subsequent management step should be utilised, which is transvenous pacing, rather than attempting further transcutaneous pacing.

Question:

A 67-year-old man attends complaining of a 48-hour history of frequency of urination, dysuria and lower abdominal pain, accompanied by occasional high fevers.

Prior to this episode, he has not suffered from any urinary problems. He has no significant past medical history. A urine dipstick is positive for leucocytes and nitrites but negative for blood and protein.

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

A.Prescribe oral antibiotics

B.Take a urethral swab to exclude sexually transmitted infection

C.Refer to medical team for intravenous antibiotics

D.Refer to urology team under the two week wait rule

E.Await a result of urinary microscopy, culture and sensitivity before starting treatment

Answer:Prescribe oral antibiotics

Explanation:

Men with lower UTIs should be treated with either trimethoprim or nitrofurantoin unless prostatitis is suspected

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. This patient has a dipstick test which is positive for nitrites and should be treated for a urinary tract infection.

Intravenous antibiotics are not usually required to treat urinary tract infections unless there is evidence of rigors, chills, vomiting or confusion. This is therefore an incorrect option for this particular patient.

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.

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.

Antibiotic treatment should not be delayed pending the result of urinary 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.

Question:

A 30-year-old woman is brought into the emergency department in intense pain. She has a past medical history of endometriosis, and it is one week since her last period. On ultrasound scan there is free fluid in the pelvis. What is the cause of her acute abdomen?

A.Diverticular disease

B.Ectopic pregnancy

C.Endometriosis

D.Ruptured endometrioma

E.Toxic megacolon

Answer:Ruptured endometrioma

Explanation:

If an endometrioma ruptures, it will cause sudden intense pain

Important for meLess important

The history of endometriosis, acute abdomen, and the pelvis filled with fluid all point towards a rupture endometrioma. Diverticular disease is rare in this age group and would not give the clinic picture above. Endometriosis pain is unlikely as she is not currently having her period. Toxic megacolon does not fit the picture. Ectopic pregnancy is an extremely important differential to bear in mind, however as she had her period one week ago, it is not very likely, but it would of course need to be ruled out.

Question:

A 26-year-old man is referred to the hypertension clinic after routine blood pressure monitoring recorded serial blood pressure readings as 180/100mmHg, 194/107mmHg and 195/106mmHg. He denies chest pain but has occasional frontal headaches and blurred vision. There is no family history of hypertension and he has no past medical history. He denies recreational drug use.

On examination, his chest is clear with normal heart sounds. His abdomen is soft and non-tender with no palpable organomegaly. Fundoscopy reveals mild arteriovenous nicking bilaterally.

Investigations:

Na+ 147 mmol/L (135 - 145)

K+ 2.8 mmol/L (3.5 - 5.0)

Urea 6.9 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

What is the next best investigation to order for this patient?

A.Dexamethasone suppression test

B.Renal artery angiography

C.Renin:aldosterone ratio

D.Urinary metanephrines

E.IGF-1 level

Answer:Renin:aldosterone ratio

Explanation:

A plasma aldosterone/renin ratio is the first-line investigation in suspected primary hyperaldosteronism

Important for meLess important

This patient has severe hypertension. Primary hyperaldosteronism occurs secondary to excess aldosterone release that causes sodium retention, potassium loss, and hypertension. Primary hyperaldosteronism can be secondary to adrenal adenoma or bilateral adrenal hyperplasia and accounts for 5-10% of all cases of hypertension. The primary investigation is the plasma renin: aldosterone ratio. Once primary hyperaldosteronism has been identified, treatment involves treating the cause with adrenal adenomas being surgically excised and bilateral adrenal hyperplasia being treated with aldosterone antagonists such as spironolactone.

A low-dose dexamethasone suppression test is a primary investigation to aid the diagnosis of Cushing’s disease. Additional features of Cushing’s syndrome include those of glucocorticoid excess such as proximal myopathy, abdominal striae, and thin skin.

IGF-1 levels are used to test for acromegaly, an endocrine disease secondary to excess growth hormone levels that stimulates soft tissue and skeletal growth. Hypertension is a feature of acromegaly. However, changes in appearance are also common including prognathism, spade-like hands, and with that, headaches, joint pains, and muscular weakness.

Renal artery angiography is used in the diagnosis of renal artery stenosis. Whilst it is a well-recognised cause of hypertension, it is less common in previously healthy and young males.

Urinary metanephrines are used in the diagnosis of phaeochromocytoma. A phaeochromocytoma is a rare tumour of the sympathetic nervous system, most of which arises in the adrenal medulla. These tumours secrete catecholamines, adrenaline, and noradrenaline and along with hypertension, additional symptoms include anxiety, tremor, sweating and flushing.

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?

A.Prescribe a five days course of trimethoprim

B.Prescribe a seven days course of nitrofurantoin

C.Prescribe a seven days course of trimethoprim

D.Prescribe a three days course of amoxicillin

E.Prescribe a three days course of nitrofurantoin

Answer:Prescribe a three days course of nitrofurantoin

Explanation:

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:

An 83-year-old lady with a background of dementia is found on the floor in her nursing home. She is brought to the Emergency Department and complains of left sided hip pain and is unable to weight bear. Plain films of the hip and pelvis are unremarkable. Despite adequate analgesia she still complains bitterly of hip pain and remains non-weight-bearing. What is the next most appropriate action?

A.MRI Hip

B.CT Hip

C.Continue with conservative management

D.Bone scan

E.Repeat plain films

Answer:MRI Hip

Explanation:

MRI is first line in occult hip fractures

Important for meLess important

This patient is behaving clinically like a hip fracture and so further imaging is warranted.

Repetition of the plain films is unlikely to provide any further information.

Radioisotope bone scans can pick up areas of high bone turnover and osteoblastic activity, but it lacks sensitivity.

A CT scan is a reasonable option and is widely used due to better availability. However, the first line investigation is MRI in accordance with NICE guidelines on hip fractures.

Question:

A 28-year-old Caucasian lady presents to your clinic. She is 18 weeks pregnant and, apart from some morning sickness which has resolved, her pregnancy has progressed without complication. She has noticed that when she uses headphones the sound is quieter in her left ear and she can no longer hear watch ticking in that ear. She has no significant past medical history, but reports that her mother had hearing problems.

On examination you visualise a normal tympanic membrane. Rinne's test is negative (bone conduction > air conduction) and in Weber's test sound is heard loudest in her left ear. What is the most likely diagnosis?

A.Otosclerosis

B.Earwax

C.Chronic otitis media

D.Barotrauma

E.Presbyacusis

Answer:Otosclerosis

Explanation:

Otosclerosis may be precipiated by pregnancy in those who are genetically predisposed

Important for meLess important

Otosclerosis - this is an autosomal dominant condition with variable penetrance, resulting in sclerosis of bone and fixation of the stapes to the oval window, leading to conductive hearing loss. It is more common in females, and may be precipitated by pregnancy in those who are genetically predisposed.

Earwax - this is a cause of conductive hearing loss, but would be seen on otoscopy.

Chronic otitis media - this involves chronic tympanic membrane perforation which would be seen on otoscopy, and the patient would have a history of longstanding or recurrent ear discharge.

Barotrauma - this may occur during pressure change e.g. diving or flight descent, resulting in pain due to rupture of superficial vessels and conductive hearing loss. Fluid (or in severe cases haemorrhage) may be seen behind the ear drum.

Presbyacusis - refers to age-related progressive sensorineural hearing loss, and therefore Rinne and Weber test would give a sensorineural (not conductive) picture.

Question:

The mother of a 3-year-old boy has called the GP surgery as her son was admitted to hospital yesterday with a fever and a non-blanching rash. The paediatricians have made a diagnosis of meningococcal septicaemia. The precise serogroup is currently unknown. She has been advised by the local health protection unit to speak to her GP regarding chemoprophylaxis for herself.

She normally takes the combined oral contraceptive pill. She is allergic to sulphonamides. On reviewing her records, she had her full course of childhood immunisations including the meningococcal C vaccine but has not had the meningococcal B vaccine as it was not available at the time.

What would be the most appropriate treatment option for her?

A.Oral rifampicin

B.Oral ciprofloxacin

C.Oral clarithromycin

D.Meningococcal B vaccine

E.No chemoprophylaxis required

Answer:Oral ciprofloxacin

Explanation:

Oral ciprofloxacin or rifampicin is used as prophylaxis for contacts of patients with meningococcal meningitis

Important for meLess important

According to Public Health England guidelines, ciprofloxacin is the recommended choice for meningococcal chemoprophylaxis in both adults and children. It is taken as a single-dose treatment.

It should be offered to all close contacts of the index case during the 7 days before the onset of illness, irrespective of vaccination status.

Rifampicin is an alternative option, although is less favourable as it can reduce the effectiveness of her combined oral contraceptive, and requires multiple doses.

As the infection serogroup has yet to be identified, there is currently no role for administering a vaccine to this patient. Even if serogroup B infection was confirmed at a later time, meningococcal B (MenB) vaccine is not recommended for close contacts unless this turned out to be a cluster of cases. This would be guided by the local health protection team rather than a decision made by the GP.

Question:

A 24-year-old G2P1 woman presents to the emergency department at 10 weeks gestation with severe nausea and vomiting. This has been ongoing for two weeks and has not responded to cyclizine. On examination, the patient's mucous membranes appear dry and her skin turgor is reduced. A urine dipstick shows ketones ++.

What is the most likely finding on a venous blood gas test?

A.Hyperchloraemic metabolic acidosis

B.Hyperchloraemic metabolic alkalosis

C.Hypochloraemic metabolic acidosis

D.Hypochloraemic metabolic alkalosis

E.Uncompensated type 2 respiratory failure

Answer:Hypochloraemic metabolic alkalosis

Explanation:

Vomiting / aspiration - metabolic alkalosis

Important for meLess important

Hypochloraemic metabolic alkalosis is correct. This patient has severe and prolonged vomiting which may suggest a diagnosis of hyperemesis gravidarum. Prolonged vomiting may cause metabolic alkalosis due to the loss of H+ ions from in the vomitus. Similarly, as Cl- ions are lost in vomitus, prolonged vomiting can cause hypochloraemia.

Hyperchloraemic metabolic acidosis is incorrect. Vomiting causes metabolic alkalosis rather than metabolic acidosis. Furthermore, vomiting is associated with hypochloraemia rather than hyperchloraemia due to the loss of HCl in the vomitus.

Hyperchloraemic metabolic alkalosis is incorrect. Although vomiting may cause metabolic alkalosis, this is typically hypochloraemic rather than hyperchloraemic due to the loss of HCl in the vomitus.

Hypochloraemic metabolic acidosis is incorrect. Vomiting is associated with metabolic alkalosis rather than acidosis due to the loss of H+ in the vomitus.

Uncompensated type 2 respiratory failure is incorrect. Vomiting is not associated with type 2 respiratory failure. Type 2 respiratory failure is classically caused by alveolar hypoventilation, seen in conditions such as COPD.

Question:

A 60-year-old man is referred to the gastroenterology clinic with a 4-month history of swallowing difficulties. He denies pain on swallowing but says that solids occasionally get stuck in the back of his throat. His past medical history includes hypertension and he is a regular smoker of 20-30 cigarettes/day.

He is referred for a barium swallow, as shown below:

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What is the most likely diagnosis?

A.Achalasia

B.Barrett's oesophagus

C.Oesophageal cancer

D.Pharyngeal pouch

E.Plummer-Vinson syndrome

Answer:Oesophageal cancer

Explanation:

This patient's barium swallowing shows a filling defect of a subsection of the oesophagus with obvious anatomical narrowing. This is sometimes referred to as the 'apple core sign' with the narrowed oesophagus appearing similar to the core of an apple. In the context of dysphagia, this barium swallow is highly suggestive of oesophageal carcinoma. Typically dysphagia of food is the first presenting feature, followed by dysphagia for liquids. Smoking can increase the risk of oesophageal carcinoma, smoking 20-30 cigarettes/day further suggests malignancy.

Achalasia is the narrowing of the distal oesophagus that causes similar symptoms of dysphagia. Unlike oesophageal carcinoma, achalasia can present with dysphagia for solids and liquids at the same time. Imaging with a barium swallow shows narrowing of the distal oesophagus with subsequent dilatation of the proximal oesophagus (bird beak sign). The narrowing of this patient's oesophagus is not the distal portion as there is a clear return of normal diameter below the narrowed portion. Therefore, a diagnosis of oesophageal carcinoma over achalasia is more likely.

Barrett's oesophagus is the metaplastic transformation of squamous epithelial tissue to glandular tissue in the distal portion of the oesophagus. Symptoms typically include dyspepsia rather than dysphagia. Whilst it is a precursor to oesophageal malignancy, Barrett's oesophagus is not a malignancy and would not cause the narrowing of the oesophagus seen here on the patient's barium swallow.

A pharyngeal pouch is a posterior outpouching of the hypopharynx that may cause symptoms of dysphagia, globus sensation and halitosis. It is not responsible for the symptoms or investigation findings of this patient.

Plummer-Vinson syndrome presents as a triad of iron deficiency anaemia, atrophic glossitis and oesophageal webs or strictures. Oesophageal webs are mostly located in the upper oesophagus and consist of multiple concentric narrowings. In contrast, this patient's barium swallow shows one moderate-large narrowing of the lower oesophagus, making oesophageal webs unlikely.

Question:

A 28-year-old woman is being reviewed for her diagnosis of idiopathic intracranial hypertension (IIH). Over the past eight months, she has had a postural headache associated with nausea and pulsatile tinnitus. Fundoscopy reveals moderate papilloedema associated with visual loss.

On examination, she is alert, afebrile, and haemodynamically stable. She has a BMI of 33kg/m² and currently weighs 80 kg.

She is advised to lose 5-10% of her current weight and is started on a low-sodium diet.

What pharmacological agent may also be started at this point to treat this patient's condition?

A.Acetazolamide

B.Amitriptyline

C.Ibuprofen

D.Metoclopramide

E.Sumatriptan

Answer:Acetazolamide

Explanation:

Acetazolamide is a carbonic anhydrase inhibitor that is used to treat idiopathic intracranial hypertension

Important for meLess important

Acetazolamide is correct. Acetazolamide is a carbonic anhydrase loop inhibitor and the first-line pharmacological therapy for IIH. Acetazolamide is thought to reduce intracranial pressure (ICP) by reducing Na+ transport through the choroid plexus epithelium. Acetazolamide, in combination with dietary changes, is shown to reduce papilloedema grade, visual symptoms, and CSF pressure by six months.

Amitriptyline is incorrect. Amitriptyline is a tricyclic antidepressant that may be used for headache prophylaxis in migraines or in patients with IIH who experience persistent headaches. This would provide pain relief, but would not treat the underlying IIH. As well as this, amitriptyline carries side effects such as weight gain (that may worsen her IIH), dry mouth, and urinary retention.

Naproxen is incorrect. Naproxen is an NSAID that may be used in IIH for patients who experience neck/back pain or acute headaches. Naproxen should be used for up to 2 weeks to prevent rebound headaches and does not affect the progression of IIH.

Metoclopramide is incorrect. Metoclopramide is a dopamine D2-receptor antagonist which may be used to treat nausea. Metoclopramide should be used for up to 5 days to minimise the risk of neurological compromise and does not affect the progression of IIH.

Sumatriptan is incorrect. Sumatriptan is a serotonin receptor agonist used to treat acute migraine attacks. The patient in the vignette does not have features of migraines. Furthermore, sumatriptan will not affect the progression of IIH.

Question:

A 54-year-old Caucasian woman presents to the GP for a blood pressure review. Her past medical history includes asthma and hypertension. She is currently taking ramipril for her blood pressure. Her blood pressure in the clinic is 157/101 mmHg which is consistent with the readings she takes at home.

What is the most appropriate next step in her management?

A.Add bendroflumethiazide

B.Add indapamide

C.Add labetalol

D.Add losartan

E.Substitute ramipril for amlodipine

Answer:Add indapamide

Explanation:

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

Important for meLess important

This question tests knowledge of step 2 treatment for hypertension according to NICE guidelines. This is a patient that has been trialled on an ace inhibitor without success and so the next step is to add a calcium channel blocker or thiazide-like diuretic. Therefore adding indapamide is the correct answer as this is a thiazide-like diuretic.

Bendroflumethiazide is not correct as this is a thiazide diuretic not a thiazide-like diuretic. This scenario warrants either a calcium channel blocker or thiazide-like diuretic.

Labetalol is a beta-blocker and would not be appropriate for step 2 unless there were contraindications to both drug classes mentioned. It is used more often in pregnant patients for pre-eclampsia. Given this patient has asthma it would be contraindicated regardless.

Losartan is not appropriate to add on as it is an angiotensin receptor blocker. This patient is already on an ace-inhibitor and should not also be given an angiotensin receptor blocker. It is often used as an alternative if ace-inhibitors are not tolerated due to side effects, such as a dry cough.

Substituting ramipril for amlodipine is not appropriate in this case as the management is a stepwise approach in which drugs are added on, not substituted.

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?

A.Subacute combined degeneration of the spinal cord

B.Diabetes mellitus

C.Multiple sclerosis

D.Cerebellar malignancy

E.Alcoholic polyneuropathy

Answer:Subacute combined degeneration of the spinal cord

Explanation:

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 32-year-old pregnant lady is found to be anaemic 20 weeks gestation. A full blood count shows:

Serum Hb 104 g/L

MCV 104 fL

A blood film shows hypersegmented neutrophils. She has a past medical history of coeliac disease. What is the most likely cause of the anaemia?

A.Reticulocytosis

B.Iron deficiency

C.Thalassaemia

D.Folate deficiency

E.Anaemia of chronic disease

Answer:Folate deficiency

Explanation:

The full blood count demonstrates a macrocytic anaemia. The blood films suggests that the cause of the macrocytosis is a megaloblastic anaemia which can occur due to folate or B12 deficiency. Folic acid deficiency is common in pregnancy and this is therefore the most likely answer. The malabsorption associated with coeliac disease makes it particularly likely in this case.

Question:

You are reviewing a patient with chronic obstructive pulmonary disease. Which one of the following best describes the vaccinations they should receive?

A.Annual influenza + annual pneumococcal

B.Annual influenza + one-off pneumococcal + one-off Hib booster

C.Annual influenza + one-off pneumococcal

D.Annual influenza + pneumococcal every 5 years

E.Annual influenza

Answer:Annual influenza + one-off pneumococcal

Explanation:

Question:

You are sat in your room as on-call duty doctor when an alarmed receptionist runs in saying an elderly gentleman has just been knocked down by a car in the surgery car park. She helpfully calls an ambulance whilst you assess him. His airway is patent, with spontaneous respirations of 18/min and oxygen saturations of 98% on air. He is cardiovascularly stable with a heart rate of 70bpm and blood pressure of 138/86mmHg. He is drowsy, but his eyes open to voice and exhibits abnormal flexion to pain. He mutters incomprehensible sounds in response to your questions. Based on your assessment, what is his GCS?

A.7

B.8

C.5

D.10

E.13

Answer:8

Explanation:

GCS: Motor (6 points) Verbal (5 points) Eye opening (4 points). Can remember as '654...MoVE'

Important for meLess important

The answer is 8.

V2 - Incomprehensible sounds

M3 - Flexion to pain

E3 - Eye opening to verbal command

It is important to note that it is the clinical assessment of the patient that is most important, rather than simply placing a number on his GCS.

Question:

A 46-year-old man comes to see you complaining of feeling more tired than usual. He is worried that he may have developed diabetes like his father. You order a set of blood which show a HbA1c of 45 mmol/mol.

Which one of the following is the best course of action?

A.Discuss diet and exercise

B.Start metformin 1g BD

C.Start metformin 500mg BD

D.Reassure and advise repeat in 6 weeks

E.Refer to endocrinologist

Answer:Discuss diet and exercise

Explanation:

A HbA1c between of 42-47 mmol/mol is indicative of prediabetes.

Patients with prediabetes should be actively encouraged to increase physical activity and lose weight and improve diet by increasing dietary fibre intake and reducing fat intake. Metformin can also be considered in patients with prediabetes, however, this would be started at 500mg OD.

Patients diagnosed with prediabetes should have their HbA1c repeated at regular intervals as they are at high risk of developing diabetes.

Question:

A 70-year-old man is brought to hospital with a productive cough, heart rate of 110/min, blood pressure of 90/60 mmHg, and temperature of 38.5ºC. His chest x-ray shows right lower lobe consolidation. He is normally well and takes no regular medication. His baseline creatinine is 100 µmol/L.

Na+ 123 mmol/L (135 - 145)

K+ 7.0 mmol/L (3.5 - 5.0)

Urea 10 mmol/L (2.0 - 7.0)

Creatinine 225 µmol/L (55 - 120)

CRP 270 mg/L (< 5)

A urinary catheter is inserted. IV calcium gluconate, saline, and empiric antibiotic infusions have been started.

After an IV insulin-dextrose infusion, the potassium level decreased by 0.2 mmol/L.

What is the most appropriate next step?

A.Administer calcium resonium enema

B.Discuss immediately with critical care/nephrology to consider haemodialysis

C.Refer to urology for treatment of urinary obstruction

D.Repeat blood test to rule out a falsely positive result

E.Request CT head

Answer:Discuss immediately with critical care/nephrology to consider haemodialysis

Explanation:

Severe hyperkalaemia in the context of an AKI requires immediate discussion with critical care/nephrology to consider haemofiltration/haemodialysis

Important for meLess important

The correct answer is discuss immediately with critical care/nephrology to consider haemodialysis. This man has severe hyperkalaemia (≥ 6.5 mmol/L) in the context of a pre-renal acute kidney injury (AKI), as defined by a rise in creatinine of ≥1.5 times his baseline, which has likely resulted from septic shock. An ECG should be done to check for cardiac conduction abnormalities, but these are not required for emergency treatment and referral if the potassium level is ≥ 6.5 mmol/L. The calcium gluconate infusion helps to stabilise the cardiac membrane and IV insulin-dextrose provides a temporary shift in potassium from the extracellular fluid. Haemodialysis is used to remove potassium from the body.

Administer calcium resonium enema is incorrect as this does not qualify as an emergency treatment for hyperkalaemia. The mechanism of calcium resonium is to increase bowel excretion of potassium to remove it from the body, but it has a slow onset of action compared to haemodialysis. The risk of severe hyperkalaemia is a life-threatening arrhythmia, so this needs intervention with a fast onset of action.

Refer to urology for treatment of urinary obstruction is incorrect. This patient’s AKI is pre-renal, meaning that it has resulted from poor renal perfusion rather than an obstruction to drainage (post-renal). A urinary catheter has already been inserted, so obstruction is unlikely in this case and the more immediate task is resolving his hyperkalaemia.

Repeat blood test to rule out a falsely positive result is incorrect. While it is technically possible that the potassium could be falsely elevated, the other blood results and clinical presentation suggest that the result is true and emergency treatment for severe hyperkalaemia should be started before worrying about repeating the test.

Request CT head is incorrect because the most important thing to manage in this case is the patient’s hyperkalaemia, due to the risk of life-threatening cardiac arrhythmia. He is showing no signs of altered neurological function that would warrant a CT head at this stage and has no history of a fall with a head strike. Therefore a discussion with critical care about haemodialysis would be more appropriate.

Question:

A 2-week-old baby boy presents to the emergency department with persistent vomiting. The father states that the child's vomiting is 'like a fountain'. What one investigation is most appropriate to help you confirm your suspected diagnosis?

A.Abdominal X-ray

B.CT Abdomen

C.Tissue Transglutaminase (TTG) antibodies (IgA)

D.Upper GI contrast study

E.US Abdomen

Answer:US Abdomen

Explanation:

The key investigation in pyloric stenosis is ultrasound

Important for meLess important

The history above is classic of pyloric stenosis- forceful projectile vomiting; in this case described like a fountain.

Abdominal x-ray is of little use for pyloric stenosis.

CT scans are used much more rarely in children, especially so young due to high dose radiation.

TTG Antibodies would help you diagnose coeliac disease, which this child does not have as they will not have started eating any gluten containing products at 2 weeks.

Upper GI contrast study is rarely performed to diagnose pyloric stenosis, but on the occasions when it is used, it is generally for children outside the normal age bracket.

US Abdomen is the most commonly used diagnostic test.

Question:

A 44-year-old man attends his GP surgery. He explains that his long term partner died last month. When he woke up this morning he thought he was lying next to her. He claims he heard her voice saying his name. Although he realizes this is not possible it has caused him significant distress. He is worried that he may be 'going mad.' He has no other psychiatric history of note.

What is the most likely diagnosis?

A.Pseudohallucination

B.Depression with psychosis

C.Schizophrenia

D.Psychosis

E.Schizoid personality disorder

Answer:Pseudohallucination

Explanation:

Pseudohallucinations are more common after bereavement and do not imply psychosis

Important for meLess important

The patient has insight due to the fact he realizes that the voice and feeling came from his own mind. This separates the incident from a true hallucination, a symptom which would be seen in more serious psychiatric conditions. This makes the psychotic options and schizophrenia less likely. There are no traits of schizoid personality disorder evident in the stem. Pseudohallucinations are more common after bereavement.

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 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:

A 32-year-old nulliparous woman presents to the emergency department with a 6-hour history of diarrhoea, mild abdominal discomfort, and a positive home pregnancy test.

Her last menstrual period was 8 weeks ago and she takes no regular contraception. She has a past medical history of pelvic inflammatory disease.

Transvaginal ultrasound reveals a 40mm foetal sac at the ampulla of the fallopian tube with no visible heartbeat, and serum B-HCG is 1200IU/L.

Given this information, what is the definitive indication for surgical management in this patient?

A.Foetal heartbeat not detected

B.Foetal sac size

C.History of pelvic inflammatory disease

D.Septate uterus

E.Serum HCG concentration

Answer:Foetal sac size

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 40mm foetal sac, as according to NICE guidelines on the management of ectopic pregnancy, foetal sacs larger than 35mm require surgical management. Large foetal sacs >35mm are at higher risk of spontaneous rupture, and as such these patients are unsuitable for expectant or medical management. The diameter of the foetal sac is measured by transvaginal ultrasound.

Foetal heartbeat not detected is incorrect, as this would support medical or expectant management. If a foetal heartbeat is detected on transvaginal ultrasound urgent surgical management.

History of pelvic inflammatory disease is incorrect, as this is not an indication for surgical management of ectopic pregnancy. Pelvic inflammatory disease is a risk factor for ectopic pregnancy, and salpingotomy may be carried out rather than salpingectomy to preserve fertility, though this is not an indicator for surgical management.

Serum HCG of 1200IU/L is incorrect, as this alone is not an indication for surgical management. NICE guidelines on the management of ectopic pregnancy state that serum HCGs between 1,500IU/L and 5,000IU/L may be managed medically, as long as the patient is able to return for follow-up and has no significant abdominal pain or haemodynamic instability.

Septate uterus is incorrect, as this is not an indication for surgical management of ectopic pregnancy. Septate uterus refers to a congenital abnormality in which a longitudinal septum divides the uterine cavity, and is thought to increase the risk of miscarriage rather than ectopic pregnancy.

Question:

An 11-year-old boy presents complaining of persistent headaches which have been getting progressively worse over the last few years. He mentions that he finds it difficult to concentrate in class as he is unable to see the board clearly. Visual examination reveals a bitemporal superior quadrantanopia. His parents are concerned as he is not growing in height. His height is calculated to be below the 10th centile for children in his age group. Which of the following is the most likely diagnosis?

A.Pituitary adenoma

B.Cluster headache

C.Craniopharyngioma

D.Medulloblastoma

E.Migraine

Answer:Pituitary adenoma

Explanation:

A pituitary adenoma is the likely diagnosis due to the nature of the visual field defect and his short stature suggesting endocrine disruption. A craniopharyngioma gives a bitemporal inferior quadrantanopia visual field defect. Cluster headaches are more commonly seen in adults and are associated with a red tearing eye. Migraines can give a visual aura but these typically only last between 5-60 minutes. Medulloblastoma often present with headaches and vomiting, and behavioural changes rather than stunted growth.

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:

A 57-year-old man is admitted to the Emergency Department of a small district general hospital with crushing, central chest pain. His chest pain started 40 minutes ago. His pulse is 66/min, blood pressure 124/78 mmHg and oxygen saturations 98% on room air. The ECG recorded on admission shows the following:

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Glyceryl trinitrate, morphine, metoclopramide aspirin and ticagrelor are given. It is known from experience that patients can be transferred to the local cardiothoracic centre and receive percutaneous coronary intervention within 40 minutes of a transfer request being made. What is the most appropriate next step?

A.Start bisoprolol

B.Repeat ECG in 30 minutes

C.Request transfer for primary percutaneous coronary intervention

D.Start thrombolysis and review ECG 60 minutes later

E.Request transfer for primary percutaneous coronary intervention + start thrombolysis whilst awaiting transfer

Answer:Request transfer for primary percutaneous coronary intervention

Explanation:

The ECG shows a well-developed anterior ST-elevation myocardial infarction. In keeping with recent NICE guidelines he should be transferred for primary percutaneous coronary intervention as this could be delivered within 120 minutes.

Question:

An 8-year-old boy is brought to the emergency department after falling onto his right hand. He is in severe pain and movement is minimally tolerated.

On examination, there are no signs of neurovascular compromise and the overlying skin is intact.

An x-ray is performed:

© Image used on license from Radiopaedia

What best describes this injury?

A.Buckle fracture

B.Complete transverse fracture

C.Greenstick fracture

D.Salter-Harris 1 fracture

E.Salter-Harris 2 fracture

Answer:Buckle fracture

Explanation:

Buckle fracture is correct. This child's radiograph demonstrates a transverse fracture of their right radius that is incomplete (as the cortex beside each end of the fracture line is interrupted). It can be seen that the cortex beside each end of the fracture line is bulging outwards, suggesting the presence of a buckle (or torus) fracture, which is common in children aged 5-10 years due to the increased elasticity. The reason the swelling occurs can be understood by imagining the bone buckling or crushing in on itself with the sides bulging outwards.

Greenstick fracture is incorrect. Although this is also common in children, a greenstick fracture would only have a unilateral breach of the cortex. In this x-ray, the cortex is not breached and is instead bulging, making a buckle fracture more likely.

Salter-Harris 1 fracture is incorrect. The x-ray would include a fracture involving the growth plate, without any surrounding cortical swelling. A Salter-Harris 1 fracture would involve the physis only and may appear normal on an x-ray, which is not the case here.

Salter-Harris 2 fracture is incorrect. The x-ray would include a fracture involving the growth plate, without any surrounding cortical swelling. A Salter-Harris 2 fracture would involve the physis and metaphysis, which is not the case here.

Complete transverse fracture is incorrect. This would be characterised by the line traversing the entirety of the bone, interrupting the cortex on both sides. In this x-ray, the cortex is not disrupted.

Question:

A 77-year-old woman is brought in by ambulance after being found on the floor early in the morning. She states that she tripped and fell in the evening and could not get up or get help. The following U&E's were taken:

Na+ 135 mmol/l

K+ 5.7 mmol/l

Creatinine 347 mmol/l

Urea 9.8 mmol/l

Creatine kinase 14,550 I/U

What is the most likely cause of this clinical picture?

A.Syndrome of inappropriate ADH secretion

B.Rhabdomyolysis

C.Proximal myopathy

D.Urinary tract infection

E.Urinary retention

Answer:Rhabdomyolysis

Explanation:

Being immobilised on the floor after a fall for many hours such as in this case is likely to cause rhabdomyolysis. Myoglobin released from muscle tissue is toxic to the kidneys, and will, therefore, produce acute kidney injury. The raised creatinine kinase, and to some degree, the raised potassium levels are typical features of rhabdomyolysis.

Question:

Ryan, a 17-year-old boy, presents to the emergency department following a seizure. On examination, he has a unilateral shoulder deformity and his shoulder is locked in an internally rotated position. A shoulder x-ray has just been ordered.

What would you expect to see on his shoulder x-ray?

A.Anterior shoulder dislocation

B.Clavicular fracture

C.Normal shoulder

D.Posterior shoulder dislocation

E.Proximal humerus fracture

Answer:Posterior shoulder dislocation

Explanation:

Anterior shoulder dislocation is associated with FOOSH; while posterior shoulder dislocation is more likely associated with seizures and electric shock

Important for meLess important

Anterior shoulder dislocation is associated with a fall onto an outstretched hand (FOOSH). It presents with unilateral shoulder deformity.

Clavicular fracture often results from FOOSH. It presents with deformity along the clavicle.

A normal shoulder is unlikely to be visualised on x-ray as the patient is presenting with unilateral shoulder deformity.

Posterior shoulder dislocation is more likely associated with seizures and electric shock. It presents with unilateral shoulder deformity. While anterior instability and dislocations are still more common in seizures, a shoulder locked in an internally rotated position is highly suggestive of a posterior dislocation.

Proximal humerus fracture results from low-energy fall in the elderly, and higher energy trauma in younger individuals. It presents with ecchymosis and axillary nerve injury.

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:

A 44-year-old Bangladeshi man with a history of mitral stenosis and atrial fibrillation is diagnosed with tuberculosis. He is commenced on anti-tuberculosis therapy. Three weeks after starting treatment his INR has increased to 5.6. Which one of the following medications is most likely to be responsible for this increase?

A.Pyrazinamide

B.Isoniazid

C.Rifampicin

D.Ethambutol

E.Streptomycin

Answer:Isoniazid

Explanation:

Isoniazid inhibits the P450 system

Important for meLess important

It is important when answering questions relating to liver enzymes to be sure whether the question is asking about induction or inhibition. Drugs causing induction are often well known and candidates may rush to give these as the answer. A raised INR is a result of inhibited liver enzymes

Question:

An 80-year-old man presents to his GP with a 3-day history of a productive cough.

On examination, he is alert and orientated, has a respiratory rate of 22/min, blood pressure of 137/89 mmHg and a heart rate of 92/min. On auscultation, crackles can be heard at the left lung base.

The GP sends the patient to the acute medical unit.

A series of blood tests are carried out, returning as:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

Platelets 210 \* 109/L (150 - 400)

WBC 13.1 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 109 µmol/L (55 - 120)

CRP 32 mg/L (< 5)

What is the most appropriate antibiotic and route of administration?

A.IV amoxicillin

B.IV co-amoxiclav

C.Oral amoxicillin

D.Oral co-amoxiclav

E.Oral flucloxacillin

Answer:Oral amoxicillin

Explanation:

Amoxicillin is the first-line antibiotic for low severity community-acquired pneumonia

Important for meLess important

Oral amoxicillin is correct. Amoxicillin is the first-line antibiotic for low-severity community-acquired ammonia. This patient only scores 1 according to the CURB-65 score. Although the patient is aged over 65 (scoring 1), he is not confused and the other criteria (urea > 7 mol/L, respiratory rate ≥30/min, BP <90 systolic and <66 diastolic) are also not fulfilled. A CURB-65 score of 1 suggests that oral amoxicillin is the most appropriate management plan.

IV amoxicillin is incorrect as the pneumonia is not severe enough according to CURB-65 to indicate the IV route of administration. A CURB-65 score of 3 would indicate IV antibiotics. However, the antibiotic of choice would likely be co-amoxiclav.

IV co-amoxiclav is incorrect as the pneumonia is not severe enough to indicate this. A CURB-65 score of 3 would make this a more appropriate option.

Oral co-amoxiclav is incorrect. Co-amoxiclav would be the antibiotic of choice for a CURB-65 score of 3. However, IV administration would be more appropriate for pneumonia of that severity.

Oral flucloxacillin is incorrect as the antibiotics of choice for community-acquired pneumonia are usually amoxicillin or co-amoxiclav.

Question:

A 56-year-old man telephones his GP due to visual changes in his left eye. For the past 2 days, the patient has been experiencing flashes/floaters and spider webs, and now there is some darkening on the periphery of vision. He has also noticed that straight lines appear somewhat jagged. There is no associated pain or trauma. The patient is otherwise well and has no long-term health conditions.

What is the most likely diagnosis for the above presentation?

A.Amaurosis fugax

B.Central retinal vein occlusion

C.Ocular migraine

D.Posterior vitreous detachment

E.Retinal detachment

Answer:Retinal detachment

Explanation:

Peripheral curtain over vision + spider webs + flashing lights in vision think retinal detachment

Important for meLess important

The presence of darkening or shadows on the peripheral vision is highly suggestive of retinal detachment and should prompt an emergency ophthalmology review. This is often described by patients as a curtain coming down over their vision. Flashes, floaters, and cobweb or string-like shapes are also commonly seen. Straight lines can often appear irregular or curved due to the retina sagging away from the choroid. Retinal detachment can lead to irreversible loss of vision and is treated by emergency surgery.

Amaurosis fugax is a sudden loss of vision due to ischaemia, often due to thromboembolic disease. Like retinal detachment, altitudinal field defects are commonly seen. Unlike retinal detachment, however, amaurosis fugax results in temporary loss of vision only, with episodes lasting less than 24 hours. Amaurosis fugax is treated as a transient ischaemic attack (TIA), with patients being given 300mg aspirin daily for 2 weeks then switched to clopidogrel 75mg daily. Statins and antihypertensive medications are also often commenced for secondary prevention.

Central retinal vein occlusion (CRVO) is another cause of painless visual loss. It is more common in elderly patients however and those with vascular risk factors such as hypertension and diabetes. Although often presenting with acute loss of vision, the initial presentation can be asymptomatic and its progression over a number of weeks. CRVO can be associated with photophobia and sometimes also pain, though is unlikely to result in flashes or floaters.

Ocular migraines also result in a sudden unilateral loss of vision, although episodes typically last for less than 1 hour and are often followed by the onset of a headache. Unfortunately, ocular migraine tends to be a recurrent problem, and therefore patients will often have a history of similar episodes in their past history.

Although posterior vitreous detachment is also commonly associated with flashes and floaters, it is less likely to result in darkening of the peripheral vision or the perception of curving when straight lines are visualised. The features described by the above patient are therefore more suggestive of retinal detachment.

Question:

A 65-year-old female is admitted to your surgical ward for an elective hemicolectomy tomorrow due to Duke's B colonic cancer. You are carrying out her admission assessment and notice her full blood count (FBC) demonstrates a microcytic anaemia with haemoglobin of 58 g/L. Her previous FBC 3 months earlier showed Hb 88 g/L. Haematinic blood tests show that the cause of the microcytosis is iron deficiency.

What is the most appropriate management of her anaemia?

A.Iron transfusion (e.g. Ferinject)

B.Pre-operative blood transfusion

C.Oral iron supplementation (e.g. ferrous sulphate)

D.Post-operative blood transfusion

E.No need to correct anaemia as removal of tumour will resolve iron loss

Answer:Pre-operative blood transfusion

Explanation:

A haemoglobin of 58 g/L will need to be corrected prior to surgery and this will only be achieved in such a short time frame by arranging a blood transfusion. Iron transfusions or oral iron supplements would be recommended over a longer time frame of weeks to months had this been detected earlier.

Question:

A 32-year-old woman has a telephone consultation with her GP. She is 23 weeks pregnant, with no complications so far. She is now concerned, as last week she met with her sister and nephew. Several days after, her sister informed her that the child has since developed a rash, which she suspects to be chickenpox. The patient herself was unsure of whether or not she had chickenpox as a child, but she said her lack of symptoms reassured her. However, in the past 12 hours, she has developed a rash and is now worried for the health of her baby. Aside from the rash, she feels well in herself.

What would be the most appropriate management at this stage?

A.Intravenous aciclovir

B.Oral aciclovir

C.Urgent blood test to determine varicella antibody status

D.Varicella-zoster immunoglobulin

E.Varicella-zoster immunoglobulin and oral aciclovir

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

The management of chickenpox in pregnancy is a common exam topic and there are several factors to consider. In this scenario, as the patient is both symptomatic, and beyond 20 weeks' gestation, the correct management (as per RCOG guidelines) would be oral aciclovir, as she has presented within 24 hours of the rash developing.

Intravenous aciclovir would be used with severe chickenpox, but given that the patient is otherwise well, this would not be indicated here.

If the patient had been asymptomatic post-exposure, and was unsure of her immunity, an urgent blood test would be indicated. If this was negative (that is to say, she is not immune), then varicella-zoster immunoglobulin (VZIG) should be administered. Similarly, if she had been sure of a lack of immunity to chickenpox, then VZIG should be administered, with no need for the blood test.

Giving both VZIG and oral aciclovir is incorrect - once chickenpox symptoms have manifested, VZIG plays no role in management.

Question:

A 62-year-old woman presents to her GP describing occasional episodes of 'a fluttering heartbeat'. These occur between once a week and once a month and are not associated with any other symptoms.

On examination, the patient's heart rate is 60 beats per minute and regular. Her blood pressure is 115/80mmHg.

The patient has no past medical history, takes no medications and has no allergies.

The results of some investigations are shown below:

ECG sinus rhythm

24-Hour ECG sinus rhythm

5-Day ECG Tape 2 episodes of self-terminating atrial fibrillation

What is the most appropriate management?

A.The patient does not require anticoagulation as her atrial fibrillation is not permanent

B.The patient does not require anticoagulation as her overall stroke risk is low

C.The patient should be prescribed apixaban

D.The patient should be prescribed aspirin

E.The patient should be prescribed warfarin

Answer:The patient does not require anticoagulation as her overall stroke risk is low

Explanation:

A CHA2DS2-VASc score must be done in all patients with atrial fibrillation to determine the need for anticoagulation

Important for meLess important

The patient does not require anticoagulation as her overall stroke risk is low is correct. As well as management of the actual arrhythmia, all patients with atrial fibrillation (AF) should be assessed for anticoagulation given the stroke risk. This is regardless of the frequency of the AF. This assessment is done using a CHA2DS2-VASc score. This patient does not have congestive heart failure, hypertension, diabetes mellitus, history of a stroke or transient ischaemic attack or history of vascular disease. She is under 65. This means she only scores 1 point, for being female. Women who score 1 on CHA2DS2-VASc do not need to be offered anticoagulation, as they are only scoring 1 point for their sex and their ultimate stroke risk is low.

The patient does not require anticoagulation as her atrial fibrillation is not permanent is incorrect as a CHA2DS2-VASc score should be done in all patients with AF to assess stroke risk and whether anticoagulation is required. This is regardless of whether the AF is permanent or paroxysmal.

The patient should be prescribed apixaban is incorrect because her CHA2DS2-VASc score of 1 means anticoagulation is not required. Anticoagulation would be offered if her score was 2 or more. A direct oral anticoagulant (DOAC) such as apixaban is now the first anticoagulant offered.

The patient should be prescribed aspirin is incorrect. NICE advises that aspirin is not used for stroke prevention in patients with AF as the risks (e.g. abdominal bleeding) outweigh the benefits. If this patient did require stroke prevention, an anticoagulant would be advised.

The patient should be prescribed warfarin is incorrect. If the patient did require anticoagulation, DOACs are now prescribed first-line rather than warfarin as they come with a lower risk of bleeding and do not require regular blood tests.

Question:

You see a 28-year-old female patient asking for a Chlamydia test. She is asymptomatic but has recently started a new relationship. You advise her that she attends the sexual health clinic for a full screen but agree to a Chlamydia test today.

What is the investigation of choice for this organism?

A.Nucleic acid amplification test (NAAT)

B.High vaginal charcoal swab

C.Low vaginal charcoal swab

D.Endocervical swab

E.Serology

Answer:Nucleic acid amplification test (NAAT)

Explanation:

Nucleic acid amplification tests (NAATs) are the investigation of choice for Chlamydia

Important for meLess important

Chlamydia is the most commonly diagnosed sexually transmitted infection. It can be asymptomatic and if left untreated can cause complications such as pelvic inflammatory disease and infertility. It is diagnosed using nucleic acid amplification tests (NAATs). Women can do a self swab and men can do a first pass urine sample. Gonorrhoea is also diagnosed using NAATs.

Treatment of Chlamydia is with azithromycin or doxycycline.

Therefore, the correct answer is option 1. Charcoal swabs are used to diagnose other infections such as Candida. Serology is used to diagnose syphilis and HIV. Endocervical swabs were used prior to NAATs and are no longer necessary. A sample from the lower vagina is sufficient for the NAAT swab and some studies have shown that self swabs have a higher pick-up rate than swabs done by clinicians.

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 32-year-old female presents with lower abdominal pain. She is 8 weeks pregnant. A simple ovarian cyst is evident on transvaginal ultrasound. An 8-week intrauterine pregnancy is also confirmed. What is the most appropriate management of the cyst?

A.Laparoscopy

B.Aspirate the cyst

C.Ovarian cystectomy

D.Termination of pregnancy

E.Reassure patient that this is normal and leave the cyst alone

Answer:Reassure patient that this is normal and leave the cyst alone

Explanation:

In early pregnancy, ovarian cysts are usually physiological - known as a corpus luteum. They will usually resolve from the second trimester on wards. Reassurance is important in the above situation as maternal anxiety is likely to be high. Anxiety in pregnancy should be avoided wherever possible in order to avoid adverse outcomes to both mother and foetus.

Question:

Samantha, 30, is brought into the emergency department due to onset of confusion one week after returning from holiday in a developing country. Her family report her having vomiting and diarrhoea that developed within the past day. On examination Samantha is found to have a low blood pressure, and inspection of her hands reveals hyperpigmentation of the skin. Samantha's U&Es show the following:

Na+ 124 mmol/l

K+ 6.6 mmol/l

Which of the following is Samantha likely to have?

A.Cushing's disease

B.Addison's disease

C.Conn's syndrome

D.Cholera

E.Rotavirus

Answer:Addison's disease

Explanation:

This patient has developed an Addisonian crisis.

Question:

A 34-year-old woman presents to the emergency department with two days of sudden onset, severe vertigo. She has a productive cough, sore throat, bilateral rhinorrhoea, as well as nausea, vomiting and loss of appetite. Although her hearing is unaffected, she feels generally weak and has passed minimal urine in the past 12 hours.

She has a history of migraines and recurrent urinary tract infections. Three weeks ago, she returned from a holiday in Jamaica.

On examination, she appears generally unwell, has weak peripheral pulses, bilateral cervical lymphadenopathy, and nystagmus.

Basic observations are temperature 38ºC, heart rate 119 beats per minute and respiratory rate 23 breaths per minute.

What is the most likely diagnosis?

A.Acute migraine

B.Atypical pneumonia

C.Labyrinthitis

D.Urinary tract infection

E.Vestibular neuronitis

Answer:Vestibular neuronitis

Explanation:

Unaffected hearing distinguishes vestibular neuronitis from labyrinthitis

Important for meLess important

Vestibular neuronitis is the correct option. This patient has presented in a typical fashion with a preceding upper respiratory tract infection. In this case, her infection is a bit more severe, with loss of appetite and signs of dehydration. She has vertigo, nausea and vomiting. Crucially, her hearing is unaffected, which distinguishes vestibular neuronitis from labyrinthitis.

Acute migraine would not be correct. This usually presents with a headache and resolves by resting in a dark room. Although the patient has a past medical history of migraine, this would not account for the signs and symptoms suggesting infection.

Atypical pneumonia is an attractive option given that this patient has a productive cough, feels weak, is nauseous, vomiting, has lymphadenopathy and has recently returned from a holiday to Jamaica. However, the presenting complaint here is vertigo, and legionnaire's usually presents 2 to 10 days after exposure to contaminated water or soil. This woman arrived from Jamaica 3 weeks ago so the timeline does not fit.

Labyrinthitis presents very similarly to vestibular neuronitis. This option is incorrect as there is usually hearing loss, which this patient does not have, and is one of the best distinguishing features between the two conditions.

Urinary tract infection is incorrect despite the patient complaining of passing very little urine, being generally unwell and fever. Low urine output and weak, thready pulses are the results of dehydration rather than cystitis. The productive cough and lymphadenopathy help to localise the source of the infection to the respiratory tract.

Question:

A 23-year-old man presents to the emergency department with worsening shortness of breath and a widespread wheeze. He is recently recovering from a flu-like illness. He is a known asthmatic and had already taken a puff of his blue inhaler. His current peak expiratory flow rate (PEFR) is 305 ml - he says his baseline is 600 ml.

According to this measurement, what category is his acute asthma classified as?

A.Mild

B.Moderate

C.Severe

D.Life-threatening

E.Near-fatal

Answer:Moderate

Explanation:

Moderate asthma PEFR 50-75% best or predicted

Important for meLess important

His current PEFR as a percentage of his baseline is 51% (305 / 600 = 0.508). This falls into the moderate classification of 50-75%.

Mild is incorrect as it not a term used within the stratification system.

Severe is incorrect as it would have a PEFR of 33-50% of best or predicted.

Life-threatening is incorrect as it would have a PEFR of less than 33% of best or predicted.

Near-fatal is incorrect as it does not use PEFR in its classification. Instead, it is classified as an increased PaCO2 level and the need for critical care support (i.e. mechanical ventilation).

Question:

A 33-year-old primigravida woman of 32 weeks gestation presents to the Emergency Department with premature rupture of membranes. There have been no complications of the pregnancy so far and the woman is normally fit and well. How is she best managed?

A.Inform her that she should come back if she feels she is getting a temperature

B.Prescribe her antibiotics and inform her to come back if she feels she is getting a temperature

C.Admit her for at least 48 hours and prescribe antibiotics

D.Admit her for at least 48 hours and prescribe antibiotics and steroids

E.Admit her for at least 48 hours and prescribe steroids only

Answer:Admit her for at least 48 hours and prescribe antibiotics and steroids

Explanation:

This woman is only 32 weeks gestation and it could be that she is going into labour with the rupture of the membranes. You therefore want to admit her and treat her with steroids to promote lung maturation of the baby. Because of the risk of sepsis and post-natal infection you would want to treat with antibiotics, currently erythromycin is recommended, but always consult your hospital guidelines. If a swab isolated Group B streptococcus you would treat with penicillin and clindamycin, but again, consult your hospital guidelines. If the woman does not progress to labour, she may be able to be managed at home and advised to take her temperature every 4-8 hours and to return to the hospital if she spikes a temperature. You should consider delivery at 34 weeks where the risks of infection may outweigh the risk of prematurity now you have allowed the lungs to mature.

For further information please read RCOG PPROM Guidance. Available from URL: https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg44/

Question:

A 43-year-old lady with a metallic heart valve has just undergone an elective paraumbilical hernia repair. In view of her metallic valve, she is given unfractionated heparin perioperatively. How should the therapeutic efficacy be monitored, assuming her renal function is normal?

A.Therapeutic monitoring is not required

B.Measurement of APTT

C.Measurement of INR

D.Measurement of Prothromin time

E.None of the above

Answer:Measurement of APTT

Explanation:

Unlike low molecular weight heparins that do not require monitoring unfractionated heparin does require monitoring, this is done by measuring the APTT.

Question:

A 67-year-old man presents to the general practitioner with a 2-day history of visual loss in his right eye. There is no past medical history of note, although he reports taking regular co-codamol for intermittent headaches.

On examination, his observations are within normal limits. Visual acuity in the right eye is 6/30 in the right eye and 6/6 in the left eye. A fundoscopic examination of the right eye shows a swollen and pale optic disc with blurred margins.

What is the most likely diagnosis?

A.Age-related macular degeneration

B.Amaurosis fugax

C.Anterior ischaemic optic neuropathy

D.Diabetic retinopathy

E.Retinal vein occlusion

Answer:Anterior ischaemic optic neuropathy

Explanation:

Anterior ischemic optic neuropathy - fundoscopy typically shows a swollen pale disc and blurred margins

Important for meLess important

Anterior ischaemic optic neuropathy is correct. This patient has features of GCA (also known as temporal arteritis) given the presence of headaches in a patient over the age of 50 years. The pathogenesis of visual impairment in GCA is secondary to anterior ischaemic optic neuropathy from inflammation of the posterior ciliary arteries that causes optic nerve infarction. The result is the fundoscopic image of a pale and swollen optic disc with blurred margins.

Age-related macular degeneration is incorrect. Although with increasing age, this is a reasonable differential diagnosis to consider, fundoscopy classically demonstrates the presence of drusen (small, yellow lipid deposits) on the retina.

Amaurosis fugax is incorrect. This refers to sudden onset and transient visual loss that improves spontaneously. It does not completely fit with the clinical presentation seen here as visual loss is unlikely to continue for this long. Furthermore, fundoscopy can vary from appearing relatively normal to showing a pale retina secondary to ischaemia.

Diabetic retinopathy is incorrect. Fundoscopic appearances related to diabetic retinopathy include cotton wool spots (an accumulation of dead neurons secondary to ischaemia) and neovascularisation in proliferative disease. It would not be responsible for the findings of this patient.

Retinal vein occlusion is incorrect. Retinal vein occlusion is caused secondary to hypercoagulable states, metabolic diseases (e.g. hypertension, diabetes mellitus) and advancing age. Fundoscopic findings include flame haemorrhages, cotton wool spots, optic disc swelling and macular oedema. These findings do not completely fit with the clinical presentation of this patient, making an alternative diagnosis more likely.

Question:

A 25-year-old woman attends the clinic with a 6-month history of abdominal pain and non bloody diarrhoea. A systematic enquiry was otherwise unremarkable. On examination, her abdomen is soft and non-tender with no organomegaly identified.

Blood results are as follows:

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

Female: (115 - 160)

Platelets 580 \* 109/L (150 - 400)

WBC 6.2 \* 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 68 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Ferritin 2 ng/mL (20 - 230)

Vitamin B12 400 ng/L (200 - 900)

Folate 3.8 nmol/L (> 3.0)

Reticulocytes 0.2 % (0.5 - 1.5)

What first-line investigation will you organise?

A.Anti-transglutaminase antibodies

B.Colonoscopy

C.Intrinsic factor antibodies

D.No further investigations required

E.Upper GI endoscopy

Answer:Anti-transglutaminase antibodies

Explanation:

As a first line investigation, all people with iron deficiency anaemia should be screened for coeliac disease

Important for meLess important

The patient has anaemia with a low ferritin confirming a diagnosis of iron deficiency anaemia (IDA). It is important to remember that a low ferritin confirms iron deficiency, however, a normal or raised ferritin does not exclude it (since ferritin is an acute phase protein).

Iron deficiency is a common cause of 'reactive' thrombocytosis as is seen in this case. Other secondary causes of thrombocytosis include bleeding, hyposplenism, infections and malignancies. Secondary causes of thrombocytosis are far more common compared to primary causes (e.g. ET, PRV, MF, and CML).

Causes of iron deficiency include poor dietary intake (e.g. vegan diet), malabsorption (primarily of the proximal small bowel), increased demands (e.g. pregnancy) and bleeding.

Anti-transglutaminase antibodies is the correct answer. Given the history of abdominal pain, diarrhoea, and iron deficiency, it would be essential to screen for coeliac disease by checking for anti-transglutaminase antibodies, as it is a common cause of iron deficiency anaemia.

Colonoscopy is incorrect. The differential diagnosis of a change in bowel habit with an associated iron deficiency anaemia includes inflammatory bowel disease and colorectal cancer, both of which can be diagnosed with colonoscopy. However, coeliac disease is a more common condition and thus should be screened for in the first instance.

Intrinsic factor antibodies is incorrect. These antibodies are tested to screen for pernicious anaemia, which presents with B12 deficiency and is associated with other autoimmune conditions (e.g. vitiligo).

No further investigations required is incorrect. The patient in the vignette has presented with iron deficiency anaemia. Therefore, important to investigate the patient to identify and treat the underlying cause.

Upper GI endoscopy is incorrect. Although endoscopy and biopsies are the best way to diagnose coeliac disease, screening for this condition with a less invasive blood test in the first instance would be more appropriate.

Question:

A 34-year-old male is admitted with central abdominal pain radiating through to the back and vomiting. The following results are obtained:

Amylase 1,245 u/dl

Which one of the following medications is most likely to be responsible?

A.Phenytoin

B.Sodium valproate

C.Metoclopramide

D.Sumatriptan

E.Pizotifen

Answer:Sodium valproate

Explanation:

Sodium valproate induced pancreatitis is more common in young adults and tends to occur within the first few months of treatment. Asymptomatic elevation of the amylase level is seen in up to 10% of patients

Question:

A 72-year-old man presents to the emergency department with central chest pain associated with shortness of breath and sweating. The chest pain came on 2 hours ago while he was walking the dog.

Blood results are as follows:

Troponin 2248 ng/L (< 15)

An ECG is performed in the department:

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

The patient is in a tertiary hospital which has easily accessible facilities including a CTPA and coronary catheterisation lab which performs percutaneous coronary intervention (PCI).

Given the likely diagnosis, what is the most important aspect of treatment?

A.Arrange an urgent CTPA

B.Coronary artery bypass graft (CABG)

C.Fibrinolytic therapy

D.PCI with a bare metal stent

E.PCI with a drug eluting stent

Answer:PCI with a drug eluting stent

Explanation:

The ECG shows ST elevation in V1-V4. In the context of chest pain and a raised troponin, the diagnosis is likely an anterior STEMI secondary to LAD occlusion.

Once a STEMI has been confirmed the first step is to immediately assess eligibility for coronary reperfusion therapy. There are two types of coronary reperfusion therapy:

Percutaneous coronary intervention (PCI)

Fibrinolytic treatment

PCI should be offered if the presentation is within 12 hours of the onset of symptoms and PCI can be delivered within 120 minutes of the time when fibrinolysis could have been given (i.e. consider fibrinolysis if there is a significant delay in being able to provide PCI).

PCI with a drug eluting stent is the correct answer. PCI is a non-surgical procedure that uses a catheter to place a small structure called a stent to open up blood vessels in the heart that have been narrowed by atherosclerosis. Stent options include drug-eluting and bare metal. Drug-eluting stents are now the preferred option.

PCI with a bare metal stent is incorrect. Previously bare-metal stents were used however these have higher rates of restenosis and are therefore not commonly used anymore.

It is important to note that although drug-eluting stents have a lower risk of restenosis, they actually have a higher risk of re-thrombosis initially necessitating the need for dual anti-platelets usually for 6-12 months.

Fibrinolytic therapy is incorrect. As discussed above, fibrinolytic therapy should only be used if there is a significant delay in being able to provide PCI. Since the hospital in this case has an easily accessible coronary catheterisation lab then this would be the preferred option.

Arrange an urgent CTPA is incorrect. A CTPA would be indicated to investigate a pulmonary embolism (PE). Although PEs can present with chest pain and a raised troponin due to right heart strain, the ECG features, in this case, are more in keeping with a STEMI. ECG features of right heart strain include RBBB, right axis deviation, delayed R wave progression, and S1Q3T3.

Coronary artery bypass graft (CABG) is incorrect. The chief anatomical indications for CABG are the presence of triple-vessel disease or severe left main stem artery stenosis. A CABG may well be required in the future, however, in the first instance urgent primary PCI is required.

Question:

A 64-year-old man presents to his general practitioner due to ongoing episodes of central chest pain on exertion. He has no chest pain at rest. Six months ago, he was diagnosed with angina and was started on verapamil and GTN spray.

Past medical history includes hypertension, osteoarthritis of the right knee, and asthma.

What medication should be prescribed?

A.Atenolol

B.Bisoprolol

C.Diltiazem

D.Isosorbide mononitrate

E.Paracetamol

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

This scenario describes a 64-year-old man presenting with recurrent episodes of chest pain during exertion, likely secondary to poorly controlled stable angina. From the stem, we know that the patient is already on verapamil (a calcium channel blocker). Calcium channel blockers and/or beta-blockers are first-line therapy for treating stable angina, but due to the patient's history of asthma, beta-blockers are likely contraindicated.

As first-line therapy has not been successful, the patient should try the next line of therapy, which can include long-acting nitrates (such as isosorbide mononitrate), ivabradine, nicorandil, or ranolazine.

Atenolol is not a correct answer. Whilst beta-blockers are also an option for first-line therapy for angina treatment, the patient has a history of asthma and likely should be avoided. Furthermore, as the patient is established on verapamil, they should aim to avoid introducing a beta-blocker due to the increased risk of associated cardiovascular adverse effects.

Bisoprolol is not correct. Like atenolol, bisoprolol is a beta-blocker that should be avoided in patients with a history of asthma or bronchospasm. Also as mentioned above, as the patient is taking verapamil, the introduction of beta-blockers should be avoided due to the risk of cardiovascular adverse effects.

Diltiazem is incorrect. Diltiazem is a rate-limiting calcium channel blocker, similar to verapamil. Both can be used in angina, however as verapamil has not successfully managed symptoms, it is likely that instead of adding diltiazem, the next line of treatment should be started.

Paracetamol is not a correct answer. Whilst paracetamol can be used for analgesia, it does not act to prevent further episodes of angina.

Question:

You are asked to review a 29-year-old man who has presented to the out of hours GP with worsening lethargy and fatigue. On examination, you note that he is pale with scattered petechiae. He reports that he is passing only very small amounts of urine. His past medical history is unremarkable, except for a recent bout of gastroenteritis.

Bloods are as follows:

Hb 95 g/l Na+ 136 mmol/l Bilirubin 42 µmol/l

Platelets 57 \* 109/l K+ 4.3 mmol/l ALP 134 u/l

WBC 7.8 \* 109/l Urea 11.6 mmol/l ALT 33 u/l

Neuts 6.1 \* 109/l Creatinine 97 µmol/l γGT 23 u/l

Lymphs 1.5 \* 109/l Albumin 36 g/l

Eosin 0.1 \* 109/l

What is the most likely cause of his symptoms?

A.Guillain-Barré syndrome

B.Disseminated intravascular coagulation

C.Thrombotic thrombocytopaenic purpura

D.Haemolytic uraemic syndrome

E.Henoch–Schönlein purpura

Answer:Haemolytic uraemic syndrome

Explanation:

Normocytic anaemia, thrombocytopaenia and AKI following diarrhoeal illness - consider HUS

Important for meLess important

Haemolytic uraemic syndrome (HUS) occurs following exposure to toxin, most often infective diarrhoea. This diarrhoea may contain blood but this is not required for diagnosis.

Guillain-Barré presents with worsening lower limb weakness following gastroenteritis.

Disseminated intravascular coagulation would show pancytopaenia.

Henoch–Schönlein purpura is a vasculitis that can affect the skin, joints and kidneys. Classically, it can present as a triad of purpura, joint pain and abdominal pain.

Thrombotic thrombocytopaenic purpura (TTP) and HUS are both acute illnesses that present with thrombocytopaenia and anaemia. However, renal complications are more common in HUS whereas TTP generally presents with neurological signs (e.g. headaches, fevers, confusion).

Question:

A 64-year-old-man is admitted to the cardiology ward for routine catheter ablation to treat his atrial fibrillation. His wife asks whether he needs to continue his longterm apixaban.

What is the correct advice to give her and the patient?

A.Apixaban is no longer effective and it needs to be changed to warfarin

B.He no longer needs to take apixaban

C.The risk of stroke is the same and he will remain on apixaban

D.Continue apixaban for 1 week and then stop

E.Start on dalteparin instead of apixaban for 6 months and then stop

Answer:The risk of stroke is the same and he will remain on apixaban

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

There is no evidence to suggest that catheter ablation affects the anti-coagulation effect of apixaban and so it is not advised to change him to warfarin.

Catheter ablation is used to treat and control the rhythm in atrial fibrillation but has no effect on the stroke risk and therefore anticoagulation should be continued as per the CHA2DS2-VASC score.

Following catheter ablation the risk of stroke remains the same. Therefore if a patient was on anticoagulation before having the procedure he should continue anticoagulation treatment following catheter ablation.

Anticoagulation needs to be continued for the duration as advised by the CHA2DS2-VASC score:

If score = 0: 2 months anticoagulation recommended

If score > 1: longterm anticoagulation recommended

The mechanism of thrombus formation in atrial fibrillation and therefore risk of a stroke is complex and multi factorial and not simply due to stasis of the blood within the left atrium.

Virchow's triad identifies three factors contributing to the development of thrombus: stasis, endothelial injury and a hypercoagulability. There is evidence that shows the presence of endothelial dysfunction and hypercoagulability in AF in part due to endothelial damage in the left atrium due to inflammation. Hypertension, heart failure and aging often present in atrial fibrillation can also cause fibrosis and infiltration as a result of left atrial remodelling. This is associated with disruption of the collagenous extracellular matrix and has a potential to perpetuate not only conduction abnormalities leading to atrial fibrillation but also thrombus formation.

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 72-year-old man presents to the general practitioner with his wife. His wife is concerned as he is spending most of his pension on gambling, which is out of character for him. She says this has been since he started a new medication. He has a past medical history of Parkinson's disease.

What medication is likely to have caused this change in his personality?

A.Entacapone

B.Levodopa

C.Procyclidine

D.Rasagiline

E.Ropinirole

Answer:Ropinirole

Explanation:

Dopamine receptor agonists are associated with the highest chance of inhibition disorders out of the antiparkinsonian medications

Important for meLess important

Ropinirole is a dopamine receptor agonist. It works by mimicking the effect of dopamine on the post-synaptic receptors. This class of drugs are most strongly associated with inhibition disorders, which can manifest as excessive gambling, sexual disinhibition etc. Other side effects of this class of drugs include nausea and daytime drowsiness.

Entacapone is a catechol-O-methyltransferase (COMT) inhibitor. It works by inhibiting peripheral COMT to reduce the breakdown of levodopa and increase the amount available to cross the blood-brain barrier. Common side effects include discolouration of urine, sweat and saliva, along with diarrhoea.

Levodopa works by crossing the blood-brain barrier where it is converted to dopamine. It is used in conjunction with carbidopa, which is an inhibitor of the enzyme L-amino acid decarboxylase (also known as DOPA-decarboxylase). Levodopa and carbidopa are used together to prevent the systemic conversion of levodopa to dopamine, meaning more levodopa is able to cross the blood-brain barrier. Common side effects of levodopa include nausea, loss of appetite and discolouration of bodily fluids eg urine and saliva. The long term use of levodopa is associated with motor fluctuations (wearing off phenomenon) and drug-induced dyskinesia.

A reduction in dopamine causes an imbalance of the dopamine: acetylcholine ratio. The overstimulation of muscarinic acetylcholine receptors creates unwanted effects such as increased rigidity and tremor. Therefore, anticholinergic drugs such as procyclidine can be beneficial to reduce these unwanted symptoms. Common side effects include urinary retention, dry mouth and blurred vision.

Rasagiline is a monoamine oxidase inhibitor (MAOI). It selectively inhibits monoamine-oxidase type B, which breaks down synaptic dopamine. Common side effects are nausea, insomnia and dyspnoea. They can also cause a hypertensive crisis if combined with certain foods eg pickled herring and fava beans, so full counselling must be given prior to their use.

Question:

A 28-year-old primigravida has a spontaneous vaginal delivery at 38+2 weeks gestation. It is midwife-led and uncomplicated. She is reviewed the following morning on the post-natal ward by the obstetric team as she is requesting contraception. Her notes show she has no past medical history and no allergies. She is bottle-feeding the infant. Prior to conceiving, she was taking the combined oral contraceptive pill and she is keen to restart this. She reports that she could not tolerate the progesterone-only pill and doesn't like the idea of the intra-uterine system.

What should the patient be counselled on?

A.This can be prescribed and taken from 7 days post-partum

B.This can be prescribed and taken from 14 days post-partum

C.This can be prescribed and taken from 21 days post-partum

D.This can be prescribed and taken from 3 months post-partum

E.This can be prescribed and taken immediately

Answer:This can be prescribed and taken from 21 days post-partum

Explanation:

The COCP should not be used in the first 21 days due to the increased venous thromboembolism risk post-partum

Important for meLess important

This patient is requesting the combined oral contraceptive pill (COCP) which can be taken from 21 days post partum onwards. If she were breastfeeding, the combined oral contraceptive should be offered with caution due to the reduced volume of breast milk production when taking this medication.

As the COCP is associated with an increased risk of venous thromboembolism, immediately post-partum patients will still have pregnancy-induced hypercoagulability, and are likely to have reduced activity compared to usual, it would be inappropriate to prescribe and take the COCP immediately.

In the first post-partum week, the time taken to reach a defined clot is roughly half of the time in a normal physiological state - as such, it would be inappropriate to prescribe the COCP from 7 days post-partum as the patient is still hypercoagulable.

In the second post-partum week, there is still a reduced time to reach a defined clot compared to normal physiological states. Other factors such as the coagulation index also take around 3 weeks to return to a near-normal state. As such, it would be inappropriate to prescribe the COCP to be given from 14 days post-partum.

By 3 months post-partum, physiological parameters will have returned to normal and there will no longer be a clotting risk. The patient by this point may be engaging in sexual intercourse and, as such, is vulnerable to getting pregnant. As she has previously been using the COCP and relying on this for protection, there is a risk that she may not use barrier protection and could fall pregnant soon after her recent pregnancy. It would be inappropriate to make this patient wait for 3 months before taking the COCP as there is no need to delay her from returning to this medication for so long.

As highlighted above, pregnancy is a hypercoagulable state and there is a high risk of venous thromboembolism in patients immediately post-partum if they are given the COCP.

Question:

A 62-year-old black woman presents to her GP wanting to discontinue her current medication, due to the onset of a new rash that was noticed by her wife a few days ago. She has recently been started on prophylactic medication following a myocardial infarction a few weeks ago. This includes aspirin, candesartan, clopidogrel, metoprolol and simvastatin.

The rash is on the back of her right elbow, and is a well-demarcated raised area, with lines of dead skin on top, accompanied by a purple hue. The area is mildly itchy, but not painful.

She says that this rash looks similar to something her mother used to get on her knees, but she has never had it herself before.

Given the likely diagnosis, which drugs may have caused this presentation?

A.Aspirin only

B.Aspirin and metoprolol

C.Candesartan, clopidogrel and simvastatin

D.Candesartan only

E.Clopidogrel and simvastatin

Answer:Aspirin and metoprolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

This rash sounds like new-onset plaque psoriasis. The characteristic areas of plaque psoriasis are the elbows, knees, scalp, torso or buttocks. On black skin, plaque psoriasis will present with the same well-demarcated raised area as on white skin, but it may have a purple scale rather than a silver scale. There also appears to be a family history of the same rash, which would also point us in the direction of plaque psoriasis.

There are various drugs that may induce or aggravate plaque psoriasis. Drug-induced will commonly clear after the offending drug has been discounted, whilst drug-aggravated may persist afterwards. Nevertheless, for both types, there should be consideration given to either stopping or changing the offending drug. Of course, there must be consideration given to the benefit of the drug, weighing it up against the side effect of plaque psoriasis. For example, it would be unwise to stop aspirin post-myocardial infarction without a solid reason to do so.

Drugs that may aggravate or induce plaque psoriasis include beta-blockers (e.g. metoprolol), angiotensin-converting enzyme (ACE) inhibitors, non-steroidal anti-inflammatory drugs (NSAIDs) (e.g. aspirin), lithium or some antibiotics/antimalarials.

The correct answer here is aspirin and metoprolol, as this is an NSAID and a beta-blocker, which are known to affect plaque psoriasis.

Aspirin only is incorrect, as metoprolol should also be looked into, as it is a known drug that may be the offending factor.

Candesartan, clopidogrel and simvastatin are incorrect as none of these drugs are known to influence plaque psoriasis. It is important to note that candesartan is an angiotensin II receptor blockers (ARB), not an ACE inhibitor, and even though aspirin is an NSAID, clopidogrel is not.

Candesartan only is incorrect as there is no indication to look into candesartan. Also this missed metoprolol and aspirin as potential offenders.

Clopidogrel and simvastatin are incorrect, as explained above, neither of these are known to be implicated in plaque psoriasis.

Question:

Which one of the following is true regarding Escherichia coli infection?

A.It is a Gram negative coccus

B.E coli is an important cause of neonatal meningitis

C.The O157:H7 strain is typically spread via shellfish

D.Severe infection should be treated with teicoplanin

E.It is an aerobic bacteria

Answer:E coli is an important cause of neonatal meningitis

Explanation:

Escherichia coli is classified as a facultative anaerobe

Question:

A 42-year-old man visits his GP for an annual blood pressure check. He is known to have a history of schizophrenia. During his appointment, he is very talkative and makes odd statements such as 'my mini mouse might make me mumble' and 'aspirin is an amazing antidote'.

What thought disorder best describes this pattern of speech?

A.Clang associations

B.Echolalia

C.Illogicality

D.Semantic paraphasia

E.Word salad

Answer:Clang associations

Explanation:

Clang associations - ideas related only by rhyme or being similar sounding

Important for meLess important

Clang associations is correct. These may be seen in bipolar disorders and schizophrenia, and are characterised by the use of words and ideas that are only related because they rhyme or sound similar. The two sentences suggested are seemingly random in their content, besides their alliterative nature; alliteration may be a feature of clanging.

Echolalia is incorrect. This is characterised by the patient's repetition of words and phrases used by an interviewer.

Illogicality is incorrect. Here, patients will reach conclusions that do not logically follow on from the previous statement or argument; they are also known as non-sequiturs or faulty inferences.

Semantic paraphasia is incorrect. Here, words are inappropriately substituted; e.g. 'I baked the cake in the dustbin, then I put the butter back in the dog'.

Word salad is incorrect. Both of these thought disorders are characterised by nonsensical speech, but the strong rhyming connection between the words in these sentences is more characteristic of clanging. 'Word salad' is a random collection of words that form sentences that may apparently have some grammatical coherence and meaning, but actually carry no significance; an example is Noam Chomsky's phrase 'Colourless green ideas sleep furiously.'.

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:

A 22-year-old man is brought to the emergency department by ambulance following a paracetamol overdose. The patient is alert but drowsy. At the scene, the ambulance crew reported finding empty paracetamol packets equating to a taken dose of approximately 13g of paracetamol. Based on family reports and texts the patient sent, it is thought that the overdose took place approximately 9 hours ago in one episode.

Bloods are taken for the patient (including a paracetamol level), but results are pending. Observations are stable and the patient's weight is 71kg.

What is the next best management step?

A.Gastric lavage

B.Give activated charcoal

C.Give sodium bicarbonate

D.Observe and monitor until paracetamol levels return

E.Start acetylcysteine

Answer:Start acetylcysteine

Explanation:

Paracetamol overdose: if presentation 8-24 hours after ingestion of an overdose of more than 150 mg/kg start acetylcysteine even if the plasma-paracetamol concentration is not yet available

Important for meLess important

This scenario describes a 22-year-old man who had taken a significant paracetamol overdose approximately 9 hours ago. There are extensive guidelines on paracetamol poisoning. Based on his weight, he has taken approximately 183mg/kg of paracetamol. For patients who present 8-24 hours after ingestion of more than 150mg/kg of paracetamol, acetylcysteine should be started despite bloods not yet being returned.

Gastric lavage is not correct. Gastric lavage is not typically used in paracetamol poisoning, but may instead play a role in overdose of substances such as lithium.

Give activated charcoal is incorrect as this is typically reserved for patients presenting within 1 hour of poisoning. As this patient is 9 hours following ingestion it is not of likely benefit.

Give sodium bicarbonate is not appropriate. Sodium bicarbonate may be used in tricyclic antidepressant poisoning to arrest arrhythmias. It is not typically used in paracetamol poisoning.

Observe and monitor until paracetamol levels return is not correct. Whilst you may wait for less significant paracetamol poisoning or if the patient presented earlier following ingestion (provided there would not be a significant delay in getting results), as this patient has had a significant overdose and has presented between 8-24 hours after ingestion, acetylcysteine should be started immediately.

Question:

A 28-year-old man develops nausea and a severe headache whilst trekking in Nepal. Within the next hour he becomes ataxic and confused. A diagnosis of high altitude cerebral oedema is suspected. Other than descent and oxygen, what is the most important treatment?

A.Acetazolamide

B.Dexamethasone

C.Burr hole

D.Naproxen

E.Furosemide

Answer:Dexamethasone

Explanation:

Acetazolamide is used more in the prevention of high altitude cerebral oedema, rather than the treatment.

Question:

A 72-year-old man with metastatic small cell lung cancer is admitted to the local hospice for symptom control. His main problem at the moment is intractable hiccups. What is the most appropriate management?

A.Chlorpromazine

B.Codeine phosphate

C.Diazepam

D.Methadone

E.Phenytoin

Answer:Chlorpromazine

Explanation:

Hiccups in palliative care - chlorpromazine or haloperidol

Important for meLess important

Haloperidol may also be used

Question:

A 55-year-old man is an inpatient at hospital. He is complaining about his abdomen, which is distended. He is under investigation for the cause of his ascites, and tests reveal a serum-ascites albumin gradient (SAAG) of 13 g/L (values of more than 11 g/L are considered raised).

Which of the following is the most likely cause of his ascites?

A.Bowel obstruction

B.Pancreatic ascites

C.Liver cirrhosis

D.Tuberculous peritonitis

E.Post-operative lymphatic leak

Answer:Liver cirrhosis

Explanation:

Ascites: a high SAAG gradient (> 11g/L) indicates portal hypertension

Important for meLess important

SAAG = serum-ascites albumin gradient

SAAG = (serum albumin concentration) - (ascitic albumin concentration)

A high SAAG (>11 g/L) is an indication of portal hypertension. This is because increased hydrostatic pressure forces fluid out of the vascular spaces, concentrating serum albumin.

Liver cirrhosis is the only cause of a high SAAG ascites listed.

The other answers are causes of low SAAG ascites.

Question:

A 15-year-old boy undergoes an emergency splenectomy for trauma. He makes a full recovery and is discharged home. Eight weeks post operatively the general practitioner performs a full blood count with a blood film. Which of the following is most likely to be present?

A.Myofibroblasts

B.Howell-Jolly bodies

C.Multinucleate giant cells

D.Reed Sternberg Cells

E.None of the above

Answer:Howell-Jolly bodies

Explanation:

Post splenectomy blood film features:

Howell- Jolly bodies

Pappenheimer bodies

Target cells

Irregular contracted erythrocytes

Important for meLess important

As the filtration function is the spleen is no longer present Howell-Jolly bodies are found.

Question:

Which one the following statements regarding asbestos is not correct?

A.Pleural plaques are premalignant

B.Asbestosis typically affects the lower zones

C.Crocidolite (blue) asbestos is the most dangerous form

D.Severity of asbestosis is related to the length of exposure

E.Mesothelioma may develop following minimal exposure

Answer:Pleural plaques are premalignant

Explanation:

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:

You are called to the orthopaedic ward to review a 78-year-old man. The nurses have recorded his blood sugar level at 2.4mmol/L. He is recovering following surgery for a neck femur fracture. He has a history of hypertension, diabetes, and chronic renal failure.

On examination, he is slightly agitated but able to answer your questions, his heart rate is 78bpm and blood pressure 134/82mmHg.

What is the most appropriate first-line treatment?

A.10% dextrose IV

B.20% dextrose IV

C.Glucagon, IM

D.Glucogel, orally

E.Sandwich, orally

Answer:Glucogel, orally

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

This patient is conscious and able to swallow so the most appropriate first-line treatment is a fast-acting oral carbohydrate. This can be as a liquid, tablet or gel, so in this case glucogel is the single best answer.

Intravenous 20% glucose solution may be given through a large vein to patients who are unconscious. In this case, the patient is drowsy but able to speak and so oral treatment would be the best first-line treatment. 10% dextrose IV is not the recommended level to correct hypoglycaemia.

If the patient is unconscious or unable to swallow, subcutaneous or intramuscular injection glucagon may be given. In this case, the patient is conscious and so this is not the right answer.

A sandwich can be a useful adjunct after acutely treating the hypoglycaemic episode, but it is a slower acting carbohydrate than a fast-acting glucose liquid required in this scenario. In the acute phase, if the patient is alert, a quick-acting carbohydrate should be given.

Question:

A 51-year-old woman presents to the emergency department complaining of a severe worsening headache and double vision for the last 2 days. On examination, she is found to have bilateral papilloedema. She was recently admitted and treated for meningitis, during this admission she underwent a lumbar puncture. This patient has a BMI of 22 kg/m² and is only currently taking the oral contraceptive pill.

A non-contrast CT head scan appears normal and an MRI head with MR venography is done. It is reported that an 'empty delta sign' is seen on venography.

What diagnosis is this sign suggestive of?

A.Cavernous sinus syndrome

B.Idiopathic intracranial hypertension

C.Sagittal sinus thrombosis

D.Subarachnoid haemorrhage

E.Transverse sinus thrombosis

Answer:Sagittal sinus thrombosis

Explanation:

Sagittal sinus thrombosis - 'empty delta sign' seen on venography

Important for meLess important

Sagittal sinus thrombosis is correct. This patient has evidence of raised intracranial pressure (headache, diplopia, bilateral papilloedema) which is most likely a result of cerebral venous thrombosis. Either noninfectious or infectious aetiologies can cause cerebral venous thrombosis. In this scenario, the patient has had meningitis (infectious cause) and a lumbar puncture (possible noninfectious cause). She is also currently taking the oral contraceptive pill which is a risk factor for developing cerebral venous thrombosis. A sagittal sinus thrombosis is associated with raised ICP and the 'empty delta sign' on venography.

Idiopathic intracranial hypertension is incorrect. This is associated with an 'empty sella' on MRI with MR venography. Additionally, idiopathic intracranial hypertension is classically seen in young (20-30 years) and overweight women. This patient is older and she is not overweight.

Subarachnoid haemorrhage is incorrect. This would typically present as a sudden-onset 'thunderclap' headache that patients describe as 'the worst headache of their life', which does not apply in this scenario as the patient's headache has progressively been worsening. As well as this, patients may have features of meningism (e.g. neck stiffness and photophobia), which do not apply in this scenario. A CT head scan may pick up a subarachnoid haemorrhage as well. The presence of an empty delta sign makes sagittal sinus thrombosis a more likely diagnosis.

Cavernous sinus syndrome is incorrect. There is no mention of proptosis, periorbital oedema, ophthalmoplegia, or any other cranial nerve signs which would suggest this diagnosis.

Transverse sinus thrombosis is incorrect. This is not associated with the 'empty delta sign' on venography.

Question:

A 43-year-old attends her general practitioner with recurrent infections, reduced appetite and a fullness in her abdomen. She has a history of coeliac disease.

Which of the following would likely be seen on a blood film?

A.Basophilic stippling

B.Heinz bodies

C.Howell-Jolly bodies

D.Tear drop poikilocytes

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 cause of this woman's symptoms is functional hyposplenism as a result of her coeliac disease. On a blood film this may show Howell-Jolly bodies and target cells.

Basophilic stippling is a sign of disturbed erythropoiesis and is associated with several causes of anaemia however hyposplenism in the context of coeliac disease is not one.

Heinz bodies represents damage to haemoglobin and is associated with Glucose-6-phosphate dehydrogenase (G6PD) deficiency and alpha-thalassaemia.

Tear drop poikilocytes can be seen in myelofibrosis.

Spherocytes is most commonly associated with hereditary spherocytosis.

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 6-year-old boy is brought to the GP surgery by his mum. He has been complaining of itching around his bottom at night time and has said to his mum that he has noticed small white strands moving in his stool. He is not constipated and is otherwise well. Nobody in the house has any similar symptoms. The boy lives with his parents and his three-month-old sister.

What is the next step?

A.Advise mum to apply Sellotape to the perianal area and bring it in to be sent to the laboratory to confirm the diagnosis

B.Advise on hygiene and adequate fluids

C.Mebendazole and hygiene measures for his parents and three-month-old sister

D.Mebendazole and hygiene measures for the patient and his parents, as his sister is too young

E.Permethrin and hygiene measures for all household contacts

Answer:Mebendazole and hygiene measures for the patient and his parents, as his sister is too young

Explanation:

Household contacts of patients with threadworms should be treated even if they have no symptoms

Important for meLess important

This boy has threadworms.

Mebendazole and hygiene measures for the patient and his parents, as his sister is too young is the correct answer. Asymptomatic household contacts of patients with threadworms should receive treatment.

Advise mum to apply Sellotape to the perianal area and bring it in to be sent to the laboratory to confirm the diagnosis is incorrect. A sample can be sent to confirm the diagnosis, however, NICE recommends that the majority of patients are treated empirically. In this case, the diagnosis is clear from the history and therefore empirical treatment is appropriate.

Advise on hygiene and adequate fluids would not treat the threadworm infection. Whilst advice would form an important part of the consultation and encouraging fluid intake is especially relevant if the child were constipated, this patient will require treatment for their symptoms.

Mebendazole should only be given to those over six months, therefore prescribing mebendazole and hygiene measures for all household contacts is not appropriate as he lives with his three-month-old sister.

Prescribing Mebendazole and hygiene measures for his parents and three-month-old sister is not the most appropriate step here. Permethrin is a treatment for scabies and would not treat the threadworm that the child is presenting with. Scabies presents with intense itching worse at night and a rash with burrows.

Question:

A 37-year-old lady presents to the emergency department with severe epigastric pain and non-bilious vomiting since 2 days. Today, she describes retching but not bringing anything up. On examination, her abdomen is distended and there is generalised guarding and rigidity. The surgical registrar asks for a nasogastric tube to be inserted, however three attempts at this are unsuccessful. What is the most likely diagnosis?

A.Small bowel obstruction

B.Sigmoid volvulus

C.Pancreatitis

D.Gastric volvulus

E.Large bowel obstruction

Answer:Gastric volvulus

Explanation:

Gastric volvulus- triad of vomiting, pain and failed attempts to pass an NG tube

Important for meLess important

While the distended abdomen suggests obstruction, and the vomiting seems to localise this to the small bowel, the main clue is in the failed attempts to pass an NG tube. This can be remembered with Borchardt's triad of severe epigastric pain, retching and inability to pass an NG tube, which together suggest a gastric volvulus.

Question:

A 72-year-old man is diagnosed with prostate cancer and goserelin (Zoladex) is prescribed. Which one of the following is it most important to co-prescribe for the first three weeks of treatment?

A.Tamoxifen

B.Lansoprazole

C.Allopurinol

D.Cyproterone acetate

E.Tamsulosin

Answer:Cyproterone acetate

Explanation:

Anti-androgen treatment such as cyproterone acetate should be co-prescribed when starting gonadorelin analogues due to the risk of tumour flare. This phenomenon is secondary to initial stimulation of luteinising hormone release by the pituitary gland resulting in increased testosterone levels.

The BNF advises starting cyproterone acetate 3 days before the gonadorelin analogue.

Question:

A 44-year-old man is seen in the rheumatology clinic after being diagnosed with rheumatoid arthritis 4 months ago. He was initially started on methotrexate, however, was unable to tolerate its side effects. The consultant is considering starting the patient on hydroxychloroquine.

What should occur before the patient commences treatment?

A.Chest X-ray

B.Ultrasound of liver

C.Blood film

D.Examination by an ophthalmologist

E.Lung function testing

Answer:Examination by an ophthalmologist

Explanation:

Patients that will be taking hydroxychloroquine long-term now require baseline ophthalmologic examination at the outset of treatment

Important for meLess important

Recent data suggest that retinopathy caused by hydroxychloroquine is more common than previously thought and the most recent RCOphth guidelines (March 2018) suggest colour retinal photography and spectral domain optical coherence tomography scanning of the macula for patients likely to be taking the drug for more than 5 years.

Whilst it is advisable to carry out a full blood count plus renal and liver function tests upon initiating hydroxychloroquine, the other possible options would all be unnecessary.

Question:

You are called to review a female baby born 22 hours ago, at 33 weeks gestation, as the nurse is worried about her.

After conducting a thorough examination, and noting that the mother was positive for group B streptococcus, you provisionally diagnose the baby with neonatal sepsis and initiate treatment.

Which of the following options is the most common finding with regards to this diagnosis?

A.Apnoea

B.Jaundice

C.Poor feeding

D.Respiratory distress

E.Seizures

Answer:Respiratory distress

Explanation:

Grunting and other signs of respiratory distress are the most common presentation of neonatal sepsis

Important for meLess important

With neonatal sepsis, by far the most common presentation is that of respiratory distress (approximately 85% of cases) - grunting, nasal flaring, tachypnoea and the use of accessory respiratory muscles.

The other options may all be present, but are less common - jaundice is seen in 35%, poor feeding in 30%, seizures in 35% and apnoea in 40%.

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 54-year-old builder presents to his general practitioner with a lump in his groin. He has a past medical history of chronic obstructive pulmonary disease and no other past medical or surgical history. He reports the lump appeared three weeks ago, is mildly painful and has not grown in size. On examination, there is a reducible soft, single lump on the left side which lies superior to the pubic tubercle with no overlying skin changes. You suspect this is an indirect inguinal hernia.

What examination would confirm your suspected diagnosis?

A.If you note on repeat examination that there are bilateral lumps

B.No reappearance during coughing when covering the deep inguinal ring

C.No reappearance of lump during coughing when covering the femoral ring

D.Reappearance of lump during coughing when covering the deep inguinal ring

E.Reappearance of lump during coughing when covering the femoral ring

Answer:No reappearance during coughing when covering the deep inguinal ring

Explanation:

After reducing the hernia, indirect hernia can be controlled by applying pressure over the deep inguinal ring

Important for meLess important

This question requires knowledge of the inguinal canal to answer. As indirect inguinal hernias protrude through the inguinal canal, returning them to the abdominal cavity (through reducing the hernia) and covering the deep inguinal ring stops the hernia from reappearing during increased intra-abdominal pressure (coughing).

Noting bilateral herniae is not the correct answer as this would not confirm or refute the diagnosis, it should also be noted this is a highly uncommon finding.

There is no 'femoral ring' and, as such, both answers referring to these are incorrect.

Reappearance of the lump during coughing when covering the deep inguinal ring would indicate the hernia is direct. This is because the herniated bowel does not pass through the deep inguinal ring in direct hernias.

Inguinal herniae occur due to a hole in the internal oblique and transversus muscles. Indirect herniae are lateral to the inferior epigastric blood vessels, whereas direct herniae are medial to these vessels. This is important to note in surgical repair.

For a visual representation, please see Medbullets: https://step1.medbullets.com/gastrointestinal/110019/hernias

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 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:

A father brings his 15-month-old son in for review. He started walking two months ago. The father has noticed that his son seems to be 'bow-legged' when he walks.

Examination of the knees and hips is unremarkable with a full range of movement. Leg length is equal. On standing the intercondylar distance is around 7cm.

What is the most appropriate action?

A.Refer to orthotics for shoe inserts

B.Reassure that it is a normal variant and likely to resolve by the age of 4 years

C.Refer to paediatric orthopaedics

D.Refer to physiotherapy for plantar flexion stretching exercises

E.Request an x-ray of the knees

Answer:Reassure that it is a normal variant and likely to resolve by the age of 4 years

Explanation:

Bow legs in a child < 3 is a normal variant and usually resolves by the age of 4 years

Important for meLess important

Question:

What is the main mechanism of action of simvastatin?

A.Bile acid sequestrant

B.Decreases hepatic HDL synthesis

C.Inhibits lipoprotein lipase

D.Decreases intrinsic cholesterol synthesis

E.Agonists of PPAR-alpha

Answer:Decreases intrinsic cholesterol synthesis

Explanation:

Statins inhibit HMG-CoA reductase, the rate-limiting enzyme in hepatic cholesterol synthesis

Important for meLess important

Question:

A nurse undergoes primary immunisation against hepatitis B. Levels of which one of the following should be checked four months later to ensure an adequate response to immunisation?

A.Anti-HBs

B.Anti-HBc

C.Hepatitis B viral load

D.HbeAg

E.HBsAg

Answer:Anti-HBs

Explanation:

It is preferable to achieve anti-HBs levels above 100 mIU/ml, although levels of 10 mIU/ml or more are generally accepted as enough to protect against infection

Question:

A 55-year-old man presents to the emergency department with a fever and yellow skin and eyes. He has recently had an illness characterized by fever, chills, headache, and myalgia after returning from Angola. He seemed to recover from the illness and was well for a period of 48 hours before deteriorating. He has a past medical history of rheumatoid arthritis and is on tocilizumab.

On examination, there is bleeding from his eyes and mucus membranes and he is visibly jaundiced. The temperature is 38.5ºC.

What is the likely diagnosis?

A.Ebola

B.Lassa fever

C.Malaria

D.Typhoid

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 the correct answer. The patient presents with a flu-like illness after returning from Nigeria, followed by a brief period of remission with subsequent recrudescence of fever and the development of jaundice and haemorrhage from the eyes and mucus membranes. This presentation is typical of yellow fever (and the brief period of remission is characteristic). Tocilizumab treatment for rheumatoid arthritis means the yellow fever vaccine is contraindicated and would put the patient at increased risk of developing the illness.

Ebola is incorrect. This is a cause of viral hemorrhagic fever and can cause flu-like symptoms and subsequent jaundice and hemorrhagic complications. However, a period of remission before the recrudescence of the disease is not typical. Furthermore, Angola has never had an ebola outbreak but yellow fever is endemic. In this context, this diagnosis is less likely.

Lassa fever is incorrect. This is another viral hemorrhagic fever that can result in fever and bleeding from mucus membranes. However, it is mainly endemic in West Africa and unlikely to be found in Angola.

Malaria is incorrect. This is of course the common cause of fever in the returning traveller. It is said that the three most common causes of fever in returning travellers are malaria, malaria, and malaria! However, this is unlikely to cause hemorrhagic complications in contrast to yellow fever and therefore is less likely in this case.

Typhoid is incorrect. This is another one of the three most common causes of fever in the returning traveller. It is typified by fever, myalgia, and constipation. Bleeding complications are not expected and so this is less likely.

Question:

A 29-year-old woman who is 38 weeks pregnant contacts you to ask for information about the newborn hearing screening programme. She is worried about damage to her baby's ears and is unsure if she wants to consent to this screening.

What test is offered to all newborn babies as part of this screening programme?

A.Auditory brainstem response test

B.Automated otoacoustic emission test

C.Play audiometry

D.Pure tone audiometry

E.Visual reinforcement audiometry

Answer:Automated otoacoustic emission test

Explanation:

Otoacoustic emission test is used to screen newborns for hearing problems

Important for meLess important

The correct answer is automated otoacoustic emission test. This is the test used in newborn hearing screening and involves putting a small soft-tipped earpiece in the outer part of a baby's ear which sends clicking sounds down the ear. The presence of a soft echo indicates a healthy cochlea.

Auditory brainstem response test is incorrect. This may be done by an audiologist if a baby is not found to have satisfactory hearing during newborn screening with the automated otoacoustic emission test. It involves placing small sensors on the baby, sounds of different frequencies are played into their ears and a computer records the response.

Play audiometry is incorrect. Children between two and five years old may have a play audiometry test. It is not suitable for newborns as the child is required to perform a simple task when they hear a sound.

Pure tone audiometry incorrect. It is used in older children (school age) and adults and is not suitable for use in newborns as the patient must respond when they hear a noise by pressing a button.

Visual reinforcement audiometry is incorrect. This is usually used to test hearing in children from approximately seven months of age up to two-and-a-half years old. It is not suitable for newborns as a child is required to link sounds to a visual reward such as a toy.

Question:

A 33-year-old female is referred by her GP with thyrotoxicosis. Following a discussion of management options she elects to have radioiodine therapy. Which one of the following is the most likely adverse effect?

A.Hypothyroidism

B.Thyroid malignancy

C.Agranulocytosis

D.Oesophagitis

E.Precipitation of thyroid eye disease

Answer:Hypothyroidism

Explanation:

It is well documented that radioiodine therapy can precipitate thyroid eye disease but a majority of patients eventually require thyroxine replacement

Question:

A 68-year-old man presents to the emergency department after noticing several large bruises on his legs after minor trauma. The patient otherwise feels well in himself with no constitutional symptoms. His past medical history is significant for a prosthetic aortic valve, for which he takes warfarin. He says that he was recently prescribed a new medication by his general practitioner.

On examination, the patient appears well. His INR is measured to be 4.3, though he confirms that he has been taking his warfarin as prescribed.

What additional drug has likely caused the patient's raised INR?

A.Clindamycin

B.Doxycycline

C.Metronidazole

D.Phenytoin

E.Rifampicin

Answer:Metronidazole

Explanation:

Metronidazole increases the anticoagulant effect of warfarin

Important for meLess important

Metronidazole is correct. This is the only drug listed that would increase the anticoagulant effect of warfarin. Metronidazole is thought to inhibit CYP2C9, the enzyme that metabolises warfarin. This delayed metabolism of warfarin is thought to increase its anticoagulant effect.

Clindamycin is incorrect. Although macrolide antibiotics such as erythromycin and clarithromycin are considered high-risk for interaction with warfarin, the risk associated with clindamycin is considered low.

Doxycycline is incorrect. Doxycycline is not known to affect the metabolism of warfarin and would not cause the patient's raised INR.

Phenytoin is incorrect. It is an enzyme inducer that decreases the anticoagulant effect of warfarin. Other notable side effects of phenytoin include gingival hyperplasia and agranulocytosis.

Rifampicin is incorrect. It is an enzyme inducer that decreases the anticoagulant effect of warfarin.

Question:

A 74-year-old man presents with dizziness. He describes the dizziness as a spinning sensation which came on suddenly this morning while he was doing the gardening. He also complains of right-sided hearing loss over the past 9 months, which is progressively getting worse. The hearing loss is present throughout the day. On examination, he does not have nystagmus or middle ear signs. Weber's test lateralises to the left ear and Rinne's is positive in both ears.

What is the most likely diagnosis?

A.Presbycusis

B.Meniere's disease

C.Benign paroxysmal positional vertigo

D.Acoustic neuroma

E.Posterior circulation infarct

Answer:Acoustic neuroma

Explanation:

The classical history of vestibular schwannoma includes a combination of vertigo, hearing loss, tinnitus and an absent corneal reflex

Important for meLess important

When a patient complains of dizziness, it is essential to establish what exactly they mean by this term. In this case, the description of dizziness suggests vertigo.

The special hearing tests, in this case, are suggestive of right-sided sensorineural hearing loss.

The progressive nature, unilateral sensorineural hearing loss, and associated vertigo are concerning and should raise suspicion of an acoustic neuroma.

The constant hearing loss and progressive nature make Meniere's disease less likely. Meniere's disease is associated with attacks with a duration of several hours.

Question:

A 22-year-old man presents to the GP complaining of left-sided testicular pain. He said this pain came on yesterday evening and has been gradually worsening. He describes the pain as a 7/10 in severity.

On examination, the left testicle is noticeably larger than the right testicle and there is erythema present. The cremasteric reflex is present.

The patient tells you he has had several new sexual partners in the last month and has not used barrier contraception.

Given the likely diagnosis, what treatment should be prescribed whilst awaiting investigation results?

A.Benzathine penicillin IM single dose + oral azithromycin for 7 days

B.Benzathine penicillin IM single dose + oral metronidazole for 5-7 days

C.Ceftriaxone IM single dose + oral doxycycline for 10-14 days

D.Ceftriaxone IM single dose + oral metronidazole for 5-7 days

E.Oral azithromycin for 7 days + oral metronidazole for 5-7 days

Answer:Ceftriaxone IM single dose + oral doxycycline for 10-14 days

Explanation:

Suspected epididymo-orchitis: If unknown organism: ceftriaxone 500mg intramuscularly single dose, plus oral doxycycline 100mg twice daily for 10-14 days

Important for meLess important

This patient is presenting with a likely diagnosis of epididymo-orchitis. We can deduce this given the symptoms the patient is presenting with - unilateral pain and swelling combined with the history of a sexually active young adult. The important differential to rule out, in this case, is testicular torsion. As the cremasteric reflex is present, we can be reassured that this is a likely diagnosis of epididymo-orchitis.

Ceftriaxone IM single dose + oral doxycycline for 10-14 days is correct. According to the 'British Association for Sexual Health and HIV' treatment for epididymo-orchitis should not be delayed whilst waiting for the results of a sexual health screen. Empirical treatment should be started and reviewed when the results return. Empirical treatment consists of a STAT dose of IM ceftriaxone to cover for Neisseria gonorrhoeae and a 10-14 day course of oral doxycycline to cover for Chlamydia trachomatis. This treatment reflects the most commonly transmitted bacterial sexually transmitted infections in the UK.

Benzathine penicillin IM single dose + oral azithromycin for 7 days is incorrect. Benzathine penicillin IM single dose is the treatment for a syphilis infection caused by Treponema pallidum. Syphilis is less common than Chlamydia trachomatis and Neisseria gonorrhoeae infections and so therefore would not be covered in the empirical treatment. Oral azithromycin was previously given in the treatment of Neisseria gonorrhoeae in combination with IM ceftriaxone. However, new guidelines advocate the treatment of Neisseria gonorrhoeae with IM ceftriaxone alone (unless needle-phobic).

Benzathine penicillin IM single dose + oral metronidazole for 5-7 days is incorrect. Benzathine penicillin IM single dose is the treatment for a syphilis infection caused by Treponema pallidum and oral metronidazole for 5-7 days is the treatment for Trichomonas vaginalis and bacterial vaginosis. Syphilis and Trichomonas vaginalis are less common than Chlamydia trachomatis and Neisseria gonorrhoeae and so, therefore, these treatments are not part of the empirical treatment of epididymo-orchitis.

Ceftriaxone IM single dose + oral metronidazole for 5-7 days is incorrect. This treatment is partially correct as it includes a STAT dose of IM ceftriaxone to cover for Neisseria gonorrhoeae. However, it includes oral metronidazole. Oral metronidazole is used in the treatment of Trichomonas vaginalis and bacterial vaginosis. Trichomonas vaginalis is much less common than Chlamydia trachomatis and Neisseria gonorrhoeae and so, therefore, is not part of the empirical treatment of epididymo-orchitis.

Oral azithromycin for 7 days + oral metronidazole for 5-7 days is incorrect. Oral azithromycin was previously given in the treatment of Neisseria gonorrhoeae in combination with IM ceftriaxone. However, new guidelines advocate the treatment of Neisseria gonorrhoeae with IM ceftriaxone alone (unless needle-phobic). Oral metronidazole is used in the treatment of Trichomonas vaginalis and bacterial vaginosis. Trichomonas vaginalis is much less common than Chlamydia trachomatis and Neisseria gonorrhoeae and so, therefore, is not part of the empirical treatment of epididymo-orchitis.

Question:

A 25-year-old woman is seen in clinic with a 2-week history of restlessness, sweating, anxiety, and occasional palpitations. This has never happened to her before. She has a past medical history of allergic rhinitis and is currently 8 weeks pregnant.

On examination, her temperature is 37ºC, her heart rate is 105 bpm, and her blood pressure is 135/85 mmHg. A smooth non-tender goitre is present on examination and an abdominal examination is unremarkable.

Investigations show:

Thyroid-stimulating hormone (TSH) 0.1 mU/L (0.5-5.5)

Free T4 27 pmol/L (9.0 - 18)

What is the most appropriate next step in her management?

A.Arrange thyroid uptake scan

B.Prescribe carbimazole

C.Prescribe propylthiouracil

D.Refer for radioiodine treatment

E.Refer for thyroid surgery

Answer:Prescribe propylthiouracil

Explanation:

In pregnant woman who develop hyperthyroidism in the first trimester, propylthiouracil is preferred over carbimazole due to lower risk of foetal malformation

Important for meLess important

Prescribe propylthiouracil is correct. This patient has signs of hyperthyroidism, characterised by her restlessness, palpitations, anxiety, and sweating, possibly due to Graves' disease due to the presence of a smooth and non-tender goitre. The investigation findings confirm hyperthyroidism as the elevated levels of T4 exert negative feedback on the pituitary gland leading to reduced TSH secretion. Given that this patient is pregnant and in the first trimester, NICE recommends that propylthiouracil is used in its management, as carbimazole is associated with an increased risk of congenital abnormalities. In the second trimester, carbimazole may be considered as propylthiouracil has an increased risk of severe hepatic injury. Hyperthyroidism in pregnancy should be effectively treated as it can lead to an increased risk of foetal loss, maternal heart failure, and premature labour.

Arrange thyroid uptake scan is incorrect. Although this would be considered in patients to assess the characteristics of the goitre present, this involves the use of radioactive tracers, which are contraindicated in pregnancy. Excess radiation in pregnancy may lead to growth restriction, cancer, and malformations.

Prescribe carbimazole is incorrect. Although this is considered in the second trimester of pregnancy, this patient is in the first. The use of carbimazole in the first trimester of pregnancy is associated with an increased risk of congenital abnormalities and NICE recommends using propylthiouracil. Once the patient is in the second trimester, they may be moved onto carbimazole to mitigate the risk of severe hepatic injury associated with propylthiouracil.

Refer for radioiodine treatment is incorrect. Although this may be used in cases of Graves' disease where antithyroid drugs are unsuccessful, the use of radioactive material is contraindicated in pregnancy as excess radiation in pregnancy may lead to growth restriction, cancer, and malformations.

Refer for thyroid surgery is incorrect. It would be more appropriate to medically manage this patient's hyperthyroidism due to the risks associated with surgery (such as bleeding and infection). Given that this patient is pregnant, the risks would also apply to the foetus as well (such as the increased risk of foetal loss, premature birth, low birth weight etc.), it would be most appropriate to try medical management first.

Question:

A 32-year-old man attends complaining of many months of feeling tired all the time and joint pain. A colleague recently commented that he looked a bit yellow. He remembered that his father had a problem with his liver and had to have blood taken regularly. You suspect he may have haemochromatosis, and take some bloods.

What blood results would be in-keeping with your suspected diagnosis?

A.Transferrin saturation: high, Ferritin: high, Total iron binding capacity: low

B.Transferrin saturation: high, Ferritin: low, Total iron binding capacity: low

C.Transferrin saturation: high, Ferritin: low, Total iron binding capacity: high

D.Transferrin saturation: low, Ferritin: high, Total iron binding capacity: low

E.Transferrin saturation: low, Ferritin: low, Total iron binding capacity: high

Answer:Transferrin saturation: high, Ferritin: high, Total iron binding capacity: low

Explanation:

Raised transferrin saturation and ferritin, with low TIBC is the characteristic iron study profile in haemochromatosis

Important for meLess important

The characteristic result would be a raised transferrin saturation and ferritin, but a low total iron binding capacity. This is because haemochromatosis is a disorder of iron storage, and does not raise the amount of iron in the circulation.

In a patient with early disease, the ferritin may not yet be significantly raised. The fact that this man has developed jaundice suggests his disease has progressed past this.

The remaining results are incorrect- transferrin is the most useful marker and will be raised.

Question:

An 84-year-old woman with a history of ischaemic heart disease is reviewed in a nursing home. She has developed tense blistering lesions on her legs. Each lesion is around 1 to 3 cm in diameter and she reports that they are slightly pruritic. Examination of her mouth and vulva is unremarkable. What is the most likely diagnosis?

A.Pemphigus

B.Drug reaction to aspirin

C.Epidermolysis bullosa

D.Scabies

E.Bullous pemphigoid

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 67-year-old woman who complains of intermittent left iliac fossa pain has a barium enema.

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What does the image demonstrate?

A.Multiple colonic polyps

B.Adhesions affecting the colon

C.Colon cancer

D.Diverticulosis

E.Ulcerative colitis

Answer:Diverticulosis

Explanation:

Question:

A 72-year-old male has been diagnosed with rectal carcinoma. He is due to undergo a lower anterior resection. The aim of the resection is to restore intestinal continuity. Which is the most appropriate type of stoma?

A.End colostomy

B.End ileostomy

C.Loop ileostomy

D.Caecostomy

E.Total colectomy

Answer:Loop ileostomy

Explanation:

Loop ileostomy is a method to divert bowel contents away from a distal anastomosis. It is often indicated in rectal cancers. Reversal of the ileostomy restores bowel continuity and improves the patient's overall quality of life.

Question:

A mother brings in her 6-year-old boy who complains of 'an itchy bottom' at night. He is otherwise systemically well, developing normally and denies any change in his bowel habit. An external examination of the anus is unremarkable.

Which one of the following is the most likely cause?

A.Threadworms

B.Human roundworm

C.Psoriasis

D.Haemorrhoids

E.Tapeworm

Answer:Threadworms

Explanation:

Threadworms are a common cause of anal itching in children. Examination is often unremarkable. Threadworms are best seen at nighttime and appear like moving white threads in the anal area.

Human roundworm does not usually cause itching and are rare in the UK.

Tapeworms are parasites that can live in the intestine, they do not cause anal itching and are often asymptomatic

Psoriasis is usually found on the elbows, knees, scalp and lower back. It may also be found in the genital area and would present with scaly, red skin.

Haemorrhoids are swollen vessels located around the anus which can result in itching and rectal bleeding, usually on a background of constipation.

Question:

The consultant asks you to examine a 3-week-old girl on the neonatal ward. She was born prematurely at 27 weeks gestation. She is pink in colour and warm to touch, developing well and gaining weight appropriately. She is currently saturating well on oxygen and her lungs sound clear. On auscultation of her heart, you detect a continuous machinery murmur over the upper left sternal edge. The murmur does not vary with position or radiate.

Which of the following is this murmur most likely to reflect?

A.Innocent murmur

B.Patent ductus arteriosus

C.Pulmonary stenosis

D.Coarctation of the aorta

E.Tetralogy of Fallot

Answer:Patent ductus arteriosus

Explanation:

Patent ductus arteriosus: machinery murmur at the upper left sternal edge

Important for meLess important

This child has presented with an asymptomatic murmur. The murmur does not vary with position and hence is not an innocent murmur. A continuous machinery murmur at the left upper sternal edge is typical of patent ductus arteriosus. This condition is commonest in premature babies as this one. The ductus arteriosus is a connection between the pulmonary artery and the aorta to allow blood to bypass the lungs in utero. It usually closes by 2 days after birth.

The other conditions usually present differently. Pulmonary stenosis as an ejection systolic murmur over the left upper sternal edge, whilst coarctation of the aorta presents with a systolic murmur in the left infraclavicular area and under the left scapula. Tetralogy of Fallot presents with murmurs typical of pulmonary stenosis and sometimes VSD and usually presents with hypercyanotic episodes around 1 month after birth.

Question:

A 21-year-old woman presents to the emergency department with temporary loss of vision in her right eye. This occurred gradually over the last few hours however her vision has now returned. A lumbar puncture is performed during her diagnostic workup. Following this, she develops a headache which is worse on standing.

What is the most appropriate treatment for her headache over the next few days?

A.Amitriptyline

B.Blood patch

C.Caffeine and fluids

D.IV methylprednisolone

E.Paracetamol and sumatriptan

Answer:Caffeine and fluids

Explanation:

A low pressure headache commonly develops following a lumbar puncture

Important for meLess important

Caffeine and fluids is the correct answer and are used to treat a low pressure headache. The reason why this is common following a lumbar puncture is that a small volume of cerebrospinal fluid is removed, which reduces the pressure around the brain.

A blood patch can be used for a low pressure headache, however it would not be the initial treatment. If the headache persists despite caffeine and rehydration after several days, this may be an appropriate treatment option to consider. This involves injection of a small volume of the patient's blood into the epidural space at the site of the original lumbar puncture. The blood clots and in effect patches up the meningeal leak.

Amitriptyline, paracetamol and sumatriptan are treatments for a migraine, however the postural aspect of the headache and recent lumbar puncture make this unlikely.

Methylprednisolone is incorrect as the question asks for the treatment for her headache. It may be that from her diagnostic workup, including the results of the lumbar puncture, she is found to have multiple sclerosis and would then be treated with IV methylprednisolone during acute attacks.

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:

The following blood result comes back for an 82-year-old woman. She has a history of hypertension, diverticulitis, and hypothyroidism. She takes amlodipine, ramipril, and levothyroxine.

Thyroid-stimulating hormone (TSH) 0.01 mU/L (0.5-5.5)

Free thyroxine (T4) 22 pmol/L (9.0 - 18)

If this result goes untreated what complication is she at risk of developing?

A.Confusion

B.Constipation

C.Muscle weakness

D.Osteoporosis

E.Weight gain

Answer:Osteoporosis

Explanation:

Over-replacement with thyroxine increases the risk for osteoporosis

Important for meLess important

Over-replacement with thyroxine increases the risk of osteoporosis. These blood results show a suppressed TSH and raised T4 which suggests over-replacement with levothyroxine.

Confusion can occur with biochemistry abnormalities but this is more commonly seen in hypothyroidism.

Constipation is seen in hypothyroidism rather than over replacement with levothyroxine.

Muscle weakness and reduced reflexes are seen in hypothyroidism rather than hyperthyroidism.

Weight loss rather than weight gain would occur in over-replacement.

Question:

A 7-year-old girl presents to her GP as she has been suffering from daily epistaxis for the last week. On examination, her legs are covered with petechiae and bruises. She is otherwise well and has no other symptoms. Blood tests show low platelets, with no other abnormalities. On follow-up, the symptoms have completely resolved after 4 months.

Which of the following would you expect to precede these symptoms?

A.Stress

B.Glandular fever

C.Constipation

D.Asthma attack

E.Epileptic fit

Answer:Glandular fever

Explanation:

Idiopathic thrombocytopenic purpura may be preceded by a self-limiting viral infection

Important for meLess important

The condition described is idiopathic thrombocytopenic purpura (ITP), whereby low platelet count can result in symptoms such as epistaxis and unexplained bruising/petechiae. This is often self-limiting and may resolve within 12 months.

ITP is often preceded by a viral infection, which is why the answer is glandular fever. Constipation, epileptic fits, asthma attacks and stress have not been shown to trigger ITP.

Question:

A 74-year-old Afro-Caribbean woman suffers a neck of femur fracture after slipping over at her local supermarket. On arrival at the hospital, she is clerked by the orthopaedic SHO. Her past medical history includes ischaemic heart disease and rheumatoid arthritis. She went through the menopause at 55 and until the fall was a keen jogger.

After surgical management of the fracture, she undergoes a DEXA scan which returns a T score of -2.9, indicating that she suffers from osteoporosis.

Which feature of the patient’s history is most associated with an increased risk of osteoporosis?

A.A history of high impact exercise

B.Late menopause

C.Rheumatoid arthritis

D.Black ethnicity

E.Ischaemic heart disease

Answer:Rheumatoid arthritis

Explanation:

Rheumatoid arthritis is a risk factor for the development of osteoporosis and used in the FRAX assessment tool

Important for meLess important

Rheumatoid arthritis is considered an important risk factor for the development of osteoporosis, reflected by its inclusion in the FRAX assessment tool. The link is likely multifactorial and includes increased use of corticosteroids, immobility due to joint pain, and the effect of systemic inflammation on bone remodelling.

High impact exercise, late menopause and black ethnicity are all associated with a reduced risk of osteoporosis.

There are emerging data that osteoporosis may be a risk factor for ischaemic heart disease rather than the converse.

Question:

An elderly gentleman presents with a three day history of bloody diarrhoea and feverishness. He has no significant travel history. His past medical history is listed as hypertension, osteoarthritis and gout. On examination his temperature is 38.0ºC, heart rate 95/min, blood pressure 120/80 mmHg and his abdomen is soft and non-tender. A stool sample has grown Salmonella. What is the best treatment?

A.Metronidazole

B.Doxycycline

C.Clarithromycin

D.Ciprofloxacin

E.Amoxicillin

Answer:Ciprofloxacin

Explanation:

The BNF recommends treating invasive diarrhoea (causing bloody diarrhoea and fever) with ciprofloxacin. Most viral or bacterial gastroenteritis do not require treatment. The BNF recommends antibiotics for bacterial gastroenteritis in severe infections or in immunocompromised patients. Clarithromycin is used for traveller's diarrhoea and non-invasive diarrhoeal illnesses when treatment is necessary.

Question:

A 28-year-old woman presents with a one-week history of grey/white vaginal discharge associated with a 'fishy' odour. There are no itching symptoms. She had a similar episode previously and was treated with metronidazole. She requests treatment but reports that metronidazole previously gave her vulvovaginal irritation.

What is the best treatment option?

A.Oral flucloxacillin

B.Oral fluconazole

C.Oral trimethoprim

D.Topical clindamycin cream

E.Topical clotrimazole cream

Answer:Topical clindamycin cream

Explanation:

Topical clindamycin is an alternative to metronidazole for patients with bacterial vaginosis

Important for meLess important

Topical clindamycin is the correct answer. As per NICE guidelines if the woman prefers topical treatment you can offer her intravaginal clindamycin cream (2%) once a day for 7 days. Intravaginal metronidazole is also an appropriate treatment option, however, the woman has previously tried this and found it gave her vulvovaginal irritation.

Oral flucloxacillin is not the correct answer because this is not what is advised by NICE. This is commonly used as a first-line treatment against skin infections such as cellulitis.

Oral fluconazole is not the correct answer because this is an antifungal medicine and BV is a bacterial infection.

Oral trimethoprim is not the correct answer because this is not what is advised by NICE. Bacterial vaginosis (BV) is characterized by an overgrowth of predominantly anaerobic organisms and trimethoprim generally targets aerobic organisms so would likely be ineffective in treating BV.

Topical clotrimazole cream is not the correct answer because this would be used to target fungal infections and BV is not a fungal infection.

Question:

A 24-year-old man presented with 8-day history of fevers, sore throat and cervical lymphadenopathy.

A monospot test was done that came back positive.

What is the best course of action to take?

A.Aciclovir

B.Penicillin V

C.Clarithromycin

D.Valganciclovir

E.Reassurance

Answer:Reassurance

Explanation:

Infectious mononucleosis is generally a self-limiting condition

Important for meLess important

Infectious mononucleosis is most commonly caused by the Epstein bar virus (EBV).

It's usually is a self-limiting disease in the immunocompetent and would typically last around 2 weeks.

Looking at the other options:

Aciclovir is a treatment for the herpes simplex virus.

Penicillin V is used for streptococcal infections such as acute bacterial tonsillitis.

Clarithromycin is a macrolide antibiotic most commonly used for respiratory and skin pathogens. It has no role in EBV treatment.

Valganciclovir is used for systemic cytomegalovirus (CMV) infections.

Question:

An elderly patient with a history of chronic obstructive pulmonary disease is admitted following an infective exacerbation. The posteroanterior (PA) chest x-ray on admission shows a unilateral pleural effusion. Which one of the following is the most appropriate next line investigation?

A.Pleural tap without ultrasound guidance

B.Pleural biopsy

C.Computed tomography

D.Pleural aspiration with ultrasound guidance

E.Lateral chest x-ray

Answer:Pleural aspiration with ultrasound guidance

Explanation:

Ultrasound is recommended by the British Thoracic Society as it increases the likelihood of successful pleural aspiration and is sensitive for detecting pleural fluid septations.

Question:

An 18-year-old male student presents to the emergency department with sudden onset shortness of breath and chest pain. This started suddenly while he was on the bus to college and was accompanied by feeling flushed, sweating and having a sense that he was going to die. He currently still feels breathless and has recently started getting a 'pins and needles' sensation around his mouth. He has no past medical history of note and is not on any regular medications.

On examination he has tachycardia (112bpm) and tachypnoea (30 breaths/min) with his blood pressure being 112/76 mmHg and his saturations at 99% on room air. Chest sounds clear and his heart sounds are normal. An ECG shows a mildly prolonged QT interval but otherwise nothing else.

An arterial blood gas (ABG) was performed on room air while he was waiting to see a doctor:

pH 7.48

pCO2 2.1 kPa

pO2 14.0 kPa

HCO3- 28 mmol/L

Which of the following would you expect to see if you tested his calcium levels?

A.Low calcium, normal ALP, normal phosphate

B.Low calcium, normal ALP, raised phosphate

C.Raised calcium, normal ALP, normal phosphate

D.Raised calcium, normal ALP, low phosphate

E.Raised calcium, raised ALP, raised phosphate

Answer:Low calcium, normal ALP, normal phosphate

Explanation:

Respiratory alkalosis can result in hypocalcaemia in the presence of normal phosphate levels

Important for meLess important

The ABG for this patient shows alkalosis with low CO2, normal O2 and normal HCO3-. This is a picture of respiratory alkalosis. Given the patients age, lack of risk factors and adequate oxygenation, hyperventilation secondary to a panic attack would be most likely.

In this question, the student is showing two signs of hypocalcaemia - the perioral paresthesia and a prolonged QT interval. Hypocalcaemia can be seen secondary to respiratory alkalosis as the higher pH lowers the amount of ionised calcium seen in the blood. Since this will have no affect on phosphate\* or ALP, these blood markers will be normal.

1. Correct.

2. Incorrect. Phosphate levels would not be raised by a respiratory alkalosis. This blood picture would be seen in hypoparathyroidism.

3. Incorrect. A respiratory alkalosis would drop calcium levels, not raise them. Also high calcium would not explain the additional symptoms of perioral paresthesia and a prolonged QT interval. This blood picture would be seen in multiple myeloma.

4. Incorrect. A respiratory alkalosis would drop calcium levels, not raise them. Also high calcium would not explain the additional symptoms of perioral paresthesia and a prolonged QT interval. This blood picture would be seen in primary hyperparathyroidism.

5. Incorrect. A respiratory alkalosis would drop calcium levels, not raise them. Also high calcium would not explain the additional symptoms of perioral paresthesia and a prolonged QT interval. This blood picture would be seen in bone destruction secondary to a metastasis.

\*A small affect may be seen on phosphate but this would decrease phosphate levels, not increase them.

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:

A 67-year-old man attends to see the GP for a review of his blood pressure following a random clinic pressure of 156/101 mmHg. Past medical history includes type 2 diabetes and COPD managed using inhalers. His blood pressure recordings taken at home over the last week have shown an average reading of 142/98 mmHg.

What is the most appropriate first-line intervention?

A.Amlodipine

B.Bendroflumethiazide

C.Bisoprolol

D.No drug treatment required

E.Ramipril

Answer:Ramipril

Explanation:

Hypertension in diabetics - ACE inhibitors/A2RBs are first-line regardless of age

Important for meLess important

Ramipril is the correct answer here, due to the presence of diabetes in the patient's medical history. ACE inhibitors/angiotensin II receptor blockers (A2RBs) are first-line in the management of hypertension regardless of age or ethnicity in patients with diabetes, due to their renoprotective effect.

Amlodipine is a calcium channel blocker and would be the correct first-line treatment for hypertension in anyone over 55, however, the presence of diabetes in the history makes an ACE inhibitor more appropriate according to NICE guidance.

Bendroflumethiazide is a diuretic, which may be used in the management of hypertension but would be considered the third line if blood pressure is not controlled using both an ACE inhibitor/A2RB and calcium channel blocker.

Bisoprolol, a beta blocker, would not be used in the management of uncomplicated hypertension.

Offering no medical treatment, in this case, would be incorrect, as medical intervention should be offered to any diabetic patient with a clinic blood pressure over 140/90mmHg, or an average home reading over 135/85mmHg.

Question:

A 56-year-old lady reports incontinence mainly when walking the dog. A bladder diary is inconclusive. What is the most appropriate investigation?

A.Intravenous urography

B.Urodynamic studies

C.Flexible cystoscopy

D.Micturating cystourethrogram

E.Rigid cystoscopy

Answer:Urodynamic studies

Explanation:

Urodynamic studies are indicated when there is diagnostic uncertainty or plans for surgery.

Question:

A 4-year-old boy presents to the GP with his mother. She reports he developed a fever and a sore throat 3-days previously and is now presenting with a widespread rash over his trunk and legs.

On examination, the child is febrile, flushed, and lethargic, with a widespread erythematous rash over his trunk and legs, that has a rough texture. Throat examination reveals a swollen red tongue with cervical lymphadenopathy.

What is the diagnosis?

A.Kawasaki disease

B.Parvovirus

C.Rubella

D.Scarlet Fever

E.Tonsillitis

Answer:Scarlet Fever

Explanation:

Scarlet fever is characterised by a sandpaper rash

Important for meLess important

Scarlet fever is correct. This child is presenting with signs and symptoms of scarlet fever, with a characteristic sandpaper rash, swollen tongue, and lymphadenopathy. He should be given a 10-day course of penicillin V for an underlying group-A streptococcal infection, advised to stay off school for 24-hours after starting the antibiotics, and public health should be notified.

Kawasaki disease is incorrect. Children with Kawasaki disease classically present with a fever lasting over 5 days, a widespread maculopapular rash, and reddening and desquamation of the extremities. They can present with a strawberry tongue and lymphadenopathy, which makes it an important differential to rule out in this case, as Kawasaki is a medical emergency and associated with long-term cardiovascular complications without urgent treatment with high dose aspirin and IV immunoglobulins.

Rubella is incorrect. Rubella presents with a milder erythematous macular rash compared with measles, without a sandpaper texture. The rash starts on the face and spreads to the rest of the body. The rash classically lasts 3 days. It can be associated with a mild fever, joint pain, and a sore throat. Patients often have enlarged lymph nodes (lymphadenopathy) behind the ears and at the back of the neck, but no swollen tongue.

Parvovirus is incorrect. Parvovirus is also known as 'slapped-cheek syndrome', as a result of its characteristic erythematous facial rash, in addition to muscle aches and lethargy. Parvovirus is self-limiting and generally benign, although can cause foetal complications in pregnancy. In the immunocompromised or those with haematological conditions such as sickle cell disease or thalassemia, there is a risk of aplastic anaemia.

Tonsillitis is incorrect. Tonsillitis is associated with a sore throat and tonsillar exudate in bacterial cases, which are commonly due to streptococcal infections. Children do not typically present with a rash. Tonsillitis cases should be assessed using the FeverPAIN criteria to determine the appropriateness of an antibiotic prescription.

Question:

A 43-year-old woman presents with a 4-month history of anxiety, sweating, and palpitations. During this time, she has constantly felt hot and agitated and has unexpectedly lost 10 kg of weight.

On examination, she appears restless and non-tender smooth goitre is palpable. Her heart rate is 101 bpm and her blood pressure is 135/92 mmHg.

She has a past medical history of depression and takes sertraline, and has recently recovered from an episode of viral tonsillitis. She smokes 15 cigarettes a day and does not drink alcohol.

Nuclear scintigraphy is performed:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Graves' disease

B.Subacute thyroiditis (thyrotoxic phase)

C.Thyroid cancer

D.Toxic multinodular goitre

E.Toxic thyroid adenoma

Answer:Graves' disease

Explanation:

Graves' disease is correct. This patient has presented with signs and symptoms of hyperthyroidism, characterised by her anxiety, palpitations, heat intolerance, sweating, and unexplained weight loss. The presence of a smooth non-tender goitre on examination points towards a diagnosis of Graves' disease. Nuclear scintigraphy can help with assessing the structure and function of the thyroid gland by using a small amount of radioactive material and measuring its uptake. Here it can be seen that the uptake is diffuse, as the entirety of the thyroid gland (the butterfly-shaped dark region) is dark in the above two images. The two images underneath are from different angles.

Subacute thyroiditis (thyrotoxic phase) is incorrect. Also known as de Quervain's thyroiditis, this is where inflammation damages thyroid tissue leading to leakage of pre-formed thyroid hormone (causing hyperthyroidism), before leading to hypothyroidism. Nuclear scintigraphy would show very low uptake, and the thyroid gland would appear faded rather than dark.

Thyroid cancer is incorrect. Nuclear scintigraphy would show abnormally non-functioning 'cold' areas within the thyroid gland, which would appear as small paler regions.

Toxic multinodular goitre is incorrect. This would present with a rough goitre and nuclear scintigraphy would show patchy uptake i.e. there would be multiple blotches of darker parts dispersed throughout the thyroid gland.

Toxic thyroid adenoma is incorrect. Nuclear scintigraphy would show a focal area of increased uptake, which would show up as a singular darker region.

Question:

A 33-year-old woman visits the GP with joint pain for the last two weeks. The joint pain is limited to the distal interphalangeal joints, with significant erythema and swelling. She reports also having had significant pain and swelling across her left index finger a couple of months ago, although this has now resolved. On full examination, a scaly rash on her scalp is noted.

Given the likely diagnosis, what other symptom would it be most likely to see on examination?

A.Gottron's papules

B.Heberden's nodes

C.Onycholysis

D.Swan-neck deformity

E.Thenar wasting

Answer:Onycholysis

Explanation:

Nail pitting and onycholysis are associated with psoriasis and psoriatic arthropathy

Important for meLess important

The responses are all signs in the hands that may be seen in a rheumatology clinic.

This patient's signs of bilateral, symmetrical distal interphalangeal joint (DIP) inflammation, as well as dactylitis and scaly rash (scalp psoriasis), are the most specific to psoriatic arthropathy. The correct answer is therefore onycholysis. Along with nail pitting, nail signs are present in 80-90% of psoriatic arthropathy patients. Note whilst this pattern of joint involvement is the most specific for psoriatic arthropathy, the most common pattern is symmetric polyarthritis, similar to rheumatoid.

Gottron's papules are red/purple papules on the knuckles of the hands (dorsal metacarpophalangeal (MCP) joints and DIP joints). These papules are generally only seen with dermatomyositis. Instead of a scaly scalp rash, we might have seen a heliotrope facial rash if this patient had dermatomyositis.

Heberden's nodes are bony outgrowths associated with osteoarthritis of the hand. Heberden's nodes appear on the DIP joints, whilst Bouchard's nodes appear on the proximal interphalangeal (PIP) joints (remember Bouchard's and proximal). This patient's symmetrical DIP pain and previous dactylitis make osteoarthritis unlikely.

Swan-neck deformity is a finger deformity most associated with rheumatoid arthritis and is characterised by PIP joint hyperextension and DIP joint flexion. This deformity can be seen in very late-stage seronegative spondyloarthropathies such as psoriatic arthropathy, but this is the first presentation, making this option very unlikely.

Thenar wasting is the atrophy of the thenar muscles supplied by the median nerve (opponens pollicis, abductor pollicis brevis, flexor pollicis brevis) due to nerve damage. This is classically due to carpal tunnel syndrome, but can also be a feature in other pathologies such as median nerve trauma, rheumatoid arthritis, degenerative cervical myelopathy or mononeuritis multiplex. There is no indication of any nerve damage in this patient, so muscle wasting of any kind would be very unlikely.

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 36-year-old woman who has frequently attended in the past with multiple somatic complaints is diagnosed with generalised anxiety disorder. She is initially treated with a low intensity psychological interventions which unfortunately fails to improve her symptoms. What is the most appropriate medication to offer her next line?

A.Diazepam

B.Propranolol

C.Quetiapine

D.Imipramine

E.Sertraline

Answer:Sertraline

Explanation:

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 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 68-year-old woman presents with a two month history of electric shock like pains on the right side of her face. She describes having around 10-20 episodes a day which, each lasting for around 30-60 seconds. A recent dental check was normal. Neurological examination is unremarkable. What is the most suitable first-line management?

A.Amitriptyline

B.Sodium valproate

C.Carbamazepine

D.Atenolol

E.Zolmitriptan

Answer:Carbamazepine

Explanation:

Trigeminal neuralgia - carbamazepine is first-line

Important for meLess important

Question:

A 46-year-old man presents with a 4-month history of fatigue and anorexia. On examination, his heart sounds are normal, his chest is clear and his abdomen is soft and non-tender with no hepato-splenomegaly.

His blood tests show deranged liver function and he is consequently referred for further investigations.

Hepatitis serology is as follows:

Hepatitis C virus RNA Negative

Anti-hepatitis C virus antibodies Negative

Hepatitis B virus surface antigen Positive

Hepatitis B virus core antigen Positive

Hepatitis B virus e-antigen Negative

Anti-hepatitis B virus surface antibody Negative

Anti-hepatitis B virus core antibody Positive

An ultrasound of the liver showed a single small focal lesion in the right lobe with no other abnormalities visualised. The lesion is subsequently biopsied. The histopathologist reports the following:

'...there is a small degree of lymphocytic portal and lobular inflammation. There is a ground-glass appearance to the cytoplasm of the hepatocytes...'

Which of the following diagnoses best explains this patient's histology findings?

A.Chronic hepatitis C infection

B.Chronic hepatitis B infection

C.Acute hepatitis C infection

D.Acute hepatitis B infection

E.Hepatocellular carcinoma

Answer:Chronic hepatitis B infection

Explanation:

The appearance of ground-glass hepatocytes on light microscopy can point towards a diagnosis of chronic hepatitis B infection

Important for meLess important

Ground-glass hepatocytes can be seen on light microscopy as hepatocytes with flat, hazy and uniformly dull appearing cytoplasms. This is thought to be because of the presence of hepatitis B surface antigen (HBsAg) inside the endoplasmic reticulum. They can point towards a diagnosis of chronic hepatitis B infection and are not present in acute infection.

The hepatitis serology suggests infection with hepatitis B. A negative e-antigen suggests low infectivity, but positive surface and core antigens with a negative surface antibody suggest current infection. To be certain whether this is a chronic hepatitis B infection, the surface antigen should remain positive for 6 months or more.

Inflammation and lymphocytic infiltration may be seen in acute and chronic hepatitis B or C infection, but they are not associated with ground-glass hepatocytes.

Hepatocellular carcinoma can be identified on histology by the presence of more than 2-3 cell-thick hepatocellular plates/cords, nuclear atypia, and the absence of portal tracts. Fibrous bands may also separate clusters of cells.

Question:

A 28-year-old male presents with white discharge from his penis and a burning sensation when urinating.

The GP took a swab of the discharge. The results of the swab showed a gram negative diplococci.

Considering the likely diagnosis, what is the treatment?

A.Intramuscular azithromycin

B.Intramuscular ceftriaxone

C.Oral ceftriaxone

D.Oral fluconazole capsule

E.Topical clotrimazole

Answer:Intramuscular ceftriaxone

Explanation:

Intramuscular ceftriaxone is the treatment of choice for Gonorrhoea

Important for meLess important

Gonorrhoea is a sexually transmitted infection caused by Neisseria gonorrhoea. It can lead to symptoms such as urethral discharge and dysuria.

The treatment of choice is an intramuscular antibiotic injection of ceftriaxone in the buttock or thigh.

Intramuscular azithromycin is incorrect. Azithromycin can be given as an alternative to ceftriaxone, however it would be given as an oral tablet.

Oral ceftriaxone is wrong as it is given as in intramuscular injection.

Oral fluconazole is used for fungal and yeast infections.

Topical clotrimazole is a topical cream used for fungal infections or to relieve itching in thrush.

Question:

A 24-year-old man presents to the sexual health clinic after unprotected intercourse with a female partner. The encounter happened two 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. A later repeated combination HIV test is positive.

What is the most appropriate management for this patient?

A.Measure the CD4 count every three months and start therapy when the count is 100 cells/mm³

B.Measure the CD4 count every three months and start therapy when the count is 400 cells/mm³

C.Prescribe a nucleoside analogue reverse transcriptase inhibitors (NRTI)

D.Prescribe two nucleoside reverse transcriptase inhibitors (NRTI) and a protease inhibitor (PI)

E.Start post-exposure prophylaxis

Answer:Prescribe two nucleoside reverse transcriptase inhibitors (NRTI) and a protease inhibitor (PI)

Explanation:

Antiretroviral therapy should generally be started as soon as HIV is diagnosed

Important for meLess important

The correct option is to prescribe two nucleoside reverse transcriptase inhibitors (NRTI) and a protease inhibitor (PI). This patient presented with seroconversion symptoms such as coryza and myalgia, and he had two positive combinations of HIV tests, which are diagnostic for the condition.

The 2015 British HIV Association (BHIVA) guidelines suggest that antiretroviral therapy should be started as soon as HIV is diagnosed. The management is composed of two nucleoside reverse transcriptase inhibitors (NRTI) and either a protease inhibitor (PI) or a non-nucleoside reverse transcriptase inhibitor (NNRTI).

Measure the CD4 count every three months and start therapy when the count is 100 cells/mm³ is incorrect as the CD4 count is not used anymore as a landmark to start antiretroviral therapy, but can be used to monitor the advancement of the disease. Now, antiretroviral therapy should be started as soon as HIV is diagnosed with two negative combination tests.

Measure the CD4 count every three months and start therapy when the count is 400 cells/mm³ is incorrect as the CD4 count is not used anymore as a marker to decide whether to begin antiretroviral therapy, but antiretroviral therapy should be started as soon as HIV is diagnosed with two negative combination tests.

Prescribe a nucleoside analogue reverse transcriptase inhibitors (NRTI) is incorrect as the guidelines suggest that the correct management plan is the prescription of two nucleoside reverse transcriptase inhibitors (NRTI) and either a protease inhibitor (PI) or a non-nucleoside reverse transcriptase inhibitor (NNRTI).

Start post-exposure prophylaxis is incorrect as this is effective only if started within 72 hours of the exposure. This patient had the encounter two weeks previously the first appointment, making this option incorrect.

Question:

Which one of the following statements regarding hirsutism is correct?

A.Cushing's syndrome is the most common cause

B.Topical eflornithine may be safely used during pregnancy

C.Weight loss may make hirsutism worse in obese patients

D.The Ferriman-Gallwey scoring system is used to assess the psychological impact of hirsutism

E.Co-cyprindiol (Dianette) may be a useful treatment for patients moderate-severe hirsutism

Answer:Co-cyprindiol (Dianette) may be a useful treatment for patients moderate-severe hirsutism

Explanation:

Polycystic ovarian syndrome is by far the most common cause in women.

Question:

A 63-year-old man finds that he has to stop walking after 100 yards due to bilateral calf pain. He finds that bending forwards and walking up hill helps. He is able to ride a bike without any pain. What is the most likely underlying cause?

A.Lumbar canal stenosis

B.Diabetic neuropathy

C.Aorto-iliac occlusion

D.Occlusion of the superficial femoral artery

E.Pelvic rheumatoid arthritis

Answer:Lumbar canal stenosis

Explanation:

The positional nature of the pain and the fact that improves with walking uphill makes an underlying vascular aetiology far less likely.

Question:

A 37-year-old man presents with nasal obstruction and loud snoring. He has noticed these symptoms get gradually worse for the past two months. His left nostril feels blocked whilst his right feels clear and normal. There is no history of epistaxis and he is systemically well. On examination a large nasal polyp can be seen in the left nostril. What is the most appropriate action?

A.Reassure + provide patient information leaflet on nasal polyps

B.Enquire about cocaine use

C.Refer to ENT

D.Trial of intranasal steroids

E.Nasal cautery

Answer:Refer to ENT

Explanation:

Unilateral polyps are a red flag symptom

Important for meLess important

Given that his symptoms are unilateral it is important he is referred to ENT for a full examination.

Question:

A 34-year-old lady attends a fertility clinic due to her inability to get pregnant for over two years. She is concerned that she is not ovulating even though her menstrual cycle lasts for 35 days and is regular. She is not on any contraceptive and her pregnancy test is negative.

Which of the following is the best way to detect ovulation?

A.Gonadotropins level

B.Progesterone level

C.Basal body temperature chart

D.Cervical mucous thickness

E.Serum prolactin level

Answer:Progesterone level

Explanation:

Day 21 progesterone test is the most reliable test to confirm ovulation

Important for meLess important

The serum progesterone level will peak 7 days after ovulation has occurred. The length of the follicular phase of the menstrual cycle can be variable, however, the luteal phase (after ovulation) remains constant at 14 days. Therefore, in a 35-day cycle, given that the luteal phase always lasts for 14 days, the follicular phase will be 21 days (ovulating on day 21). Therefore, the progesterone level will be expected to peak on day 28.

In simple terms, measure serum progesterone 7 days prior to expected next period (for 28-day cycle: 28 - 7 = 21. For 35-day cycle: 35 - 7= 28)

The use of basal body temperature charts and cervical mucus thickness do not reliably predict ovulation and are not recommended. Gonadotropins are used to check for ovarian function in patients with irregular menstrual cycles.

Question:

A 48-year-old woman presents to her GP complaining of extreme tiredness during the day. She explains that this has been ongoing for months but that recently she has been falling asleep at work and is finding it increasingly difficult to concentrate. She also explains that she often wakes herself up snoring, which she thinks is to blame for her tiredness.

She has a BMI of 36kg/m² and a past medical history of hypertension and type 2 diabetes for which she takes no medication.

A recent comprehensive set of blood tests returned normal.

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

A.Continuous positive airway pressure (CPAP)

B.Home oximetry

C.Iron studies

D.Polysomnography

E.Response to treatment

Answer:Polysomnography

Explanation:

Polysomnography is diagnostic for obstructive sleep apnoea

Important for meLess important

Polysomnography is correct. This patient has likely obstructive sleep apnoea (OSA), characterised by excessive daytime sleepiness, snoring, and the presence of risk factors such as obesity, hypertension, and diabetes. Polysomnography is diagnostic of OSA and is used to stage severity and guide management.

Continuous positive airway pressure (CPAP) is incorrect. This is often used to manage patients with OSA, which is a key differential diagnosis in this patient who has presented with excessive daytime somnolence on a background of obesity, hypertension, and snoring. However, OSA should be diagnosed with specialist investigations such as polysomnography prior to initiating treatment.

Home oximetry is incorrect. Home oximetry can be used to diagnose patients with OSA where other tests are unavailable or unlikely to be tolerated. However, home oximetry is not recommended over polysomnography or respiratory polygraphy given its inaccuracy in differentiating OSA from other causes of hypoxaemia.

Iron studies is incorrect. While iron deficiency anaemia is a common cause of fatigue, this woman has had a normal full blood count which rules out anaemia as a cause of her presentation. Given her history of daytime somnolence, obesity, hypertension, diabetes, and excessive snoring, it is likely that this patient is suffering from OSA. OSA can be diagnosed and staged with polysomnography or respiratory polygraphy.

Response to treatment is incorrect. This patient likely has OSA given excessive daytime sleepiness, snoring, and risk factors such as obesity and diabetes. Treatment of OSA depends on its severity, which can only be determined with the use of special tests such as polysomnography. As such, response to treatment is not used to diagnose OSA.

Question:

A 62-year-old female presents to her general practitioner with a 3-month history of polyuria, nocturia and chronic dry mouth. She has a past medical history of hypertension and associated hypertensive nephropathy. Her most recent eGFR was reported as:

eGFR 24ml/min/1.73m²

Given the likely diagnosis, what is this patient's water deprivation test likely to show?

A.High urine osmolality after both fluid deprivation and desmopressin

B.Low urine osmolality after both fluid deprivation and desmopressin

C.Low urine osmolality after desmopressin, but high after fluid deprivation

D.Low urine osmolality after fluid deprivation, but high after desmopressin

E.Normal urine osmolality after fluid deprivation, but low after desmopressin

Answer:Low urine osmolality after both fluid deprivation and desmopressin

Explanation:

Water deprivation test: nephrogenic DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: low

Important for meLess important

The correct answer is low urine osmolality after both fluid deprivation and desmopressin.

The symptoms of polyuria, nocturia, and chronic thirst, combined with a pre-existing diagnosis of hypertensive nephropathy, which would be classified as chronic kidney disease stage 4 from her most recent eGFR, suggests nephrogenic diabetes insipidus (DI). Nephrogenic DI results from renal insensitivity to anti-diuretic hormone (ADH), preventing the concentration of urine. Causes of nephrogenic DI are numerous, including CKD, nephrotoxic drugs, and metabolic disturbances. This lack of ADH sensitivity results in an inability to concentrate urine even if a patient is hypovolaemic, therefore producing a low urine osmolality even during water deprivation. Furthermore, as the kidneys are insensitive to ADH, they will not respond to desmopressin (synthetic ADH) and urine osmolality will once again be low.

High urine osmolality after both fluid deprivation and desmopressin is incorrect as this would be seen in a healthy individual or primary polydipsia, a psychogenic disorder characterised by excessive drinking despite being properly hydrated. As primary polydipsia is a psychogenic disorder, patients will still produce and respond to anti-diuretic hormone (ADH). Therefore, they will be able to concentrate urine when deprived of water and when desmopressin (synthetic ADH) is given.

Low urine osmolality after desmopressin, but high after fluid deprivation is incorrect as this would not be commonly seen with any pathological state.

Low urine osmolality after fluid deprivation, but high after desmopressin is incorrect as this is typically seen with cranial DI, a condition characterised by insufficient ADH release. This lack of ADH results in an inability to concentrate urine even if a patient is hypovolaemic, therefore producing a low urine osmolality even during water deprivation. However, as the kidneys are unaffected by cranial DI, they will respond to desmopressin (synthetic ADH) to produce concentrated urine. As the patient has no risk factors for this cranial DI (e.g. head trauma, localised infections, and post-radiotherapy), it is not the best answer.

Normal urine osmolality after fluid deprivation, but low after desmopressin is incorrect as this would not be commonly seen with any pathological state.

Question:

A 67-year-old patient has a cholesterol of 5.1 mmol/L with a QRISK score of 11%. They have no significant past medical history and have an active lifestyle.

What is the most appropriate management of these results?

A.Commence atorvastatin

B.Commence ezetimibe

C.Commence simvastatin

D.Dietary measures

E.Reassure

Answer:Commence atorvastatin

Explanation:

Statins should be given to patients with a 10-year cardiovascular risk >= 10%

Important for meLess important

This patient has a QRISK score over 10% and should be commenced on a statin for cardiovascular risk reduction. The first-line medication is atorvastatin according to NICE guidance which for primary prevention is 20mg per day.

Ezetimibe inhibits the intestinal absorption of cholesterol and is less effective than statins so is not used first-line. Occasionally this medication is combined with atorvastatin for a dual effect.

Simvastatin is not as potent as atorvastatin at reducing cholesterol in recent comparative studies and thus is reserved for patients who can't tolerate atorvastatin.

Dietary measures are important to reduce cardiovascular risk and would be considered for patients with a QRISK under 10%. In this scenario, the QRISK score suggests dietary measures alone will be insufficient to reduce cardiovascular risk to an acceptable level.

Question:

A mother attends the GP surgery with her 7-week-old child for their routine 6-week check. The child is smiling and interacting well throughout the assessment. Whilst examining the patient you notice weak femoral pulses bilaterally. The rest of the examination is unremarkable.

What is the single most appropriate management plan?

A.Advise the mother these can be normal findings, fill in the red book and safety net

B.Advise the mother to take the child to the emergency department immediately

C.Make an appointment in 2 weeks to re-check

D.Refer routinely to paediatrics

E.Same day discussion with paediatrics

Answer:Same day discussion with paediatrics

Explanation:

Babies with absent or weak femoral pulses at 6-8 week baby check should be discussed immediately with paediatrics

Important for meLess important

Any child with signs suggestive of a critical or major congenital heart abnormality at a 6-week check should be seen urgently by a specialist, hence same day discussion with paediatrics is the correct answer. Absent or weak femoral pulses are suggestive of a major defect such as coarctation of the aorta and thus would best be discussed with and referred to the appropriate paediatrics team.

Advising the mother these can be normal findings would be inappropriate because they are abnormal findings. Although safety netting is generally good practice the child will need to be seen urgently by the appropriate specialist.

Advise the mother to take the child to the emergency department. The emergency department team are not best equipped to deal with this issue and will likely be referring to the paediatrics team themselves, so is less appropriate than a direct referral.

Referring routinely to paediatrics would waste valuable time as would making an appointment in 2 weeks in a potentially unwell child who would ultimately need referring.

Question:

A 55-year-old man presents to the emergency department after being bitten by a stray dog while trying to stop it from attacking his dog. The team debride the bite and prescribes a prophylactic antibiotic.

Which one of the following medications are they going to prescribe?

A.Amoxicillin

B.Co-amoxiclav

C.Flucloxacillin

D.Gentamicin

E.Vancomycin

Answer:Co-amoxiclav

Explanation:

Animal bite - co-amoxiclav

Important for meLess important

Co-amoxiclav is a beta-lactam penicillin often used as a prophylactic treatment. It is the first-line antibiotic indicated for animal bites. If the patient is penicillin-allergic then doxycycline + metronidazole is recommended.

Amoxicillin is a type of penicillin used for many respiratory conditions.

Flucloxacillin is a type of penicillin used to treat skin and ear conditions.

Gentamicin is an aminoglycoside antibiotic and is used widely for the treatment of serious systemic infections.

Vancomycin is a glycopeptide antibiotic used in the treatment of gram-positive infections, particularly methicillin-resistant Staphylococcus aureus (MRSA).

Question:

Which one of the following is associated with an ejection systolic murmur?

A.Pulmonary stenosis

B.Mitral valve prolapse

C.Mitral stenosis

D.Ventricular septal defect

E.Coarctation of aorta

Answer:Pulmonary stenosis

Explanation:

Pulmonary stenosis - ejection systolic murmur

Important for meLess important

Question:

A 27-year-old man with no significant past medical history of note presents to the Emergency Department with a one day history of dyspnoea and right-sided pleuritic chest pain. A chest x-ray is taken which shows a right pneumothorax with a 2.5cm rim of air and no mediastinal shift. Aspiration is performed by the admitting doctor.

He is reviewed four hours later. His dyspnoea has resolved but the chest x-ray shows that whilst the pneumothorax has improved there is still a 1cm rim of air. What is the most appropriate management?

A.Repeat aspiration

B.Intercostal drain insertion

C.Refer to a cardiothoracic surgeon for pleurodesis

D.Admit for observation

E.Discharge with outpatient chest x-ray

Answer:Discharge with outpatient chest x-ray

Explanation:

Management in primary pneumothorax without shortness of breath, and <2cm in size, is discharge and review

Important for meLess important

The British Thoracic Society algorithm for spontaenous pneumothorax suggests that if following aspiration the rim of air is < 2cm and the breathing has improved then discharge should be considered with outpatient review.

Question:

A 75-year-old lady was admitted with new onset confusion on the background of Alzheimer's dementia. On admission, she was found to have a urinary tract infection for which she received a course of oral antibiotics. As part of her confusion screen, several blood tests were performed to further investigate the extent of her confusion. In addition to the routine blood investigations, which of the following tests are commonly performed as part of the 'confusion screen'?

A.Hepatitis serology

B.Vitamin B12, folate & bone profile

C.Coagulation & thrombophilia screen

D.Ferritin, iron & transferrin saturation

E.9am cortisol & short synacthen test

Answer:Vitamin B12, folate & bone profile

Explanation:

TSH, B12, Folate & Glucose are important additional blood tests which form part of the 'Confusion Screen'

Important for meLess important

B12/folate: macrocytic anaemias, B12/folate deficiency worsen confusion

TFTs: confusion is more commonly seen in hypothyroidism

Glucose: hypoglycaemia can commonly cause confusion

Bone Profile (Calcium): hypercalcaemia can cause confusion

Hepatitis serology or coagulation & thrombophilia screen or 9am cortisol & short synacthen test are not commonly performed as part of a confusion screen

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 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 16-year-old male presents to his general practitioner with cough, rhinorrhoea, sore throat, fever and a rash. He has no significant past medical history and is on no medications. He has recently arrived from Romania and is a member of the Roma community.

His observations are heart rate 94 beats per minute, blood pressure 120/80 mmHg, respiratory rate 18/minute, oxygen saturations 97% on room air and temperature 39.2ºC.

On examination, there is a maculopapular rash affecting his face. His eyes have a serous discharge and small white lesions are noted on his buccal mucosa. There is no tonsillar exudate. There is no evidence of meningism. The cardio-respiratory and abdominal examinations are unremarkable.

What is the likely diagnosis?

A.Epstein Barr virus

B.Measles

C.Rubella

D.Scarlet fever

E.Parvovirus B19

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 presents with cough, coryzal symptoms, conjunctivitis and fever in association with a rash and Koplik spots, allowing his general practitioner to make a clinical diagnosis of measles. Koplik spots (small white lesions on buccal mucosa) are pathognomonic for measles. There is a lower uptake of the measles, mumps and rubella vaccine in some groups (including members of the Roma community).

Epstein Barr virus is incorrect. This can also cause fever and sore throat. While a rash can be present, it is a less prominent feature. There is often significant cervical lymphadenopathy. Koplik spots would not be present. Palatal petechiae may be seen early in infection.

Rubella is incorrect. This is another cause of a maculopapular rash affecting the face. There may be post-auricular and sub-occipital lymphadenopathy. However, Koplik spots will not be visible. Fever tends to be less prominent.

Scarlet fever is incorrect. The rash of scarlet fever caused by a streptococcal infection, which usually starts on the abdomen and spreads to the back and limbs. Sore throat is prominent and there may be tonsillar exudate. Cough is not a typical feature and there may be a 'strawberry tongue'.

Parvovirus B19 is incorrect. This can cause a rash on the cheeks and occasionally a red, lacy rash that can be mistaken for measles. Koplik spots will not be present.

Question:

A 40-year-old female presents to her general practitioner complaining of skin wheals. The wheals are commonly associated with migraines which she suffers from occasionally before the onset of menstruation. She has no other past medical history, she takes the progesterone-only pill, aspirin as required for analgesia, and an over-the-counter multivitamin. She has no known allergies.

What is the most likely cause for her urticaria?

A.Aspirin-induced urticaria

B.Exercise-induced urticaria

C.Hormonal changes secondary to menstruation

D.Progesterone-only pill induced urticaria

E.Urticaria due to allergen in multivitamin

Answer:Aspirin-induced urticaria

Explanation:

Aspirin is a common cause of urticaria

Important for meLess important

Urticaria is a skin reaction caused by mast cell release of vasoactive substances (such as histamine). It causes oedema and red patches in the superficial dermis. Aspirin (and other salicylates) are one of the common causes of drug-induced urticaria. This fits with the patient's history of experiencing episodes alongside her migraines (for which she takes aspirin as analgesia). While aspirin is less frequently used as an analgesic agent, it acts as an NSAID and is still popularly used among certain populations as an over-the-counter analgesic.

Exercise-induced urticaria is a known phenomenon but this typically occurs after exercise and there is nothing suggestive in the patient's history of this correlation.

Hormonal changes secondary to menstruation are a potential cause for her migraines but are not typically associated with urticaria.

Contraceptives can lead to drug-induced urticaria but this is usually chronic urticaria and would not only occur in a limited time frame once a month.

As the patient is taking a multivitamin every day, it is unlikely that she would experience such sporadic episodes of urticaria.

Question:

A 3-year-old child is brought to surgery as her mother has noticed that she is 'cross-eyed'. The corneal light reflection test confirms this. What is the most appropriate management?

A.Advise that referral to secondary care should be delayed until 5 years of age, when surgery may be contemplated

B.Refer to ophthalmology

C.Refer to paediatric physiotherapy for eye movement exercises

D.Reassure mother that the majority of squints improve with age

E.Refer to optometry for an eye-patch

Answer:Refer to ophthalmology

Explanation:

Refer children with a squint to ophthalmology

Important for meLess important

This child needs to be reviewed by an ophthalmologist and orthoptist

Question:

A 46-year-old lady presents with a 2 week history of a worsening sore throat, and is complaining of painful swallowing. On examination you notice that her uvula is deviated to the left. What is the most likely diagnosis?

A.Retropharyngeal abscess

B.Epiglottitis

C.Peritonsillar abscess

D.Vagal nerve palsy

E.Parapharyngeal abscess

Answer:Peritonsillar abscess

Explanation:

In tonsillitis, uvular deviation may indicate development of a peritonsillar abscess (quinsy)

Important for meLess important

Although tonsillitis, supraglottitis, and quinsy all cause sore throat, uvular deviation is characteristic of quinsy (peritonsillar abscess). Also look for purulent tonsils, suggestive of a bacterial infection.

Epiglottitis presents differently, with a characterising 'toxic' appearance - typically patient has their head extended, drooling and tripoding. In this case an examination should not be performed because it may induce laryngospasm and completely obstruct the airway.

Vagal nerve palsy can cause uvular deviation, but with this history quinsy is more likely.

Question:

A 62-year-old known chronic alcohol use is brought to the emergency department with acute onset of abdominal pain and vomiting large volumes of dark blood. He has known chronic liver disease and is established on warfarin for atrial fibrillation.

On examination he appears pale and sweaty with epigastric tenderness. His observation and blood tests are:

Observation

Heart rate 108/min

BP 100/60 mmHg

Resp rate 28/min

Oxygen sats 98%

Temperature 36.7 oC

Bloods:

Haemoglobin 90 g/L (130–180)

Platelet count 200 \* 109/L (150 - 400)

INR 5.6 (0.8-1.2)

Which of the following is the most appropriate management for this patient?

A.IV vitamin K 1-3mg & restart when INR <5.0

B.IV vitamin K 5mg & fresh frozen plasma (FFP)

C.IV vitamin K 5mg & prothrombin complex concentrate (PCC)

D.IV vitamin K 5mg & repeat the dose if INR still raised after 24hours

E.Oral vitamin K 5mg & repeat the dose if INR still raised after 24hours

Answer:IV vitamin K 5mg & prothrombin complex concentrate (PCC)

Explanation:

Major bleeding - stop warfarin, give intravenous vitamin K 5mg, prothrombin complex concentrate

Important for meLess important

This patient has evidence of a major bleed most likely to a gastrointestinal bleed, with a haemoglobin drop (below normal range) and evidence of shock, in the context of oral anticoagulant warfarin use. These patients should be managed as an emergency and receive 5mg of vitamin K IV as well as prothrombin complex concentrate (PCC) regardless of how high their INR is if it is raised (above normal range). These agents replace the clotting factors inhibited/reduced by warfarin. The use of vitamin K and PCC is often incorporated into major haemorrhage protocols.

Patients presenting with raised INR between 5.0-8.0 and minor bleeding (i.e. any bleeding not categorised as major) should receive a single dose of IV vitamin K 1-3mg and have their warfarin restarted when bleeding has stopped and the INR is under 5.0. As this patient has major bleeding this is not an appropriate management plan.

Fresh frozen plasma (FFP) can be given for major bleeding in warfarin use but only if PCC is unavailable. Studies have show PCC is superior to FFP in normalising INR levels and therefore it should be used first-line if available. FFP can also take time to defrost, causing further delays when compared to PCC.

If a warfarin patient’s INR is found to be over 8.0 and there is evidence of minor bleeding (i.e. any bleeding not categorised as major) then 1-3mg of IV vitamin K should be given initial and a repeat dose provided if the INR is still raised after 24hours.

Oral vitamin K should be given at a dose of 1-5mg to patients presenting with an INR above 8.0 so long as there is no evidence of bleeding. These patient’s INR can then be checked, and a further dose provided in 24hours if the INR is still raised. This patient has evidence of a major bleed and therefore required further management.

Question:

Which of the following conditions is usually inherited in an autosomal dominant fashion?

A.Friedreich's ataxia

B.Hurler's syndrome

C.Phenylketonuria

D.Familial adenomatous polyposis

E.Haemochromatosis

Answer:Familial adenomatous polyposis

Explanation:

Autosomal recessive conditions are 'metabolic' - exceptions: inherited ataxias

Autosomal dominant conditions are 'structural' - exceptions: Gilbert's, hyperlipidaemia type II

Important for meLess important

Question:

A 45-year-old woman presents to the emergency department with acute right lower calf pain. She denies any recent immobilisation, or surgery, combined oral contraceptive pill use, and has no past medical history. There has been no trauma.

Her temperature is 37.1ºC, her heart rate is 95 bpm, and her blood pressure is 128/76 mmHg. There is no localised tenderness on palpation or pitting oedema. Her right calf is 2 cm larger than the left leg, however, the entire right leg is swollen. The left leg is unaffected.

No delays in investigations or management are anticipated.

What is the most appropriate next step?

A.Diagnosis unlikely - discharge with safety-netting

B.Immediately prescribe enoxaparin

C.Immediately prescribe rivaroxaban

D.Perform D-dimer testing

E.Perform proximal leg vein ultrasound scan

Answer:Perform D-dimer testing

Explanation:

Perform D-dimer testing is correct. This patient has an acutely swollen and painful lower calf, which should raise suspicion of deep vein thrombosis (DVT). She has no history of immobilisation, surgery, oral combined contraceptive pill use, or cancer, and on examination, there is no localised tenderness, or pitting oedema, and her calf swelling is only 2 cm larger than the rest. However, her entire leg is swollen, which scores 1 point according to the 2-level DVT Wells test. An alternative diagnosis would be less likely given that there are no signs of other causes, such as trauma or infection (as she is afebrile). This makes her Wells score 1, meaning a DVT is unlikely. When patients present with features of a DVT, but a DVT is unlikely (their Wells score is 1 or less), the most appropriate next step is a D-dimer test within 4 hours to rule it out entirely. If the D-dimer is negative, no further action is necessary. If it is positive, a lower limb ultrasound scan should be arranged.

Perform proximal leg vein ultrasound scan is incorrect. This would be appropriate if her Wells score was 2 or more, making a DVT likely. Given that her Wells score is 1, the most appropriate next step is a D-dimer test within 4 hours. If the D-dimer is negative, no further action is necessary. If it is positive, a lower limb ultrasound scan should be arranged.

Diagnosis unlikely - discharge with safety-netting is incorrect. This would not be appropriate as her features are still suggestive of DVT, and the guidelines state that a Wells score of 1 or less still warrants D-dimer testing. If the D-dimer is negative, no further action is necessary. If it is positive, a lower limb ultrasound scan should be arranged.

Immediately prescribe rivaroxaban is incorrect. This would be appropriate if the D-dimer test could not be performed within the next 4 hours, however, there is no mention of delays in testing, therefore at this moment in time, D-dimer testing alone is the most appropriate option. If the D-dimer is negative, no further action is necessary. If it is positive, a lower limb ultrasound scan should be arranged. Rivaroxaban is a direct oral anticoagulant (DOAC), the new first-line treatment of VTEs (previously low molecular weight heparins).

Immediately prescribe enoxaparin is incorrect. Similarly to the above, interim anticoagulation would be appropriate if the D-dimer testing could not be performed within the next 4 hours. Low molecular weight heparins (LMWHs) are only used as anticoagulation in VTEs if the patient has renal impairment. There is no mention of delays in testing, nor any mention of this patient having renal impairment, therefore at this moment in time, D-dimer testing alone is the most appropriate option. If the D-dimer is negative, no further action is necessary. If it is positive, a lower limb ultrasound scan should be arranged.

Question:

A 32-year-old man is seen at his GP for an erythematous rash in both axillae and his right groin crease. It is slightly scaly and flat and not itchy. A diagnosis of erythrasma is made.

Which of the following oral antibiotics should be used to treat this man's condition?

A.Metronidazole

B.Co-amoxiclav

C.Lymecycline

D.Erythromycin

E.Trimethoprim

Answer:Erythromycin

Explanation:

Erythromycin is the oral antibiotic of choice to treat erythrasma

Important for meLess important

While questions asking about antibiotics usually come with the caveat of following local protocols, there are certain skin infections where national guidelines should still be followed and these are often tested in exams, especially in the Medical Schools Council common questions for national finals.

Erythrasma is an infection caused by Corynebacterium minutissimum which is treated with oral erythromycin. There are no other antibiotics which are licensed to treat this so this is the only possible answer.

Question:

A 72-year-old woman is brought to the emergency department following a collapse at home. Her past medical history includes; COPD, recurrent urinary tract infections, hypertension and hypercholesterolaemia.

She recently attended her general practitioner with a chest infection and was started on a week-long course of antibiotics as well as several medications for symptom control. She has also commenced several new medications for recently diagnosed hypertension.

Her examination is unremarkable. A twelve lead ECG is performed which shows normal sinus rhythm, however, her QTc is noted to be markedly prolonged at 560ms.

Which of the following medications is most likely to have caused this ECG abnormality?

A.Clarithromycin

B.Cyclizine

C.Doxycycline

D.Lercanidipine

E.Rosuvastatin

Answer:Clarithromycin

Explanation:

Macrolides may cause prolongation of the QT interval

Important for meLess important

This patient has a markedly prolonged QT interval, likely exacerbated by recent macrolide use.

Clarithromycin - correct. Clarithromycin is an antibiotic belonging to the macrolide class. These antibiotics can result in QT interval prolongation.

Cyclizine - incorrect. Cyclizine is an H1-receptor antagonist, commonly used as an anti-emetic. It is ondansetron and domperidone which are the anti-emetics most commonly associated with QT prolongation.

Doxycycline - incorrect. Doxycycline is a form of tetracycline antibiotic. It can commonly cause photosensitivity but does not affect the QT interval.

Lercanidipine - incorrect. Lercanidipine is a calcium channel blocker of the dihydropyridine class. It frequently causes peripheral oedema, flushing and headaches. Again, however, it does not result in QT interval prolongation.

Rosuvastatin - incorrect. Rosuvastatin is a type of statin. It works by inhibiting HMG-CoA reductase - the rate-limiting enzyme involved in the production of cholesterol. Like other statins, it can cause myalgia, hepatotoxicity and, rarely, rhabdomyolysis.

Question:

A 56-year-old man presents with a 3-month history of fatigue, global weakness and weight loss. On systems review, he also states that he has been having some pains in his fingers, mainly his second and third fingers, for the past month or so and has been having increasing difficulties with erectile dysfunction. You suspect that he may have hereditary haemochromatosis and as such arrange for him to have blood tests.

Which of the below results would be most in keeping with your suspected diagnosis?

A.Ferritin - high; serum iron - high; total iron binding capacity - high; transferrin saturation - high

B.Ferritin - high; serum iron - high; total iron binding capacity - low; transferrin saturation - normal

C.Ferritin - low; serum iron - high; total iron binding capacity - low; transferrin saturation - normal

D.Ferritin - high; serum iron - high; total iron binding capacity - low; transferrin saturation - high

E.Ferritin - normal; serum iron - high; total iron binding capacity - normal; transferrin saturation - high

Answer:Ferritin - high; serum iron - high; total iron binding capacity - low; transferrin saturation - high

Explanation:

Raised transferrin saturation and ferritin, with low TIBC is the characteristic iron study profile in haemochromatosis

Important for meLess important

Haemochromatosis is a hereditary disorder resulting in an excessive accumulation of iron. It is characterised on iron studies by a raised ferritin and transferrin saturation with a low total iron-binding capacity.

On initial screening, all options without a raised ferritin and transferrin saturation can, therefore, be excluded. This then only leaves options 1 and 4, where the difference is the result of the total iron-binding capacity.

Transferrin is an iron transport protein in plasma which increases in iron deficiency to maximise utilisation of available iron. Total iron-binding capacity reflects the availability of iron-binding sites on transferrin. The levels, therefore, increase in iron deficiency and decrease in iron overload. As such you would expect a low total iron-binding capacity in haemochromatosis, leaving option 4 as the correct answer.

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?

A.Aortic regurgitation

B.Left atrial myxoma

C.Mitral regurgitation

D.Mitral stenosis

E.Tricuspid stenosis

Answer:Mitral stenosis

Explanation:

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 presents with fatigue and intermittent episodes of diarrhoea for many years. She also experiences bloating and has lost 4kg in weight.

Her examination is unremarkable and blood tests reveal the following:

Hb 104 g/L Male: (135-180)

Female: (115 - 160)

Platelets 254 \* 109/L (150 - 400)

WBC 6.5 \* 109/L (4.0 - 11.0)

MCV 72 fL (80-100)

Ferritin 3 ng/mL (10 to 120)

Given the most likely diagnosis, tissue transglutaminase antibodies are also checked, which come back positive.

Additionally, which of the following total serum levels should be checked?

A.IgA

B.IgD

C.IgE

D.IgG

E.IgM

Answer:IgA

Explanation:

You cannot interpret TTG level in coeliac disease without looking at the IgA level

Important for meLess important

The correct answer is the IgA level. The likely diagnosis here, given the history and iron deficiency anaemia, is coeliac disease. Serology for this usually involves tissue transglutaminase (TTG-IgA) antibodies and endomysial antibodies (also IgA). There is, however, an association between coeliac disease and selective IgA deficiency - in patients with the latter condition, false-negative coeliac results may therefore be obtained. As such, it is important to check the total serum IgA level, to put the TTG-IgA and endomysial IgA levels into context.

The other classes are therefore incorrect as these do not relate to normal coeliac serology. For selective IgA deficient patients, the current alternative serological test of choice is IgG deamidated gliadin peptide.

Question:

A 70-year old lady presented to the emergency department with a three day history of increasing shortness of breath and cough productive of green sputum. She had a previous medical history of hypertension and diverticular disease of the colon. Her medication comprised of amlodipine. She was a non-smoker. On examination, she was muddled with an abbreviated mental test score (AMTS) of 6/10. Her temperature was 37.4 degrees Celsius, her pulse was 115 beats per minute and regular, her blood pressure was 88/55 mmHg, her respiratory rate was 20 breaths per minute and her oxygen saturations were 92% on room air. There were coarse crackles at the right lung base.

Investigations:

Haemoglobin 115 g/L

White cell count 15x10^9 /L

Platelet count 268 x10^9/L

Serum sodium 135mmol/L

Serum potassium 4.1mmol/L

Serum urea 13.1mmol/L

Serum creatinine 124micromol/L

CRP 166mg/L

Chest radiograph: patchy shadowing at the right base

What is the CURB-65 score?

A.1

B.2

C.3

D.4

E.5

Answer:4

Explanation:

The CURB-65 score for this patient is 4:

Confusion: 1 point

Urea: 1 point

Respiratory rate: 0 point

Blood pressure: 1 point

65 years: 1 point

The risk of death at 30 days increases as the score increases:

Score Risk of death at 30 days

0 0.7%

1 3.2%

2 13.0%

3 17.0%

4 41.5%

5 57.0%

Similarly with any infection the risk of mortality increases as the CURB score increases

Score Risk of death at 30 days

0 to 1 <5% mortality

2 to 3 < 10% mortality

4 to 5 15-30% mortality

Along with age, co-morbidities, social factors and other considerations the CURB score can help guide the decision to admit. Other factors can include hypoxia and bilateral chest consolidation which can also indicate a more severe pneumonia.

Score Management

0-1 Treat as an outpatient

>2 Treat as an inpatient

Question:

A 5-year-old boy is brought to the emergency department with sudden onset wheezing and swelling of his tongue, face and hands. On assessment there is evidence of airway compromise.

What is the correct dose of 1 in 1,000 intramuscular adrenaline to treat this patient?

A.150 micrograms

B.150 milligrams

C.500 micrograms

D.500 milligrams

E.1000 micrograms

Answer:150 micrograms

Explanation:

6 months - 6 years adrenaline dose for anaphylaxis 150 mcg (0.15ml 1 in 1,000)

Important for meLess important

The correct answer is 150 micrograms (0.15ml 1 in 1,000) intramuscular adrenaline.

This child has anaphylaxis. Anaphylaxis is managed with 1 in 1,000 adrenaline, rather than 1 in 10,000 adrenaline, which allows smaller volumes which can be administered intramuscularly.

Resuscitation Council UK guidelines recommend anaphylaxis in patients aged 6 months to 6 years should be managed with 150 micrograms (0.15ml 1 in 1,000) intramuscular adrenaline.

The units of dosing are important to pay attention to - 150 milligrams is an incorrect (1000 times) dose. This is the same for the 500 milligrams option.

500 micrograms is the dose used in children over 12 and adult patients.

1000 micrograms (1 mg) is the dose used in adult cardiac arrest, given as 10ml 1:10,000 adrenaline intravenously.

Question:

A 35-year-old man presents with bloody diarrhoea and mild abdominal pain. He has been passing five stools with specks of blood daily over the last five weeks.

On examination, there is slight tenderness in the lower left quadrant of the abdomen. Bowel sounds are present and normal. His temperature is 37.3ºC, his heart rate is 85 bpm, his blood pressure is 126/80 mmHg, and his oxygen saturations are 97% on room air. He has had a poor response to topical mesalazine for the past four weeks.

What is the best next step in his management?

A.Admit and give IV corticosteroids

B.Prescribe oral aminosalicylate

C.Prescribe oral azathioprine

D.Prescribe oral corticosteroids

E.Prescribe oral methotrexate

Answer:Prescribe oral aminosalicylate

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

Prescribe oral aminosalicylate is the correct answer. The patient in the vignette has features of a flare of ulcerative colitis (UC; bloody diarrhoea, abdominal pain, and pain in the lower left quadrant on examination). This flare can be classified as a moderate flare, as he has five bloody stools per day with minimal systemic disturbance (a moderate flare is considered 4-6 stools a day with minimal systemic disturbance according to the Truelove-Witts severity index). As the patient in the vignette is relatively stable (afebrile, not in shock), admission to the hospital is not required. He has already tried topical first-line measures with no success as his symptoms have not resolved within four weeks. The next step in the guidelines is to add an oral aminosalicylate.

Admit and give IV corticosteroids is incorrect. This would be appropriate if the patient in the vignette were experiencing a severe flare of UC. This would present as more than six bloody stools a day and features of systemic disturbance such as fever, tachycardia, abdominal tenderness, distention, or reduced bowel sounds. These features are not present in the vignette.

Prescribe oral azathioprine is incorrect. This would be appropriate if the patient in the vignette had just been treated for a severe relapse or had two or more exacerbations in the last year. It is used in maintaining remission and does not play a role in inducing remission. The patient in the vignette has not had a severe relapse and has not yet been treated for their acute flare, nor is there any information regarding previous flares.

Prescribe oral corticosteroids is incorrect. This would be appropriate if an oral aminosalicylate therapy were unsuccessful as an adjunct. As the patient in the vignette is only using topical therapy, the next step would be to prescribe an oral aminosalicylate before giving oral corticosteroids.

Prescribe oral methotrexate is incorrect. Methotrexate is not recommended in managing UC and is used 2nd-line in remission of Crohn's disease. Methotrexate is currently not routinely recommended for remission therapy in UC.

Question:

A 64-year-old man presents with dysuria and haematuria. He has no past medical history to note but on social history he's worked in rubber manufacturing for 40 years and says that sometimes health and safety at his company is sometimes lax. You order cystoscopy which discovers a transitional cell carcinoma of the bladder (high-grade papillary carcinoma).

Occupational exposure to which of the following is a recognised risk factor for this type of bladder cancer?

A.Aniline dye

B.Beryllium

C.Aflatoxin

D.Mercury

E.Strongyloides stercoralis

Answer:Aniline dye

Explanation:

Question:

A 42-year-old woman presents to her GP with several months of progressive symmetrical swelling and stiffness of her fingers. Her symptoms are worse in cold weather. She also complains of more frequent 'heartburn' recently. On examination, there are three spider naevi on her face, and her fingers are red, mildly swollen, and shiny. Examination of the heart and lungs was normal.

What is the most likely diagnosis?

A.Diffuse systemic sclerosis

B.Limited systemic sclerosis

C.Primary Raynaud's phenomenon

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Limited systemic sclerosis

Explanation:

CREST syndrome is a subtype of limited systemic sclerosis and includes: calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly, telangiectasia

Important for meLess important

Limited systemic sclerosis (CREST syndrome) is the correct answer. The patient has Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly and telangiectasia. Calcinosis doesn't always occur. Importantly there is no evidence of any systemic fibrosis, and therefore limited systemic fibrosis is the most likely diagnosis.

Diffuse systemic sclerosis is not the most likely diagnosis. There is no evidence of any systemic fibrosis needed to confirm a diagnosis of diffuse disease. Furthermore diffuse systemic sclerosis often doesn't present in the same CREST pattern as limited systemic sclerosis.

Rheumatoid arthritis is an important differential diagnosis, however would not be correct in this case. This commonly presents with small joint swelling in the hands and is often associated with Raynaud's phenomenon. However, the systemic features are more typical of systemic sclerosis.

Primary Raynaud's phenomenon is wrong in this case as there are symptoms suggestive of systemic sclerotic disease. Primary Raynaud's phenomenon is common and so should be ruled out if possible.

Systemic lupus erythematosus could present in this way but it is not typical. A more common presentation would be arthralgia, mouth ulcers, photosensitivity and a malar rash.

Question:

A 55-year-old man presents to the GP with a 4-day history of right-sided groin pain and scrotal swelling with associated dysuria. There was no antecedent trauma. He has unprotected sexual intercourse with his wife, his singular partner, who uses hormonal contraception.

On examination, his right hemiscrotum is erythematous and tender. Elevation of the testis alleviates the pain. His temperature is 37.1ºC, his heart rate is 95 bpm, and his blood pressure is 135/75 mmHg.

Given this patient's presentation, what is the most appropriate diagnostic step?

A.Immediate referral to urology for surgery

B.Mid-stream sample of urine

C.Nucleic acid amplification test

D.Ultrasound scan

E.Urethral swab

Answer:Mid-stream sample of urine

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

This patient has features consistent with epididymo-orchitis, characterised by groin pain and scrotal swelling over a couple of days with dysuria and alleviation of pain when elevating the testis (Prehn's sign). Testicular torsion is less likely as this patient's symptoms are less acute and have been ongoing for 4 days, and testicular torsion is also rare in patients over 35 years of age.

Mid-stream sample of urine is correct. Given this patient's age and the fact that he has one sexual partner, the most likely causative organism for this patient's presentation is likely to be enteric, such as Escherichia coli. In reality, a more thorough sexual history may be necessary as this is an assumption, but given epidemiological data and the information in this question, an enteric cause is more likely. The most appropriate next step would be to take a mid-stream urine sample to guide management.

Nucleic acid amplification test is incorrect. This would be appropriate if the patient was younger (typically less than 35 years of age) and did not have one sexual partner, as sexually-transmitted infections (STIs) are more likely in this demographic. Although this is an assumption and a more thorough sexual history is needed, epidemiological data and the information in this question suggest that the most likely underlying cause of this patient's symptoms is due to an enteric cause rather than an STI.

Urethral swab is incorrect. Urethral swabs are not as commonly used anymore, as other investigations, such as nucleic acid amplification tests (NAATs), are available, which are more sensitive. This would have been considered if the patient was experiencing urethritis, which presents with dysuria and urethral discharge. This patient has scrotal swelling and pain, making urethritis less likely, and urethral swabs are not as commonly used in acute epididymitis as they can be uncomfortable and less sensitive than mid-stream urine samples and NAATs.

Immediate referral to urology for surgery is incorrect. This would be appropriate if testicular torsion were a likely diagnosis, which would present in younger patients with acute scrotal pain and an absence of features suggesting infection, such as dysuria. The pain in testicular torsion is not alleviated by elevating the testis (negative Prehn's sign), and the cremasteric reflex may be lost. Testicular torsion is also rare in patients over 35 years of age.

Ultrasound scan is incorrect. Similarly to the above, this would be performed if a testicular torsion was suspected, but given this patient's age, the duration of symptoms, the presence of dysuria, and a positive Prehn's sign, testicular torsion is less likely. Ultrasound scans are not routinely done in epididymo-orchitis. Testicular torsion is also rare in patients over 35 years of age.

Question:

A 7-year-old child comes to the GP for the annual influenza vaccine. The mother states that he has been ill for the last couple of days with a productive cough and fever. The child has not been given any medications and is not known to have allergies.

Regarding the flu vaccine, what should you do?

A.Give him the intranasal vaccine

B.Give him intramuscular vaccine

C.Seek specialist advice

D.Withhold the vaccine until he gets better

E.Do not give him the vaccine

Answer:Withhold the vaccine until he gets better

Explanation:

The seasonal flu vaccine should be postponed if the patient is acutely unwell until they have recovered

Important for meLess important

The intranasal vaccine is live and the intramuscular is inactivated however NICE guidance states that the influenza vaccine (whether intramuscular or intranasal) should not be given to people who are acutely unwell. The vaccine should be postponed until the patient is better.

Question:

A 30-year-old woman is referred to the rheumatologist with a one-week history of persistent right knee pain, sore eyes, and swelling as well as lower back stiffness.

She feels otherwise generally well and is on the seventh day of a course of ciprofloxacin for a suspected UTI. Four weeks ago, she was treated at the sexual health clinic for Chlamydia and gonococcus co-infection.

Blood tests show:

Hb 132 g/L (115 - 160)

WBC 10.4 \* 109/L (4.0 - 11.0)

CRP 55 mg/L (< 5)

On examination, her right knee and right ankle are noted to be swollen and tender.

Given the likely diagnosis, what HLA serotype is this condition associated with?

A.HLA-B27

B.HLA-B51

C.HLA-DQ2

D.HLA-DR3

E.HLA-DR4

Answer:HLA-B27

Explanation:

Reactive arthritis - HLA-B27

Important for meLess important

Reactive arthritis would best fit this presentation. Associated with HLA-B27, this typically presents with arthritis, urethritis, and conjunctivitis. This woman clearly has acute onset arthritis and is being treated for a 'suspected UTI' which has not resolved after the usual three days of treatment that would be used to treat women and which should raise suspicion of urethritis. She describes the probable trigger for her reactive arthritis- Chlamydia infection.

HLA-B51 is associated with Behcet's disease, which usually presents with ulcers of the genitals and oral mucosa, skin lesions, and inflammation of parts of the eye.

HLA-DQ2 is associated with Coeliac disease, which would present with symptoms of malabsorption.

HLA-DR3 is associated with Addison's disease, systemic lupus erythematosus, type 1 diabetes mellitus, Grave's disease, and myasthenia gravis. None of these would give the presentation above.

HLA-DR4 is associated with type 1 diabetes mellitus and rheumatoid arthritis.

Question:

A 59-year-old man of Indian origin is seen in clinic for a hypertension review. He shows you a diary of blood pressure recordings he has taken at home, with measurements consistently above 150/90 mmHg. He takes amlodipine and atorvastatin; he has been established on this regime for one year and doses have been optimised.

What would be the most appropriate next step?

A.Add bendroflumethiazide

B.Add indapamide

C.Continue to monitor blood pressure at home and review in one month

D.Stop amlodipine and trial ramipril instead

E.Stop amlodipine and trial ramipril with indapamide instead

Answer:Add indapamide

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

The correct answer is to commence indapamide in addition to amlodipine. This patient has stage 2 hypertension on home-monitoring, with other cardiovascular risk factors noted, established on a calcium channel blocker. As per the NICE treatment algorithm, the next step would be to add an ACE inhibitor (ACEi), angiotensin-receptor-blocker (ARB) or a thiazide-like diuretic. Accordingly, the correct answer is indapamide which is a thiazide-like diuretic.

Adding bendroflumethiazide in addition to amlodipine is incorrect. Bendroflumethiazide is a thiazide diuretic and an easy point of confusion. Only thiazide-like diuretics, such as indapamide, are recommended in the next step of the algorithm.

Continuing blood pressure monitoring at home and reviewing in one month would not be appropriate. The patient has already been monitoring blood pressure at home, and with the evidence of persisting hypertension in addition to other cardiovascular risk factors, treatment of his hypertension should be escalated.

Stopping amlodipine and trialling ramipril with indapamide instead is incorrect. An ACEi such as ramipril or a thiazide-like diuretic such as indapamide can be added in addition to a calcium channel blocker, but the combination should not be commenced in replacement of amlodipine.

Stopping amlodipine and trialling ramipril instead is incorrect. Ramipril could be added in addition to amlodipine but not in replacement of it. Combination therapy is the recommendation as per the treatment algorithm.

Question:

You are working on the neonatal unit and examine a new-born baby. On examination you note a small left sided haematoma over the parietal bone. It does not extend beyond the margins of the parietal bone and is soft to touch. The baby is otherwise well.

The baby was born by spontaneous vaginal delivery at term. There were no problems prenatally or during labour.

What is the most likely diagnosis?

A.Caput succedaneum

B.Cephalhaematoma

C.Chignon

D.Subaponeurotic haemorrhage

E.Cranial abrasion

Answer:Cephalhaematoma

Explanation:

A cephalhaematoma can often be confused by medical students with a caput succedaneum. Distinguishing features of a cephalhaematoma are that they usually develop after birth and do not cross the suture lines of the skull as the blood is confined between the skull and periosteum.

Caput succedaneum is an extraperiosteal collection of blood therefore can cross over the suture lines and can be present at birth.

Subaponeurotic haemorrhages are a serious condition caused by bleeding in the potential space between the periosteum and subgaleal aponeurosis. Typically there is a boggy swelling that grows insidiously and is not confined to the skull sutures. The neonate may present with haemorrhagic shock.

Chignon's are birth traumas that occur after use of a ventouse device during delivery. A cranial abrasion usually occurs after a caesarean section or instrumental delivery.

Question:

A 28-year-old woman presents with neck pain and swelling. She reports upper respiratory tract infection symptoms followed by neck pain and swelling over the past 10 days. On examination, she looks anxious, her heart rate is 102/min, and her thyroid gland is tender and diffusely swollen.

Blood tests were done which showed the following results:

Thyroid-stimulating hormone (TSH) 0.3 mU/L (0.5-5.5)

Free thyroxine (T4) 45 pmol/L (9.0 - 18)

ESR 60 mm/h (1-20)

What is the most likely diagnosis?

A.Graves' disease

B.Hashimoto's thyroiditis

C.Subacute thyroiditis (de Quervain's thyroiditis)

D.Thyroid cancer

E.Thyroid nodule

Answer:Subacute thyroiditis (de Quervain's thyroiditis)

Explanation:

Thyrotoxicosis with tender goitre = subacute (De Quervain's) thyroiditis

Important for meLess important

This woman has presented with hyperthyroidism associated with a tender goitre after an upper respiratory tract infection which is the typical presentation of subacute thyroiditis (de Quervain's thyroiditis).

Graves' disease is an autoimmune condition that leads to hyperthyroidism. However, it does not cause high ESR or painful thyroid gland.

Hashimoto's thyroiditis is an autoimmune condition that causes hypothyroidism, and it is the most common cause of hypothyroidism in the UK. This woman presents with hyperthyroidism rather than hypothyroidism which makes this a wrong answer.

Thyroid cancer does not cause acute pain or tenderness and usually presents with a painless nodule or other symptoms such as hoarseness or enlarged lymph nodes.

Thyroid nodule is incorrect as the examination in this scenario showed diffusely enlarged tender goitre rather than a nodule.

Question:

A 38-year-old man presents to his general practitioner with a recurring itchy rash on his hands and feet. He frequently travels to the middle east on business. He has had unprotected sex recently on one of these trips.

On examination, there is an itchy vesicular rash on the palms and soles with areas of excoriation and erythema.

Exposure to what factor is the likely precipitant of this particular rash?

A.Chlamydia

B.Cold

C.Humidity

D.Sunlight

E.Syphilis

Answer:Humidity

Explanation:

Pompholyx eczema may be precipitated by humidity (e.g. sweating) and high temperatures

Important for meLess important

Humidity is correct. The description of the rash (recurrent vesicles affecting the palms and soles associated with erythema) is typical of pompholyx eczema. This can be precipitated by humidity. His frequent travel to the middle east, which is an especially humid region, may be contributory.

Chlamydia is incorrect. Keratoderma blennorrhagica may be precipitated by chlamydia in the context of reactive arthritis. This rash is found on the soles of the feet but can also affect the palms. It can be vesico-pustular but tends to have a waxy brown appearance rather than being erythematous and itchy.

Cold is incorrect. This may precipitate Raynaud's phenomenon but not pompholyx eczema.

Sunlight is incorrect. This can precipitate many conditions such as lupus and polymorphic light eruption. However, it is humidity rather than sunlight that precipitates pompholyx.

Syphilis is incorrect. This can cause a rash on the palms and soles but it is typically macular.

Question:

A 32-year-old woman presents to her GP surgery as she has missed her last period. A pregnancy test confirms that she is pregnant, and it is estimated that she is 6 weeks pregnant. She is well, but has hypothyroidism and takes 150 mcg levothyroxine.

What is the single best advice regarding her medication?

A.Keep the same dose of levothyroxine

B.Decrease levothyroxine by 50 mcg

C.Increase levothyroxine by 50 mcg

D.Decrease levothyroxine by 100 mcg

E.Increase levothyroxine by 100 mcg

Answer:Increase levothyroxine by 50 mcg

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

In pregnancy, anyone already on levothyroxine treatment should increase their dose. Thyroid doses should be adjusted in steps of 25-50mcg. In pregnancy, the increase in thyroid replacement is typically 20-50%, which normally equates to 25mcg-50mcg increase.

Thyroid-stimulating hormone levels (TSH) should be measured during each trimester and doses adjusted accordingly, bearing in mind the trimester-specific ranges for TSH. Following delivery, levothyroxine should be reduced to the patient’s preconception dose with repeat TFTs at 6 weeks post-partum.

As this woman is already on levothyroxine it would be appropriate to increase the dose and arrange thyroid-stimulating hormone (TSH) blood tests. There is an increased risk of fatal complications if the dose is kept the same.

It would not be appropriate to decrease the levothyroxine dose, as inadequate thyroid replacement is associated with increased complications in pregnancy.

Increasing levothyroxine by 100mcg initially would be too much, as excessive replacement can be detrimental to the fetus. It is most appropriate to start with small increments of 25-50mcg and then adjust the dose further based on the TSH results.

Question:

A 23-year-old man gets crampy abdominal pain with vomiting and diarrhoea overnight. The previous evening he had a takeaway curry with rice. What is the likely causative agent of his gastroenteritis?

A.Bacillus cereus

B.Campylobacter jejuni

C.Escherichia coli

D.Shigella dysenteriae

E.Staphylococcus aureus

Answer:Bacillus cereus

Explanation:

Bacillus cereus commonly causes a gastroenteritis with prominent vomiting with a short incubation period, and is commonly caused by rice

Important for meLess important

Bacillus cereus is classically associated with a short incubation period, commonly caused by rice and with a vomiting prominent gastroenteritis. The only other option which fits the time frame in this scenario is Staph aureus however in the context of a curry, think reheated rice, think Bacillus. The incubation period of the remaining three is at least 24 hours.

Question:

A 47-year-old man attends his 5-month follow up appointment after having a living-donor kidney transplant. He has a past medical history of type 1 diabetes mellitus (managed with a patch insulin pump) and chronic back pain from a skiing accident (managed with regular paracetamol). He feels well and has been taking his immunosuppressant medications as prescribed. As part of the routine follow-up, bloods and a urine dip are performed, which show:

Na+ 137 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 203 µmol/L (patient post-operative baseline: 121)

pH 6

Protein ++

Leucocytes +++

Nitrites -

Blood -

Ketones -

Glucose -

What is the likely diagnosis?

A.Acute graft failure

B.Acute tubular necrosis of graft

C.Ascending urinary tract infection

D.Post-transplant urinary leak

E.Vascular thrombosis

Answer:Acute graft failure

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

This patient is being reviewed at 5 months post-renal transplant for type 1 diabetes. He is well in himself, however, his investigations show:

Pyuria (raised leucocytes on his urine dip).

Proteinuria (a raised protein on his urine dip).

Rising creatinine (>1.5x from his post-operative baseline).

This is indicative of an acute graft failure which typically occurs around 6 months post-transplant. The patient will require a tissue biopsy for evaluation fo the extent of the rejection. Standard management is with IV steroids and T cell depletion.

Acute tubular necrosis of graft is responsible for around 90% acute renal failure episodes in the first few weeks after a renal transplant. It is more common in cadaver transplants than living donor transplants (due to donor hypotension period and reduced allograft blood flow). As this patient is asymptomatic and it is 5 months post-operation, this is a less likely answer.

An ascending urinary tract infection would typically present with urinary symptoms (dysuria, frequency, abdominal/suprapubic/flank pain). There would also be nitrites seen on his urine dip. As this patient has no symptoms and does not have a nitrite-positive urine dip, this is a less likely answer.

Post-transplant urinary leak is a common early postoperative complication of renal transplant. Patients with high volume leaks will have high drain outputs and reduced urinary catheter output. While patients with a low volume leak may present later and be confused with possible graft dysfunctions, most patients with low volume leaks will report abdominal tenderness and pyrexia. As this patient is totally asymptomatic, this is a less likely answer.

Vascular thrombosis is a rare post-transplant complication. Patients will typically present with abdominal pain, reduced urinary output and pyrexia. As this patient feels well in himself, this is an unlikely diagnosis.

Question:

A 63-year-old woman presents to the emergency department with a two-hour history of vomiting, shortness of breath, and sweating. She has no chest pain. She has a past medical history of type II diabetes, hypertension, alcohol dependence, and chronic kidney disease. Her medications include metformin and ramipril.

Her blood pressure is 155/74 mmHg, heart rate 94 bpm, oxygen saturation 95% on room air, and respiratory rate 22 breaths per minute. Her ECG shows inferolateral ST depression.

A venous blood gas is sent:

pH 7.4 (7.35 - 7.45)

Bicarbonate 24 mmol/L (22 - 28)

Base excess 0 (-2 - 2)

Lactate 1.0 mmol/L (<1.0)

K+ 4.4 mmol/L (3.5 - 5.0)

Cl- 100 mmol/L (95-105)

Glucose 10.8 mmol/L (3.9 - 5.8)

What is the most likely diagnosis?

A.Acute myocardial infarction

B.Acute pancreatitis

C.Diabetic ketoacidosis

D.Lactic acidosis

E.Pulmonary embolism

Answer:Acute myocardial infarction

Explanation:

Diabetic patients with a MI can present without chest pain

Important for meLess important

Acute myocardial infarction is the correct answer. Diabetic patients can have a myocardial infarction without experiencing chest pain. This is because diabetes, especially if poorly controlled, can result in diabetic neuropathy. In this case, the patient's diabetes is poorly controlled with features of end-organ damage (chronic kidney disease and glaucoma). This woman also has several risk factors for coronary artery disease, including diabetes, hypertension, and chronic kidney disease. She also has features on her ECG, suggestive of ongoing ischaemia.

Acute pancreatitis is incorrect. Whilst she is at increased risk for pancreatitis due to her diabetes and alcohol dependence, there is little to suggest this diagnosis from the information provided. You would expect sudden-onset mid-epigastric or upper quadrant pain, which often radiates to the back. You would also expect more obvious metabolic derangements on the venous blood gas, such as metabolic acidosis and raised lactate.

Diabetic ketoacidosis is incorrect. Diabetic ketoacidosis would be suggested by hyperglycaemia, metabolic acidosis and ketonuria. Whilst this woman's venous glucose is raised, it is not sufficiently high for DKA. Furthermore, there is no evidence of metabolic acidosis. It is also relatively uncommon for type II diabetic patients to develop DKA, as insulin is generally produced sufficiently to avoid ketotic metabolism.

Lactic acidosis is incorrect. Lactic acidosis is an established adverse effect of metformin therapy. The lactate is unremarkable on the blood gas, making this diagnosis unlikely.

Pulmonary embolism is incorrect. Whilst this woman is short of breath and has a raised respiratory rate, there is no evidence of hypoxia. This makes a diagnosis of a pulmonary embolism unlikely.

Question:

A 75-year-old gentleman with a past medical history of hypertension only presents with a 3-month history of increasing breathlessness and swollen ankles. You decide to order a BNP test. Which of the following may give him a falsely low BNP result?

A.His age

B.Being on ramipril for his blood pressure

C.An eGFR of <60ml/min/1.73m²

D.A high protein meal 6 hours before the blood test

E.Concurrent infection

Answer:Being on ramipril for his blood pressure

Explanation:

There are two types of natriuretic peptide that can be measured in serum: B-type natriuretic peptide (BNP) and N-terminal pro-BNP (NT-proBNP). NT-proBNP is the inactive prohormone of BNP and is released from the left ventricle in response to ventricular strain. It acts to increase renal excretion of water and sodium, and relax vascular smooth muscle causing vasodilation.

BNP should be measured in patients with suspected heart failure who have not had a previous myocardial infarction. The serum level helps to determine the likelihood of heart failure and thus the need for specialist assessment and echocardiography. The value helps dictate the level of urgency of the referral given high BNF levels (>400) carry a poor prognosis. In these cases, a 2-week wait referral for urgent echocardiography and specialist assessment is advised.

Although elevated levels of BNP do not confirm the diagnosis of heart failure, normal levels rule the diagnosis out (highly sensitivity but varying specificity).

NICE suggest that BNP measurements are not necessary for people with suspected heart failure who have had a previous myocardial infarction. These patients require an urgent referral, echocardiography and specialist assessment because if heart failure is present this carries a poor prognosis.

Increased BNP levels (>400) are not on their own diagnostic of heart failure, and may be elevated as a result of left ventricular hypertrophy, myocardial ischaemia, atrial fibrillation, pulmonary hypertension, hypoxia, pulmonary embolism, right ventricular strain, chronic obstructive pulmonary disease, liver failure, sepsis, diabetes, and renal impairment. In addition, levels tend to be higher in women, and in people older than 70.

Heart failure is unlikely if BNP levels are low (<100). However, aldosterone antagonists, ACE inhibitors, angiotensin-II receptor antagonists, beta-blockers and diuretics can all falsely lower BNP levels, as can obesity.

Question:

A 28-year-old male presents with painful genital ulcers a few weeks after a trip to Kenya. On examination, he has multiple eroded genital ulcers, as well as a tender, enlarged lymph node present in the right inguinal region. He is systemically well.

Swabs of a genital ulcer are taken and an sexually-transmitted infection screen is performed. The results are shown below.

NAAT test Swab culture

Chlamydia trachomatis negative Haemophilus ducreyi grown

Neisseria gonorrhoeae negative

What is the most likely diagnosis?

A.Syphilitic chancre

B.Herpes simplex

C.Chancroid

D.Lymphogranuloma venereum

E.Granuloma inguinale/donovanosis

Answer:Chancroid

Explanation:

Chancroid is caused by Haemophilus ducreyi

Important for meLess important

Chancroid is a cause of sexually-acquired genital ulcers in the tropics. These ulcers are multiple, have ragged edges and a granular base. It can also be associated with painful, unilateral inguinal lymphadenopathy. The causative organism is Haemophilus ducreyi.

Syphilis is caused by Treponema pallidum . Although chancres are similar in name to chancroid, there are a few differences. Chancres tend to be painless, singular lesions with bilateral lymphadenopathy and can heal spontaneously without treatment.

Herpes simplex is a common cause of sexually-acquired ulceration in the UK but is caused by herpes simplex virus type 1 and 2.

Lymphogranuloma venereum (LGV) is caused by Chlamydia trachomatis. This presents with a singular, painless ulcer which spontaneously resolves.

Granuloma inguinale is caused by Klebsiella granulomatis. It presents with painless genital ulceration and inguinal node abscesses.

Question:

A 32-year-old man presents to the emergency department after having a road traffic accident. He mentions severe pain in his right ankle and is unable to bear weight. On examination, there is tenderness over the distal tibia. Dorsalis pedis pulse on the right side is absent. No neurological signs are present. His X-ray confirmed the presence of a displaced ankle fracture.

What is the best initial management?

A.Call the neurologist

B.Call the plastic surgeon

C.Call the vascular surgeon

D.Reduce the fracture

E.Repeat the X-ray

Answer:Reduce the fracture

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

Reducing the ankle fracture is the best initial management to prevent any skin damage resulting from the pressure on the overlying skin that can lead to skin necrosis.

Although the peripheral pulse is absent, calling the vascular surgeon is warranted only after reducing the fracture. The bone displacement caused by the fracture can compress the artery, and reducing the fracture can completely solve this issue. If the pulse remains absent after reduction, the vascular surgeon should be called.

Question:

A mother is concerned about a swelling she has noted on her newborn's head. The girl was born four hours ago, using forceps delivery due to a prolonged second stage of labour. On examination, there is a swelling in the parietal region which does not cross the suture lines. The consultant tells her that it may take several months to resolve. Which type of head injury is this likely to be?

A.Caput succedaneum

B.Subdural haematoma

C.Subgaleal haemorrhage

D.Extradural haematoma

E.Cephalohaematoma

Answer:Cephalohaematoma

Explanation:

Cephalohaematoma: Several hours after birth, doesn't cross suture lines, can take months to resolve

Important for meLess important

This newborn has had a prolonged delivery which eventually required instrumental extraction. This predisposes to extracranial injuries. Extracranial injuries can include caput succedaneum which is a bleed in the subcutaneous tissue, a subgaleal bleed which occurs in the subaponeurotic space, or cephalohaematoma which occurs between the periosteal membrane and cranial bone.

This bleed is a cephalohaematoma. It typically develops several hours after birth, and unlike subgaleal bleeds or caput succedaneum won't cross suture lines. It is managed conservatively but can take months to resolve.

Question:

A 71-year-old man is admitted to the orthogeriatric ward following a traumatic fall with a neck of humerus fracture and scalp laceration with significant blood loss. He was transfused various blood products over a 24-hour period before becoming haemodynamically stable.

On the following morning ward round, he appears lethargic and unwell, having spiked a temperature of 38.6ºC. He is tachycardic and mildly hypotensive. Intravenous fluid resuscitation is started and blood cultures are sent.

Which of the following is most likely to have caused this reaction?

A.Cryoprecipitate

B.Fibrinogen

C.Fresh frozen plasma

D.Platelets

E.Red blood cells

Answer:Platelets

Explanation:

Platelet transfusions have the highest risk of bacterial contamination compared to other types of blood products

Important for meLess important

This patient is presenting with symptoms of an infection, with fever, tachycardia and hypotension. These symptoms started shortly after blood product administration. Of the answers listed in the question, platelet transfusion is most likely to cause bacterial contamination. This is because platelets are stored at room temperature between 20-24ºC as too cold temperatures lead to damage to the platelet membranes. These warmer temperatures are much more favourable for bacterial contamination and growth, compared to products stored at colder temperatures.

Red blood cells are stored at temperatures between 2-6ºC. Fresh frozen plasma and cryoprecipitate are stored at temperatures of -30ºC and are thawed just before use. These temperatures make bacterial contamination much less likely.

Fibrinogen is now commonly stored as a powder that is mixed into a solution with sterile water. Therefore, it is unlikely to cause bacterial contamination.

Question:

You are called to a 41-year-old women on a surgical ward who had a hysterectomy 2 days ago. The nurse tells you there has been reduced urine output for the previous day. She is alert. Her respiratory rate has risen from 12/min to 26/min in the last 24 hours and her heart rate has risen from 62/min to 98/min in the same time period. Her blood pressure is 130/75mmHg and she is apyrexial. The nurse has started her on oxygen and is setting up a fluid bolus. An arterial blood gas shows:

pH 7.29 7.35-7.45

HCO3- 11mmol/L 22-26mmol/L

pCO2 3kPa 4.5-6kPa

p02 11kPa 10-14kPa

Anion gap 20mEq/L 10-14mEq/L

Lactate 3mmol/L 0.5-2mmol/L

What is the next most appropriate step in the management?

A.Furosemide

B.Antibiotics

C.Adenosine

D.Blood cultures

E.IM adrenaline

Answer:Blood cultures

Explanation:

You should have a high suspicion of sepsis in any patient with any of the following red flag signs:

systolic blood pressure < 90mmHg or > 40mmHg fall from baseline

mean arterial pressure < 65mmHg

heart rate > 131 per minute

respiratory rate > 25 per minute

unresponsive or responsive only to voice or pain.

The fact this patient has had recent major surgery makes sepsis even more likely. The ABG shows a metabolic acidosis and raised lactate which further points towards sepsis. Apyrexia does not rule out sepsis.

When sepsis is suspected the sepsis 6 should be initiated immediately. This patient has already received or is about to receive 4 of the 6 stages of the sepsis 6 (catheter, lactate, oxygen and fluids).

The remaining 2 stages that need to be performed are blood cultures and empirical antibiotics. Blood cultures should be performed before giving antibiotics as antibiotics may alter the blood culture results.

Question:

A 26-year-old woman attends the GP clinic complaining of abnormal vaginal discharge. This is described as green-yellow in colour and frothy. She is sexually active and does not use any form of contraception. Her last sexual activity was two weeks ago with a new partner. Speculum examination reveals a strawberry cervix. She is otherwise well and takes no medications. A pregnancy test is negative.

Given the most likely diagnosis, what is the most appropriate management?

A.Intramuscular benzathine benzylpenicillin

B.Intramuscular ceftriaxone

C.Oral azithromycin

D.Oral doxycycline

E.Oral metronidazole

Answer:Oral metronidazole

Explanation:

Trichomonas vaginalis - treat with oral metronidazole

Important for meLess important

This patient likely has trichomoniasis, due to the presentation of abnormal vaginal discharge and strawberry cervix on the background of unprotected sexual intercourse with a new partner. The BNF recommends treatment with oral metronidazole, either as 200mg for 7 days or a one-off dose of 2g.

Intramuscular ceftriaxone is not indicated in the treatment of trichomoniasis. It can be used in the management of gonorrhoea, given as a single dose of 1g.

Intramuscular benzathine benzylpenicillin is used in the management of syphilis. Primary, secondary and early latent disease can be treated with a single dose, but late latent and tertiary disease requires a three-week course of once-weekly doses.

Oral doxycycline is the first-line management of Chlamydia trachomatis infections, given as a 7-day course. It has no role in the management of trichomoniasis.

Oral azithromycin can be used in the treatment of Chlamydia trachomatis infections, and gonorrhoea but has no use in the management of trichomoniasis.

Question:

A 40-year-old woman complains of a permanent 'funny-bone' sensation in her right elbow. This is accompanied by tingling in the little and ring finger. Her symptoms are worse when the elbow is bent for prolonged periods. What is the most likely diagnosis?

A.Cubital tunnel syndrome

B.Lateral epicondylitis

C.Medial epicondylitis

D.Median nerve entrapment syndrome

E.Radial tunnel syndrome

Answer:Cubital tunnel syndrome

Explanation:

Question:

A 27-year-old male presented to the emergency department with exertional dyspnoea. He has no past medical history.

On examination, he had a midsystolic murmur heard best at the left lower sternal border. It was louder with the Valsalva manoeuvre. An echocardiogram reported mitral regurgitation, systolic anterior motion of the anterior mitral valve leaflet, asymmetric hypertrophy and left ventricular outflow tract obstruction.

What medication should be avoided in this patient?

A.Amiodarone

B.Atenolol

C.Disopyramide

D.Ramipril

E.Verapamil

Answer:Ramipril

Explanation:

ACE-inhibitors should be avoided in patients with HOCM

Important for meLess important

Ramipril is the correct answer. Angiotensin-converting enzyme (ACE) inhibitors are contraindicated in hypertrophic obstructive cardiomyopathy (HOCM) with left ventricular outflow tract (LVOT) obstruction. ACE inhibitors can reduce afterload which may worsen the LVOT gradient. The patient in this scenario has the characteristic signs of HOCM on his echocardiogram; mitral regurgitation, systolic anterior motion of the anterior mitral valve leaflet, asymmetric hypertrophy.

Amiodarone, atenolol, disopyramide, and verapamil can all be used in the management of HOCM.

Question:

A new mother who is 4 weeks post-partum presents for review. She has developed a warm, red tender patch to on the right breast just lateral to the areola. This has been getting worse for the past three days and feeding is now painful. She saw the midwife yesterday who helped with positioning but this has not improved matters. On examination she has mastitis of the right breast with no obvious abscess. What is the most appropriate management?

A.Co-amoxiclav, continue breast feeding

B.Flucloxacillin, continue breast feeding

C.Flucloxacillin, stop breast feeding

D.Co-amoxiclav, stop breast feeding

E.Metronidazole, continue breast feeding

Answer:Flucloxacillin, continue breast feeding

Explanation:

Question:

A 43-year-old man is recovering on the surgical ward four days after a laparotomy and right hemicolectomy for cancer. You are asked to see him as he has developed a temperature of 38.2ºC and is tachycardic at 121 bpm and tachypnoeic at 24 breaths per minute. On examination his abdomen is soft and not distended but tender around his midline wound. There is some discharge seeping through the dressing. His chest is clear and he has no signs of a deep vein thrombosis.

Which of the following is the most likely cause of this man’s raised temperature?

A.Wound infection

B.Pulmonary embolism

C.Physiological response to surgery

D.Anastomotic leak

E.Hospital acquired pneumonia

Answer:Wound infection

Explanation:

Abdominal wound infections can cause post-op fevers after a few days and can be associated with systemic signs of infection

Important for meLess important

This scenario is probably the single most common urgent call for juniors covering a surgical speciality. The two key differentials you and the seniors will want ruled out are infection and thrombosis as these are the most serious causes of a post-operative fever. As we are now a few days post-op and the operation involved bowel so was not a sterile operation, a wound infection is possible and the features of discharge and tenderness make this most likely of the differentials.

An anastomotic leak is possible in this time period but would not present with a soft abdomen and no pain. People are generally very sick with sepsis when they have an anastomotic leak. There are no features to suggest a chest pathology from the history or examination. A physiological cause of fever would not be accompanied by symptoms of systemic inflammation as in this case.

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:

A neonate is born at 38 weeks gestation via spontaneous vaginal delivery. The birth weight was 4.5kg. In the newborn postnatal check the attending doctor notes that there is adduction and internal rotation of the right arm. What is the most likely diagnosis?

A.Humeral shaft fracture

B.Klumpke's palsy

C.Erb's palsy

D.Posterior shoulder dislocation

E.Humeral neck fracture

Answer:Erb's palsy

Explanation:

A baby is diagnosed with foetal macrosomia if they have a birth weight >4kg regardless of their gestational age. Foetal macrosomia can cause dystocia which may result in injuries to both the mother and baby. Dystocia may also require an operative vaginal delivery or Caesarean-section.

Erb's palsy occurs due to damage to the upper brachial plexus most commonly from shoulder dystocia. Damage to these nerve roots results in a characteristic pattern: adduction and internal rotation of the arm, with pronation of the forearm. This classic physical position is commonly called the 'waiter's tip'.

Klumpke's palsy occurs due to damage of the lower brachial plexus and commonly affects the nerves innervating the muscles of the hand.

Question:

You are working on the Special Care Baby Unit and currently reviewing a 2-day-old girl with respiratory distress as a result of meconium aspiration. Her mother is very tearful and asks whether there is anything that she could have done to prevent this.

On reviewing the history, you see her daughter was conceived via artificial insemination, there were no concerns during the pregnancy, but she was delivered at 42 weeks via Caesarean section, with a birth weight of 2.4kg.

Which of the following is the greatest risk factor for meconium aspiration in this case?

A.Low birth weight

B.Post-term delivery

C.Female

D.Caesarean section

E.Assisted reproduction

Answer:Post-term delivery

Explanation:

Meconium aspiration: post-term delivery is a risk factor

Important for meLess important

It is post-term delivery which is a significant risk factor for meconium aspiration, and is one of the reasons that we induce women following term.

Low birth weight is a consequence of placental insufficiency rather than a risk factor.

Sex of the child and assisted reproduction are not independent risk factors. Meconium aspiration may cause distress during labour which may result in a Caesarean section but this is not a risk factor in itself.

Question:

You are a medical student working on a student selected component project analysing histopathology slides from patients with alcoholic liver disease. Your consultant is pleased with your hard work and invites you to present your findings at a national conference. You will need to present images you have taken, of the pathology slides used in your work. What is the most appropriate action to take so you can present these images?

A.Do not use the images from the current slides, but acquire new biopsy samples for new slides after you've asked for permission.

B.Choose which pathology slides you want to present at the conference before retracing the patients to contact them to gain consent

C.Present your findings, separate consent is not needed to present such images

D.Do not include the images of the slides at the conference in case you breach confidentiality

E.Contact the consultant whom the patients care is under to ask permission to present images of the slides at the conference

Answer:Present your findings, separate consent is not needed to present such images

Explanation:

Option three is the correct answer in this scenario. This is a difficult question if you have not come across the GMC's guidance for making recordings/taking images of patients, explaining where separate consent is and is not needed in different situations. In the case of pathology slides, separate consent is not required in order to use them at conferences or for teaching as long as no patient identifiers are present this is because consent is implicit from the initial investigation when it was conducted. Further information can be found on the GMC's website under their explanatory guidance for making and using visual and audio recordings.

GMC Explanatory Guidance - Making and using visual and audio recordings of patients.

http://www.gmc-uk.org/guidance/ethicalguidance/makingaudiovisual.asp

Question:

A 75-year old male presents to the emergency room after being involved in a head-on car crash. He complains of severe pain in his left knee. On examination of the lower limbs, you note that the tibia displaces posteriorly on application of a force.

What is the most likely diagnosis?

A.Patellar dislocation

B.Capsular tear

C.Meniscal tear

D.Anterior cruciate ligament (ACL) rupture

E.Posterior cruciate ligament (PCL) rupture

Answer:Posterior cruciate ligament (PCL) rupture

Explanation:

The clinical case describes a positive posterior drawer test which is indicative of PCL damage. The mechanism of injury is also suggestive of PCL rupture.

Question:

A 44-year-old female is admitted with pyrexia, shortness of breath and cough. A diagnosis of pulmonary tuberculosis is made. You start treatment with isoniazid, rifampicin, ethambutol and pyrazinamide (PZA).

What drug will you administer to reduce the risk of isoniazid induced peripheral neuropathy?

A.Ascorbic acid (vitamin C)

B.Accrete D3 (Vitamin D)

C.Pyridoxine (vitamin B6)

D.Niacin (vitamin B3)

E.Hydroxycobalamin (vitamin B12)

Answer:Pyridoxine (vitamin B6)

Explanation:

Pridoxine (vitamin B6) should be co-administered with isoniazid to prevent peripheral neuropathy

Important for meLess important

Up to 20% of people taking isoniazid experience peripheral neuropathy. Pyridoxine (vitamin B6) should be co-administered with isoniazid to prevent peripheral neuropathy.

Question:

A 29-year-old female has a cervical smear test as part of the UK cervical cancer screening programme. Her results return as hrHPV positive. The sample is examined cytologically, which shows normal cells.

As per guidelines, the cervical smear test is repeated 12 months later, which is still hrHPV positive. Cytology is repeated, which again shows normal cells.

What is the most appropriate action?

A.Colposcopy

B.Return to routine recall

C.Repeat the test in 3 months

D.Repeat the test in 6 months

E.Repeat the test in 12 months

Answer:Repeat the test 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

Cervical smear tests performed as part of the NHS cervical screening programme are first tested for high-risk HPV (hrHPV). If hrHPV positive, cytology is performed; if this shows normal cells then the cervical smear test is repeated in 12 months time. If this repeat test is still positive for hrHPV but cytology normal, as in this case, she should have another repeat test in a further 12 months. Therefore, repeating the test in 12 months is the correct answer.

Colposcopy is not indicated here as cytology showed normal cells.

Returning this patient to routine recall is not appropriate- this would lead to a repeat smear in 3 years time. She requires a repeat smear in 12 months time due to positive hrHPV.

Repeating the test in 3 or 6 months is too soon, and therefore not appropriate.

Question:

A 69-year-old female with a history of multiple myeloma presents with confusion. Blood tests are taken and the following results are obtained:

Adjusted calcium 3.1 mmol/l

What is the most appropriate initial management?

A.Oral alendronate + prednisolone

B.Oral alendronate

C.Oral prednisolone

D.Admit for IV pamidronate

E.Admit for IV normal saline

Answer:Admit for IV normal saline

Explanation:

IV fluid therapy is the first-line management in patients with hypercalcaemia

Important for meLess important

Question:

A 17-year-old Somali girl has presented to the emergency department with recurrent urinary tract infections. On examination, with a chaperone, you notice the girl may have had a clitoridectomy. You believe the girl has been subjected to female genital mutilation (FGM). She asks for antibiotics and for no one else to be informed. As well as treating the infection, what should you do?

A.Prescribe a course of nitrofurantoin and discharge her. Do not mention your findings to anyone else

B.As this is an interesting case, get the medical students to take a history

C.Have a discussion with the patient's parents regarding your findings, before further treatment

D.Inform the medical team and the police

E.Inform the medical team, but not the police as she has asked you not to

Answer:Inform the medical team and the police

Explanation:

In October 2015, the UK Government introduced some legal changes to how doctors in England and Wales must respond to cases of female genital mutilation (FGM).

The General Medical Council (GMC) state that we should report all known cases of FGM in under-18s to the police, either by calling 101 or through existing local routes.

Reporting is mandatory to ensure it fits with our child protection and safeguarding duties.

Guidance available from: http://www.gmc-uk.org/guidance/27723.asp

Question:

A 32-year-old female intravenous drug user (IVDU) presents to the emergency department demanding analgesia for her back pain. You recognise her as a frequent attender, most recently being treated for a groin abscess.

On examination her heart rate is 124/min, temperature 38.1ºC, respiratory rate is 22/min and she is alert. The patient is lying on her right hand side with her knees slightly flexed and you find tenderness over L3-L4.

Given the examination findings what is the most likely causative organism in this case?

A.Neisseria gonorrhoeae

B.Neisseria meningitidis

C.Pseudomonas aeruginosa

D.Staphylococcus aureus

E.Escherichia coli

Answer: Staphylococcus aureus

Explanation:

Staphylococcus is the most common causative organisms for psoas abscess

Important for meLess important

The diagnosis here is a psoas abscess, characterised by lumbar tenderness ( the point of insertion of the psoas muscle is T12-L5) and her preferring to lie with her knees slightly flexed. The most common causative agents for psoas abscess are Staphylococcus and Streptococcus.

This is a condition of which she is high risk for, being an IVDU. Other causes of immunosuppression increasing risk include diabetes and HIV. In her case, it is likely the organism seeded from her recent groin abscess. Complications of Staphylococcus aureus infection to be aware of include infective endocarditis and psoas abscess. In a patient with a positive blood culture for Staphylococcus aureus , these diagnoses should be looked for.

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 woman presents asking for the 'morning after pill'. Up to what period following intercourse is levonorgestrel licensed to be used?

A.24 hours

B.48 hours

C.72 hours

D.96 hours

E.120 hours

Answer:72 hours

Explanation:

Levonorgestrel must be taken within 72 hours of UPSI

Important for meLess important

A stat dose of levonorgestrel may be offered after this time but this is an unlicensed indication.

Question:

A 19-year-old man presents with a swelling on his left upper back that has been slowly growing over the last year. He also developed a similar swelling on his arm after he was vaccinated back when he was in school. He has had some associated itching and slight pain.

On examination, his skin is Fitzpatrick VI, and firm, smooth, and hard growths are seen on his back and arm. They are raised and their edges blend into the surrounding skin. The growths on his arms extend beyond the margins of his prior vaccination.

He has a past medical of acne vulgaris affecting the face and back.

What is the most likely diagnosis?

A.Dermatofibroma

B.Epidermoid cyst

C.Hypertrophic scar

D.Keloid

E.Lipoma

Answer:Keloid

Explanation:

Keloid scars - more common in young, black, male adults

Important for meLess important

Keloid is correct. This patient has presented with firm, smooth, raised, and hard growths on his arm and back. The growth on his arm developed after being vaccinated, and the development of growth like this suggests either a keloid or a hypertrophic scar. Since the growth extends past the margins of what would be expected due to the vaccination, this rules out a hypertrophic scar and makes the diagnosis a keloid. Also, this patient is young, black, and male, which are all risk factors for the development of keloid. The Fitzpatrick scale can be used to grade skin darkness with I being the palest and VI being the darkest. It is likely that this patient's growth on his back developed from a former acne scar given his past medical history.

Dermatofibroma is incorrect. There is usually no precipitating trauma in the development of a dermatofibroma (a benign, fibrous module found in the dermis) and usually presents as a solitary firm papule.

Hypertrophic scar is incorrect. Although hypertrophic scars can also grow following trauma and can present similarly to keloid, they do not extend past the margins of the damaged skin.

Lipoma is incorrect. This is a benign tumour of adipocytes and is more common in middle-aged adults. The growths are usually smooth, mobile, and painless, which does not apply here.

Epidermoid cyst is incorrect. These commonly affect the face and trunk and have a central dimple, and may have associated sebum when pinched. They are usually rounded and firm. These features are not mentioned here.

Question:

A 4-year-old boy is brought to the clinic by his mother who has noticed a small lesion at the external angle of his eye. On examination there is a small cystic structure which has obviously been recently infected. On removal of the scab, there is hair visible within the lesion. What is the most likely diagnosis?

A.Dermoid cyst

B.Desmoid cyst

C.Sebaceous cyst

D.Epidermoid cyst

E.Keratoacanthoma

Answer:Dermoid cyst

Explanation:

Dermoid cysts occur at sites of embryonic fusion and may contain multiple cell types. They occur most often in children.

Important for meLess important

The lesion is unlikely to be a desmoid cyst as these are seldom located either at this site or in this age group. In addition they do not contain hair. Sebaceous cysts will usually have a punctum and contain a cheesy material. Epidermoid cysts contain keratin plugs.

Question:

An 18-year-old man presents to his general practitioner as he is concerned that he has not yet begun puberty. He reports no growth of facial, pubic or underarm hair and no growth of his penis or testicles.

A series of hormone tests are ordered, including follicle-stimulating hormone (FSH), luteinising hormone (LH) and testosterone. Results (with reference values) are shown below:

LH 0.8 IU/L 2 – 9 IU/L

FSH 0.5IU/L 2 – 12 IU/L

Testosterone 120 ng/dL 300-1,200 ng/dL

Based on these results, what is the most likely diagnosis?

A.Androgen insensitivity syndrome

B.Congenital adrenal hyperplasia

C.Growth hormone deficiency

D.Kallman syndrome

E.Klinefelter syndrome

Answer:Kallman syndrome

Explanation:

Kallman's syndrome - LH & FSH low-normal and testosterone is low

Important for meLess important

Kallman's syndrome is caused by the failure of gonadotropin-releasing hormone (GnRH) secreting neurons migrating to the hypothalamus. It results in hypogonadotropic hypogonadism. Therefore, hormone profile will show a low testosterone and a low/ inappropriately normal LH and FSH. It presents with delayed puberty and anosmia in a male, who may be normal or above average height.

Androgen insensitivity syndrome is an X-linked recessive condition, resulting in an overall resistance to testosterone. The patient will have a male karyotype (46XY) with an external female phenotype. External female genitalia will be present and breasts may develop at puberty, due to the conversion of testosterone to oestradiol. However, there will be no internal female organs, and testicles will be present in the abdomen (potentially causing a groin swelling). If not identified at birth, it can present with primary amenorrhoea.

Growth hormone deficiency can cause delayed puberty in males. However, it will not result in the hormone profile included in this scenario.

Klinefelter syndrome refers to the karyotype 47XXY, resulting in hypergonadotropic hypogonadism. Although it can present with delayed puberty in male, the hormone profile would show elevated levels of FSH and LH, with low testosterone.

Question:

A 57-year-old man with a history of ischaemic heart disease is keen to try sildenafil for erectile dysfunction. Which one of the following medications may contraindicate its use?

A.Nebivolol

B.Losartan

C.Nicorandil

D.Nifedipine

E.Ramipril

Answer:Nicorandil

Explanation:

PDE 5 inhibitors (e.g. sildenafil) - contraindicated by nitrates and nicorandil

Important for meLess important

Nicorandil has a nitrate component as well as being a potassium channel activator

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 55-year-old woman with Mycoplasma pneumonia develops anaemia and jaundice. On examination, the patient has bluish discoloration of the fingertips, toes, and earlobes. Hepatosplenomegaly is evident on abdominal examination. The following blood tests are performed:

Hb 82 g/L Male: (135-180)

Female: (115 - 160)

Platelets 170 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

MCV 82 fL (80 - 100)

MCH 29 pg (27 - 33)

Relevant laboratory investigations are performed to diagnose the underlying cause of anaemia.

What investigation result is most likely in this patient?

A.Decreased B12 levels

B.Decreased folate levels

C.Decreased reticulocytes

D.Increased haptoglobin

E.Positive direct antiglobulin test (Coombs' test)

Answer:Positive direct antiglobulin test (Coombs' test)

Explanation:

Autoimmune haemolytic anaemia is characterised by a positive direct antiglobulin test (Coombs' test)

Important for meLess important

Positive direct antiglobulin test (Coombs' test) is the correct response given the likely diagnosis of autoimmune haemolytic anaemia (AIHA) in this scenario. A history of Mycoplasma pneumonia followed by anaemia and jaundice with hepatosplenomegaly points towards the diagnosis of cold AIHA. The blood complete picture shows decreased Hb with normal MCV and MCH, which is also in line with the diagnosis here. Positive Coomb's test characterises AIHA and is positive in both cold and warm types. AIHA is idiopathic in most cases but can also occur secondary to drugs, lymphoproliferative disorder, or infections. Mycoplasma pneumonia, as described in this scenario, is a major cause of cold AIHA.

Haptoglobin is low in AIHA therefore Increased haptoglobin is an incorrect response. In AIHA, red blood cells break down products like haemoglobin is produced in excessive amounts. The haemoglobin binds to the haptoglobin leading to saturation of haptoglobin, and therefore the levels of haptoglobin are low in AIHA.

Decreased B12 levels do not occur in AIHA. Low B12 is a major cause of megaloblastic anaemia. A normal MCH and MCV in this scenario rule out megaloblastic anaemia, as it is characterised by a raised MCV and MCH.

Low folate level is a major cause of megaloblastic anaemia. Decreased folate levels do not occur in AIHA.

Decreased reticulocytes is incorrect because reticulocytosis occurs with AIHA. Increased reticulocytes in AIHA are because of a normal bone marrow that responds to anaemia by increasing the synthesis of reticulocytes.

Question:

A 65-year-old man presents to his GP with bilateral ‘burning sensation’ at the back of his legs after walking approximately 100 yards. This sensation is relieved by rest.

His ankle brachial pressure index (ABPI) is 0.8.

What is the first-line imaging to investigate this patient further?

A.Computed tomography angiography (CTA)

B.Duplex ultrasound

C.Magnetic resonance angiography (MRA)

D.Catheter-based angiography

E.No imaging required as likely sciatica

Answer:Duplex ultrasound

Explanation:

Duplex ultrasound is the first-line imaging in peripheral artery disease

Important for meLess important

This scenario describes someone who has peripheral vascular disease. Sciatica is unlikely given the ABPI reading.

CTA, MRA and catheter-based angiography can be used to investigate those with peripheral artery disease (PAD), however, they are not first-line imaging modalities.

According to NICE guidelines 'Imaging should only be performed in people with PAD if it is likely to provide information that will influence their management. Duplex ultrasound followed by MRA, where clinically appropriate and if needed, offers the most accurate, safe and cost-effective imaging strategy for people with PAD'.

Link: https://www.nice.org.uk/guidance/qs52/chapter/quality-statement-4-imaging#rationale-4

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 65-year-old man is referred to the haematology department with a 6-month history of fatigue. He now describes even walking to the supermarket 1/2 a mile away to be exhausting. Over the last 8-weeks, he has been waking up in the night with soaked clothing and thinks he may be losing weight.

On examination, his chest is clear and heart sounds are normal. His abdomen is soft but there is palpable splenomegaly.

Investigations:

Hb 92 g/L (135-180)

Platelets 499 \* 109/L (150 - 400)

WBC 53 \* 109/L (4.0 - 11.0)

Neuts 49 \* 109/L (2.0 - 7.0)

Na+ 134 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 5.5 mmol/L (2.0 - 7.0)

Creatinine 80 µmol/L (55 - 120)

Leucocyte alkaline phosphatase Decreased

Given the likely diagnosis, what is the most appropriate treatment to initiate?

A.Fludarabine, cyclophosphamide and rituximab (FCR)

B.Hydroxyurea

C.Ibrutinib

D.Imatinib

E.Rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone (R-CHOP)

Answer:Imatinib

Explanation:

Chronic myeloid leukaemia - imatinib = tyrosine kinase inhibitor

Important for meLess important

This patient has chronic myeloid leukaemia (CML), a haematological malignancy that affects older adults (60-70 years) and presents with progressive anaemia, weight loss and night sweats. Splenomegaly is common on examination and laboratory tests demonstrate an increase in granulocyte levels at different stages of maturation. Leucocyte alkaline phosphatase is decreased in CML. This patient is presenting with similar symptoms of lethargy, weight loss, night sweats and splenomegaly. His blood tests also demonstrate a leucocytosis that is predominantly of the myeloid lineage. The treatment of choice for CML is imatinib, a tyrosine kinase inhibitor, preventing further downstream cell division.

Fludarabine, cyclophosphamide and rituximab (FCR) is the initial treatment of choice for chronic lymphocytic leukaemia (CLL). CLL is often an incidental finding or can present with lethargy and weight loss. In contrast to CML, lymphadenopathy is a more prevalent finding in CLL compared to splenomegaly. As this patient's leucocytosis is derived from a myeloid lineage, it is unlikely that this patient has a lymphocytic leukaemia, therefore making FCR the incorrect answer.

Hydroxyurea is used in the treatment of a variety of haematological conditions including sickle cell disease and CML. However, hydroxyurea is not the first-line treatment of CML, compared to imatinib and is not used unless initial treatments fail.

Ibrutinib is a second-line treatment for CLL if other treatment methods (such as FCR) fail to work. It is not used in the treatment of CML.

Rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone (R-CHOP) is used in the treatment of Non-Hodgkin's lymphoma (NHL). NHL presents similarly to other haematological malignancies with lethargy, weight loss and night sweats. Fever may also be a feature of NHL. On examination, lymphadenopathy and splenomegaly can both be palpated. However, a raised neutrophil count is not typically in keeping with NHL and suggests an alternative diagnosis.

Question:

A 26-year-old man with no known medical history is brought into the emergency department by police having suffered a laceration to his face while being detained.

While the doctor is suturing the patient's face, the patient discloses to the doctor that he has a gun at home which he's going to use to get back at whoever hurt him as soon as he's released as he believes that they're out to get him.

What should the doctor's next steps be?

A.Detain the patient under Section 2

B.Detain the patient under Section 5(2)

C.Immediately inform the police

D.Perform a mental capacity assessment

E.Refer urgently to psychiatric liaison team

Answer:Immediately inform the police

Explanation:

Disclosures to prevent an act of terrorism can be made without the patient's consent

Important for meLess important

Immediately inform the police is correct. This patient has disclosed to the doctor that he is planning to use a firearm against another person or group of people. According to the crown prosecution service, any action 'endangering a person's life ... which involves the use of firearms or explosives' is defined as an act of terrorism. There are a small number of circumstances where disclosure is required by law, 'to prevent an act of terrorism' being one. Thus, the doctor should immediately inform the police of the patient's expressed intent.

Detain the patient under Section 2 is incorrect. Section 2 of the Mental Health Act is used to detain patients with mental health disorders for assessment and treatment where the patient is a risk to themselves or others for up to 28 days. However, a full mental health assessment would need to be carried out first before detaining. Due to the seriousness of this patient's threat, immediate disclosure to the police is required by law.

Detain the patient under Section 5(2) is incorrect. Section 5(2) of the Mental Health Act is an emergency section used by doctors to detain patients for up to 72 hours for assessment. This may be appropriate in a patient who displays disordered thought and is a threat to themselves or others but is only applicable to patients already admitted. Further, as this patient has disclosed plans to commit an act of terrorism, the first action must be immediate disclosure to the police.

Perform a mental capacity assessment is incorrect. This would not be productive in the first instance. This patient has declared plans to commit an act of terrorism and thus the doctor is legally required to immediately disclose this to the relevant authorities.

Refer urgently to psychiatric liaison team is incorrect. The patient has stated that they intend on committing an act of terrorism - as such, the doctor has a legal obligation to immediately inform the police.

Question:

A 28-year-old woman presents with a 3-day history of a red right eye. She denies any headaches, ocular trauma, or changes to her vision. Her eye is not significantly painful, but she feels mild discomfort. During this time, she has had eye-watering and slight photophobia.

An image of her eye is as follows:

She has a past medical history of Crohn's disease, allergic rhinosinusitis, and eczema and takes methotrexate, and cetirizine, and uses topical emollients.

What is the most likely diagnosis?

A.Allergic conjunctivitis

B.Anterior uveitis

C.Episcleritis

D.Scleritis

E.Subconjunctival haemorrhage

Answer:Episcleritis

Explanation:

Episcleritis is correct. This patient has a red and watery right eye with mild photophobia. The image demonstrates an increased presence of conjunctival blood vessels confined to a well-circumscribed area, appearing bright red or pink. This makes a diagnosis of episcleritis most likely. The absence of severe eye pain supports this diagnosis. Her inflammatory bowel disease is a risk factor for both episcleritis and scleritis. Scleritis would present with a more violaceous colour and would be more diffuse.

Allergic conjunctivitis is incorrect. Her primary symptoms would also include itching, which is not present. In allergic conjunctivitis, the conjunctiva becomes swollen and diffusely red, which is not the case.

Anterior uveitis is incorrect. This would've presented acutely with severe deep-seated ocular pain alongside her red eye and wateriness. The pupil would also be small and irregular due to sphincter muscle contraction, her photophobia would be much more significant, and the eye would be diffusely red, which is not the case here.

Scleritis is incorrect. Scleritis would present with a more violaceous colour and would be more diffuse, and the ocular pain and photophobia would both be more severe.

Subconjunctival haemorrhage is incorrect. This usually presents the following episodes of increased straining, such as constipation or coughing bouts, or trauma, which does not apply here. The eye would have a bright red patch on the sclera confined to a well-demarcated area.

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 mother brings her 14-month-old daughter into surgery as she is concerned about her hearing. For a child born in the United Kingdom, at what age would their hearing first be formally assessed?

A.Newborn - otoacoustic emission

B.6-9 months - distraction test

C.18 months - pure-tone audiometry

D.School entry - pure-tone audiometry

E.No formal screening programme

Answer:Newborn - otoacoustic emission

Explanation:

Otoacoustic emission test is used to screen newborns for hearing problems

Important for meLess important

Question:

A 71-year-old woman with no co-morbidities presents with a T2 HER2+ breast carcinoma. On clinical examination she has palpable axillary lymph nodes, and an ultrasound-guided needle biopsy confirms nodal metastasis.

On discussion with the surgeon, the patient decides emphatically that she does not want any surgery to the axilla.

What non-surgical option is available to manage the patient's axillary metastases?

A.Axillary radiotherapy

B.Ultrasound-guided cryotherapy

C.Tamoxifen for 1 year

D.Letrozole for 5 years

E.Tamoxifen for 5 years

Answer:Axillary radiotherapy

Explanation:

In patients with breast cancer who present with clinically palpable lymphadenopathy, axillary node clearance is indicated at primary surgery

Important for meLess important

Patients with breast cancer presenting with clinically palpable lymphadenopathy which is confirmed by ultrasound-guided biopsy should have an axillary node clearance 1.

However, the AMAROS trial found that axillary radiotherapy provides equivalent oncological control with fewer side effects 2.

Letrozole and tamoxifen are both adjuvant medical therapies used in the treatment of ER+ primary tumours.

Ultrasound-guided cryotherapy is an emerging technique for small breast lesions. It is not used for axillary lymph node surgery.

References:

1. Nice guideline NG101 (2018).

2. Donker M, G van Tisenhoven, ME Straver, et al. Radiotherapy or surgery of the axilla after a positive sentinel node in breast cancer (EORTC 10981-22023 AMAROS): a randomised, multicentre, open-label, phase 3 non-inferiority trial Lancet Oncol (2014) published online Oct 16.

Question:

Natasha comes to see you as her regular GP. She is a 29-year-old woman and is excited to let you know that she has had a positive pregnancy test. Her last menstrual period was around 5 weeks ago. She is a primigravid and has a past medical history of hypothyroidism for which she currently takes levothyroxine 100mcg.

You give her standard dietary and folic acid advice and advise her to book in to see the midwife.

What other management about her hypothyroidism should you undertake first?

A.Check her thyroid function levels at the first midwife appointment

B.Decrease her levothyroxine dose

C.Increase her levothyroxine dose

D.Make a routine referral to endocrinology

E.Perform blood testing for thyroid peroxidase (TPO) antibodies

Answer:Increase her levothyroxine dose

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

Hypothyroidism in pregnancy is associated with significant risk to both the mother and the foetus, and so it is important to begin management of this as soon a woman finds out she is pregnant (if not preconceptually). A woman's need for levothyroxine will increase in pregnancy, by as much as 50% as early as 4 - 6 weeks of pregnancy. Current advice by the British Thyroid Foundation (BTF) is to increase the dose of levothyroxine by 25-50mcg immediately on conception.

Thyroid levels should be checked as soon as pregnancy is confirmed, and should not be delayed till the first midwife appointment (which typically occurs between week 8 - 12).

Thyroxine requirement will increase in pregnancy, so the dose should not be decreased.

A pregnant woman with hypothyroidism may need endocrinology input. However, this should not delay increasing the dose of levothyroxine.

There is no indication for TPO testing in this woman, who already has an established diagnosis of thyroid disease.

Question:

A 2-hour-old baby is reviewed for increased work of breathing. He was born 2 hours ago via elective caesarean section at 39 weeks gestation. The pregnancy was uncomplicated.

Currently, he has a respiratory rate of 75 breaths per minute (normal: 40-60) and an oxygen saturation of 95% (normal: >93%). There is nasal flaring visible on examination.

A chest x-ray shows hyperinflated lung fields and a line of fluid in the horizontal fissure of his right lung.

Given the most likely diagnosis, what is the most appropriate management?

A.Corticosteroids

B.Humidified oxygen

C.Nebulised salbutamol

D.Supportive care

E.Surfactant

Answer:Supportive care

Explanation:

Observation and supportive care +/- oxygen are the mainstays of treatment in uncomplicated transient tachypnoea of the newborn

Important for meLess important

The presentation here, along with the chest x-ray findings, tachypnoea, and delivery via caesarean section, are all in keeping with a diagnosis of transient tachypnoea of the newborn. This is a condition that occurs due to extra fluid being present in the newborn's lungs, which would normally be pushed out due to the force of contractions and length of labour in a vaginal delivery. This is a relatively common condition, increasing in incidence with earlier gestation at delivery. It is not a life-threatening condition and is normally best treated with supportive care. This included supplementary oxygen if required, timing feeds with times of slowed breathing, and regular monitoring for any complications.

Corticosteroids is incorrect. Whilst these can be given to the mother if preterm delivery is suspected, there is no evidence that they provide benefit to newborns with transient tachypnoea of the newborn.

Humidified oxygen is incorrect. Humidified oxygen is only required if high flow oxygen via a nasal cannula is required. There is no indication that supplementary oxygen is required here, as the newborn's oxygen saturations are normal.

Nebulised salbutamol is incorrect. This has shown some promise in clinical trials for increasing the rate of clearance of the excess fluid in the lungs, however, its safety and the exact nuances of its use are still being investigated. Therefore, currently, it is not indicated.

Surfactant is incorrect. This is used as a treatment for respiratory distress syndrome. Babies born between 28 and 32 weeks are at risk of having no or little surfactant in their lungs and going on to develop respiratory distress syndrome. However, this newborn is born at 39 weeks and is unlikely to be deficient in surfactant.

Question:

A 45-year-old woman attends eye casualty complaining of blurred vision and glare from bright lights. She has a history of asthma, polymyalgia rheumatica and gout. The ophthalmologist finds a lens opacity in her left eye that is located just deep to the lens in the visual axis.

Which of the following is the strongest risk factor for subcapsular cataracts?

A.Myotonic dystrophy

B.Myopia

C.Ocular trauma

D.Steroids

E.Allopurinol

Answer:Steroids

Explanation:

Subcapsular cataracts may be associated with steroid use

Important for meLess important

Posterior subcapsular cataracts are located behind the capsule in visual axis. They usually have a fast progression and are associated with diabetes, steroids and hypermetropia. They often present with glare from bright lights and are a central granular lens opacity on examination.

(1) Myotonic dystrophy is associated with dot cataracts

(2) Myopia is associated with nuclear cataracts

(3) Ocular trauma is usually associated with nuclear cataracts with a 'stellate' morphology but depend on the trauma mechanism

(5) Allopurinol use has been linked with the formation of sub capsular cataracts, but not as strongly as for steroid use

Question:

A 75-year-old woman presents with increasing pain over the left side of her face. It has been present for about three days, and it has been getting worse. Over the past day, she has also noticed a rash over the same side of the face. She has also noticed a few blisters with a clear fluid present when they burst. Her past medical history is unremarkable.

Which of the following is required to confirm a diagnosis?

A.MRI brain

B.No further tests required

C.PCR blister fluid analysis

D.Skin biopsy

E.Tzanck smear

Answer:No further tests required

Explanation:

The diagnosis of shingles is clinical - no further tests are required

Important for meLess important

This patient has symptoms typical of shingles with no significant medical history or immunosuppression; therefore, she does not need further tests to confirm a diagnosis of shingles.

An MRI of the brain is not helpful in the diagnosis of shingles. It may be useful in the diagnosis of multiple sclerosis, which can present with neuropathic pain.

A PCR of the blister fluid is useful to detect the presence of the varicella-zoster virus causative of shingles. The first line in diagnosing shingles when there is any clinical doubt about the diagnosis; however, this is not the case in this patient.

A skin biopsy may be helpful in specific cases such as disseminated disease but is not helpful in this patient as a clinical diagnosis of shingles can be made.

A Tzanck smear is a skin test that can be helpful in detecting herpes skin infections; however, is not used in routine diagnosis of shingles. It can also be helpful for differentiating Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) from staphylococcal scaled skin syndrome.

Question:

You are responsible for a patient in the emergency department who has come in following a fall. The patient has a CT scan which you review:

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Which of the listed pathologies can be seen in the CT scan?

A.Left-sided extradural haemorrhage

B.Left-sided subdural haemorrhage

C.Normal CT scan

D.Occipital lobe tumour

E.Subarachnoid haemorrhage

Answer:Left-sided subdural haemorrhage

Explanation:

This CT scan shows several pathologies. However, the only correct answer listed is a left-sided subdural haemorrhage. This is indicated by the area of hyperattenuation in a crescent shape on the left side of the CT scan, indicating blood. There is also an extradural haemorrhage on the right side, but this is not listed as an answer option.

Left-sided extradural haemorrhage is incorrect. This would cause a bleed that is limited to the cranial sutures, forming a hyperdense concave-shaped area to be seen on the CT scan.

The above is not a normal CT scan due to the areas of altered density seen on both left and right sides of the brain.

An occipital lobe tumour cannot be visualised in this CT scan.

If a subarachnoid haemorrhage had occurred the CT may either be normal, or you may see blood in the subarachnoid space.

Question:

A 65-year-old man presents to the Medical Admissions Unit with pleuritic chest pain, which came on two hours previously. He has a background of prostate cancer with bony metastases, for which he has recently started treatment with bicalutamide.

His observations are as follows: temperature 37.0ºC; oxygen saturations 90% on air; respiratory rate 22 breaths per minute; heart rate 102 beats per minute; blood pressure 138/82 mmHg.

A chest X-ray is performed, and is reported as follows:

Chest X-ray: No abnormality detected

He is given supplemental oxygen therapy, and a CT pulmonary angiogram (CTPA) is requested.

Whilst waiting for the results of the CTPA, what is the most appropriate next step in management?

A.Commence prophylactic dose low molecular weight heparin (LMWH)

B.Commence warfarin at loading dose

C.Give alteplase

D.Commence rivaroxaban

E.Commence dabigatran

Answer:Commence rivaroxaban

Explanation:

Patients with a suspected pulmonary embolism should be initially managed with a direct oral anticoagulant (DOAC)

Important for meLess important

This patient has presented with a suspected pulmonary embolism (PE), most likely provoked by his underlying metastatic cancer. The first step is to identify that this patient is haemodynamically stable, as evidenced by his blood pressure of 138/82 mmHg. Therefore, he does not require urgent thrombolysis and can be started on anticoagulation. The most recent NICE Guidelines (2020) for management of suspected PE recommend starting a direct oral anticoagulant, i.e. apixaban or rivaroxaban, in the absence of any contraindications (such as allergies or renal impairment with eGFR < 15ml/min). Therefore, the best option is to start rivaroxaban.

Starting prophylactic dose LMWH would not be appropriate, as the patient needs a therapeutic dose of anticoagulation for their suspected PE. Prior to the updated 2020 guidelines, NICE would have recommended treatment dose LMWH for this patient. Although many hospitals do still give treatment dose LMWH in this scenario, please be aware that this is no longer in keeping with the latest guidelines.

Commencing warfarin at loading dose would not be appropriate: even if the patient was in a subgroup who ultimately was eligible for warfarin (e.g. severe renal impairment or triple positive antiphospholipid syndrome), warfarin can take around three days to achieve its anticoagulant effects, making some form of bridging with heparin necessary in these patients.

Alteplase would be an appropriate thrombolytic agent for the management of PE with haemodynamic instability. However, this patient is stable.

Dabigatran is a direct thrombin inhibitor. It is a potential management option for PE in patients for whom apixaban and rivaroxaban are not suitable, although it too would need to be preceded by a bridging dose of LMWH.

Question:

A 12-year-old girl with a background of Down syndrome presents for review. She looks and feels well. However, upon examination, she is found to have an ejection systolic murmur, louder during inspiration, with fixed splitting of the second heart sound. Her observations are all within normal range.

Which of the following is the most likely cause?

A.Coarctation of the aorta

B.Mitral valve prolapse

C.Tricuspid regurgitation

D.Ventricular septal defect (VSD)

E.Atrial septal defect (ASD)

Answer:Atrial septal defect (ASD)

Explanation:

Atrial septal defect - ejection systolic murmur louder on inspiration

Important for meLess important

Atrial septal defects (ASD) cause an ejection systolic murmur, louder on inspiration, and a fixed split S2. Note that the commonest cardiac defect in Down syndrome is AVSD, rather than ASD. However, ASD is also commonly seen. ASD is also associated with Ebstein's anomaly and fetal alcohol syndrome. Diagnosis can be confirmed with echocardiography. Patients with uncorrected ASD may be at risk of developing cardiac arrhythmias, venous thromboembolism and frequent respiratory infections. If the ASD is not causing problems, monitoring is an option. Otherwise, surgical or percutaneous closure is possible.

Coarctation of the aorta is associated with Turner syndrome. It would give strong pulses and hypertension in the upper extremities, diminished or delayed femoral pulses, and a blood pressure (BP) gradient, with low or unobtainable arterial BP in the lower extremities - none of these signs are mentioned in the scenario.

Mitral valve prolapse would give a systolic murmur and is therefore incorrect. The murmur in mitral prolapse is typically best heard at the apex and occurs during mid-to-late systole or, in severe cases, may be pansystolic. Mitral prolapse is associated with Ehler-Danlos and Marfan syndromes.

Tricuspid regurgitation (TR) would give a pansystolic murmur, and therefore is incorrect. TR usually gives a low frequency murmur best heard at the lower left sternal border, which increases with inspiration, and decreases with expiration. This is known as Carvallo's sign and enables distinguishing it from mitral regurgitation. TR can be congenital or acquired and is associated with rheumatic disease, endocarditis, Ebstein's anomaly and chronic lung disease.

Ventricular septal defects (VSD) are also associated with Down syndrome. However, VSD would give a pansystolic murmur and is therefore incorrect. VSD murmurs are best heard along the left lower sternal edge, and there may be a palpable thrill.

Question:

A 44-year-old woman is diagnosed with breast cancer. She has no past medical history of note, is pre-menopausal and has no family history of breast or ovarian cancer. Staging suggests early disease and she has a wide-local excision followed by whole-breast radiotherapy. Pathology results show that the tumour is oestrogen receptor positive, HER2 negative. Which one of the following adjuvant treatments is she most likely to be offered?

A.Anastrozole

B.Letrozole

C.Tamoxifen

D.Trastuzumab (Herceptin)

E.Cytotoxic therapy with epirubicin, cyclophosphamide and fluorouracil

Answer:Tamoxifen

Explanation:

Tamoxifen is used as the women is pre-menopausal. There is ongoing debate about whether therapy should be for 5 years or longer.

Question:

A 70-year-old woman presents with loss of vision in her left eye. For the past two weeks she has painful frontal headaches and has been feeling generally lethargic. On examination visual acuity is 6/9 in the right eye but on the left side only hand movements can be made seen. Fundoscopy of the left side reveals a pale and oedematous optic disc. What is the most likely diagnosis?.

A.Acute angle closure glaucoma

B.Central retinal artery occlusion

C.Multiple sclerosis

D.Methanol poisoning

E.Temporal arteritis

Answer:Temporal arteritis

Explanation:

This patient has likely developed anterior ischemic optic neuropathy on the left side

Question:

You are the doctor in the endocrine clinic investigating a 53-year-old man presenting with proximal weakness, central weight gain, and fatigue. He has no significant past medical history. Initial blood tests revealed hypokalaemic metabolic alkalosis and impaired glucose tolerance. Following on from this, you decide to perform further investigations. The results are below:

low-dose dexamethasone cortisol level not suppressed

high-dose dexamethasone cortisol level suppressed, adrenocorticotropic hormone (ACTH) level suppressed

Based on these findings, what is the most likely diagnosis?

A.Addison's disease

B.Adrenal adenoma

C.Cushing's disease

D.Cushing's syndrome

E.Ectopic ACTH producing small cell lung cancer

Answer:Cushing's disease

Explanation:

In Cushing's disease, cortisol is not suppressed by low-dose dexamethasone but is suppressed by high-dose dexamethasone

Important for meLess important

Based on these findings correct answer is Cushing's disease. Cushing's disease is the result of the pituitary source of ACTH. There is a suppression of cortisol levels following a high dose of dexamethasone, resulting in appropriate negative feedback through the Hypothalamic-Pituitary-Adrenal (HPA) axis, suppressing both ACTH and cortisol.

Addison's disease is incorrect as it is primary adrenal insufficiency which is more likely to present with weight loss, nausea and vomiting, hyperkalemia, and hyponatremia.

Ectopic ACTH producing small cell lung cancer is incorrect as the high-dose dexamethasone test would not suppress cortisol or ACTH, as ACTH is produced outside the HPA axis. Furthermore, the patient does not have any respiratory symptoms.

Adrenal adenoma is incorrect as the high-dose dexamethasone test would not suppress cortisol, and will suppress the ACTH due to the negative feedback in the HPA axis. However, this does not suppress the cortisol levels as it is being produced by neoplastic tissue.

Cushing's syndrome is incorrect as this describes the pathological manifestation of hypercortisolism from any cause. Cushing's disease is the most common cause of endogenous Cushing's syndrome. Cushing's syndrome can, but does not always result in these test results, making this option incorrect.

Question:

A 59-year-old man presents to your emergency department with central crushing chest pain, dyspnoea and one episode of vomiting. He was due to undergo elective angioplasty as a recent cardiac imaging demonstrated critical stenosis of the left circumflex artery.

In which ECG leads might you see changes during this acute admission?

A.I, II and AvF

B.V1-V3

C.V4-V6

D.I, aVL +/- V5-6

E.I, II, V1-V4

Answer:I, aVL +/- V5-6

Explanation:

Ischaemic changes in leads I, aVL +/- V5-6 - left circumflex

Important for meLess important

As this patient's recent cardiac imaging has shown critical stenosis of the left circumflex, one may see changes in the corresponding territory of this artery.

Question:

A 44-year-old man undergoes a distal gastrectomy for cancer. He is slightly anaemic and therefore receives a transfusion of 4 units of packed red cells to cover both the existing anaemia and associated perioperative blood loss. He is noted to develop ECG changes that are not consistent with ischaemia. What is the most likely cause?

A.Hyponatraemia

B.Hyperkalaemia

C.Hypercalcaemia

D.Metabolic alkalosis

E.Hypernatraemia

Answer:Hyperkalaemia

Explanation:

The transfusion of packed red cells has been shown to increase serum potassium levels. The risk is higher with large volume transfusions and with old blood.

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:

A 48-year-old lady is seen in the diabetes clinic with uncontrolled blood sugars ranging from 14 mmol/L to 22 mmol/L. She has a past medical history of type 2 diabetes, ischaemic heart disease, rheumatoid arthritis and recurrent episodes of thrush alongside chronic obstructive pulmonary disease. Her body mass index is 30. Which one of the following conditions is most likely to be aggravated by the addition of a SGLT2 inhibitor?

A.Ischaemic heart disease

B.Chronic obstructive pulmonary disease

C.Type 2 diabetes

D.Rheumatoid arthritis

E.Recurrent thrush

Answer:Recurrent thrush

Explanation:

Dapagliflozin is a newer drug for the treatment of diabetes. It is a member of the sodium-glucose transport protein 2 (SGLT2) inhibitor class of drugs.

SGLT2 inhibitors prevent the resorption of glucose from the proximal renal tubule, resulting in more glucose being secreted in the urine. Due to an increased amount of glucose being secreted in the urine, these medications are contra-indicated in patients with recurrent thrush. The increased amount of glucose in the urine is thought to predispose to bacterial growth. It should also be noted that urine dip sticks will test positive for glucose.

The other medications in this class include: canagliflozin & empagliflozin

The other answers are distractors with no known contraindication to SGLT2 inhibitor use in ischaemic heart disease, chronic obstructive pulmonary disease or rheumatoid arthritis. SGLT2's are indicated in patients with type 2 diabetes. Note that although trials are ongoing, SGLT2 inhibitors are not currently licensed as an adjunct in patients with type 1 diabetes.

Question:

A 5-year-old boy from a travelling community presents to the Emergency Department with breathing difficulties. On examination he has a temperature of 38.2ºC, stridor and a toxic looking appearance. A diagnosis of acute epiglottitis is suspected. Which one of the following organisms is most likely to be responsible?

A.Epstein Barr Virus

B.Streptococcus pneumoniae

C.Neisseria meningitidis

D.Haemophilus influenzae

E.Staphylococcus aureus

Answer:Haemophilus influenzae

Explanation:

Acute epiglottitis is caused by Haemophilus influenzae type B

Important for meLess important

Patients from travelling communities may not always receive a full course of immunisation

Question:

A 6-year-old girl presents with her mother who notices that her daughter often gets out of breath when climbing the stairs at home. She explains that she has been developing well through her childhood but is concerned as she is unable to keep up with her friends. On examination, small multiple bruises, of varying ages are seen on both her lower legs. She is afebrile and otherwise fit and well. Cardiac examination reveals a soft systolic murmur heard on the left sternal edge. Examination of her abdomen reveals a palpable mass in the left and right hypochondriac regions.

Which of the following is the most likely diagnosis?

A.Disseminated intravascular coagulation

B.Acute lymphoid leukaemia

C.Idiopathic thrombocytopenic purpura

D.Thrombotic thrombocytopenic purpura

E.Aplastic anaemia

Answer:Acute lymphoid leukaemia

Explanation:

Hepatosplenomegaly and the presence of bruising together with the symptoms of anaemia (soft systolic murmur and shortness of breath on exertion) suggest ALL. 75% of ALL cases affect children less than 6. TTP is more common between the ages of 30-50 and is often accompanied by neurological and renal symptoms. ITP often presents with petechiae due to bleeding, low platelets are seen however the other cell lines should be normal. DIC often results from an underlying disorder such as burns/trauma or sepsis. Systemic signs and circulatory collapse are common. Aplastic anaemia is not associated with hepatosplenomegaly.

Question:

A 60-year-old patient presents to the emergency department with his wife, who says he has had a worsening headache over the past 7 days. He now has a decreased level of consciousness and fixed flexion of both of his arms. He fell from a ladder a little over a week ago and takes regular apixaban.

Due to clinical suspicion of a subdural haemorrhage, he is assessed with a full neurological exam whilst awaiting a CT scan.

What ocular abnormality is most likely to be observed?

A.Complex paralysis of extraocular muscles

B.Downward and nasally-displaced gaze

C.Downward and temporally-displaced gaze

D.Upward and nasally-displaced gaze

E.Upward and temporally-displaced gaze

Answer:Downward and temporally-displaced gaze

Explanation:

A 'down and out' eye - CN III

Important for meLess important

This patient's decreased GCS and abnormal posturing (with fixed flexion of both arms, called the 'mummy baby' pose), on the background of a subdural haemorrhage, is highly concerning for brain herniation.

This patient likely has uncal herniation as a result of raised intracranial pressure. In this case, as the subdural haemorrhage pushes the brain through the tentorium, uncal herniation is causing damage to the 3rd cranial nerve. This nerve is vulnerable due to its anatomical position predisposing it to external compression by the tentorium.

A third nerve palsy can be a false localising sign for raised intracranial pressure, which causes a downward and temporally-displaced gaze (i.e. 'down and out'). It is the result of all but the lateral rectus and superior oblique muscles being paralysed, which then act unopposed to pull the eyeball in this direction.

Complex paralysis of extraocular muscles may be seen in locked-in syndrome and other severe strokes.

Each of the upward and nasally-displaced; upward and nasally-displaced; and downward and nasally-displaced gazes are not consistent with paralysis of a single cranial nerve. They may however occur with direct eye trauma causing muscle damage.

Question:

A 40-year-old woman presents to her general practice to discuss her risk of hereditary cancer. She has a significant family history of colorectal cancer and recently underwent a genetic test that has confirmed the presence of a mutation consistent with hereditary non-polyposis colorectal cancer (HNPCC). She is aware that colorectal cancer is the most common malignancy associated with HNPCC but wants to know more about other cancers she might be at risk of developing.

What is the second most common association of this condition?

A.Breast cancer

B.Cervical cancer

C.Endometrial cancer

D.Ovarian cancer

E.Pancreatic cancer

Answer:Endometrial cancer

Explanation:

Endometrial cancer is the second most common association of HNPCC after colorectal cancer

Important for meLess important

Women with Lynch syndrome (HNPCC) have a significantly higher risk of endometrial cancer compared to the general population. The lifetime risk for affected women is up to 60%, second only to colorectal cancer with a lifetime risk of up to 80% in HNPCC.

Breast cancer is not typically associated with HNPCC. Hereditary breast cancer is more commonly associated with BRCA1 or BRCA2 mutations.

Cervical cancer is not typically associated with HNPCC.

Women with Lynch syndrome have a higher risk of ovarian cancer , however, it is less common than endometrial cancer.

HNPCC does increase the risk of pancreatic cancer , however, it is less common than endometrial cancer.

Question:

A 48-year-old female smoker attends the GP for information regarding contraception. Her last menstrual period was 9 months ago and she is convinced that she has 'gone through the menopause'. The most suitable form of contraception is:

A.None, this lady has gone through the menopause and is protected

B.The combined oral contraceptive pill for 12 months (COCP)

C.The intrauterine system (IUS)

D.Hormone replacement therapy (HRT)

E.Barrier methods alone

Answer:The intrauterine system (IUS)

Explanation:

The menopause is a retrospective diagnosis and is said to occurred 12 months after the last menstrual period. Women who menopause under the age of 50 require contraception for at least 2 years after their last menstrual period. Those over the age of 50 require only 1 year of contraception. In view of this, it would be inappropriate to say this lady does not require any contraception because she is protected. Similarly prescribing the COCP for only 12 months would be equally inappropriate. The fact that she is also a smoker would mean that the risks outweigh the benefits of the COCP as she is over the age of 35. Hormone replacement therapy should not be used solely as a form of contraception and barrier methods are less effective than the other types of contraception listed thus the most appropriate answer is the IUS. This will take the patient through the menopause and can be used for 7 years (off-licence) or 2 years after her last menstrual period.

See more: FSRH : Contraception for women aged over 40 (July 2010)

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 19-year-old with type one diabetes is admitted to the emergency department. He has not being feeling well over the last few days.

His blood glucose level is 25.7mmol/l and his ketone level is 5.8mmol/l.

What will the arterial blood gas most likely show?

A.Respiratory alkalosis

B.Respiratory acidosis

C.Metabolic alkalosis

D.Metabolic acidosis with increased anion gap

E.Metabolic acidosis with normal anion gap

Answer:Metabolic acidosis with increased anion gap

Explanation:

On the basis of the presentation and past medical history, this patient is in a state of diabetic ketoacidosis (DKA). This condition causes a metabolic acidosis with increased anion gap.

Question:

A 30-year-old man presents with polyuria and polydipsia. Laboratory results demonstrate:

Plasma osmolality 315 mOsm/kg (275-300 mOsm/kg)

Urine osmolality 190 mOsm/kg (100-1000 mOsm/kg)

Na+ 152 mmol/l

K+ 3.9 mmol/l

Urea 5.4 mmol/l

Blood glucose 5.2 mmol/l

What is the most likely diagnosis?

A.Diabetes insipidus

B.Syndrome of inappropriate antidiuretic hormone (ADH) secretion

C.Diabetes mellitus

D.Psychogenic polydipsia

E.Hypercalcaemia

Answer:Diabetes insipidus

Explanation:

Diabetes insipidus is characterised by a high plasma osmolality and a low urine osmolality

Important for meLess important

Diabetes insipidus (DI) is characterized by impaired water resorption by the kidney as a result of lack of ADH secretion by the posterior pituitary (cranial DI) or reduced sensitivity of the kidneys to the action of ADH (nephrogenic DI). Biochemistry reveals a high/borderline high plasma osmolarity (patient always feels thirsty and tries to replace the lost fluid to lower plasma osmolarity) with an inappropriately low urine osmolarity (the patient complains of production of large amounts of very dilute urine as a result of reduced water resorption in the kidney). Note the wide normal reference range of urine osmolality which is dependant on the state of hydration. A urine osmolality of >700 mOsm/kg excludes diabetes insipidus.

The water deprivation test is used to confirm diagnosis. In normal physiology an increase in urine osmolarity (ADH working normally to maintain homoeostasis) will occur in response to water deprivation. This acts to maintain a normal plasma osmolarity. However, in cranial DI patient there is a rise in plasma osmolarity with production of low osmolarity urine until exogenous ADH (vasopressin) is given. In nephrogenic DI patients, the same plasma and urine osmolarity changes occur but there is no response to the exogenous vasopressin.

Question:

A 30-year-old type 1 diabetic man is brought to the emergency department by his boyfriend. The boyfriend says that the patient has been acting confused and drowsy after recently 'coming down with the flu'. A simple blood test reveals marked hyperglycaemia. A urinalysis shows the presence of ketones ++.

What is the initial management?

A.IV insulin

B.SC insulin

C.Buccal glucose gel

D.Potassium supplements

E.IV fluids

Answer:IV fluids

Explanation:

This man is in diabetic ketoacidosis (DKA), a potentially life-threatening condition resulting from an inadequate amount of insulin. This deficit was most probably brought on by his recent illness in which the body's energy demands are increased.

According to the current guidelines, IV fluids is the first line management for DKA. One should then think about an IV insulin infusion +/- potassium supplementation depending on repeat blood tests.

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?

A.Complete 'Do not attempt cardiopulmonary resuscitation (DNACPR)' paperwork

B.Repeat capacity assessment by psychiatrist

C.Detain under the Mental Health Act (MHA) pending psychiatric review

D.Complete 'advanced request for refusal of treatment' paperwork

E.Enquire as to whether he has a lasting power of attorney (LPA)

Answer:Complete 'advanced request for refusal of treatment' paperwork

Explanation:

'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 24-year-old man attends the emergency department with lip and tongue swelling which he developed whilst at a restaurant. He also complains of an itchy rash and abdominal pain. On examination, his observations are within normal limits. There is marked swelling of the throat and tongue and he has a hoarse voice and stridor. An urticarial rash is present on his limbs, torso and back.

Which of the following blood tests may play a role diagnostically?

A.Amylase

B.C1 esterase inhibitor

C.C4

D.Lipase

E.Tryptase

Answer:Tryptase

Explanation:

Anaphylaxis - serum tryptase levels rise following an acute episode

Important for meLess important

The clinical features are suggestive of anaphylaxis which is a severe, life-threatening, generalised or systemic hypersensitivity reaction.

Sometimes diagnosing anaphylaxis is not always straightforward. In this setting, a serum tryptase can be helpful. Serum tryptase concentration is increased in anaphylaxis and anaphylactoid reactions.

NICE recommends that 'after a suspected anaphylactic reaction in adults or young people aged 16 years or older, take timed blood samples for mast cell tryptase testing as follows: a baseline sample as soon as possible after emergency treatment has started, and a second sample ideally within 1–2 hours (but no later than 4 hours) from the onset of symptoms'.

Amylase and lipase are useful investigations to assess for pancreatitis. Although the patient has abdominal pain, this is most likely related to anaphylaxis rather than pancreatitis.

C1 esterase inhibitor and C4 are useful investigations for diagnosing hereditary angioedema. This is an uncommon disorder that results in recurrent attacks of severe swelling most commonly affecting the arms, legs, face, intestinal tract, and airway. An urticarial rash is not typical of this condition, favouring a diagnosis of anaphylaxis in this case.

Question:

You are a doctor in the sexual health clinic reviewing a 23-year-old man. He presented six months ago with a single, painless, indurated ulcer on the glans of his penis. He was subsequently diagnosed and treated for syphilis. He is currently on pre-exposure prophylaxis (PREP). His most recent blood-borne-virus screen was clear. Today, he is currently well and has no complaints. His most recent syphilis results are:

Enzyme immunoassay (EIA) Reactive

Rapid plasma reagin (RPR) Non-reactive

Treponema pallidum particle agglutination (TP-PA) Reactive

Based on these results, what is the most likely diagnosis?

A.Active syphilis

B.Early latent syphilis

C.False-positive syphilis

D.Late latent syphilis

E.Successfully treated syphilis

Answer:Successfully treated syphilis

Explanation:

Negative non-treponemal test + positive treponemal test is consistent with successfully treated syphilis

Important for meLess important

The positive treponemal (EIA and TP-PA) tests and the negative non-treponemal (RPR) test in the context of a treated primary syphilis infection (evidenced by the initial chancre) is consistent with successfully treated syphilis. Treponemal tests are specific for syphilis and remain positive for life, whereas non-treponemal tests are used for disease monitoring in response to treatment. Although the patient is asymptomatic, his disease status must be confirmed using serological testing.

Early latent syphilis would have serology consistent with active syphilis, where both the treponemal and non-treponemal tests would return positive, and is therefore incorrect.

Active syphilis is incorrect as both the treponemal and non-treponemal tests would be positive.

False-positive syphilis is incorrect as the patient has already been diagnosed and treated for syphilis. Furthermore, a false-positive result would have a reactive EIA, and a non-reactive TP-PA, a scenario where the treponemal tests do not agree.

Late latent syphilis is incorrect as the patient has been treated for syphilis. This test result profile would be consistent with late latent syphilis if the patient had never been treated for syphilis in his lifetime.

Question:

A 62-year-old man presents to his GP with hip pain, The pain started about a week ago when he bent over to pick up one of his nephew's toys. Which of the following may indicate that his hip pain is in fact referred from his lumbar spine?

A.A positive femoral nerve stretch test

B.A negative femoral nerve stretch test

C.A positive obturator nerve stretch test

D.A negative obturator nerve stretch test

E.A negative sciatic nerve stretch test

Answer:A positive femoral nerve stretch test

Explanation:

A positive femoral nerve stretch test may indicate referred lumbar spine pain as a cause of hip pain

Important for meLess important

This question is asking about signs that may be present in referred lumbar spine pain. If this mans pain is referred you may find a positive femoral nerve stretch test. This is due to the fact his pain may be caused by compression of the femoral nerve and thus stretching this nerve will recreate his pain.

Question:

A 50-year-old woman presents to her GP with a change in shape of her right breast and a lump under her right armpit. She has had bilateral breast augmentations which limit the examination, however, on inspection, there is a marked discrepancy in the shape of her breasts. She has no family history or any other risk factors for breast malignancy.

She is referred to secondary care where she undergoes an ultrasound of her breast and axilla. Ultrasound of the breast and of the right axillary lymph node show a 'snowstorm' sign. What is the most likely diagnosis?

A.Lymphoma

B.Lobular carcinoma

C.Implant rupture

D.Breast abscess

E.Ductal carcinoma

Answer:Implant rupture

Explanation:

The 'snowstorm' sign on ultrasound of axillary lymph nodes indicates extracapsular breast implant rupture.

Important for meLess important

The 'snowstorm' sign on ultrasound of axillary lymph nodes indicates extracapsular breast implant rupture. It is due to leakage of the silicone, which then drains via the lymphatic system, giving the 'snowstorm appearance' both in the breast and the lymph nodes.

This lady shows no signs of infection and she is not systemically unwell which would indicate an abscess.

Although any breast change accompanied by an axillary lump should raise the suspicion of a malignancy, implant rupture is the more likely diagnosis. To select LC, DC or lymphoma a biopsy would be needed for histology.

Question:

A 61-year-old man attends his GP as he has noticed blood in his urine which has been increasing in amount over the last two weeks. He has had no pain or difficulty passing urine. He reports feeling quite tired the last few months and may have lost some weight. He is an ex-smoker with a 46 pack-year history. On examination he has a heart rate of 69 bpm, a blood pressure of 157/76 mmHg, oxygen saturations of 96% on air and a temperature of 36.9ºC. His abdomen is soft with no anterior tenderness, although he is tender in the left renal angle and you can feel a ballotable mass on the left side. On digital rectal exam his prostate is not enlarged and non-tender.

His urine dip results are shown below:

Leucocytes ++

Blood +++

Protein +

Nitrites Negative

Glucose Trace

Ketones Negative

What is the most likely diagnosis?

A.Renal cell carcinoma

B.Transitional cell carcinoma of the bladder

C.Urinary tract stone disease

D.Prostatitis

E.Cystitis

Answer:Renal cell carcinoma

Explanation:

Renal cell carcinoma is an important differential of frank haematuria

Important for meLess important

The main differentials for frank haematuria are cancer, stones and infection. The lack of lower urinary tract symptoms and lack of pain make the diagnosis of infection or stones unlikely. His constitutional symptoms and lack of signs of sepsis are also in keeping with an underlying malignancy. The lack of nitrites on the dip also point away from a urinary tract infection.

The ballotable mass and renal angle tenderness are more in keeping with a renal cell carcinoma than a bladder tumour.

Question:

A 50-year-old woman with multiple sclerosis presents to the GP with problems regarding her right eye. She has also had right shoulder pain over the last week.

On examination, there is ptosis on the right side and an associated small pupil with associated narrowing of the palpebral fissure and right lid lag. The left eye is unaffected. Fundoscopy is unremarkable.

She has smoked 30 cigarettes daily and has drank 12 units of alcohol per week over the last 30 years, and has been taking paracetamol and ibuprofen for her shoulder pain.

What is the most likely cause of her presentation?

A.Argyll-Robertson pupil

B.Holmes-Adie pupil

C.Horner's syndrome

D.Oculomotor nerve palsy

E.Optic neuritis

Answer:Horner's syndrome

Explanation:

Horner's syndrome: miosis + ptosis + enophthalmos +/- anhydrosis

Important for meLess important

Horner's syndrome is correct. This patient is presenting with features suggestive of Horner's syndrome due to the presence of miosis (small pupil), ptosis (right lid lag) and enophthalmos (a sunken eye appearance due to narrowing of the palpebral fissure). The associated shoulder pain alongside the longstanding smoking history should raise suspicion of a Pancoast tumour on the lung which can lead to infiltration o the brachial plexus, leading to pain. Her multiple sclerosis is a red herring. It is crucial to establish thorough smoking histories in patients presenting with shoulder pain and Horner's syndrome, as this strongly suggests the presence of a Pancoast tumour.

Argyll-Robertson pupil is incorrect. This is a pupillary syndrome associated with neurosyphilis and type 2 diabetes. Its features are remembered using the mnemonic: Argyll-Robertson Pupil (ARP) is Accommodation Reflex Present (ARP) but Pupillary Reflex Absent (PRA). Both pupils would be small, irregular, and unresponsive to light, but still accommodate. These features do not apply to this patient.

Holmes-Adie pupil is incorrect. This is a benign condition seen most commonly in women. It is characterised by a dilated pupil that remains small for an abnormally long time once it has constricted. This patient has an already small pupil along with ptosis and enophthalmos, making Horner's syndrome more likely.

Oculomotor nerve palsy is incorrect. This would present with an eye that is abducted and depressed ('down' and 'out') with ptosis and a dilated pupil. Although this patient has ptosis, their pupil is small and the eye is not abducted and depressed, ruling out this diagnosis.

Optic neuritis is incorrect. Although this commonly occurs in patients with optic neuritis, it does not explain the ptosis and enophthalmos. Patients with optic neuritis would present with colour desaturation (particularly red), eye pain worse on movement, and a relative afferent pupillary defect. These are not present in this patient.

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 54-year-old woman on your telephone list describes two small floaters partly obscuring her vision in her left eye which have developed over the past day. She has worked with computer screens more often than normal over the past week and wears glasses for myopia. She is otherwise well, denies any pain or trauma to either eye and hasn't seen an optician for many years.

What is the most appropriate management?

A.Advise eye irrigation and prescribe chloramphenicol

B.Advise to book optician appointment urgently

C.Arrange same-day ophthalmology assessment

D.Book for face-to-face assessment the following day

E.Avoid computer screens and call back in 48 hours if no resolution

Answer:Arrange same-day ophthalmology assessment

Explanation:

Any patient who presents with new-onset flashes or floaters should be referred urgently for assessment by an ophthalmologist within 24 hours

Important for meLess important

This patient has new-onset floaters which could be caused by a retinal detachment and thus needs an ophthalmologist review within 24 hours. The ophthalmology team may need to urgently perform an operation to prevent loss of sight if a detachment is detected.

There is no history of a foreign body and without pain in her eye, this is unlikely. Irrigation and antibiotic cover is therefore unhelpful.

Whilst it is important to see her optician who can ensure her glasses are the correct prescription this woman needs an urgent ophthalmology review first which you should organise.

It would be inappropriate to delay referral to ophthalmology by arranging a face-to-face assessment the following day.

The use of computer screens is an unlikely cause for floaters and observing for further time does not adequately address potential sight-threatening causes.

Question:

A 60-year-old man presents to the emergency department with chest pain. He had a myocardial infarction treated with percutaneous coronary intervention one month ago.

On examination, he is alert and hemodynamically stable, with a temperature of 37.8ºC. Heart sounds are normal with no added sounds.

These are his blood results:

Hb 170 g/L (135-180)

Platelets 360 \* 109/L (150 - 400)

WBC 13 \* 109/L (4.0 - 11.0)

ESR 60 mm/hr Men: < (age / 2)

His chest X-ray is normal, and his ECG shows widespread concave ST elevation and PR depression with reciprocal ST depression and PR elevation in aVR.

What is the most likely diagnosis?

A.Cardiac tamponade

B.Dressler's syndrome

C.Infective endocarditis

D.Left ventricular aneurysm

E.Left ventricular free wall rupture

Answer:Dressler's syndrome

Explanation:

A man presents with central, pleuritic chest pain and fever 4 weeks following a myocardial infarction. The ESR is elevated - Dressler's syndrome

Important for meLess important

Dressler's syndrome is the correct answer. Dressler's syndrome (postmyocardial pericarditis) is secondary pericarditis that may occur with or without pericardial effusion. The pathophysiology is thought to be due to the detection of antibodies from damaged myocardial tissue, which causes an immune response. The patient in the vignette has chest pain, fever, a raised ESR, and ECG findings of widespread concave ST-elevation and PR depression with reciprocal ST depression and PR elevation in aVR, which is consistent with pericarditis.

Cardiac tamponade is incorrect. Cardiac tamponade would cause jugular venous distension, hypotension, and muffled heart sounds, and there may be electrical alternans evident on the ECG. The patient in the vignette is haemodynamically stable, has normal heart sounds, and a fever is not associated with cardiac tamponade.

Infective endocarditis (IE) is incorrect. Infective endocarditis must be suspected in a patient with risk factors (e.g. known valvular heart disease, IV drug use), who typically present with a fever and a new-onset murmur. There is no mention of a murmur in the vignette, and the patient does not have any other features suggestive of infective endocarditis (positive blood cultures, echo findings, vasculitis phenomena (Osler nodes, Janeway lesions), etc.).

Left ventricular aneurysm is incorrect. This is a known complication following an MI. Left ventricular free wall aneurysm can cause widespread ST-elevation; however, it would present 1-3 weeks following an MI and is not typically associated with a fever and pleuritic chest pain. There would also be evidence of left heart failure with a left ventricular aneurysm, manifesting with pulmonary oedema.

Left ventricular free wall rupture is incorrect. This is a known complication following an MI. However, this would result in cardiac tamponade and cause jugular venous distension, hypotension, muffled heart sounds, and there may be electrical alternans evident on the ECG. This condition is also not associated with a fever. The patient in the vignette is hemodynamically stable, has normal heart sounds, and a fever is not associated with cardiac tamponade.

Question:

You are working on a general medical ward. One of your patients is a 94-year-old lady with metastatic lung cancer. She is on an end-of-life care pathway with a syringe driver for symptomatic relief. Your patient has been asleep most of the last 48-hours and she is very hard to rouse. You note that her breathing is getting shallower. Her daughter approaches you very distressed. She asks you to prescribe a much higher dose of morphine so her mother could finally pass away.

What do you do?

A.Inform the daughter you can't do that but assess the adequacy of the doses of medications in the syringe pump

B.Inform the daughter you can't do that and discuss this with the patients nurse

C.Accept the daughter's wishes and prescribe a much higher dose of morphine

D.Inform the daughter you will increase the morphine but when it comes to re-writing the prescription don't change anything

E.Inform the daughter you can't do this and call the safeguarding team

Answer:Inform the daughter you can't do that but assess the adequacy of the doses of medications in the syringe pump

Explanation:

In the GMC Good Medical Practice guidance there is a section on end of life care. Within this, they talk about having a presumption in favour of prolonging life.

The GMC states that decisions concerning life-prolonging treatment must not be motivated by a desire to bring about a patient's death. You must always start with a presumption in favour of prolonging life and you must take all reasonable steps to prolong life.

Many people worry about morphine and think that using this drug can often bring about a patient's death. Morphine is used in the end of life care for pain and distressing dyspnoea. It doesn't bring about or hasten a patient's death, they die because of the progression of their illness.

Either way, in this question the daughters motive is to hasten her mother's death (this sounds like she is asking this in the best intentions), but acting on this would go against the GMC guidance above. Thus answer 3 is wrong.

Informing the safeguarding team would be highly inappropriate here and lying in answer 4 is wrong and it is not acceptable for a doctor to lie.

This leaves us with answer 1 and 2. The daughter is clearly concerned about her mother so assessing her and checking the syringe pump is correct would be the most appropriate answer here.

Question:

A 25-year-old man is seen in the acute mental health unit. He appears drowsy. When asked about his mood, he says, 'I should start by telling you about how my car broke down last week, which was annoying. After my car broke down, I had to wait a long time for a recovery vehicle. The driver was nice, and we talked about lots of things. I hope I get my car sorted out soon; I really need it for work, and I have a new project upcoming.' and he continues to talk about work.

When asked further questions, he demonstrates similar behaviour and talks slowly throughout.

What is the best description of his behaviour?

A.Circumstantiality

B.Clang associations

C.Flight of ideas

D.Knight's move

E.Tangentiality

Answer:Tangentiality

Explanation:

Tangentiality refers to wandering from a topic without returning to it

Important for meLess important

Tangentiality is correct. This patient was asked about his mood before he talked about the events leading up to the consultation, then talked about his car and its recovery, then moved on to his work project, and did not answer the question regarding his mood. This is an example of tangentiality, where patients wander (or tangent) from a topic without returning to it.

Circumstantiality is incorrect, as this is where patients cannot answer questions without excessive and unnecessary detail. This would be the case if the patient eventually answered the question about his mood, however, he does not do so.

Clang associations is incorrect. This is where patients say sentences that are only linked together by the fact they sound similar or rhyme, which is not seen here.

Flight of ideas is incorrect. Despite the fact that this patient jumps from topic to topic with discernible links, this is usually associated with mania and pressured thoughts. The patient is drowsy and speaking slowly, making this option less likely, and they tangent from the initial topic onto related topics, rather than jumping from one thing to another. In flight of ideas, the derailment typically happens after answering the question. An example that would make flight of ideas more likely would be something similar to 'I am feeling awful, my car broke down last week, I hate my car's colour, my favourite colour is orange, oranges are a good fruit, fruits are tasty.' They would have answered the question, and each derailment is slightly linked to the previous topic.

Knight's move is incorrect, as this is where the patient jumps from topic to topic without any clear or logical link between each sentence. This is not seen in this patient.

Question:

A 21-year-old with a known Chiari 1 malformation undergoes a spinal MRI scan. The imaging reveals a cervical and thoracic syringomyelia. On closer examination, the patient is noted to have a cape-like loss of sensation to pain and temperature, but normal fine touch and proprioception.

Which of the following spinal cord structure are affected in order to cause this pattern of signs?

A.Dorsal columns

B.Spinocerebellar tract

C.Anterior white commisure

D.Dorsal root ganglion

E.Corticospinal tract

Answer:Anterior white commisure

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

As the syringomyelia progresses it will first cause compression of the spinothalamic tract as they decussate in the anterior white commissure. This results in loss of sensation of pain, temperature and non-discriminative touch. A cape-like distribution is a classic finding in syringomyelia.

The dorsal columns are in the posterior columns and the remaining tracts are in the lateral spinal cord and so are not affected first. The dorsal root ganglia are not within the spinal cord, so would not be affected at all.

Question:

A 34-year-old man presents to the emergency department with a three-day history of left testicular pain. The pain is associated with a burning sensation while passing urine. He is sexually active and denies the presence of any urethral discharge. There is no previous history of sexually transmitted diseases, trauma or similar episodes. Examination reveals a swollen and tender left testicle.

Which of the following organism is most likely responsible for this condition?

A.Chlamydia trachomatis

B.Enterococcus faecalis

C.Escherichia coli

D.Haemophilus influenzae

E.Pseudomonas aeruginosa

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 the most common cause in sexually active men younger than 35 years which accounts for up to 50% of cases of acute epididymo-orchitis.

In men 35 years of age or older, it is usually caused by enteric organisms (Escherichia coli or Enterococcus faecalis) that cause urinary tract infections, and may be associated with anatomical abnormalities of the urinary tract.

Question:

Tony is a 40-year-old male who has recently presented to the crisis team with suicidal ideation. Upon further questioning Tony also reports having low mood, lack of energy, waking up early in the morning, and a lack of concentration. Tony says that these symptoms are there most of the time, however he does have good days and bad days. There is no previous psychiatric history. What is the most appropriate drug to start Tony on?

A.Duloxetine

B.Mirtazapine

C.Venlafaxine

D.Sertraline

E.Lithium

Answer:Sertraline

Explanation:

According to NICE guidelines, the things to consider when managing a patient with depression include:

Manage suicide risk (this may include voluntary/compulsory admission)

Manage any safeguarding concerns for children or vulnerable adults in their care

Manage any co-morbid condition associated with depression (for example, alcohol or substance abuse)

Psychotic symptoms seek expert advice

Eating disorders seek expert advice

Dementia treat the underlying depression.

Discuss practical solutions to stresses contributing to depression.

For people with mild depression or subthreshold depressive symptoms who request an intervention, consider a period of active monitoring, and:

Provide information about the nature and course of depression.

Arrange follow up, normally within 2 weeks (consider contacting the person if they do not attend follow-up appointments).

For people with persistent subthreshold depressive symptoms or mild-to-moderate depression:

Consider a psychological intervention. This is accessed by referral or self-referral to IAPT (Improving Access to Psychological Therapies).

Avoid the routine use of antidepressants, but consider this for people with a history of moderate or severe depression, subthreshold depressive symptoms that have persisted for a long period (typically at least 2 years) or mild depression that is complicating the care of a chronic physical health problem.

For people with moderate or severe depression:

Offer an antidepressant and a high-intensity psychological intervention

If this is the first episode of depression, consider:

Prescribing a generic selective serotonin reuptake inhibitor (SSRI), such as citalopram, fluoxetine, paroxetine, or sertraline.

If this is a recurrent episode of depression, consider:

Prescribing an antidepressant that the person has had a good response to previously.

Avoiding antidepressants that the person has previously failed to respond to or could not tolerate.

If the person has a chronic physical health problem:

Sertraline may be preferred, because it has a lower risk of drug interactions.

Question:

A 25-year-old man has had 5 days of diarrhoea which he describes as 'yellowy green' in colour and non-bloody. He also reports a persistent fever and diffuse abdominal pain for the past 2 weeks, which started a few days after returning from a trip to Indonesia.

On examination, there is mild hepatomegaly and numerous small pink spots over the abdomen, mostly around the umbilicus. His temperature is 39.5 ºC, pulse rate 70 bpm, BP 130/90 mmHg, and respiratory rate 20 breaths per minute.

Given the likely diagnosis, what is the causative organism?

A.Clostridium perfringens

B.Escherichia coli

C.Giardia lamblia

D.Salmonella typhi

E.Shigella dysenteriae

Answer:Salmonella typhi

Explanation:

Fever, abdominal pain, constipation, 'rose' spots → ?typhoid fever

Important for meLess important

Salmonella typhi causes typhoid fever, which characteristically manifests with non-bloody, yellow-green ('pea-soup') diarrhoea, persistent fever, and abdominal pain. (Note: paratyphoid fever is caused by Salmonella paratyphi and has a very similar clinical manifestation to typhoid fever, so they are collectively referred to as enteric fever).

The incubation period of enteric fever is 5–30 days, and has 3 characteristic phases:

– Week 1: systemic illness (headache, rising fever), constipation, relative bradycardia.

– Week 2: persistent fever, 'rose-coloured' spots (most commonly around the umbilicus) and non-bloody yellow/green diarrhoea.

– Week 3: features of week 2 with possible complications (e.g. hepato- and/or splenomegaly, GI bleed/perforation etc).

Clostridium perfringens causes food poisoning. Infection commonly causes abdominal pain, fever, and vomiting up to a few hours after ingestion of contaminated food but resolves within 24 hours. It does not cause hepatomegaly or a rash.

Escherichia coli can cause travellers' diarrhoea (watery diarrhoea, little-to-no systemic upset) or bloody diarrhoea with abdominal pain and fever (enteroinvasive E. coli). Neither are likely to manifest with a rash.

Giardia lamblia causes giardiasis which manifests with abdominal bloating and offensive, fatty diarrhoea (secondary to malabsorption). It is unlikely to cause hepatomegaly, rash, or fever.

Shigella dysenteriae is the cause of shigellosis, which results in bloody, mucoid diarrhoea, fever, and abdominal pain. It has an incubation period of only ~2 days and does not cause a rash or hepatomegaly.

Question:

A 10-year-old boy is admitted to hospital with diarrhoea and lethargy. There is a known local outbreak of E coli 0157:H7 and his initial bloods show evidence of acute renal failure. Given the likely diagnosis of haemolytic uraemic syndrome, which one of the following investigation results would be expected?

A.Increased prothrombin time

B.Thrombocytosis

C.Fragmented red blood cells

D.Right-shift of the white blood cells

E.Raised serum haptoglobins

Answer:Fragmented red blood cells

Explanation:

Serum haptoglobins (which bind haemoglobin) and the platelet count are decreased in haemolytic uraemic syndrome.

Question:

A 68-year-old woman comes in with a generalized headache and sleepiness that comes and goes. She is a previous alcoholic and has a history of recurrent falls, although she cannot remember falling recently and she denies drinking any alcohol. Examination does not reveal any abnormal neurology apart from Glasgow Coma Score (GCS) of 13. A CT Head is performed and the report has come back:

CT Head Crescent-shaped white-grey discrete lesion located proximal to the right parietal cortex in keeping with haemorrhage, no midline shift or ventricular enlargement.

Given the diagnosis, which option best describes the source of the bleeding?

A.Middle meningeal vein

B.Middle meningeal artery

C.Bridging veins between cortex and venous sinus

D.Berry aneurysm

E.Bridging veins between between cortex and third ventricle

Answer:Bridging veins between cortex and venous sinus

Explanation:

Subdural haemorrhage is caused by damage to bridging veins between cortex and venous sinuses

Important for meLess important

This is a subdural haematoma (generalised headache, fluctuating GCS, alcohol, crescent-shaped haemorrhage on CT) of which the source of bleeding is shearing of bridging veins between cortex and venous sinus.

Middle meningeal artery - extra-dural haematoma

Berry aneurysm - subarachnoid haemorrhage

Question:

A 55-year-old man is brought into the emergency department by the paramedics. He collapsed on the street suffering from a myocardial infarction and subsequently resuscitated following a cardiac arrest. Follow up blood tests are sent and the results show impaired liver function. He regularly has liver function tests as he is on a statin, and at his appointment last week they had been normal. There is nothing to note on examination and he is currently not complaining of any pain.

ALT 1400 u/l

Given this man's presentation, what is the most likely cause of his impaired liver function tests?

A.Hepatitis B

B.Chronic alcohol abuse

C.Ischaemic hepatitis

D.Budd-Chiari syndrome

E.Wilson's disease

Answer:Ischaemic hepatitis

Explanation:

Liver failure following cardiac arrest think ischaemic hepatitis

Important for meLess important

This question is asking about a 55-year-old man presenting following a cardiac arrest and then having impaired liver function tests. This is a typical picture of ischemic hepatitis.

Hepatitis and chronic alcohol abuse would not cause such an acute rise in this man liver function tests, and would most likely have been picked up by the GP.

Budd-Chiari syndrome characteristically presents with right upper quadrant pain associated with refractor ascites. And so this does not match his clinical picture.

Wilson's disease typically presents in teenagers or people in their twenties with neurological symptoms followed by liver failure. This does not match this patients presentation.

Question:

Jane is a 29-year-old woman who is known to have epilepsy. She was diagnosed with this 5 years ago and she remains stable on carbamazepine. She had recently been pregnant and has just given birth to a baby girl.

While in hospital, Jane has approached you as she is unsure about breastfeeding. Jane is afraid that the baby will be affected is she continues to breastfeed while on carbamazepine.

What advice would you provide Jane with regards to her antiepileptic and breastfeeding?

A.Continue carbamazepine, continue breastfeeding

B.Continue carbamazepine, encourage formula milk

C.Stop all antiepileptic medications, continue breastfeeding

D.Switch to lamotrigine, continue breastfeeding

E.Switch to levetiracetam, continue breastfeeding

Answer:Continue carbamazepine, continue breastfeeding

Explanation:

Breast feeding is acceptable with nearly all anti-epileptic drugs

Important for meLess important

The use of antiepileptic medication during pregnancy is a common topic of concern for mothers, both during and after pregnancy. The Royal College of Obstetricians and Gynaecologists have released a comprehensive document with regards to the use of antiepileptic during and after pregnancy.

It is safe to continue using all antiepileptic medications while breastfeeding as negligible amounts of the medication are passed to the baby through breast milk. Studies have not shown any impact of antiepileptic on the child's cognition following breast milk ingestion. Therefore, it is recommended to continue the current antiepileptic regime used and mothers should be encouraged to continue breastfeeding.

Stopping the antiepileptic medication should not be done without consulting a neurologist as this may precipitate further episodes of seizures.

Question:

A 23-year-old man presents to his GP complaining of severe lower back pain. The pain started following a gym session where he tried to increase his squatting record. He has tried warm compresses at home, but the pain has not subsided.

On examination, you can observe that hip and knee movements are 5/5 bilaterally, left foot plantar flexion is 2/5, and dorsiflexion is 5/5 bilaterally.

There is a loss of sensation over the posterolateral aspect of the leg and the lateral aspect of the foot, with a reduced ankle reflex and a positive sciatic nerve stretch test.

What nerve root is most likely affected?

A.L3

B.L4

C.L5

D.S1

E.S2

Answer:S1

Explanation:

S1 lesion features = Sensory loss of posterolateral aspect of leg and lateral aspect of foot, weakness in plantar flexion of foot, reduced ankle reflex, positive sciatic nerve stretch test

Important for meLess important

The correct answer is S1. Damage to this root would cause sensory loss of the posterolateral aspect of the leg and lateral aspect of the foot, weakness in plantar flexion of the foot, reduced ankle reflex, and a positive sciatic nerve stretch test. The sensory loss described follows the dermatome distribution of the nerve root S1. Plantarflexion is caused by the myotomes S1-S2, hence a lesion in S1 would impair it. The ankle reflex is also caused by S1-S2. A positive sciatic nerve stretch test is obtained if the pain is reproduced by elevation of a straight leg and incremented by dorsiflexion at the point of pain, indicating the involvement of S1, which is getting stretched.

L3 is an incorrect option. Compression of this root causes sensory loss over the anterior thigh, weak hip flexion, knee extension and hip adduction, and reduced patellar reflex. The sensory loss follows the dermatome distribution of the nerve root L3. Hip flexion is caused by the myotomes L1-3, hence it becomes weaker if the nerve root L3 is impaired. Knee extension is caused by myotomes L3-4 hence it becomes weaker if the nerve root L3 is impaired ('L3, L4 kick the door'). Hip adduction is regulated by the L1-L4 myotomes hence it becomes weaker if the nerve root L3 is impaired. The patellar (or knee) reflex is regulated by L2-L4 so it becomes impaired in the lesion of any of these three roots. The zone of sensory impairment described in the stem is different, additionally, the hip is not involved in the deficit, making the option incorrect.

L4 is an incorrect option. Compression of this root causes sensory loss of the anterior aspect of the knee and medial malleolus, weak knee extension and hip adduction, and reduced knee reflex. The sensory loss follows the dermatome distribution of the nerve root L4. Knee extension is caused by myotomes L3-4 hence it becomes weaker if the nerve root L4 is impaired ('L3, L4 kick the door'). Hip adduction is regulated by the L1-L4 myotomes hence it becomes weaker if the nerve root L4 is impaired. The patellar (or knee) reflex is regulated by L2-L4 so it becomes impaired in the lesion of any of these three roots. The zone of sensory impairment described in the stem is different, additionally, the hip is not involved in the deficit, making the option incorrect.

L5 is an incorrect option. Compression of this root would cause loss of foot dorsiflexion and sensory loss in the dorsum of the foot. Dorsiflexion is caused by the L4-S1 myotomes, so a lesion in one of these roots causes loss of it. These features aren't seen here making the answer incorrect. The zone of sensory impairment described in the stem is different, additionally, the ankle reflex is impaired, making this option incorrect.

S2 is an incorrect option. Compression of this root would cause loss of sensation to the posterior aspect of the thigh and leg, following the dermatome distribution. In addition, it would not cause motor symptoms and it would cause an absent bulbocavernosus reflex.

Question:

A 14-year-old girl is diagnosed with anorexia nervosa. Her parents initially presented as they had noticed she was severely limiting her dietary intake and losing weight. What treatment is she most likely to be offered?

A.Family based therapy

B.Self-guided cognitive behavioural therapy

C.Individual cognitive behavioural therapy

D.Group cognitive behavioural therapy

E.Fluoxetine

Answer:Family based therapy

Explanation:

Anorexia focused family therapy is the first-line treatment for children and young people with anorexia nervosa

Important for meLess important

Question:

A 23-year-old nursing student attends the emergency department brought by his partner with a 12-hour history of aggression, irritability, and hallucinations. His partner believes he has suffered a mental break brought on by a lack of sleep on the night shift. His blood and urine tests are negative for drugs and there is no sign of infection. He is admitted to the hospital overnight and he returned to normal behaviour the next day.

What is the most likely diagnosis?

A.Adjustment disorder

B.Bipolar disorder

C.Brief psychotic disorder

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

Brief psychotic disorder - this is the correct answer. This is a short-term disturbance that involves the sudden onset of at least 1 positive psychotic symptom. Positive symptoms include delusions, hallucinations, disorganised speech, and grossly disorganised or catatonic behaviour.

Adjustment disorder - this is incorrect. This is an emotional or behavioural reaction to a stressful event or change in that person's life. The reaction is an unhealthy or excessive response to the event and occurs within three months.

Bipolar disorder - this is incorrect. This is defined by changes in a person's mood, energy, and ability to function. People with bipolar disorder experience intense emotional states that typically occur during distinct periods called mood episodes. These mood episodes are categorised as manic/hypomanic (abnormally happy or irritable mood) or depressive (sad mood). Bipolar disorder significantly impacts daily functioning on a variable basis depending on treatment, the type of disorder, and the length of the mood episode.

Schizoaffective disorder - this is incorrect. Schizoaffective disorder is defined by a combination of symptoms of schizophrenia, such as hallucinations or delusions, and mood disorder symptoms, such as depression or mania.

Schizophrenia - this is incorrect. Schizophrenia can be characterised 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 50-year-old woman presents to the emergency department with a sudden onset of chest pain, starting an hour ago. It is worse on inspiration and is 'the worst thing she has ever felt'. She also feels significantly breathless.

An ECG is requested, as shown below:

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

What is the most likely diagnosis?

A.3rd degree heart block

B.Costochondritis

C.Pericarditis

D.Pulmonary embolism

E.ST elevation myocardial infarction

Answer:Pulmonary embolism

Explanation:

The above history is in keeping with a diagnosis of pulmonary embolism. It is characterised by shortness of breath, pleuritic chest pain (worse on inspiration) and dizziness. It can also present with sudden collapse or haemoptysis. A large PE can result in a right bundle branch block on ECG as increased pressure from the lung results in right ventricular overload, leading to poorer perfusion of the right bundle and the subsequent ECG change.

The above ECG shows a right bundle branch block, which can occur secondary to pulmonary hypertension. This is characterised by 'MaRRoW'- M wave in V1, W wave in V6.

Identifying branch blocks is slightly easier if you know what's happening:

→In any branch block, depolarisation has to come via a separate route to polarise the other ventricle. So, in a left branch block, depolarisation comes from the right ventricle, and it is the other way around in a right branch block.

→ Lead V1 is closest to the right ventricle, and lead V6 is closest to the left ventricle (when you read an ECG in front of you, V1 is on the 'anatomical right' and V6 is on the 'anatomical left'.

→In a right branch block, depolarisation has to come from the left ventricle. So, we see the first R wave from depolarisation of the left ventricle, followed by a slower, second R wave which is depolarisation of the right ventricle. This gives the characteristic 'M' shaped wave. It is in V1 as it is closest to the right ventricle. The W wave in V6 is essentially a reciprocal version of the M wave. This is where 'MaRRoW' comes from.

→In a left branch block, depolarisation has to come from the right ventricle. So, we see the first R wave from depolarisation of the right ventricle, followed by a slower, second R wave which is depolarisation of the left ventricle. This gives the characteristic 'M' shaped wave. It is in V6 as it is closest to the left ventricle. The W wave in V1 is a reciprocal version of an M wave in V6. This is where 'WilliaM' comes from.

There is no ST-segment elevation in any of the leads, hence ST-elevation myocardial infarction is incorrect. This presents with ST elevation in 2 contiguous leads.

Similarly, as there is no ST-elevation, pericarditis can be ruled out. This is typically seen on ECG as widespread ST-elevation and/or PR depression.

Costochondritis typically has a normal ECG. It presents with unilateral, sharp, anterior chest-wall pain worse on breathing or activity. It is typically preceded by exercise or an upper respiratory tract infection. There is tenderness to the chest wall, over the costochondral junction.

Third-degree heart block presents with the disjunction of P waves and the QRS complex. However, the above rhythm is sinus and so this cannot be a third-degree block.

Question:

A 32-week gestation woman attends for a repeat ultrasound scan after her 20-week scan showed a low lying placenta. The repeat ultrasound in the department shows a placenta that is partially covering the top of the cervix. She is counselled by the obstetric consultant on her mode of delivery. She has had 4 previous pregnancies which she delivered vaginally and has no other past medical or surgical history.

What is the appropriate offer she should be given regarding recommended mode of delivery?

A.Spontaneous vaginal delivery unless placenta descends to grade IV placenta praevia

B.Elective caesarean section at 37-38 weeks

C.Induction of labour at 37-38 weeks

D.Elective caesarean section at 39-40 weeks

E.Induction of labour at 39 weeks

Answer:Elective caesarean section at 37-38 weeks

Explanation:

Women with grade III/IV placenta praevia should be offered an elective caesarean section at 37-38 weeks

Important for meLess important

This patient has a low-lying placenta covering part of the cervix - a grade III placenta praevia. If the placenta is completely covering the cervix, this is known as a grade IV (or complete) placenta praevia. Spontaneous vaginal delivery carries a significant risk of haemorrhage in grade III and grade IV placenta praevia and the patient should be counselled about the risk of this. Management for grade III or IV placenta praevia is a scheduled elective caesarean section at 37-38 weeks. This is to prevent a massive obstetric haemorrhage which may occur if cervical ripening and dilatation occurs with the placenta overlying the cervical os.

Spontaneous vaginal delivery carries a significant risk of haemorrhage in grade III and grade IV placenta praevia, hence this should be avoided unless the patient refuses the other options.

Induction of labour at 37-38 weeks will lead to the patient potentially having a vaginal delivery and does not mitigate against the risk of haemorrhage. This is, therefore, incorrect as the recommended mode of delivery at any gestation for this patient.

Offering an elective caesarean section at 39 - 40 weeks is a possibility, however, there is a much greater risk of the patient going into spontaneous labour at this gestation and haemorrhaging. This is, therefore, incorrect as the ideal offer.

Induction of labour at 39 weeks will lead to the patient potentially having a vaginal delivery and does not mitigate against the risk of haemorrhage. This is, therefore, incorrect as the recommended mode of delivery at any gestation for this patient.

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 46-year-old woman with adenocarcinoma of the breast with liver metastases presents to the emergency department with increased thirst and abdominal pain.

She is dehydrated on examination, with a left-sided mastectomy scar and an enlarged liver with an irregular edge. Heart rate is 95bpm, respiratory rate is 18/min, she is apyrexial and her oxygen saturation's are 99% on air.

Bloods:

Hb 105 g/l Na+ 135 mmol/l Bilirubin 40 µmol/l

Platelets 350 \* 109/l K+ 3.7 mmol/l ALP 150 u/l

WBC 9\* 109/l Urea 7.9 mmol/l ALT 140 u/l

Neuts 4.0 \* 109/l Creatinine 150 µmol/l γGT 250 u/l

Lymphs 3. \* 109/l Albumin 24 g/l

Eosin 0.1 \* 109/l Ca (adj) 3.45mmol/l PTH 2ng/dl

What is the most appropriate first step in her management?

A.Refer to oncology for urgent chemotherapy

B.Furosemide

C.Intravenous fluid

D.IV bisphosphonate

E.Prednisolone

Answer:Intravenous fluid

Explanation:

IV fluid therapy is the first-line management in patients with hypercalcaemia

Important for meLess important

The management of hypercalcaemia of malignancy hinges around rapid intravenous fluid resuscitation. A large volume should be given over a short period of time.

This patient should be discussed with the oncology team, but there is not an indication for emergency chemotherapy.

Furosemide is an adjunct to the management of hypercalcaemia and might be considered, should the initial fluid resuscitation be ineffective. Similarly, hypercalcaemia of malignancy can be treated with IV bisphosphonates.

Steroids are indicated in hypercalcaemia secondary to sarcoidosis.

Question:

A 76-year-old man presents to the emergency department accompanied by his wife complaining of changes in his vision. He was cooking when he suddenly realised that he could not see properly from his right eye.

On examination, the right eye looks normal. There is no redness, swelling or flushing. The pupil is normal in size. The patient describes a partial loss of vision in the left field of the right eye which came down 'like a curtain' blocking his vision. He is otherwise well and a neurological examination is normal.

Given the most likely diagnosis, where is the lesion?

A.Left middle cerebral artery

B.Left posterior cerebral artery

C.Left retinal artery

D.Right posterior cerebral artery

E.Right retinal artery

Answer:Right retinal artery

Explanation:

Amaurosis fugax is a form of stroke that affects the retinal/ophthalmic artery

Important for meLess important

Right retinal artery is correct. The patient is describing the classical pattern called 'amaurosis fugax'. This is described as a painless black curtain coming down vertically into the field of vision in one eye. It might be permanent or transient, depending on the aetiology. It is due to hypoperfusion of the retinal artery due to an obstruction. As it supplied the optic nerve directly behind the eye, it will cause ipsilateral disease, in this case, on the right side.

Left middle cerebral artery is incorrect. Damage here would cause contralateral homonymous quadrantanopia or hemianopia, due to the damage to the optic radiation, but it would be associated with other symptoms, such as contralateral hemiparesis and sensory loss, greater in the upper extremity than in the lower. This is due to the fact that the middle cerebral artery supplies the primary motor and somatosensory cortices, with a greater supply to the zone of the upper limb than the lower. Additionally, it would cause aphasia, which is not mentioned here.

Left posterior cerebral artery is incorrect. Damage to this vessel would cause right homonymous hemianopia with macular sparing. Additionally, it might cause agnosia, described as the impairment in recognition of visually presented objects. The macula is spared, as it has a double blood supply, by the posterior and the middle cerebral arteries. Agnosia is caused by damage to the 'what pathway' of vision, it is not an actual defect in vision.

Left retinal artery is incorrect. A stroke of this artery would cause the pattern of vision loss described here, but on the left side, as the retinal artery supplies the optic nerve directly behind the eye.

Right posterior cerebral artery is incorrect. Damage to this artery would cause left homonymous hemianopia with macular sparing, which is not described here. Additionally, it might cause agnosia, described as the impairment in recognition of visually presented objects.

Question:

A 27-year-old male presents with an open fracture of his right tibia and fibular following a high impact tackle during a rugby match. He has received 1 litre of IV fluids, 10 mg morphine and has just had co-amoxiclav administered. You are the F1 in the emergency department and are urgently bleeped because the patient has become acutely short of breath with noisy breathing. He has evidence of tachycardia, hypotension and expiratory wheeze. Peripherally warm to touch. Penicillin anaphylaxis is diagnosed by the medical registrar. He asks you what the immediate therapeutic intervention is?

A.IM 0.5 mg Adrenaline 1:10,000

B.IV 0.5 mg Adrenaline 1:10000

C.IM 0.5 mg Adrenaline 1:1000

D.Nebulised Adrenaline 1:1000

E.IM 250 mg Adrenaline 1:1000

Answer:IM 0.5 mg Adrenaline 1:1000

Explanation:

Anaphylaxis - adult adrenaline dose = 500 mcg (0.5 ml of 1 in 1,000)

Important for meLess important

As a foundation doctor, knowledge of how to treat life-threatening emergencies is vital to have on the tip of your tongue.

Management of anaphylaxis is an excellent example of adopting an ABCDE approach.

The Resus council have published excellent guideline on the management of anaphylaxis. In adults 0.5 mg of INTRAMUSCULAR Adrenaline 1:1000 for the treatment of anaphylaxis.

Review the following guidelines for more information - https://www.resus.org.uk/pages/anaalgo.pdf

Question:

You are asked to clerk a 60-year-old female presenting to the emergency department with dizziness and nausea which is worse when lying down in bed at night. This has occurred for the past 2 nights and attended the department today as she vomited due to dizziness. She denies any head trauma, headache, or loss of consciousness. The episodes last for a maximum of 1 minute and subside when she lies still. She has no vision changes. She has no past medical history, no regular medications, and no allergies. You suspect benign paroxysmal positional vertigo and perform a full neurological examination of the patient.

What is the likely positive finding on examination you will elicit in this patient?

A.Loss of proprioception

B.Non fatiguable nystagmus

C.Rotatory nystagmus

D.Vertical nystagmus

E.Vertical skew

Answer:Rotatory nystagmus

Explanation:

Rotatory nystagmus is indicative of a positive Dix-Hallpike manoeuvre

Important for meLess important

This vignette depicts a typical presentation of benign paroxysmal positional vertigo (BPPV). Patients often present to the emergency department with dizziness, nausea, and vomiting episodes which last for a short duration of time (usually up to 30 seconds) when changing head position. It is most common in patients over 50 years (with an average age of onset being 55 years). It is important to exclude any more sinister, central causes of vertigo which can be elicited with a thorough history taking, exclusion of red flags (e.g. weight loss, night sweats, history of malignancy, and headache), and neurological examination including a 'HINTS' (Head Impulse, Nystagmus, and Test of Skew) examination.

Rotatory nystagmus is a rotary movement of the eye about the anteroposterior axis which is best accentuated on lateral gaze (by asking the patient to look to the left or the right). Vestibular system nystagmus commonly has a rotational (torsional) quality.

Proprioception is the awareness of a joint in space in relation to the person. Loss of proprioception is associated with cerebellar pathologies - this may include cerebellar ataxias and degenerative conditions.

Vertical nystagmus is most commonly seen in posterior fossa lesions, cerebellar ataxias, vitamin deficiencies, and inflammatory/autoimmune conditions. This is seen in clinical examination as upbeat or downbeat nystagmus and is a worrying sign to elicit.

Vertical skew is where the patient's eye appears to have a corrective vertical movement when performing a 'test of skew' (see below). This is associated with a central vertigo and not BPPV (peripheral vertigo diagnosis). A test of skew is assessed by the patient looking at the clinician's nose while the clinician covers one of the patient's eyes, the clinician then quickly moves their hand/eye cover to cover the patient's opposite eye. If there is a shift in the uncovered eye's gaze, this can be noted as a vertical or horizontal skew.

Question:

An 83-year-old woman is admitted to hospital with a fever and shortness of breath. She has a past medical history of osteoarthritis, hypertension, and chronic kidney disease, and normally takes atorvastatin, amlodipine and codeine.

On examination, she looks unwell, there are splinter haemorrhages on her nails, and a systolic murmur in the mitral area can be heard. Her observations are a pulse of 100/min, a respiratory rate of 18/min, a blood pressure of 110/90mmHg, and a temperature of 38°C. A clinical diagnosis of bacterial endocarditis is made, and blood cultures grow Streptococcus viridans . She is started on appropriate IV fluids and gentamicin. She recovers from the infection, but develops acute tubular necrosis a few days later.

Which of the following most likely led to her acute tubular necrosis?

A.Amlodipine

B.Codeine

C.Dehydration

D.Gentamicin

E.Septic emboli

Answer:Gentamicin

Explanation:

Aminoglycosides are nephrotoxic

Important for meLess important

Gentamicin is the correct answer. Gentamicin is a nephrotoxic aminoglycoside antibiotic. In patients with renal impairment especially, it can lead to acute tubular necrosis.

Amlodipine is incorrect, as it is not known to be nephrotoxic.

Codeine is incorrect because it is also not known to be nephrotoxic. Its dose may need reduction in patients with renal disease however, to avoid drug accumulation and toxicity.

Dehydration is incorrect, as this woman has had appropriate IV fluids. Dehydration can be a cause of acute kidney injury, however.

Septic emboli is incorrect since this woman recovered from her infective endocarditis.

Question:

A 54-year-old man presents with a variety of physical symptoms that have been present for the past 9 years. Numerous investigations and review by a variety of specialties have indicated no organic basis for his symptoms. This is an example of:

A.Munchausen's syndrome

B.Hypochondrial disorder

C.Dissociative disorder

D.Somatisation disorder

E.Conversion disorder

Answer:Somatisation disorder

Explanation:

Unexplained symptoms

Somatisation = Symptoms

hypoChondria = Cancer

Important for meLess important

Somatisation disorder is the correct answer as the patient is concerned about persistent, unexplained symptoms rather than an underlying diagnosis such as cancer (hypochondrial disorder). Munchausen's syndrome describes the intentional production of symptoms, for example self poisoning

Question:

A 57-year-old female presents due to problems with urine leakage over the past six months. She describes frequent voiding and not always being able to get to the toilet in time. She denies losing urine when coughing or sneezing. What is the most appropriate initial treatment?

A.Trial of oxybutynin

B.Bladder retraining

C.Regular toileting

D.Pelvic floor muscle training

E.Topical oestrogen cream

Answer:Bladder retraining

Explanation:

Urinary incontinence - first-line treatment:

urge incontinence: bladder retraining

stress incontinence: pelvic floor muscle training

Important for meLess important

Question:

A 75-year-old woman presents to eye casualty with painless left-sided partial vision loss. In the preceding two weeks, she had a left-sided temporal headache with left-sided scalp tenderness. She has also noted left-sided jaw pain when chewing. The systems review is positive for low-grade fever and fatigue.

The patient was previously well and has no medical or ophthalmological history.

Given the likely cause of vision loss, what will fundoscopy show?

A.A pale retina with a 'cherry red' spot

B.Cupping of the optic disc

C.Hazy fundus with an absent red reflex

D.Swollen pale optic disc with blurred margins

E.Tortuous retinal veins with 'flame haemorrhages'

Answer:Swollen 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

Swollen pale optic disc with blurred margins is correct. This is the typical fundoscopic appearance in patients with anterior ischaemic optic neuropathy, which accounts for the majority of ocular complications in patients with temporal arteritis and can cause rapid onset unilateral vision loss. This patient has classical symptoms of temporal arteritis, including new temporal headache, scalp tenderness, jaw claudication and constitutional symptoms. Anterior ischaemic optic neuropathy is caused by inflammation in the posterior ciliary artery (a branch of the ophthalmic artery) which leads to occlusion and subsequent ischaemia to the head of the optic nerve.

A pale retina with a 'cherry red' spot is incorrect. This is the typical fundoscopic appearance in central retinal artery occlusion. Whilst this is another cause of sudden vision loss, the pathophysiology is not typically inflammatory, and instead is similar to a stroke. Central retinal artery occlusion is not the typical ocular manifestation of temporal arteritis.

Cupping of the optic disc is incorrect. This is the typical fundoscopic finding of neuropathy due to glaucoma. The pathophysiology here is a slow, degenerative death of optic neurons due to increased intraocular pressure. The irreversible loss of nerve fibres leads to a cupped appearance of the optic disc. These findings are not seen in anterior ischaemic optic neuropathy.

Hazy fundus with an absent red reflex is incorrect. This is the typical fundoscopic finding in vitreous haemorrhage which, whilst another cause of sudden painless vision loss, is not related to temporal arteritis. Vitreous haemorrhage is often caused by bleeding from neovascularisation in proliferative diabetic retinopathy. It can also be caused by trauma and retinal detachment.

Tortuous retinal veins with 'flame haemorrhages' is incorrect. This is the typical fundoscopic appearance in central vein occlusion. This condition also causes sudden vision loss. However, like central retinal artery occlusion, the pathophysiology is related to atherosclerosis, not inflammation. In central retinal vein occlusion, the occlusion is due to thrombosis.

Question:

A 34-year-old female presents to the emergency department following an accident at a sporting event. She was bending forward during a yoga class and suddenly felt her back go. She fell forward and hit her knee against the hard floor beneath her.

Clinical examination demonstrates weakened dorsiflexion, inversion and eversion of the ankle with normal plantarflexion. There is also reduced sensation in the first web-space between her big toe and second toe.

What is the most likely underlying diagnosis?

A.Common peroneal nerve injury

B.Sciatic nerve injury

C.Femoral nerve injury

D.L5 nerve lesion

E.S1 nerve lesion

Answer:L5 nerve lesion

Explanation:

Weakened dorsiflexion, inversion and eversion of the ankle indicates an L5 nerve lesion not a common peroneal nerve lesion

Important for meLess important

Although the common peroneal nerve lesion is a tempting answer it is incorrect. The common peroneal nerve provides sensation over the posterolateral part of the leg and knee. It is also involved in dorsiflexion and eversion of the ankle. It is NOT however involved in the inversion of the ankle and would not cause specific paraesthesia in the first web space of the foot.

An L5 lesion, however, would account for all 4 of the patient's clinical examination findings (web space paraesthesia and weakened dorsiflexion/inversion/eversion).

The sciatic nerve would cause weak dorsiflexion, inversion, and eversion but would also cause weak plantarflexion.

The femoral nerve is associated with hip flexion. Again such an examination finding is not present. A femoral nerve lesion would not cause paraesthesia in the first web space.

An S1 lesion would cause weakened plantarflexion. It would also cause reduced sensation around the lateral malleolus not the first web-space.

Question:

A 16-year-old boy attends with his mother for an emergency appointment in your duty clinic. The day previously during a rugby match he sustained an injury to his right ear. At the time he did not find it too bothersome and he finished the match. On awaking that morning however he found his right ear was swollen. He denies any otorrhoea or hearing loss. He is systemically well.

On examination he has a sizeable pinna haematoma. Otoscopy is normal with no damage seen to the tympanic membrane. Simple hearing tests are normal.

What is the most appropriate management?

A.Ice packs and reassess in one week

B.Needle aspiration of the haematoma in your clinic

C.Refer for same day ENT assessment

D.Refer to ENT ‘hot-clinic’ for assessment in the next two weeks

E.Simple anti-inflammatory medication such as ibuprofen

Answer:Refer for same day ENT assessment

Explanation:

Auricular haematomas need same day assessment by ENT

Important for meLess important

Pinna haematomas are commonly sustained rugby or boxing injuries. Untreated they can lead to a classic ‘cauliflower ear’ deformity. Best results are achieved with early incision and drainage (as opposed to needle aspiration) so same day ENT referral is needed.

Question:

A 19-year-old female presents complaining of visual disturbance. Examination reveals a bitemporal hemianopia with predominately the lower quadrants being affected. What is the most likely lesion?

A.Brainstem lesion

B.Craniopharyngioma

C.Frontal lobe lesion

D.Pituitary macroadenoma

E.Right occipital lesion

Answer:Craniopharyngioma

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

Question:

An 89-year-old man is admitted to the hospital with pneumonia. He has a past medical history of COPD, and this is his third episode of pneumonia in 6 months. He is being assessed for long-term oxygen therapy (LTOT). He complains that his breathlessness has been getting worse despite optimal pharmacological therapy, and he has been struggling to complete tasks around his house.

Arterial blood gases (ABG) have shown a pO2 of <7.3 kPa on three occasions. His resting oxygen saturation is 90%.

What factor makes him eligible for LTOT commencement?

A.ABG results of pO2 <7.3 kPa

B.Loss of daily functioning due to breathlessness

C.Recurrent pneumonia

D.Resting oxygen saturation

E.Worsening breathlessness despite optimal medical therapy

Answer:ABG results of pO2 <7.3 kPa

Explanation:

COPD - LTOT if 2 measurements of pO2 < 7.3 kPa

Important for meLess important

The correct answer is ABG results of pO2 <7.3 kPa. Patients with resting oxygen saturations of <92% should be referred for ABG testing to see if they qualify for LTOT. Hypoxia of <7.3 kPa on two or more occasions is an indication to start LTOT.

Loss of daily functioning due to breathlessness is incorrect. Other measures such as pulmonary rehabilitation and medication optimisation should be considered before LTOT to address this issue.

Recurrent pneumonia is not a criterion for referral to assessment or commencement of LTOT. Patients with COPD are at risk of recurrent pneumonia, and so should have rescue antibiotics in their homes to offset this risk. They should also be aware of what to do if they develop a respiratory infection. Better COPD control can mitigate this risk.

Resting oxygen saturations of <92% are not enough to justify the commencement of LTOT. Hypoxia on oxygen saturation measuring can justify referral for assessment for LTOT using ABG testing. However low saturations alone do not make a patient eligible for LTOT.

Worsening breathlessness despite optimal medical therapy may prompt discussions with the patient to consider a referral for LTOT, however, it is not enough to make somebody eligible for oxygen therapy.

Question:

A 66-year-old man presents to the emergency department with sudden onset dizziness and facial numbness. His past medical history includes hypertension and type 2 diabetes mellitus.

On examination, there is drooping of his left eyelid with a constricted left pupil. There is also numbness over the right arm and leg. Motor function is spared throughout. He has a broad-based ataxic gait.

Given the likely diagnosis, what is the most likely underlying pathology?

A.Left carotid artery dissection

B.Left internal capsule infarction

C.Left posterior inferior cerebellar artery infarction

D.Right carotid artery dissection

E.Right posterior inferior cerebellar artery infarction

Answer:Left posterior inferior cerebellar artery infarction

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

Left posterior inferior cerebellar artery infarction is correct. This patient has lateral medullary syndrome given the symptoms of ipsilateral Horner's syndrome (ptosis and miosis) combined with contralateral sensory loss (right-sided arm and leg numbness) and cerebellar signs (broad-based ataxic gait). Lateral medullary syndrome is caused by a lesion in the posterior inferior cerebellar artery. Given that the brainstem features are present on the left side, the left posterior inferior cerebellar artery has been affected.

Left carotid artery dissection is incorrect. This would cause a left-sided Horner's syndrome but not contralateral sensory loss or cerebellar features.

Left internal capsule infarction is incorrect. This would cause contralateral hemiparesis but not cerebellar or brainstem signs.

Right carotid artery dissection is incorrect. This would cause a right-sided Horner's syndrome but not contralateral sensory loss or cerebellar features.

Right posterior inferior cerebellar artery infarction is incorrect. This would cause the opposite features given in this presentation with right-sided Horner's syndrome and left-sided sensory loss. Cerebellar signs such as ataxia would still be present.

Question:

A 53-year-old woman is experiencing menopausal symptoms including flushing and insomnia. Her periods are irregular. After discussion with her GP, a decision is made to start her on hormone replacement therapy (HRT). She has a past medical history of migraines, deep vein thrombosis and hypertension.

Which of the following options is the most appropriate?

A.HRT is contraindicated

B.Oestrogen-only HRT

C.Oral continuous combined HRT

D.Oral cyclical combined HRT

E.Transdermal HRT

Answer:Transdermal HRT

Explanation:

Transdermal HRT should be used in women at risk of venous thromboembolism

Important for meLess important

Given this patient's risk of venous thromboembolism (VTE), transdermal HRT would be most appropriate, as it has been demonstrated to not increase VTE risk, unlike oral preparations.

Whilst migraines (with aura) are an absolute contraindication to the combined oral contraceptive pill, this is not the case for HRT.

Ignoring the risk of VTE, oestrogen-only preparations are suitable for patients without a uterus, whereas a combined preparation should be given to those with a uterus, as the progestogen element reduces the risk of endometrial cancer. A cyclical regime would be suited to someone still experiencing periods, as with this patient, whereas a continuous regime would be more suited to a patient no longer experiencing periods - that is, a definitive diagnosis of menopause.

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 59-year-old man with a history of gout presents with a swollen and painful first metatarsophalangeal joint. He currently takes allopurinol 400mg od as gout prophylaxis. What should happen to his allopurinol therapy?

A.Stop and recommence 4 weeks after acute inflammation has settled

B.Reduce allopurinol to 100mg od until acute attack has settled

C.Stop and switch to colchicine prophylaxis

D.Stop and recommence 2 weeks after acute inflammation has settled

E.Continue allopurinol in current dose

Answer:Continue allopurinol in current dose

Explanation:

Patients already prescribed allopurinol should continue to take it at the same dose during acute episodes. This is of course in contrast to the advice that patients should not be started on allopurinol until an acute attack has settled.

Question:

A 6-month-old girl is brought to the paediatric emergency department due to a 3-day history of vomiting and fever. She is usually fit and well, other than a successfully treated urinary tract infection 2 months previously.

General examination is unremarkable, though the patient's urine dipstick is positive for nitrites, leukocytes, and blood. Abdominal ultrasound excludes a posterior urethral valve, though the sonography report describes retrograde flow of urine into the ureters from the bladder.

Given the likely diagnosis, what is the most appropriate first-line investigation?

A.CT kidneys ureters and bladder

B.DMSA scan

C.Intravenous pyelogram

D.Micturating cystourethrogram (MCUG)

E.Rigid cystoscopy

Answer:Micturating cystourethrogram (MCUG)

Explanation:

Micturating cystography is the investigation of choice for reflux nephropathy

Important for meLess important

The correct answer is micturating cystourethrogram (MCUG). MCUG is the gold standard investigation for the diagnosis of vesicoureteric reflux and associated reflux nephropathy. Patients are catheterised and radio-opaque dye is injected into the bladder. The patient then voids the contents of their bladder and x-rays are taken. Reflux of the dye into the ureters confirms the diagnosis of vesicoureteric reflux and reflux nephropathy.

CT kidneys ureters and bladder is incorrect, as this is unable to demonstrate reflux nephropathy. CT kidneys ureters and bladder is routinely used in the assessment of suspected kidney stones, not reflux nephropathy.

DMSA scan is incorrect, as this is not the first-line investigation in the assessment of reflux nephropathy. DMSA scans are used to assess the severity of renal scarring secondary to vesicoureteric reflux. As DMSA is a nuclear imaging scan, this would be an inappropriate first-line investigation for suspected reflux nephropathy.

Intravenous pyelography is incorrect, as this is not used in the assessment of reflux nephropathy. Intravenous pyelography may be used in the evaluation of haematuria or flank pain.

Rigid cystoscopy is incorrect, as this plays no role in the assessment of reflux nephropathy. Rigid cystoscopy may be performed as a part of the therapeutic management of reflux nephropathy.

Question:

A 55-year-old woman with poorly controlled diabetes presents to her GP with a loss of vision in her right eye over a number of hours. She explains there was no pain associated with this loss. She can see flashes of lights in the periphery of her vision.

What is the most likely diagnosis?

A.Acute closed angle glaucoma

B.Central retinal artery occlusion

C.Diabetic retinopathy

D.Optic neuritis

E.Retinal detachment

Answer:Retinal detachment

Explanation:

Flashes and floaters - vitreous/retinal detachment

Important for meLess important

The presentation of this patient is characteristic of retinal detachment. The painless of loss vision over several hours as well as the presence of flashes and floaters should make you consider retinal detachment.

Acute closed-angle glaucoma would typically present with a painful loss of vision and redness of the eye. This is not described in this question so is incorrect.

Optic neuritis presents with a painful eye movements. While there can be a loss of vision, this is typically an enlarged blind spot or central scotoma. Thus, this is also incorrect.

Diabetic retinopathy is incorrect as it does not fit the patient's presentation, namely loss of vision in diabetic retinopathy would not occur over a short period of several hours.

Central retinal artery occlusion does present with a painless loss of vision acutely. However, does not typically present with floaters or flashes of light. Therefore, this makes retinal detachment more likely.

Question:

Which of the following presentations has the greatest mortality and morbidity?

A.Occipitoposterior presentation at delivery

B.Footling presentation at delivery

C.Face presentation at delivery

D.Transverse lie at 30 weeks

E.Breech presentation at 20 weeks

Answer:Footling presentation at delivery

Explanation:

Footling presentations are a rare but the most risky form of breech- there is a 5-20% risk of cord prolapse, which can obstruct foetal blood flow and is an obstetric emergency.

40% of babies are breech at 20 weeks but only 3% at term- there is still plenty of room for the foetus to turn around and resolve to head down.

In occipitoposterior presentation the posterior fontanelle is found in the posterior quadrant of the pelvis; greater rotation is required so labour is usually longer. There is a greater rate of intervention- 22% require forceps and 5% require caesarean section.

Face presentations normally occur by chance when the head extends rather than flexes as it engages.

99% rotate so the chin lies behind the symphysis and the head can be born by flexion; in 1%the chin rotations to the sacrum and caesarean section is indicated.

Transverse lie is where the shoulder is presenting. It occurs in multiparous women due to their uterine muscles being less tight than a nulliparous woman. Extracephalic version may be attempted from 32 weeks and thus is manageable at 30 weeks.

Question:

A 25-year-old female presents to the GP to discuss her contraceptive choices. She has been using condoms up to this point but has started a new relationship and has decided to try a different method of contraception. She is particularly concerned about gaining weight on her contraception.

Which is the following should be avoided in this female?

A.Combined oral contraceptive pill

B.Injectable contraceptive

C.Intra-uterine system

D.Progestogen only pill

E.Subdermal contraceptive implant

Answer:Injectable contraceptive

Explanation:

Depo-provera is associated with weight gain

Important for meLess important

The main injectable contraceptive in the UK is the depo-provera and should be avoided in this woman due to her concern about weight gain. The adverse effects of the depo-provera include weight gain, irregular bleeding, delayed return to fertility and increased risk of osteoporosis.

The combined oral contraceptive pill has been reported to cause weight gain in some users, however, a Cochrane review does not support a causal weight gain. There are no contraindications in this woman to the combined oral contraceptive pill.

The progestogen only pill and has not been associated with weight gain. There are no contraindications to the progestogen only pill in this woman.

The intra-uterine system (IUS) is not associated with weight gain in users. There are no contraindications for its use in this woman.

The subdermal contraceptive implant typically causes irregular/ heavy bleeding and progestogen effects including headaches, nausea and breast pain. It does not typically cause weight gain and is not contraindicated in this situation.

Question:

A 45-year-old man attends the emergency department with difficulty swallowing. He states this occurred suddenly this morning when having his breakfast. He adds that he has also been experiencing increasing muscle cramps in his calves.

When trying to take his blood pressure, you notice frequent involuntary contractions of his hands.

These are his most recent blood test results:

Calcium 1.9 mmol/L (2.1-2.6)

Phosphate 1.8 mmol/L (0.8-1.4)

Magnesium 0.9 mmol/L (0.7-1.0)

What is the most common ECG change associated with this patient's condition?

A.Broad QRS segment

B.Prolonged PR interval

C.Prolonged corrected QT (QTc)

D.Shortened QT interval

E.Tall tented T waves

Answer:Prolonged corrected QT (QTc)

Explanation:

The most common ECG change in hypocalcaemia is prolongation of the QTc interval

Important for meLess important

Prolonged corrected QT (QTc) is the correct answer. The patient in the vignette is presenting with sudden onset difficulty swallowing with a history of muscle cramps. There is also evidence of carpal spasm on the infiltration of the blood pressure cuff, suggesting a positive Trousseau sign. These signs together suggest hypocalcemia. The patient's laryngospasm is likely secondary to chronic hypocalcemia. Characteristic ECG changes in hypocalcemia include a prolonged QT interval.

Prolonged PR interval is incorrect. This would be seen in presentations such as hypokalaemia, ischemia, and Digoxin toxicity. Although hypokalaemia may present similarly to hypocalcemia, a positive Trousseau sign suggests hypocalcemia.

Broad QRS segment is incorrect. This is characteristically seen in hyperkalaemia. Patients presenting with hyperkalaemia usually have a predisposing feature such as recent medication changes, renal failure, blood transfusions, and consumption of high-potassium food.

Shortened QT interval is incorrect. This feature may be seen in patients with hypercalcemia as opposed to hypocalcaemia. Patients typically present with abdominal pain, constipation, polyuria, polydipsia, and increasing confusion. This is inconsistent with this presentation; hence this ECG finding is unlikely.

Tall tented T waves is incorrect. This is characteristically seen in hyperkalaemia. As stated above, patients presenting with hyperkalaemia usually have a predisposing feature in their history.

Question:

A 28-year-old lady presents to the Emergency Department with a prior history of chlamydia, low-grade fever and abdominal pain that has worsened over the past 6 hours. She says the pain is worst on the right-hand side and radiates into the shoulder.

She is a current smoker and has no medical problems. She is not currently taking any medication aside from Microgynon for contraception.

Her observations are: heart rate 85/min, respiratory rate 12/min, blood pressure 110/74 mmHg, temperature 37.6ºC, Sats 99% on air.

On palpation of the abdomen, she has abdominal tenderness maximal in the right upper quadrant. No masses are felt.

She undergoes abdominal ultrasound scan, urine dip and beta-hCG test, all are reported as normal.

What is the most likely cause of this lady's symptoms?

A.Cholecystitis

B.Fitz-Hugh-Curtis syndrome

C.Biliary colic

D.Pyelonephritis

E.Pancreatitis

Answer:Fitz-Hugh-Curtis syndrome

Explanation:

Fitz-Hugh-Curtis syndrome is a complication of pelvic inflammatory disease in which the liver capsule becomes inflamed causing right upper quadrant pain. This leads to scar tissue formation and peri-hepatic adhesions. It usually occurs in women who have either chlamydia or gonorrhoea.

Treatment is through eradication of the responsible organism although laparoscopy is required in some patients to perform lysis of adhesions that have formed.

Question:

You are called to the post natal ward to review an 8 hour old baby born by elective caesarian section at 39 weeks gestation. After reading the case notes you discover the use of maternal labetalol for high blood pressure. On examination the baby appears jittery and hypotonic. What is the most appropriate next step?

A.Record temperature and ensure adequately wrapped

B.Perform full septic screen

C.Measure blood glucose levels

D.Start empirical antibiotics for early onset sepsis

E.Re-examine after next feed

Answer:Measure blood glucose levels

Explanation:

A jittery and hypotonic baby may suggest neonatal hypoglycaemia. The use of maternal labetalol is a risk factor and these babies must have their blood glucose measured. Neonatal abstinence syndrome may also present in this way and so the use of maternal opiates or illicit drug use in pregnancy should also be ascertained.

Question:

A 64-year-old woman presents to the emergency department with sudden onset shortness of breath, pleuritic chest pain, and fatigue. Her heart rate is 136/min, respiratory rate is 32/min, blood pressure is 85/50mmHg, with a temperature of 37.4ºC. Computed tomography pulmonary angiography confirms a saddle-shaped pulmonary embolus (PE).

What initial medical management would be advised at this point?

A.To commence therapeutic lower molecular weight heparin (LMWH)

B.To commence heparin infusion

C.To commence rivaroxaban

D.To commence alteplase

E.To undergo embelectomy with inferior vena cava (IVC) filter insertion

Answer:To commence alteplase

Explanation:

Massive PE + hypotension - thrombolyse

Important for meLess important

If there is evidence of a pulmonary embolus with hypotension, you should normally thrombolyse the patient. Alteplase is recommended by the British Thoracic Society and is the appropriate drug of choice in this setting.

Therapeutic dose of LMWH would be appropriate later but would not be the first initial drug to consider.

Unfractionated heparin can be used in cases of severe PE or when bridging from oral anticoagulation if patients require surgery and need better control in the meantime but again, this would not be the first drug to consider in a patient with PE who is haemodynamically unstable.

Rivaroxaban can be used as long-term drug therapy for patients with PE but is not the initial drug of choice to use in this scenario.

Surgical intervention with IVC placement might be something to consider after initial drug management is conducted.

Question:

You review a 31-year-old woman who has had Crohn's disease for the past 12 years.She is currently on infliximab therapy.

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What is the most likely diagnosis?

A.Pyoderma gangrenosum

B.Acute febrile neutrophilic dermatosis

C.Squamous cell carcinoma

D.Pyogenic granuloma

E.Behcet disease

Answer:Pyoderma gangrenosum

Explanation:

Question:

A 20-year-old woman who is 16 weeks pregnant presents with pain passing urine and an irritating rash. On examination, she has a tender, red, vesicular rash on her vulva. A urine dipstick shows both blood and white cells. What is the best treatment?

A.Clotrimazole

B.Cefalexin

C.Oral aciclovir

D.Topical aciclovir

E.Fluconazole

Answer:Oral aciclovir

Explanation:

This patient has genital herpes simplex virus (HSV). The guidelines recommend treatment with oral (or intravenous) aciclovir at any stage in pregnancy. Aciclovir is not licensed in pregnancy but is considered safe and not associated with birth defects. It is well tolerated in pregnancy. Paracetamol and topical lidocaine 2% gel can be used for symptomatic relief.

The primary purpose of treatment is to reduce the risk of transmission to the neonate at birth. The risk is much more considerable with primary genital herpes simplex within the final six weeks of pregnancy. A caesarian section should be the recommended mode of delivery for all women developing the first episode of genital HSV in the third trimester.

https:www.rcog.org.uk/globalassets/documents/guidelines/management-genital-herpes.pdf

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:

You are reviewing a patient with chronic obstructive pulmonary disease (COPD) who remains breathless despite using a salbutamol inhaler as required. Their FEV1 is 60%. There is no history of asthma, eosinophilia or FEV1 variation.

What is the most appropriate next step?

A.Long-acting beta2-agonist (LABA) or inhaled corticosteroid

B.Long-acting muscarinic antagonist (LAMA) + inhaled corticosteroid (ICS) in a combination inhaler or long-acting beta2-agoinst (LABA)

C.Long-acting beta2-agonist (LABA) or LABA + inhaled corticosteroid (ICS) in a combination inhaler

D.Long-acting beta2-agonist (LABA) or regular combined short-acting beta2-agonist + muscarinic antagonist (e.g. Combivent)

E.Combined long acting beta agonist and long acting muscarinic antagonist (LABA/LAMA)

Answer:Combined long acting beta agonist and long acting muscarinic antagonist (LABA/LAMA)

Explanation:

COPD - still breathless despite using SABA/SAMA and no asthma/steroid responsive features → add a LABA + LAMA

Important for meLess important

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 25-year-old woman undergoes a vaginal birth at 39 weeks gestation and a healthy baby boy weighing 4.1 kg is delivered. She has previously given birth twice. Shortly after she experienced continued bleeding even after the placenta is removed. Around 800 ml of blood is lost.

On examination, her heart rate is 95 bpm, her blood pressure is 102/54 mmHg, and her oxygen saturations are 96% on room air. An ABCDE approach is immediately taken and senior team members are notified and become involved.

Given the likely diagnosis, what is the most likely underlying factor that has contributed to her presentation?

A.Excessively frequent uterine contractions

B.Failure of adequate uterine contractions

C.History of multiparity

D.Retained placental tissue

E.Underlying coagulopathy

Answer:Failure of adequate uterine contractions

Explanation:

The most common cause of PPH by far is uterine atony

Important for meLess important

Failure of adequate uterine contractions is correct. This patient has lost more than 500 ml of blood within 24 hours following a vaginal delivery which indicates that this patient is experiencing a primary postpartum haemorrhage (PPH). Its causes can be remembered as the 4 Ts: tone (uterine atony, or the failure of adequate uterine contractions), trauma (e.g. perineal tear), tissue (e.g. retained placenta), and thrombin (e.g. coagulopathy). Of these causes, uterine atony is the most common cause by far.

History of multiparity is incorrect. It was initially thought that multiparity was a risk factor for the development of PPH, however, modern studies suggest that nulliparity is a stronger risk factor. Despite this, the failure of adequate uterine contractions (uterine atony) is still the most common cause regardless.

Retained placental tissue is incorrect. Although this forms one of the 4 Ts mentioned above that represent the underlying causes of PPH, the most common cause is the failure of adequate uterine contractions (uterine atony).

Excessively frequent uterine contractions is incorrect. This is known as uterine hyperstimulation and is typically seen following induction of labour and is characterised by continued uterine contractions which can lead to uterine ruptures, however, there is no mention of the birth being induced and uterine rupture following hyperstimulation is rare. The most common cause is the failure of adequate uterine contractions (uterine atony).

Underlying coagulopathy is incorrect. Although this forms one of the 4 Ts mentioned above that represent the underlying causes of PPH, the most common cause is the failure of adequate uterine contractions (uterine atony).

Question:

A 56-year-old woman is brought into the emergency department following a fall from a step-ladder. She reports having landed on her back. Her past medical history includes type 2 diabetes and she is currently on a course of trimethoprim for a urinary tract infection.

On examination, her GCS is 15/15. She has a heart rate of 50 beats/min with a blood pressure of 90/45mmHg. Intravenous fluids are given and her blood pressure is re-checked to be 91/47mmHg. Her peripheries are warm with a capillary refill time of < 2 seconds.

What is the most likely cause of this patient's presentation?

A.Anaphylactic shock

B.Cardiogenic shock

C.Haemorrhagic shock

D.Neurogenic shock

E.Septic shock

Answer:Neurogenic shock

Explanation:

Neurogenic, septic, and anaphylactic shock (together are all distributive shock) will cause warm peripheries, with the others causing cool peripheries

Important for meLess important

This patient has neurogenic shock. Neurogenic shock is a form of distributive shock. Therefore, patients will present with warm peripheries secondary to peripheral vasodilatation. The mechanism underlying neurogenic shock is the interruption of the autonomic nervous system following spinal cord transection. The result is either decreased sympathetic tone or increased parasympathetic tone, the effect of which is a decrease in peripheral vascular resistance mediated by marked vasodilation (and thus warm peripheries). Unlike other subtypes of shock, intravenous fluids will have no impact on the overall blood pressure.

Anaphylactic shock is incorrect. Although anaphylaxis is another form of distributive shock, there is nothing in the patient's history to suggest anaphylaxis (e.g. exposure to an allergen).

Cardiogenic shock is incorrect. Cardiogenic shock is most commonly secondary to ischaemic heart disease or blunt chest wall trauma. Unlike neurogenic shock, cardiogenic shock causes circulatory collapse and cool peripheries.

Haemorrhagic shock is incorrect. Although this patient has sustained trauma making haemorrhage likely, haemorrhage causes cool peripheries from vasoconstriction to preserve blood volume. It would be expected that a patient in haemorrhage shock would be tachycardic and hypotensive, rather than bradycardic and hypotensive. Furthermore, this patient's blood pressure is unchanged following fluid resuscitation making neurogenic shock more likely.

Septic shock is incorrect. Features of sepsis include tachycardia, fever and hypotension. Although this patient is hypotensive, there are no other features to suggest septic shock.

Question:

A 67-year-old woman attends the stroke outpatient clinic for follow-up 3 months after an ischaemic stroke. She is coping well and is compliant with her current medications. The physical therapist reports being pleased with her progress. She is still having extensive speech and language therapy input however due to a residual speech deficit. Speaking to her, she is noted to have fluent speech; however, her comprehension is impaired and she is unable to repeat back simple phrases.

What is the name of the speech disorder that this patient has?

A.Broca's aphasia

B.Conduction aphasia

C.Global aphasia

D.Primary progressive aphasia

E.Wernicke's aphasia

Answer:Wernicke's aphasia

Explanation:

Wernicke's dysphasia: speech fluent, comprehension abnormal, repetition impaired

Important for meLess important

This patient has had an ischaemic stroke with a speech deficit leaving fluent speech, impaired comprehension, and impaired ability to repeat back phrases. This is a receptive aphasia, known as Wernicke's aphasia. It is commonly secondary to an ischaemic stroke affecting the inferior left MCA.

Broca's aphasia is an expressive aphasia where the patient's speech is non-fluent and halting, repetition is impaired. They will be able to comprehend commands as language comprehension remains relatively intact. This is caused by infarcts to the superior division of the left MCA. As this patient has fluent speech, it is unlikely that they have Broca's aphasia.

Wernicke's sounds like 'What?' as the patient doesn't understand a command.

Broca sounds like 'broken' as the patient's word-flow is broken.

Global aphasia is when both Wernicke's and Broca's areas are damaged. These individuals will have impairment of language production, comprehension, and repetition. They will have a poor stuttering word flow with poor comprehension. They may be able to communicate, however, with facial gestures or movements. As the vignette depicts fluency in speech, a 'word salad', this patient is unlikely to have global aphasia.

Primary progressive aphasia (PPA) is a type of dementia in which there is gradual language loss while there is relatively well-preserved memory, personality, and visual processing (until late-stage disease). As there is an acute event that is believed to have precipitated this change, it is unlikely that the patient has PPA.

Question:

A 20-year-old medical student is early to a garden party manages to get the first serving of the hog roast. A month later he becomes mildly jaundiced with minimal systemic upset. His blood tests are below. He has had all routine vaccinations, and travel vaccinations having previously travelled to India. He has no recent travel history.

Hb 156 g/l

Platelets 227 \* 109/l

WBC 11.7 \* 109/l

Bilirubin 39 µmol/l

ALP 102 u/l

ALT 183 u/l

γGT 53 u/l

Albumin 41 g/l

Given his history, what is the most likely diagnosis?

A.Hepatitis A

B.Hepatitis B

C.Hepatitis C

D.Hepatitis D

E.Hepatitis E

Answer:Hepatitis E

Explanation:

Hepatitis E is spread by the faecal-oral route and is most commonly spread by undercooked pork

Important for meLess important

The answer is hepatitis E, for which eating undercooked pork is one of the biggest causes in the UK (in 2014 a study more than 90% of British pigs were anti-HEV antibody positive). The incidence of hepatitis E was increasing through the late 2000's into the mid-2010's, however, 2017 saw a decrease in the number of cases.It is the most common cause of short-term (acute) hepatitis in the UK. Hepatitis A and E are spread faecal-oral route, however, given the lack of recent travel history, and historic vaccination for travel to India, and it's lower incidence, hepatitis E is the best answer. He does not have any risk factors documented for hepatitis B or C, and as a medical student/for travel, he should have been vaccinated against hepatitis B. Hepatitis D requires co-infection with hepatitis B.

https://www.gov.uk/government/publications/hepatitis-e-symptoms-transmission-prevention-treatment/hepatitis-e-symptoms-transmission-treatment-and-prevention

Question:

A 6-year-old boy presents to the emergency department after developing blood in his urine in the last 24 hours. He has been urinating less frequently than usual and feels very tired. On examination he is mildly hypertensive, with no other abnormalities detected. 24 hour urine collection shows 3g of protein. He has previously been well apart from a sore throat 2 weeks ago, from which he has fully recovered.

What is the most likely cause of this presentation?

A.Minimal change disease

B.Post-streptococcal glomerulonephritis

C.IgA glomerulonephritis

D.Focal segmental glomerulosclerosis

E.Membranous glomerulonephritis

Answer:Post-streptococcal glomerulonephritis

Explanation:

PSGN develops 1-2 weeks after URTI. IgA nephropathy develops 1-2 days after URTI

Important for meLess important

Post-streptococcal glomerulonephritis occurs 1-2 weeks after an infection and presents with a nephritic syndrome picture, as described.

IgA glomerulonephritis is similar in presentation but develops 1-2 days after a viral infection - it is important to remember the difference. Minimal change disease, focal segmental glomerulosclerosis and membranous glomerulonephritis cause nephrotic syndrome.

Question:

A baby girl born 4 weeks ago has had persistent jaundice since 48 hours after birth. Her parents also noticed she is reluctant to take on breastfeeding and her urine appears quite dark.

Upon your examination, you confirm the infant is jaundiced and notice a firm, enlarged liver.

You review her bloods which show a conjugated hyperbilirubinaemia. Her serum alpha-1 antitrypsin levels and electrophoresis are normal and the neonatal heel prick test performed at birth was negative.

What is the treatment of choice for this condition?

A.Early surgical treatment

B.IV antibiotics

C.Optimise feeds

D.Oral ursodeoxycholic acid

E.Infusion of alpha-1 antitrypsin

Answer:Early surgical treatment

Explanation:

Surgery is the treatment of choice for biliary atresia

Important for meLess important

The cause of prolonged jaundice in this infant is biliary atresia, a condition involving either obliteration or discontinuity within the extrahepatic biliary system. Biliary atresia results in an obstruction in the flow of bile and the presentation of a cholestatic picture, including pale stools and dark urine.

Relevant investigations include bilirubin levels, liver function tests and tests to exclude differential diagnoses such as alpha-1 antitrypsin deficiency and cystic fibrosis. Abdominal ultrasound provides an initial indication of biliary anatomy, and liver biopsy and intraoperative cholangiogram confirm the diagnosis.

Early surgical intervention (a Kasai procedure- hepatoportoenterostomy) attempts to restore bile flow from the liver to the proximal small bowel. This decreases hepatic damage, and avoids or delays the need for subsequent liver transplantation.

IV antibiotics have a role in the postoperative treatment of biliary atresia, chiefly to manage complications such as ascending cholangitis, however they are insufficient to manage the anatomical abnormality of the biliary tract.

Optimising feeds is important to sustain the infant, and also constitutes part of treatment regimens for cystic fibrosis (CF), an important differential of neonatal jaundice. In this scenario, however, this would not be the management of choice, given the normal heel prick test excluding CF.

Ursodeoxycholic acid is routinely used in infants with biliary atresia after surgery. Studies showed this augments weight gain and decreases episodes of cholangitis. This, however, only constitutes an adjunct to the Kasai procedure.

This infant's serum alpha-1 antitrypsin levels and protein electrophoresis are normal, excluding alpha-1 antitrypsin deficiency, an important differential of biliary atresia. Hence, there is no role for infusion of alpha-1 antitrypsin.

Question:

A 64-year-old woman presents to the Emergency Department with a cough, fever, diarrhoea and myalgia. The cough is non-productive and and has been getting gradually worse since she returned from holiday in Spain one week ago. Her husband is concerned because over the past 24 hours she has become more drowsy and febrile. He initially thought she had the 'flu but her symptoms have got progressively worse. She is normally fit and well but drinks around 20 units of alcohol per week.

On examination pulse is 76/min, blood pressure 104/62 mmHg, oxygen saturations are 94% on room air and temperature is 38.4ºC. Bilateral coarse crackles are heard in the chest.

Initial blood tests show the following:

Hb 13.6 g/dl

Platelets 311 \* 109/l

WBC 14.2 \* 109/l

Na+ 131 mmol/l

K+ 4.3 mmol/l

Urea 9.2 mmol/l

Creatinine 91 µmol/l

Bilirubin 12 µmol/l

ALP 31 u/l

ALT 64 u/l

A chest x-ray shows patchy consolidation in the left lower zone with an associated pleural effusion.

What is the most likely causative organism?

A.Streptococcus pneumoniae

B.Mycoplasma pneumoniae

C.Legionella pneumophila

D.Klebsiella pneumoniae

E.Staphylococcus aureus

Answer:Legionella pneumophila

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

There are a number of features here which strongly suggest Legionella:

recent foreign travel

flu-like symptoms

hyponatraemia

pleural effusion

Question:

A 54-year-old woman with advanced multiple sclerosis has had diarrhoea for 3 days. She has no blood in her stool, no abdominal pain and no fever. She has minimal movement from the neck down and is receiving nasogastric tube feeding.

Hb 117 g/L Male: (135-180)

Female: (115 - 160)

Platelets 349 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Na+ 146 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 7.1 mmol/L (2.0 - 7.0)

Creatinine 58 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

What is the most likely explanation for her diarrhoea?

A.Abnormal GI functioning due to disease progression

B.Clostridium-difficile infection

C.Dehydration

D.Enteral feeding

E.Immobility

Answer:Enteral feeding

Explanation:

Diarrhoea is a recognised complication of enteral feeding

Important for meLess important

Enteral feeding is the correct answer. This patient has a nasogastric tube and so it is reasonable to assume she has enteral feeding. This is common management for advanced multiple sclerosis and is known to cause diarrhoea.

Abnormal GI functioning due to disease progression is an incorrect answer as multiple sclerosis usually progresses to cause constipation due to loss of motor function of the bowel and therefore does not explain this patient's diarrhoea.

Clostridium-difficile infection does cause diarrhoea but is incorrect as this you would expect the patient to present with a fever and leucocytosis.

Dehydration is incorrect. Although this patient is likely dehydrated (high sodium, high urea on blood results), this would usually be a result of diarrhoea rather than the cause of it. Dehydration usually precipitates constipation rather than diarrhoea.

Immobility is incorrect. Whilst this patient has limited mobility, this is most commonly associated with constipation rather than diarrhoea.

Question:

A 67-year-old man with a background of stage 5 chronic kidney disease attends an appointment in the nephrology clinic. Over the past year, he has become increasingly short of breath. Blood tests indicated anaemia and low erythropoietin levels. The patient was subsequently commenced on darbepoetin alfa four months ago.

The patient describes still feeling very short of breath despite this treatment. He states he has not had any other new symptoms. On examination, the patient has a red inflamed tongue, red dry patches at the corners of his lips, brittle hair and thin flattened nails. A blood film shows hypochromic pencil red cells.

What is the most likely reason the patient has not responded to erythropoietin therapy?

A.Iron deficiency

B.B12 deficiency

C.Concurrent haemolytic anemia

D.Myeloma

E.Insufficient treatment time with darbepoetin alfa

Answer:Iron deficiency

Explanation:

Iron deficiency can cause patients to fail to respond to erythropoietin therapy

Important for meLess important

Anaemia usually occurs in CKD (chronic kidney disease) when the GFR (glomerular filtration rate) is less than 35ml/min. In advanced chronic kidney disease, stages 4-6 and in the dialysis population, the prevalence of anaemia can be as high as 90%. Anaemia may occur more commonly at earlier stages in patients with co-existent diabetes.

There are several different reasons for not responding to erythropoietin therapy, including iron deficiency anaemia, concurrent infection/ inflammation, hyperparathyoid bone disease and aluminium toxicity.

Iron deficiency anaemia is the correct answer. This matches with the clinical features, the red sore tongue is known as glossitis, the red dry patches at the corner of the mouth are known as angular stomatitis, the flattened thin nails are known as koilonychia. These signs including the brittle hair are features of iron deficiency anaemia. Additionally, the blood film showing hypochromic pencil red cells is characteristic of iron deficiency anaemia.

B12 deficiency can present clinically with glossitis and angular stomatitis also. In more progressive forms it can present with gait abnormalities and paraesthesia due to subacute degeneration of the spinal cord. The blood film here would show a megaloblastic picture with hypersegmented neutrophils.

Concurrent haemolytic anaemia is incorrect as this would not account for the clinical features and a blood film here may have schistocytes (red blood cell fragments) and bite cells (red blood cells missing small pieces).

Myeloma is incorrect as there are no other features suggestive of this in the clinical scenario. Features of this can be remembered by the acronym CRAB: C: raised calcium, R: renal complications, A: anaemia, B: bone disease. This also would not explain the blood film.

Darbepoetin alfa has not been taken for a sufficient length of time' is incorrect, as this would not explain the other clinical features and blood film, as discussed above.

Question:

An 82-year-old woman is currently an inpatient in a geriatric ward. The speech and language therapy team assess her and she is deemed to have an unsafe swallow. As such, the ward team are advised to keep her nil by mouth.

The ward doctor is asked to prescribe maintenance fluids for her. Her body weight is 60kg and her height is 157cm.

Which of the following fluid regimes replaces the potassium correctly for this patient?

A.30mmol K+ per 6 hours

B.30mmol K+ per 8 hours

C.30mmol K+ per 12 hours

D.60mmol K+ per 8 hours

E.60mmol K+ per 12 hours

Answer:30mmol K+ per 12 hours

Explanation:

When prescribing fluids, the potassium requirement per day is 1 mmol/kg/day

Important for meLess important

Prescribing fluids as a junior doctor is a very common job. NICE issued guidelines recommending certain amounts for maintenance fluids: 25-30/ml/kg/day of water, 50-100g/day of glucose and 1mmol/kg/day of potassium, sodium and chloride. As this patient's body weight is 60kg, her daily intake requirement is therefore 60mmol of potassium. As such, the correct answer is 30mmol per 12 hours, as this equates to 60mmol across a 24 hour period.

The other values are thus incorrect.

Question:

A 40-year-old man with a past medical history of alcohol excess is admitted to the medical ward with alcohol intoxication. You noticed that he has mild hypomagnesemia in this admission. The trust’s guidelines recommend oral magnesium replacement for patients with mild hypomagnesemia.

What is the common side effect of using this particular form of replacement?

A.Angioedema

B.Constipation

C.Diarrhoea

D.Erectile dysfunction

E.Oedema

Answer:Diarrhoea

Explanation:

Diarrhoea is the major dose-limiting side effect of magnesium salts

Important for meLess important

Diarrhoea is a side effect of oral magnesium salts.

Angioedema is rapid oedema, or swelling, of the area beneath the skin or mucosa and usually affects the face and throat. It can be a common side effect of angiotensin-converting enzyme (ACE) inhibitors like ramipril.

Constipation can be a side effect of several medications, including opiates, anticholinergics, and iron tablets.

Erectile dysfunction can be a common side effect of beta-blockers such as bisoprolol.

Calcium channel blockers induced oedema is caused primarily by the increased capillary hydrostatic pressure that results from greater dilation of pre-capillary than post-capillary vessels.

Question:

A 4-year-old child is brought to his GP with an area of multiple circular, depressed ulcerating lesions each measuring 1-3mm around his chin/neck region which his parent first noticed the day before. The child is otherwise well and the GP prescribes a topical emollient for a possible flare of his known atopic eczema.

Two days later the child is brought back in as the rash had increased in size and they have now developed diarrhoea and a fever.

What is the most appropriate treatment to commence?

A.IV aciclovir

B.IV hydrocortisone

C.Oral prednisolone & antihistamine

D.Topical 1% hydrocortisone cream

E.Topical fusidic acid

Answer:IV aciclovir

Explanation:

Eczema herpeticum is a serious condition that requires IV antivirals

Important for meLess important

This child has presented with the classic progression of eczema herpeticum where a disrupted skin barrier, often secondary to another condition such as atopic eczema, is infected by herpes simplex virus 1 or 2. Coxsackievirus A16 or vaccinia virus can also cause the infection. The condition presents with a rapidly increasing rash along with other symptoms including fever, lymphadenopathy and bowel changes. Eczema herpeticum is a severe, disseminating infection that can progress to multiple end-organ-failure rapidly and therefore requires IV aciclovir urgently if suspected.

IV hydrocortisone can be used in the management of several inflammatory and autoimmune conditions. However, they have a limited role in the treatment of infections and may potentially increase the progression of eczema herpeticum due to immunosuppression.

Oral prednisolone & antihistamine are commonly used in combination for some inflammatory skin conditions but do not play a role in the management of infections such as eczema herpeticum.

A topical 1% hydrocortisone cream can be used for inflammatory conditions such as eczema and contact dermatitis. However, topical steroids do not play a role in the management of eczema herpeticum.

Fusidic acid is an antibiotic used in topical form for the treatment of infections of the skin or eyes. As an antibiotic, it generally is only effective against bacterial infections such as Streptococcus or Staphylococcus species and therefore does not have a role in the management of eczema herpeticum.

Question:

A 25 year lady with 3 months of intermittent abdominal bloating, pain and diarrhoea attends. There is no history of rectal bleeding, weight loss or family history of bowel disease. Abdominal examination is normal. In addition to a full blood count (FBC), urea & electrolytes (U&E), coeliac screen, erythryocyte sedimentation rate (ESR) and C-reactive protein (CRP) which of the following investigations would be most useful initially to differentiate between irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD) in primary care?

A.Referral for colonoscopy

B.Abdominal ultrasound scan

C.Faecal occult blood test

D.Hydrogen breath test

E.Faecal calprotectin

Answer:Faecal calprotectin

Explanation:

NICE advise the use of faecal calprotectin to help differentiate between IBS and IBD in primary care. It is released in the bowel in the presence of inflammation and is not degraded so can be detected in a stool sample. It can reduce the need for referral of patients with typical IBS symptoms and the use of invasive diagnostic testing e.g. Colonoscopy. A positive result does not indicate definite IBD but patients should be referred on to secondary care for further investigation.

NICE have also produced guidance on the diagnostic criteria for IBS and what investigations should be done. They recommend FBC, ESR, CRP and coeliac screen (TTG). They are recommend that the following investigations are not required:

ultrasound

sigmoidoscopy or colonoscopy

barium study

thyroid function test

stool microscopy and culture

faecal occult blood

hydrogen breath test

Question:

A mother brings her 7-year-old son into the surgery due to concerns about his eyes. She thinks her son's left eye is 'turned outwards'. Her son denies any changes in his vision.

Examination of the child reveals a left exotropia. The child is asked to cover his right eye whilst focusing on a fixed point, at which point the left eye moves medially to take up fixation.

What is the most appropriate management of this patient?

A.Advise that a plaster be worn over the good eye before follow up in 6 to 8 weeks

B.Advise that the child is seen by her optometrist

C.Reassurance

D.Reassurance with follow up in 6 months

E.Referral to ophthalmology

Answer:Referral to ophthalmology

Explanation:

Refer children with a squint to ophthalmology

Important for meLess important

The term exotropia describes an outwardly turned eye. Children with a squint require referral to the local paediatric eye service for assessment of the type and severity of the squint.

Advising that a plaster be worn over the good eye before follow-up in 6 to 8 weeks is inappropriate. Whilst eye patching is often used as a treatment of a squint, it's important to first directly address the potential causes (e.g. space-occupying lesion) and correct any refractive error. Therefore treatment should be initiated by the local paediatric eye service.

Advising that the child is seen by her optometrist is incorrect. Optometrists generally test vision and correct refractive errors. They are not medical doctors. Whilst this may be part of managing patients with a squint, a full assessment of the child should be performed by an ophthalmologist in order to assess for, and treat any medical/surgical causes (such as retinoblastoma).

Reassurance is inappropriate as if left alone, squints get worse and are associated with changes in visual acuity. Here the vision in the non-dominant eye would gradually become worse, the development of which is referred to as amblyopia. Early treatment is associated with improved outcomes. For the same reason, reassurance with follow-up in 6 months would also be inappropriate.

Referral to ophthalmology is the most appropriate next step for the reasons listed above.

Question:

The midwife has asked you to perform a newborn examination on a 1-day-old baby boy. He was born in good condition by vaginal delivery at 38+6 weeks gestation weighing 3400 grams. You take a brief antenatal history and are told the antenatal scans were normal and it was a low-risk pregnancy. There is no family history of congenital disorders. You proceed with your examination, and on examining the external genitalia you notice a ventral urethral meatus.

What condition is associated with the above findings?

A.Complete androgen insensitivity syndrome

B.Cryptorchidism

C.Renal agenesis

D.Turner's syndrome

E.Umbilical hernia

Answer:Cryptorchidism

Explanation:

Cryptorchidism is present in around 10% of patients with hypospadias

Important for meLess important

This question addresses your awareness of conditions associated with hypospadias. In most children, hypospadias will be an isolated abnormality and the neonate will have no other issues. However, in any case of congenital malformation it is always important to consider other possible malformations and actively look for these. Many congenital issues do not exist in isolation. Conditions associated with hypospadias are cryptorchidism and inguinal hernias.

Cryptorchidism is correct. 1 in 10 children with hypospadias will also have cryptorchidism (undescended testes). Therefore, it is always important to examine the groin and scrotum in children with hypospadias as done in the above scenario. It is also important to ensure they have passed urine in the first 24 hours of life.

Complete androgen insensitivity syndrome (CAIS) is incorrect. People with CAIS would develop female external genitalia. In partial androgen insensitivity syndrome, the external genitalia may appear as male or female.

Renal agenesis is incorrect. While both are disorders of the urinary system, they are not classically seen together.

Turner's syndrome is incorrect. Turner's syndrome is a genetic condition that affects females. Someone affected by Turner's syndrome would only have one complete X chromosome (45, X0). They would have external female genitalia and thus it is not associated with hypospadias.

Umbilical hernia is incorrect. Hypospadias is commonly associated with an inguinal hernia, not an umbilical hernia.

Question:

You are an admitting FY1 doctor in a busy emergency department on a Saturday night. A young man and his friend present following a fight outside a bar, one of them appears to have a superficial laceration to his head. Both men are drunk. They have been waiting for 2 hours by the time you get around to seeing them. The patient's friend gets very angry with you and is threatening to make a complaint. What do you do?

A.Refuse to see the patient

B.Call security and have them escorted off the premises

C.Call the emergency department consultant to help you out

D.Inform the friend that there are more unwell patients in the department and they have been your priority

E.Apologise for the delay and advise them of the complaints procedure

Answer:Apologise for the delay and advise them of the complaints procedure

Explanation:

Unfortunately, this is not an unusual situation, but as a doctor, you have a duty to treat all your patient and refusing to see them wouldn't be appropriate. Similarly calling security and having them escorted off the premises will result in them not being seen by a doctor which isn't appropriate.

Calling the consultant at this stage isn't the best option, they are likely to be dealing with an unwell patient and when escalating up seniority you should start with calling your SHO then registrar first.

This leaves you with option 4 and 5. Option 4 is likely to be inflammatory and not helpful in this situation. Option 5 is clearly the best, by apologising and explaining the complaints procedure this can act as a calming force on thesitatuon.

Question:

A 23-year-old male with no past medical history presents to the emergency department immediately after a high-speed motor vehicle accident. He was found on the side of the road after his motorbike collided with a car.

He has received morphine for analgesia and 500ml 0.9% NaCl as an IV bolus. He is alert and complaining of pain in his abdomen and back from the accident.

His heart rate 53 beats per minute, respiratory rate of 20 breaths per minute and blood pressure 83/45 mmHg. Heart sounds one and two are present with no added sounds. There are vesicular breath sounds throughout the chest, with equal air entry bilaterally. He is peripherally warm with a capillary refill time <2 seconds. No external signs of haemorrhage are seen on full exposure.

A point-of-care ultrasound examining the liver, spleen, kidney and heart demonstrated no abnormalities. Electrocardiogram demonstrates normal sinus rhythm with no ST-segment or T-wave abnormalities.

What is the most likely aetiology of his shock?

Septic

2%

Haemorrhagic

21%

Neurogenic

67%

Cardiogenic

10%

Anaphylactic

1%

Spinal cord transection after trauma can present with neurogenic shock

Important for meLess important

Traumatic spinal cord transection can result in autonomic nervous system disruption, causing either decreased sympathetic tone or increased parasympathetic tone. The resultant effect is a decrease in peripheral vascular resistance mediated by marked vasodilation.

This patient is unlikely to be suffering from hemorrhagic shock as there is no internal or external source of bleeding. Furthermore, tachycardia would be present if the shock were due to hypovolaemia.

Septic shock is unlikely due to the acuity of the event and lack of an infective source.

Cardiogenic shock is incorrect. There is no arrhythmia present and no signs of tamponade on ultrasound. Although his cardiac output has been reduced, this is due to interruption of the heart's autonomic innervation, not a cardiac cause. Hence, the shock is neurological in nature.

Anaphylactic shock is incorrect. There are normal breath sounds, along with no cutaneous signs of a hypersensitivity reaction. Hence, anaphylaxis is unlikely.

Question:

A woman who gave birth 6 weeks ago presents to her local GP surgery with her husband. She describes 'crying all the time' and 'not bonding' with her baby. Which one of the following screening tools is it most appropriate to detect postnatal depression?

A.Hamilton Depression Rating Scale

B.Patient Health Questionnaire-2

C.Beck Depression Inventory

D.Patient Health Questionnaire-9

E.Edinburgh Scale

Answer:Edinburgh Scale

Explanation:

The Edinburgh Scale is a screening tool for postnatal depression

Important for meLess important

Question:

A 36-year-old with menorrhagia is investigated and found to have a 1.5 cm uterine fibroid which is not distorting the uterine cavity. She has three children and wants ongoing contraception, but is using only condoms at the moment. What is the most appropriate initial treatment for her menorrhagia?

A.Intrauterine system

B.GnRH agonist

C.Tranexamic acid

D.Refer for consideration of a myomectomy

E.Combined oral contraceptive pill

Answer:Intrauterine system

Explanation:

If a uterine fibroid is less than 3cm in size, and not distorting the uterine cavity, medical treatment can be tried (e.g. IUS, tranexamic acid, COCP etc)

Important for meLess important

As the fibroid is less than 3 cm medical treatment can be tried. NICE Clinical Knowledge Summaries recommend an intrauterine system initially, which will also provide contraception.

Question:

You see a 10-year-old girl who has asthma. She has used a salbutamol inhaler for the last 12 months. She finds that she needs it when she is running outside, particularly in cold weather. Her mum is concerned as over the last 6 months she is needing to use it more frequently and has needed to use it a night. She has noticed that she sometimes wakes up coughing and her wheeze is worse in the morning. On average she is using her inhaler 3-4 times a week.

You examine the patient and there are no abnormalities.

You want to step up her treatment. What is the most appropriate next step?

A.Start a paediatric low-dose inhaled corticosteroid

B.Start a paediatric moderate-dose inhaled corticosteroid

C.Start a long-acting B2 agonist and a paediatric low-dose inhaled corticosteroid

D.Start a leukotriene receptor antagonist and a paediatric moderate-dose inhaled corticosteroid

E.Start a leukotriene receptor antagonist

Answer:Start a paediatric low-dose inhaled corticosteroid

Explanation:

Child aged < 5 years with asthma not controlled by a SABA - asthma management in children < 5 years - 8 week trial of a paediatric moderate-dose ICS

Important for meLess important

This patient needs maintenance therapy as her asthma is uncontrolled on salbutamol. She is requiring a short-acting-B2 agonist (SABA) more than 3 times a week and has nighttime symptoms. The next step is a paediatric low-dose inhaled corticosteroid (ICS). Therefore, the correct answer is option 1-starting a low-dose inhaled corticosteroid. The next step would then be adding a leukotriene receptor antagonist (LTRA) in addition to the ICS. After that, you would consider a long-acting B2 agonist.

Note that this patient should also be referred for lung function tests to clarify the diagnosis.

Question:

A 71-year-old female attends her general practice with a 2-day history of burning pain and rash on the left side of her chest. She also reports feeling generally unwell. She has no past medical history and takes no regular medication.

On examination, there is an erythematous rash with multiple clear vesicles on the left side of the torso. The rest of the clinical examination including an ophthalmic examination is normal.

Based on the most likely diagnosis, what is the most appropriate first-line management?

A.Prescribe calamine lotion, analgesics and monitor

B.Prescribe intravenous aciclovir

C.Prescribe intravenous famciclovir

D.Prescribe oral famciclovir

E.Monitor for 7 days and prescribe oral antiviral if not resolved

Answer:Prescribe oral famciclovir

Explanation:

The majority of patients with suspected shingles should be treated with antivirals within 72 hours of onset

Important for meLess important

The likely diagnosis here is shingles (herpes zoster infection). Shingles is a clinical diagnosis and is characterised by dermatomal pain and a papular rash. Typically, the pain precedes the development of the rash and may persist for longer (known as postherpetic pain). NICE guidelines state that oral antivirals should be commenced within 72 hours of onset of symptoms. The first-line oral antiviral is famciclovir or valacyclovir and these should be given for 7 days. The second-line option is oral aciclovir, as studies have shown that treatment with famciclovir and valacyclovir reduced the likelihood of postherpetic pain when compared to treatment with aciclovir.

Prescribe calamine lotion, analgesia and monitor is not correct as the guidelines state that oral antivirals should be commenced within 72 hours.

Prescribe intravenous aciclovir is not indicated. Intravenous antivirals should only be commenced if the patient is unable to tolerate oral medication.

Prescribe intravenous famciclovir is an incorrect answer as famciclovir can not be administered intravenously, and as explained above, intravenous antivirals are not indicated in this case.

Monitor for 7 days and prescribe oral antiviral if not resolved is inappropriate, as it would lead to a delay in commencing treatment, which should be given within 72 hours of onset according to the guidelines.

Question:

A 16-year-old female presents with chronic left knee pain. The pain is typically felt after jogging. There is also intermittent swelling and locking of the same joint. What is the most likely diagnosis?

A.Chondromalacia patellae

B.Osteosarcoma

C.Juvenile idiopathic arthritis

D.Osteochondritis dissecans

E.Osgood-Schlatter disease

Answer:Osteochondritis dissecans

Explanation:

Question:

You are a FY-1 doctor working in obstetrics. For one day a week you are based in the early pregnancy assessment unit (EPAU). You are assessing a 31-year-old female with a suspected threatened miscarriage. How will this present?

A.Painless per-vaginal bleeding and a closed cervical os

B.No per-vaginal bleeding but an open cervical os

C.Heavy per-vaginal bleeding with clots and pain and an open cervical os

D.Painful per-vaginal bleeding and an open cervical os

E.Per-vaginal bleeding and an open cervical os

Answer:Painless per-vaginal bleeding and a closed cervical os

Explanation:

A threatened miscarriage is where there is bleeding but a close cervical os

Important for meLess important

A miscarriage can be classified as; threatened, inevitable, incomplete, complete and missed.

In a threatened miscarriage: mild symptoms of bleeding. Usually little or no pain. The cervical os is closed.

Inevitable miscarriage: usually presents with heavy bleeding with clots and pain. The cervical os is open. The pregnancy will not continue and will proceed to incomplete or complete miscarriage.

Question:

A 4-year-old boy is accompanied by his mother to the emergency department with a 48-hour history of right ear pain. His mother reports that his right ear started to leak white fluid earlier this morning. He has no significant past medical history.

On examination, the external ear did not appear erythematous, however, otorrhoea was present with white purulent discharge.

Observations:

Heart rate: 130 beats/minute.

Blood pressure: 120/60mmHg.

Respiratory rate: 24 breaths/minute.

Temperature: 38.2ºC.

Otoscopy revealed a red tympanic membrane with a perforation.

What is the most appropriate initial management of this patient?

A.Admit to paediatric ward for observation

B.Advise mother that this condition is usually self-resolving and discharge with advice about simple analgesia

C.Refer to ear, nose and throat (ENT) specialist

D.Discharge with 5 day prescription for oral amoxicillin

E.Discharge with 7 day prescription for oral flucloxacillin

Answer:Discharge with 5 day prescription for oral amoxicillin

Explanation:

Oral antibiotics should be given in acute otitis media with perforation

Important for meLess important

This patient has acute otitis media with a perforated tympanic membrane. NICE state that patients with tympanic membrane perforation are likely to benefit from antibiotics. A 5-7 day course of amoxicillin is the first-line antibiotic for acute otitis media.

This patient does not require admission. In this age group, NICE recommend admission if any of the following are present:

Signs of systemic infection.

Serious acute complications such as mastoiditis or intracranial abscess.

Temperature of 39°C or more.

While acute otitis media is usually self-limiting, NICE state that 'those with otorrhoea or those aged less than 2 years with bilateral infection may be more likely to benefit from antibiotics'.

A referral to an ENT specialist would not be appropriate for a perforated tympanic membrane secondary to acute otitis media. Perforated tympanic membranes typically heal over several weeks following the resolution of the initial infection.

Flucloxacillin is not the recommended antibiotic for acute otitis media. This antibiotic can be used second-line for spreading otitis externa.

Question:

A 78 year-old woman presents with a poorly healing area of skin on her ankle. She has a history of deep vein thrombosis 20 years ago following a hip replacement. She currently takes Adcal D3, and no other medications. On examination there is a shallow ulcer anterior to the medial malleolus. She is otherwise very well.

What investigation would be most useful in determining further management?

A.Serum calcium

B.Ankle-brachial pressure index

C.CT venogram

D.C-reactive protein

E.Lower limb doppler

Answer:Ankle-brachial pressure index

Explanation:

This patient has the classic appearances of a venous ulcer. She is systemically well with no evidence to suggest infection. The most appropriate management of venous ulcers is with compression dressings, however it is important to make sure the patient's arterial supply is good enough to allow some compression.

Question:

A 53-year-old man with type 2 diabetes attends his GP for his annual diabetic check. He is currently taking Metformin 1g modified release twice daily with no issues. He has no other medical history. On examination he has a pulse rate of 67 bpm, a blood pressure of 141/83 mmHg and his body mass index is 53 kg/m². His most recent HbA1c is shown below:

HbA1c 69 mmol/mol (29-42 mmol/mol)

Which of the following medications is most suitable to start next to control this man's diabetes?

A.Pioglitazone

B.Sitagliptin

C.Acarbose

D.Insulin

E.Gliclazide

Answer:Sitagliptin

Explanation:

DPP-4 inhibitors are useful in T2DM patients who are obese

Important for meLess important

This questions is essentially asking about which drug to use in the second intensification of oral therapy in type 2 diabetes. The NICE guidelines state that in this case the next step would be a choice between a sulfonylurea (in this case gliclazide), pioglitazone or a DPP-4 inhibitor (in this case sitagliptin). The reason a choice is offered is to allow clinicians to apply the guidelines in the most appropriate way to tailor the drug choice to the patient and it is this skill that the question is testing. This man is morbidly obese, with a BMI over 50 m/kg², which would make you want to start a therapy which is less likely to cause weight gain. The only one of the three choices which is appropriate is sitagliptin in this respect as gliclazide would cause significant weight gain by increasing the levels of insulin present and pioglitazone acts to change glucose and lipid metabolism in such a way that an increase in peripheral adipose tissue is always expected. Sitagliptin works by essentially increasing satiety and the insulin response to high-glucose content foods and so is more helpful in patients who overeat.

The best choice for a second intensification in non-obese patients would be a sulfonylurea such as gliclazide or glibenclamide as these are the most effective at reducing blood glucose, although they do come with the side-effect of hypoglycaemia which can be prolonged and quite severe. Therefore if the patient needs to avoid this, such as a professional driver, a different drug would be more appropriate. Additionally, an important contraindication to Pioglitazone is heart failure and for this reason it is rarely used now as some degree of heart failure is expected in those with ischaemic heart disease and this is a very common co-morbidity in type 2 diabetics.

Question:

A 37-year-old man presents to the GP complaining of flushing over the past six months. He complains that this has been getting progressively worse and his face is now red all of the time.

On examination, there are multiple pustules and papules on a base of erythema covering the cheeks and nose. His nose is swollen with thickened skin. He has no significant past medical history or drug allergies.

Given the likely diagnosis, what is the most appropriate treatment for this patient?

A.Lifestyle measures

B.Oral doxycycline

C.Oral doxycycline and topical ivermectin

D.Topical brimonidine

E.Topical metronidazole

Answer:Oral doxycycline and 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

The correct answer is oral doxycycline and topical ivermectin. This patient is presenting with classic signs of rosacea: pustules and papules on a base of erythema over the nose and cheeks, as well as rhinophyma. Due to the severity of this presentation, NICE recommends a combination of topical ivermectin and oral doxycycline as the first-line treatment.

Lifestyle measures would be incorrect in this case. This patient is presenting with severe rosacea with severe papules and pustules. Due to the severity of this presentation, the patient needs medication to reduce inflammation. Lifestyle measures such as avoiding hot weather or spicy food would be appropriate in a less severe case of rosacea.

Oral doxycycline is incorrect. This patient is presenting with severe rosacea with papules and pustules. Oral doxycycline is used to reduce rhinophyma in rosacea, however, another medication is needed to control the inflammation causing pustules and papules. Therefore oral doxycycline is inappropriate on its own.

Topical brimonidine is incorrect. This patient is presenting with severe rosacea with papules and pustules. Topical brimonidine can be used in less severe presentations such as patients that present with transient erythema and flushing. A presentation this severe needs more intensive treatment.

Topical metronidazole is incorrect. This patient is presenting with severe rosacea with papules and pustules. Topical metronidazole is used as a second-line agent in less severe rosacea to treat pustules and papules. In less severe rosacea without rhinophyma, NICE recommends topical ivermectin. A severe case of rosacea with significant inflammation needs treatment with oral doxycycline and topical ivermectin.

Question:

A 19-year-old man attends the Sexual Health clinic where you are working with a three-day history of mucopurulent urethral discharge. He is otherwise systemically well with no significant past medical history and no known drug allergies.

Microscopic evaluation of the urethral discharge reveals the presence of gram-negative intracellular diplococci. Nucleic acid amplification testing confirms the diagnosis and was negative for Chlamydia trachomatis. Sensitivities of the causative organism are pending.

What is the most appropriate first-line treatment according to the latest guidelines?

A.IM ceftriaxone

B.IM ceftriaxone and PO azithromycin

C.IM gentamicin and PO azithromycin

D.PO amoxicillin

E.PO ciprofloxacin

Answer:IM ceftriaxone

Explanation:

Intramuscular ceftriaxone is the treatment of choice for Gonorrhoea

Important for meLess important

This patient has an uncomplicated urethral gonorrhoeal infection. The guidelines for the management of this infection have recently changed with the release of the new 2018 British Society for Sexual Health and HIV (BASHH) guidelines1. This is a question where you simply need to know the guidelines as a lot of the options are theoretically reasonable (and indeed have been used as first-line treatment in the past).

The current first-line treatment for uncomplicated gonorrhoea is IM ceftriaxone (1g). Ceftriaxone is a third-generation cephalosporin with good gram-negative cover. The single IM dose is appealing as it negates issues of treatment adherence and completion associated with a multi-day course of oral antibiotics.

Previous guidance recommended IM ceftriaxone with PO azithromycin. There are several reasons for the omission of oral azithromycin in the new guidelines which are outlined in more detail in the full document; in brief, however, the changes are driven by increasing azithromycin resistance and a strong emphasis on antimicrobial stewardship.

As a fluoroquinolone with a broad spectrum of activity, ciprofloxacin was also a previously recommended first-line treatment for gonorrhoea. However, the prevalence of ciprofloxacin resistance in the UK is high (estimated to be 44% in 20202) and so ceftriaxone is preferred where sensitivities are not known (as in this case) to ensure treatment success. Where an isolate has confirmed sensitivity to ciprofloxacin, ciprofloxacin should be used first-line.

IM gentamicin and azithromycin is an alternative treatment regime for gonorrhoea that can be used in the case of penicillin allergy. It is not the first-line treatment.

Amoxicillin is not a recommended first-line or alternative treatment for gonorrhoea due to high levels of plasmid-mediated resistance.

1. British Association for Sexual Health and HIV (BASHH). 2018 UK national guideline for the management of infection with Neisseria gonorrhoeae.

2. UK Health and Security Agency. Antimicrobial resistance in Neisseria gonorrhoeae in England and Wales. Key findings from the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP 2020).

Question:

Piotr is a 36-year-old man who has presented to his GP with acute lower back pain. There are no red flags in the history and his neurological examination is normal.

What analgesia should the GP offer first line?

A.Codeine

B.Diazepam

C.Ibuprofen

D.Paracetamol

E.Topical diclofenac

Answer:Ibuprofen

Explanation:

NSAIDS are first line for lower back pain

Important for meLess important

NSAIDS such as ibuprofen or naproxen should be offered first line for lower back pain.

Codeine with or without paracetamol is second line.

Benzodiazepines can be considered if there is muscle spasm.

Topical NSAIDS are not recommended by NICE for lower back pain.

Question:

A 5-year-old female presents to the general practitioner with her mother. She has noticed blood in her urine recently. She denies any dysuria or polyuria. Her past medical history is unremarkable except for a flu-like illness she healed from two days ago. A COVID test is negative. She is otherwise well and has no relevant past medical history.

The doctor performs a urine dipstick. Following the results, they decide to arrange a biopsy at the local hospital which shows the following results:

Biopsy Mesangial hypercellularity, positive immunofluorescence for IgA and C3

Which one of the following is the most likely diagnosis?

A.Alport's syndrome

B.IgA nephropathy

C.Membranoproliferative glomerulonephritis

D.Minimal change disease

E.Post-streptococcal glomerulonephritis

Answer:IgA nephropathy

Explanation:

IgA nephropathy results from immune complex deposition in the glomerulus

Important for meLess important

The correct answer is IgA nephropathy. This patient presents with the classical symptoms and history of the disease: a young child with recurrent episodes of macroscopic haematuria, typically associated with a recent respiratory tract infection and mild proteinuria. IgA nephropathy is thought to be caused by the mesangial deposition of IgA immune complexes. This happens very rapidly following a recent upper respiratory tract infection, typically 1-3 days. Histology shows mesangial hypercellularity and positive immunofluorescence for IgA & C3, as in this case.

Alport's syndrome is an X-linked dominant disease. It presents with microscopic haematuria, bilateral sensorineural deafness, and lenticonus. This patient does not have any of these characteristics.

Membranoproliferative glomerulonephritis can present as nephrotic syndrome, haematuria, or proteinuria. It rarely affects children and it can be caused by multiple factors such as cryoglobulinaemia, hepatitis B or C, and partial lipodystrophy. This patient does not have any of these comorbidities. Additionally, it would most likely show subendothelial and mesangium immune deposits of electron-dense material resulting in a 'tram track appearance on biopsy.

Minimal change disease is very common in children, but nearly always presents as nephrotic syndrome. This patient's main complaint is haematuria. Additionally, in these cases, the biopsy shows electron microscopy shows fusion of podocytes and effacement of foot processes.

It is important to not confuse IgA nephropathy with post-streptococcal glomerulonephritis, which is caused by immune complex (IgG, IgM, and C3) deposition in the glomeruli. This happens more slowly, typically 7-14 days following a group A beta-hemolytic Streptococcus infection and causes proteinuria. To remember the different presentations you can think that IgA is a shorter word so presents after a few days, whereas post-streptococcal is a longer word so presents after many days.

Question:

A 31-year-old man is referred to the acute medical unit with a painful swollen left leg. The patient reports that he has the 'Factor V Leiden mutation'. Which one of the following best describes the pathophysiology of his condition?

A.Protein S deficiency

B.Activated protein C excess

C.Antithrombin deficiency

D.Resistance to action of protein C

E.Activated protein C deficiency

Answer:Resistance to action of protein C

Explanation:

Factor V Leiden mutation results in activated protein C resistance

Important for meLess important

Question:

You are asked to see a 39-week-gestation boy on your postnatal ward. He is now 38-hours-old. He was born via forceps delivery and have sustained significant bruising to his face. He is being formula-fed regularly and there are otherwise no concerns about his progress in the postnatal period. A transcutaneous bilirubin measurement comes back elevated. What is the most likely cause of this baby's raised bilirubin measurement?

A.Gestational age

B.Formula feeding

C.Bruising

D.Male sex

E.Infection

Answer:Bruising

Explanation:

Bruising at birth can lead to elevated bilirubin levels (due to hemolysis)

Important for meLess important

Bruising in the neonatal period can lead to raised bilirubin levels due to the breakdown of haemoglobin.

Jaundice is more common in breast-fed babies and preterm babies.

There is no evidence of infection in this baby's history or examination findings.

Jaundice is not linked to male sex.

Question:

A 21-year-old woman presents to the emergency department with a 3-hour history of continued epistaxis. She was training with her university rugby team when she collided with another player.

X-ray imaging has confirmed she has not broken her nose, however, there is still profuse bleeding in spite of compression. You are unable to identify the bleeding site.

Which of the following is the most appropriate initial management option?

A.Cryotherapy

B.Intranasal epinephrine

C.Cautery with silver nitrate

D.Anterior pack insertion

E.Ice pack

Answer:Anterior pack insertion

Explanation:

Anterior packing is the most suitable management option for epistaxis where the bleed site is difficult to localise

Important for meLess important

In a situation where there is continued heavy epistaxis and there is no visible bleeding site that may be amenable to cautery, anterior packing is the first line treatment option. Anterior packs are lengths of absorbent material that are inserted into the nose and expand to fill the nasal canal, absorbing blood and compressing the walls of the airway. Some versions contain a small balloon which can be inflated to increase the tamponade effect.

Cryotherapy or cautery with silver nitrate requires the bleeding vessel to be visible, which is not the case in this situation.

Intranasal epinephrine can be useful to prevent re-bleeding once the initial bleeding has been stopped as this will cause blood vessels in the nasal cavity to constrict. This would not be a useful option in this scenario, however, given the heavy bleeding.

While an ice pack is a good initial intervention, given that the bleeding has continued for 3 hours and has not yet ceased, a more definitive intervention is warranted.

Question:

A 57 year old gentleman has a known history of aortic stenosis. During a routine cardiology clinic appointment he states he has had worsening shortness of breath over the past few months and has had a few fainting episodes. A recent ECHO shows aortic stenosis with a mean gradient of 45mmHg and mild associated aortic regurgitation. An ECG in clinic shows left ventricular hypertrophy, left bundle branch block and a prolonged PR interval.

Which of the following is most likely to indicate the need for valve replacement surgery?

A.Patient's age

B.Co-existant aortic regurgitation

C.1st degree atrioventricular block

D.Presence of symptoms

E.Left bundle branch block

Answer:Presence of symptoms

Explanation:

In general, aortic valve replacement is indicated in symptomatic patients with severe aortic stenosis. The presence of symptoms is associated with a mortality of 2-3 years. The triad of symptoms is dyspnoea, chest pain and syncope. Valve replacement in asymptomatic patients is more controversial.

Question:

A 34-year-old female presents to you, her GP. She is worried as her periods stopped recently despite having a negative pregnancy test. Her notes show she is a new patient, recently moved from China.

You enquire further about her symptoms, which she says also include weight loss of two kgs in the last two months, irritability, and fatigue.

She works in retail, smokes 12 cigarettes per day, and drinks 12 units per week. She has a past medical history of asthma.

You do some thyroid function tests as part of her workup. They show the following:

Thyroid-stimulating hormone (TSH) 0.02 mU/L (0.5-5.5)

Free thyroxine (T4) 23 pmol/L (9.0 - 18)

Thyroid-stimulating hormone (TSH) receptor antibodies 2.2 U/L (<0.9)

Which part of her history gives the greatest risk factor given the likely diagnosis?

A.Streptococcus pyogenes

B.Alcohol consumption

C.Asthma

D.Iodine deficiency

E.Smoking

Answer:Smoking

Explanation:

Smoking is a risk factor for Grave's disease

Important for meLess important

Smoking is the most likely risk factor in this case as her thyroid function tests (TFTs) show she is suffering from hyperthyroidism, Grave's disease being the most likely cause.

Iodine deficiency is the most common cause of hypothyroidism worldwide but her TFTs show hyperthyroidism.

Asthma is not an auto-immune condition and therefore would not be a risk factor for Grave's disease.

Streptococcus pyogenes could cause thyroiditis but this would present with fever and pain in the region of the thyroid gland.

Question:

A 27-year-old woman presents to the emergency department complaining of nausea, flushing and a throbbing headache. She vomited twice since admission and denies any haematemesis. The symptoms started suddenly while she was celebrating a new job with her friends in a local pub.

On examination, she looks alert but distressed. She has head, neck, and chest flushing. Her abdomen is soft and non-tender, but she complains of discomfort.

She has a complex medical history and she is taking multiple drugs at the moment.

What medication is the most likely causative agent of her symptoms?

A.Lorazepam

B.Metronidazole

C.Naproxen

D.Phenelzine

E.Tranylcypromine

Answer:Metronidazole

Explanation:

A disulfiram-like reaction can occur if metronidazole and alcohol are taken together

Important for meLess important

The correct answer is metronidazole. This patient is presenting with the classic features of a disulfiram-like reaction: nausea, vomiting and flushing. This reaction can occur when certain drugs are taken with alcohol.

Ethanol is mainly metabolized in the liver to acetaldehyde by alcohol dehydrogenase. Acetaldehyde is then oxidised to acetate by aldehyde dehydrogenase (ALDH). Some drugs - including metronidazole - irreversibly inhibit the oxidation of acetaldehyde by competing with cofactors of the process. This causes an increased serum acetaldehyde concentration, leading to the above presentation.

Lorazepam is an antiepileptic medication which should not be taken with alcohol due to unpleasant interaction. But in that case, it would cause drowsiness, dizziness slowed or difficulty breathing, impaired motor control and drowsiness rather than the symptoms described above.

Naproxen is a non-steroidal anti-inflammatory drug which if taken with alcohol might cause gastric or duodenal ulcers, rather than nausea, vomiting and flushing. The patient also denies haematemesis, making upper gastrointestinal tract bleeding unlikely.

Phenelzine and Tranylcypromine are non-selective monoamine oxidase inhibitors, which may be used in the management of atypical depression and other psychiatric disorders, but it is rarely used due to the common side effects, such as dry mouth, nausea, diarrhoea or constipation. If taken with alcohol, they may cause a 'cheese and wine' reaction, leading to hypertensive crises, and presenting with strong headaches.

Question:

A 22-year-old presents to the GP with a several-month history of increasing fatigue, abdominal discomfort and bloating. The examination is unremarkable. Blood tests show mild normocytic anaemia and positive IgA tissue transglutaminase antibodies (tTGA).

What is the most appropriate next step in management?

A.Commence iron tablets

B.Continue gluten-containing diet and refer for intestinal biopsy

C.Initiate gluten free diet

D.Initiate gluten-free diet and refer for intestinal biopsy

E.Test for IgG endomysial antibodies

Answer:Continue gluten-containing diet and refer for intestinal biopsy

Explanation:

Endoscopic intestinal biopsy is the gold standard for diagnosis of coeliac disease and should be performed in all patients if the diagnosis is suspected following serology

Important for meLess important

Continue gluten-containing diet and refer for intestinal biopsy is the correct answer. This patient has presented with abdominal discomfort, bloating and fatigue, raising suspicion of coeliac disease. This is further supported by the positive tTGA blood test and is likely the cause of anaemia. All cases of suspected coeliac disease with positive serology should have a duodenal biopsy to confirm the diagnosis. Patients will ideally need to consume gluten in their diet for 6 weeks prior to serology testing and biopsy.

Commence iron tablets is not the most appropriate action here. Whilst the patient is mildly anaemic, this is likely secondary to malabsorption resulting from coeliac disease. Diagnosing and treating the underlying problem is appropriate in the first instance and if the anaemia persists it can then be treated. This patient has symptoms, signs and serology suggestive of coeliac disease; therefore, confirmation of this with duodenal biopsy would be the most appropriate next step.

To initiate a gluten-free diet is not the most appropriate action here. This would be an appropriate treatment once a diagnosis has been confirmed.

Initiate gluten-free diet and refer for intestinal biopsy Is incorrect. Whilst referral for biopsy is appropriate, the patient will need to consume gluten in their diet so that the effects on the intestinal mucosa are identified. A gluten-free diet may result in a false negative result on biopsy.

Test for IgG endomysial antibodies is not the most appropriate action here. Serology is already strongly suggestive of coeliac disease and therefore referral for intestinal biopsy is the correct action. Testing for IgG endomysial antibodies may be an appropriate test to screen for coeliac disease in IgA deficiency (commonly associated with coeliac disease). Total serum IgA should therefore be routinely performed alongside testing for tTGA. Laboratories often perform IgA endomysial antibody testing following a positive tTGA serology to confirm the diagnosis as these are more specific to coeliac disease.

Question:

Which one of the following features is least consistent with a diagnosis of otosclerosis?

A.Tinnitus

B.Positive family history

C.Normal tympanic membrane

D.Conductive deafness

E.Onset after the age of 50 years

Answer:Onset after the age of 50 years

Explanation:

Question:

Which one of the following statements regarding migraines is correct?

A.Prokinetic agents should be used in children with migraine due to the high incidence of gastrointestinal symptoms

B.Typical aura include a spreading scintillating scotoma ('jagged crescent')

C.Bilateral symptoms are rare in children

D.Adults with migraine are typically able to carry on with their daily lives

E.Aura occur in around 50% of patients

Answer:Typical aura include a spreading scintillating scotoma ('jagged crescent')

Explanation:

Prokinetic agents such as metoclopramide should be used with caution in children.

Question:

A 1-year-old girl is investigated for recurrent urinary tract infections. A micturating cystourethrogram is ordered:

© Image used on license from Radiopaedia

What does this image demonstrate?

A.Vesicoureteric reflux

B.Horseshoe kidney

C.Paediatric urolithiasis

D.Duplex collecting system

E.Isolated right-sided hydronephrosis

Answer:Vesicoureteric reflux

Explanation:

This image demonstrates grade V vesicoureteric reflux - gross dilatation of the ureter, pelvis and calyces with ureteral tortuosity. A DMSA scan is needed to identify renal scarring.

Question:

A 22-year-old nurse is being screened for immunity to communicable diseases prior to commencing employment. The following results are found:

HBsAg negative

anti-HBs positive

anti-HBc (IgG) positive

Based on these results, what is the patient's hepatitis B status?

A.Acute infection

B.Artificial immunity

C.Chronic infection

D.Resolved infection - natural immunity

E.Susceptible to infection

Answer:Resolved infection - natural immunity

Explanation:

HBsAg negative, anti-HBs positive, IgG anti-HBc positive - previous infection, not a carrier

Important for meLess important

This patient has evidence of a previous infection which has resolved. This is demonstrated by the fact he has no hepatitis B surface antigen detected, meaning there is no active virus detected. Both the anti-HBs and anti-HBC are positive indicating the previous infection. Artificial immunity only provides anti-HBs.

Acute infection is incorrect in this situation. There is no active virus detected with a negative antigen result. Moreover, the anti-HBc in this situation is IgG and not IgM. This means this process has passed the acute phase.

Artificial immunity is demonstrated serologically by positive anti-HBs without any anti-HBc. This patient has natural immunity due to infection and this is demonstrated by the positive anti-HBc which is not given in vaccinations.

Chronic infection is also incorrect in this situation. This is mainly because there is no active virus detected with a negative antigen result. The anti-HBc IgG would be consistent with a chronic infection if there were viral antigens detected.

This patient has natural immunity to infections demonstrated by the positive anti-HBs and anti-HBc results. Therefore, they are not susceptible to infection.

Question:

A 21-year-old male has presented to your clinic with an itchy rash on his hands. He explains that this rash is most itchy in between his fingers. He lives alone but has regular contact with his partner on a daily basis. On examination, you note grey irregular tracks in between the digits of both hands extending to the palms. You also find similar tracks in both armpits.

Given the likely diagnosis, which of the following treatment regimes should be used in this case?

A.Only the patient to be treated using a single dose of malathion liquid applied over the whole body

B.Only the patient to be treated using two doses of malathion liquid applied over the whole body, with one week between applications

C.Only the patient to be treated using two doses of permethrin cream applied over the whole body, with one week between applications

D.The patient and all close contacts to be treated using a single dose of malathion liquid applied over the whole body

E.The patient and all close contacts to be treated using two doses of permethrin cream applied over the whole body, with one week between applications

Answer:The patient and all close contacts to be treated using two doses of permethrin cream applied over the whole body, with one week between applications

Explanation:

In scabies, advise all close contacts to be treated as well as the patient twice, with applications one week apart

Important for meLess important

This patient has a typical presentation of scabies – grey irregular tracks in between the digits of both hands, which are itchy. Scabies also more commonly affects children and younger adults.

The primary treatment of scabies is with a topical insecticide, such as permethrin cream or malathion liquid. The product should usually be applied to the whole body from the chin and ears downwards paying special attention to the areas between the fingers and toes and under the nails. However, in people who are immunosuppressed or either very young or elderly, the insecticide should be applied to the whole body including the face and scalp.

The treatment is applied in two intervals, one week apart. All members of the household, the patient's sexual partners within the past month, and any other close personal contacts (even if asymptomatic) should also be treated.

Question:

A 19-year-old man attends his GP after noticing a lump in his scrotum while showering. He reports some discomfort in the area but no pain. He is in a long-term relationship with his girlfriend and his last sexual health screen two weeks previously was clear.

On examination, there is a soft mass on the anterior aspect of the left testis that is indistinguishable from the testis itself. It is not tender to touch and transilluminates.

Which of the following is the most likely diagnosis?

A.Testicular tumour

B.Hydrocoele

C.Varicocoele

D.Epididymal cyst

E.Sperm granuloma

Answer:Hydrocoele

Explanation:

Hydrocoeles can be differentiated from other testicular lumps as they are not separate to testis and transilluminate

Important for meLess important

When assessing scrotal lumps, it is important to determine whether the mass is separate or continuous with the testis, and whether it is solid or cystic in nature.

A hydrocoele is a collection of fluid in the tunica vaginalis surrounding the testis, and as such is cystic or fluctuant in nature, and would not be distinguishable from the testis itself. Therefore this is the correct answer in this scenario. While a benign diagnosis in itself, hydrocoeles can often be secondary to testicular tumors, which should be ruled out with an ultrasound scan.

Testicular tumours would naturally be continuous with the testis, although may be distinct and irregular in nature. They would not be cystic or transilluminate, however, may also present with a secondary hydrocoele.

Varicocoeles and epididymal cysts would be separate to the testis on examination.

Sperm granulomas are small lumps caused by the collection of sperm, usually in the context of a vasectomy. They can occur at the site where the vas deferens is tied off, in the epididymis or the testis itself.

Question:

A 43-year-old woman presents as she has not had a period for the past six months. She is concerned that she may be going through an 'early menopause'. How is premature ovarian failure defined?

A.The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 40 years

B.The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 42 years

C.The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 43 years

D.The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 45 years

E.The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 48 years

Answer:The onset of menopausal symptoms and elevated gonadotrophin levels before the age of 40 years

Explanation:

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 joints.

What antibody is most likely to be positive in this patient?

A.Anti-CCP

B.Anti-Jo-1

C.Anti-La

D.Anti-Ro

E.Anti-Scl-70

Answer:Anti-Jo-1

Explanation:

Dermatomyositis is associated with the anti-Jo-1 antibody

Important for meLess important

This patient is most likely to be suffering from dermatomyositis which is characterised by proximal muscle weakness and a blue-purple heliotrope rash, often found on the face, upper eyelids and trunk. The papules over the small joints of her hands are Gottron papules, a pathognomonic sign of this condition. The most common antibody in dermatomyositis is anti-Jo-1 which is also found in polymyositis.

Anti-CCP is commonly positive in rheumatoid arthritis which is characterised by symmetrical pain and stiffness of the small joints in the hands and feet.

Anti-La is commonly positive in Sjogren's syndrome which is characterised by dry mouth and eyes and parotid gland swelling.

Anti-Ro is commonly positive in Sjogren's syndrome which is characterised by dry mouth and eyes and parotid gland swelling.

Anti-Scl-70 is commonly positive in diffuse systemic sclerosis which is characterised by diffuse scleroderma (thickening of the skin), CREST symptoms and systemic organ involvement.

Question:

A 7-year-old girl is brought into the general practice by her mother. She has been complaining of itching around her vulva and anus for 2 days. Her mother has noticed that the area is erythematous and she has broken the skin on her vulva from intensely itching. She has been applying sudocrem to the area to alleviate the irritation but it has not been successful. No one else is unwell or has these symptoms at home.

Considering the likely diagnosis, what is the most appropriate management?

A.Prescribe a single dose of mebendazole for the daughter and give hygiene advice

B.Prescribe a single dose of mebendazole for the household and give hygiene advice

C.Prescribe 7 days of mebendazole for the daughter and give hygiene advice

D.Prescribe 7 days of mebendazole for the household and give hygiene advice

E.Prescribe 14 days of piperazine for the daughter and give hygiene advice

Answer:Prescribe a single dose of mebendazole for the household and give hygiene advice

Explanation:

Mebendazole is first line therapy for treatment of threadworm

Important for meLess important

This patient is presenting with symptoms consistent with threadworm - as this is highly transmissible and many patients can remain asymptomatic for an extensive period, all members of the household should be treated. As such, prescribe a single dose of mebendazole for the household and give hygiene advice is the correct answer. While the test of proof is a 'Scotch tape test', where the tape is stuck to the area to show eggs/worms, most patients are treated based upon symptoms.

Due to the highly transmissible nature of threadworm, it is inappropriate to prescribe a single dose of mebendazole for the daughter and give hygiene advice as it is likely that other members of the family may have been infected. This is particularly important if there are other young children in the household who may be sharing a bath with the patient.

Mebendazole should be prescribed as a single dose, therefore 7 days of mebendazole for the daughter and give hygiene advice is incorrect. It is highly recommended to take a second dose of mebendazole 14 days after the initial dose to kill any worms that have hatched since the last treatment. This is especially important if there is a suspicion any of the household have ongoing symptoms of infection.

Mebendazole should be prescribed as a single dose, therefore 7 days of mebendazole for the household and give hygiene advice is incorrect. As stated above, the ideal treatment is with a second dose 14 days after the initial treatment to ensure there is no residual infection from worms hatching after the initial treatment.

Piperazine is an anti-helminth recommended in the management of threadworm in children under 2 years and is a single dose administered with a follow-up dose at 2 weeks. As the patient is over 2 years old, she should be given mebendazole and, as such, 14 days of piperazine for the daughter and give hygiene advice is incorrect.

Question:

A 6-month-old baby is brought to the GP practice for an urgent appointment by his mother. He has a 7 day history of fever and dry cough but in the last 24hrs his mother has become increasingly concerned about his breathing. She also reports he is refusing milk and has had very few wet nappies.

His observations are oxygen saturation 93% on air, respiratory rate 58 breaths/min, heart rate 160 bpm, blood pressure 85/45 mmHg and temperature 38.1ºC.

On examination his breathing appears rapid with marked intercostal recession and use of accessory muscles. He is also making a grunting noise.

Which of these findings would indicate immediate referral to hospital by ambulance?

A.Grunting

B.Inadequate oral fluid intake

C.Reduced urine output

D.Oxygen saturation 93% on air

E.Heart rate 160 bpm

Answer:Grunting

Explanation:

In bronchiolitis, the presence of grunting necessitates immediate referral to hospital

Important for meLess important

Grunting noises indicate severe respiratory distress so necessitates immediately referral to hospital by ambulance.

Inadequate oral adequate (oral fluid intake 50-75% ) should make a clinician consider hospital referral however may be managed in the community in some cases.

Reduced urine output may suggest dehydration which is not unexpected given the reduced fluid intake however is not an absolute indication for immediate hospital admission.

Oxygen saturation 93% on air is not a criterion for hospital admission but persistent oxygen saturation of less than 92% would require immediate admission.

A heart rate of 160bpm would be concerning and assessment in hospital should be considered however the urgency of this would depend on the clinical condition.

Question:

A 45-year-old man undergoes blood tests for a health check which reveal the following:

Na+ 138 mmol/L (135 - 145)

K+ 4.6 mmol/L (3.5 - 5.0)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 122 µmol/L (55 - 120)

eGFR 61 mL/min/1.73 m² (≥90)

3 months later, these blood tests are repeated which show:

Na+ 140 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 105 µmol/L (55 - 120)

eGFR 64 mL/min/1.73 m² (≥90)

He has a past medical history of type 2 diabetes mellitus controlled with metformin. The patient denies any symptoms, feels well and has no family history.

If any, what is the most appropriate next step regarding the suspected diagnosis?

A.Collect a 24-hour urine sample to quantify proteinuria

B.Collect a urine sample for urinary albumin:creatinine ratio testing now

C.Collect an early morning urine sample for urinary albumin:creatinine ratio testing

D.No further tests needed, diagnosis can be made now

E.Repeat estimated glomerular filtration rate after 3 months

Answer:Collect an early morning urine sample for urinary albumin:creatinine ratio testing

Explanation:

The urinary albumin:creatinine ratio (ACR) is a key investigation in diagnosing early CKD

Important for meLess important

Chronic kidney disease (CKD) is often asymptomatic and usually picked up on routine blood tests. This patient's first blood test showed a reduced estimated glomerular filtration rate (eGFR) value and a slightly increased creatinine value, which may suggest CKD is present. 3 months later, his eGFR is still reduced, however, his creatinine value is normal. CKD can only be diagnosed in this case if the eGFR value is persistently <60 mL/min/1.73 m² and there is evidence of kidney damage (such as deranged urea and electrolytes or proteinuria). Given that this patient's creatinine was normal the second time around and only marginally increased the first, further testing is required to confirm the presence of kidney damage. CKD can be excluded if the eGFR is persistently >60 mL/min/1.73 m² and there are no markers of kidney damage.

Collect an early morning urine sample for urinary albumin:creatinine ratio testing is correct. NICE recommends performing this test to confirm the presence of proteinuria, which is the case if the urinary albumin:creatinine ratio (ACR) is greater than 3 mg/mmol. This should be done with an early morning urine sample for a more accurate result. This is because the ACR can be affected by factors such as dehydration, certain drugs, and vigorous exercise, which can cause elevated results and give false positives.

Collect a 24-hour urine sample to quantify proteinuria is incorrect as NICE recommends using a urinary albumin:creatinine ratio (ACR) test instead. This is because it is a relatively quicker test that avoids the need to collect urine over a 24-hour period to quantify proteinuria.

Collect a urine sample for urinary albumin:creatinine ratio testing now is incorrect. Although this is the most appropriate test to confirm the presence of CKD in this patient, this should be done with an early morning urine sample. This gives a more accurate result as the ACR can be affected by factors such as dehydration mentioned above.

No further tests needed, diagnosis can be made now is incorrect. The diagnosis of CKD here requires further evidence of kidney damage, as this patient's eGFR is still above 60 mL/min/1.73 m². CKD can be excluded if the eGFR is persistent>60 mL/min/1.73 m² and there are no markers of kidney damage. Therefore, this patient requires further tests for kidney damage markers, such as urinary albumin:creatinine ratio (ACR) test. If this <3 mg/mmol, then CKD can be ruled out.

Repeat estimated glomerular filtration rate after 3 months is incorrect. NICE recommends performing tests to look for kidney damage, more particularly, the urinary albumin:creatinine ratio test (ACR) test. Repeating this patient's eGFR is unlikely to be of any benefit without also performing the ACR test. If this patient's eGFR were to be repeated and still >60 mL/min/1.73 m², he still cannot be diagnosed with CKD without confirming the presence of kidney damage. If the ACR was done and it was <3 mg/mmol, then CKD can be ruled out.

Question:

Which one of the following statements regarding lidocaine is correct?

A.Preparations mixed with adrenaline should not be used for minor surgery involving the finger

B.The maximum dose of lidocaine is 5mg/kg

C.The anaesthetic effect usual wears off after 15-20 minutes

D.Is contraindicated in patients with a history of ventricular tachycardia

E.Preparations mixed with adrenaline are more likely to cause blood loss

Answer:Preparations mixed with adrenaline should not be used for minor surgery involving the finger

Explanation:

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 48-year-old male presents to his general practitioner with shortness of breath when walking. He has a past medical history of chronic obstructive pulmonary disease (COPD), hypertension, and depression.

A recent prescription shows his regular medications are ipratropium inhalers, ramipril, and sertraline. He has no allergies and denies any history of atopy or diurnal variation in his respiratory symptoms. There is no history of exacerbations requiring hospitalisation, and he has good inhaler technique.

What should be advised regarding the patient's management of his COPD symptoms?

A.Continue inhaled ipratropium, add inhaled formoterol, budesonide, and tiotropium

B.Continue inhaled ipratropium, start inhaled salbutamol and tiotropium

C.Stop inhaled ipratropium, start inhaled formoterol, tiotropium and salbutamol

D.Stop inhaled ipratropium, start inhaled formoterol and budesonide

E.Swap inhaled ipratropium to inhaled salbutamol

Answer:Stop inhaled ipratropium, start inhaled formoterol, tiotropium and salbutamol

Explanation:

COPD: Discontinue SAMA (switch to SABA) if commencing LAMA

Important for meLess important

This patient currently has a short-acting muscarinic antagonist (SAMA) (ipratropium) which is inadequate for his symptom control. The next management step depends upon the presence/absence of asthmatic features. As the patient does not have asthmatic features (atopy, diurnal variation in symptoms), he should be started on a long-acting muscarinic antagonist (LAMA) (tiotropium) and long-acting beta-agonist (LABA) (formoterol). Ipratropium (a SAMA) should be stopped as LAMA (e.g. tiotropium) and SAMA act on the same receptor and so dual muscarinic receptor antagonism is unnecessary. A SABA (e.g. salbutamol) should be given instead for short-acting relief.

Continue inhaled ipratropium, add inhaled formoterol, budesonide, and tiotropium would be inappropriate as the SAMA (e.g. ipratropium) should be stopped when adding a LAMA (e.g. tiotropium).

Continue inhaled ipratropium, start inhaled salbutamol and tiotropium would be inappropriate as the SAMA (e.g. ipratropium) should be stopped when adding a LAMA (e.g. tiotropium).

Stop inhaled ipratropium, start inhaled formoterol and budesonide would be inappropriate as the patient should be started on a LAMA (e.g. tiotropium). If he had asthmatic features, the introduction of inhaled corticosteroids (ICS) (e.g. budesonide) and a LABA (e.g. formoterol) would be preferred.

Swap inhaled ipratropium to inhaled salbutamol would be inappropriate as the patient should be started on the next tier of treatment which involves starting a LAMA (e.g. tiotropium).

Question:

A 20-year-old female presents to her GP with 'cottage cheese'-like vaginal discharge, itching and dyspareunia. A diagnosis of vaginal candidiasis is made and she is commenced on anti-fungal medication. This is her fourth presentation with vaginal candidiasis in the past year. She is otherwise fit and healthy and does not report any other symptoms of note. She does not take any regular medications.

Which of the following tests would be most useful to investigate for a potential underlying cause for this patient's presentation?

A.CD4+ T-cell count

B.Full blood count

C.HbA1c

D.High vaginal swab

E.Renal function

Answer:HbA1c

Explanation:

A blood test to exclude diabetes should be considered in women with recurrent vaginal candidiasis

Important for meLess important

This patient is presenting with recurrent vaginal candidiasis. As per BASHH guidelines, testing for a predisposing illness should be considered. Predisposing factors include diabetes mellitus, immunosuppression, pregnancy and antibiotic or steroid usage.

CD4+ T-cell count is incorrect. While HIV is an important diagnosis to exclude in this individual, a CD4+ T-cell count would not be the first line investigation. Instead, testing for HIV is usually done with antibody, antigen or nucleotide testing, depending on the local services and guidelines.

Full blood count is incorrect. It may be useful to look at the patient's general health and check for an undiagnosed leukopenia. However, this would not be first line testing and would not be the most likely cause here.

HbA1c testing should be done to assess for diabetes mellitus. A pregnancy test and HIV test will also be indicated.

High vaginal swab is incorrect. It would be useful and should be done to confirm the diagnosis in this case, however, it will not provide information about an underlying disease.

Renal function is incorrect. It is important if we are considering starting new medications or if we are worried the patient may have immunosuppression from a chronic kidney disease. However, this would not be first line testing and does not represent the most likely diagnosis.

Question:

An 85-year-old woman is taken to the emergency department from her care home. She was unable to mobilise this morning and she developed difficulty in her speech.

On examination, she looks alert and distressed. A neurological examination reveals the strength of 1/5 in her left upper limb and strength of 3/5 in her left lower limb. The right side of both the upper and lower limb is normal in strength. A sensory examination reveals sensory loss on both the upper and lower limb on the left side. She is unable to visualise objects on her left side in both eyes.

Given the most likely diagnosis, where is the lesion?

A.Left anterior cerebral artery

B.Left middle cerebral artery

C.Left posterior cerebral artery

D.Right anterior cerebral artery

E.Right middle cerebral artery

Answer:Right 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

Right middle cerebral artery is correct. The patient is presenting with left homonymous hemianopia, due to the damage to the optic radiation, contralateral hemiparesis and sensory loss, greater in the upper extremity than in the lower. This is due to the fact that the middle cerebral artery supplies the primary motor and somatosensory cortices, with a greater supply to the zone of the upper limb than the lower. Additionally, she has aphasia, due to damage to the speech centres.

Left anterior cerebral artery is incorrect. Damage here would cause new-onset right-sided hemiparesis and sensory loss, but with the lower extremity being more affected than the upper, as the latter's cortices receive the majority of the supply from the middle cerebral artery. The symptoms are contralateral as both the motor and sensory pathways decussate after the lesion.

Left middle cerebral artery is incorrect. A stroke of this artery would cause contralateral homonymous quadrantanopia or hemianopia, due to the damage to the optic radiation, contralateral hemiparesis and sensory loss, but this would be greater in the upper extremity than in the lower. This is due to the fact that the middle cerebral artery supplies the primary motor and somatosensory cortices, with a greater supply to the zone of the upper limb than the lower. Additionally, it might cause aphasia, not mentioned here.

Left posterior cerebral artery is incorrect. Damage to this vessel would cause right homonymous hemianopia with macular sparing, not described here. Additionally, it would cause agnosia, described as the impairment in recognition of visually presented objects, rather than aphasia.

Right anterior cerebral artery is incorrect. A stroke of this vessel would cause new-onset left-sided hemiparesis and sensory loss, but with the lower extremity being more affected than the upper, as the latter's cortices receive the majority of the supply from the middle cerebral artery. The symptoms are contralateral as both the motor and sensory pathways decussate after the lesion.

Question:

A 55-year-old diabetic man presents to clinic concerned about erectile dysfunction. What is the mechanism of action of sildenafil?

A.Phosphodiesterase type V inhibitor

B.Nitric oxide synthetase inhibitor

C.Nitric oxide donor

D.Non-selective phosphodiesterase inhibitor

E.Phosphodiesterase type IV inhibitor

Answer:Phosphodiesterase type V inhibitor

Explanation:

Sildenafil - phosphodiesterase type V inhibitor

Important for meLess important

Sildenafil is a phosphodiesterase type V inhibitor

Question:

Which one of the following ECG changes is most consistent with a tricyclic overdose?

A.QRS widening

B.Bradycardia

C.Shortening of QT interval

D.First degree heart block

E.ST elevation

Answer:QRS widening

Explanation:

Question:

A 60-year-old woman presents with tingling in her right hand which can occasionally wake her up at night. She generally shakes her hand to get rid of the symptoms which resolve completely. She has a background of poorly controlled type 2 diabetes and breast cancer.

On examination, she has good power throughout her hand and there doesn't appear to be any deformity or wasting. Performing forced wrist flexion reproduces the symptoms.

What is the most appropriate initial management?

A.Amitriptyline

B.Paracetamol and topical NSAIDs

C.Referral for surgical decompression

D.Steroid injection

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 woman has features in keeping with carpal tunnel syndrome. First-line management of carpal tunnel syndrome is to manage conservatively with a wrist splint, with or without steroid injection unless the symptoms at presentation are severe.

Amitriptyline can be a useful drug for neuropathic pain. Although there are features of that here, there is a clear cause for this pain that can be treated before symptoms progress further.

Paracetamol and topical NSAIDs may be an appropriate option for osteoarthritis involving the hands, however, this presentation would not be suggestive of osteoarthritis.

Referral for surgical decompression may eventually be needed if symptoms worsen, however it is not first-line for mild-moderate symptoms and hence conservative management is more appropriate initially.

A steroid injection may be appropriate 1st line management if used alongside wrist splinting, however steroid treatment alone is not generally first line, hence this option is incorrect.

Question:

A 62-year-old man presents to the emergency department with a sudden loss of vision in his right eye. The loss of vision started in the edges and moved towards the centre and had preceding flashes and floaters. There was no antecedent trauma. He denies any headaches or eye redness and has a history of type 2 diabetes mellitus. He wears corrective glasses and occasionally contact lenses, however, he cannot remember his prescription.

What feature increases the risk of this patient developing this condition?

A.Astigmatism

B.Contact lens use

C.Hypermetropia

D.Presbyopia

E.Type 2 diabetes mellitus

Answer:Type 2 diabetes mellitus

Explanation:

Diabetes mellitus is a risk factor for retinal detachment

Important for meLess important

This patient had a sudden loss of vision starting from the peripheral visual field moving towards the centre, which should raise suspicion of RD. Many patients describe the loss of vision in RD as a 'veil' or 'curtain' coming down in their vision. The preceding flashes and floaters occur because the vitreous humour is tugging at the retina, which causes the flashes and floaters, and this eventually causes the retina to detach, leading to visual loss.

Type 2 diabetes mellitus is correct. Diabetes can lead to damage of the retinal blood vessels leading to scarring, which can pull on the retina leading to its detachment. The pulling on the retina leads to flashes and floaters, until it eventually detaches, causing visual loss.

Astigmatism is incorrect as it is a type of refractive error due to the eyeball being slightly different in shape, such as being rugby-ball shaped instead of spherical which can lead to slightly blurred vision. It is not associated with an increased risk of RD.

Contact lens use is incorrect. This is not associated with an increased risk of RD. Patients who wear contact lenses are typically at an increased risk of infection, such as keratitis, which presents with a red, painful, and gritty eye.

Hypermetropia is incorrect. This is not associated with an increased risk of RD. It is, however, associated with an increased risk of acute angle-closure glaucoma, which presents with severe ocular pain, visual blurring, a hard and red eye, and systemic upset such as nausea and vomiting.

Presbyopia is incorrect. This describes the normal age-related decline of a patient's vision due to the eye lens being unable to change shape as effectively. It is not associated with an increased risk of RD.

Question:

A 31-year-old patient presents to the neurology clinic. They report several episodes of unwanted shaking of various limbs. They find they can direct which limb the attack affects most but cannot terminate it. It tends to build up gradually and then decline in the same way and is worse when they are anxious.

What is the most likely diagnosis?

A.Focal aware seizures

B.Pseudoseizures

C.Focal dystonia

D.Focal seizures with impaired awareness

E.Tonic-clonic seizures

Answer:Pseudoseizures

Explanation:

Pseudoseizures tend to have a gradual onset whilst true seizures have a sudden onset

Important for meLess important

Pseudoseizures are a phenomenon that can mimic true seizures but generally have findings which are not entirely consistent with a seizure. They are often psychiatric in origin, but it is important to note that while not involuntary, they are usually not deliberate; the movement is compulsive and unwanted. The ability to control the location of symptoms is very typical of a pseudoseizure and does not fit with any of the other options presented. The gradual onset and offset fits with dystonia, but this would more usually involve rigidity than shaking

Question:

A 32-year-old gravid 3, para 2 at 24 weeks gestation attends an antenatal clinic and wishes to discuss delivery options for her pregnancy. On history, you find that her previous pregnancies were delivered by vaginal and elective caesarean section respectively. Which of the following is an absolute contraindication for vaginal delivery following previous cesarean section?

A.Chorioamnionitis

B.Vertical (classic) caesarean scar

C.Post-term dates

D.Pre-eclampsia

E.Two previous caesarean sections

Answer:Vertical (classic) caesarean scar

Explanation:

Planned vaginal birth after caesarean (VBAC) is contraindicated in patients with previous vertical (classical) caesarean scars, previous episodes of uterine rupture and patients with other contraindications to vaginal birth (e.g. placenta praevia). Women with two or more previous caesarean sections may be offered VBAC. The other options in this question are not absolute contraindications.

[RCOG Green-top Guideline No.45, Birth After Previous Caesarean Birth]

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 GP refers a patient urgently for investigation after presenting with a 3 month history of worsening dyspepsia, epigastric pain and drenching night sweats on a background of recurrent gastric ulcers. Following a gastroscopy with biopsies taken, a low grade gastric MALT lymphoma is diagnosed; the presence of H. pylori was also noted on the biopsy report. The patient has an insignificant past medical history otherwise.

What treatment regime is the doctor likely to recommend?

A.Active monitoring only

B.Lansoprazole, clarithromycin and doxycycline

C.Omeprazole, amoxicillin and clarithromycin

D.Partial gastrectomy

E.R-CHOP chemotherapy

Answer:Omeprazole, amoxicillin and clarithromycin

Explanation:

Gastric MALT lymphoma - eradicate H. pylori

Important for meLess important

Omeprazole, amoxicillin and clarithromycin is the correct answer. The vast majority of gastric MALT lymphomas are associated with H.pylori infections and the history of gastric ulcers in this case suggests this. If low grade, eradication of the infection is the only treatment required. Transformation can occur, and in high grade or atypical cases chemotherapy and/or radiotherapy may be required.

Lansoprazole, clarithromycin and doxycycline is incorrect. H.pylori eradication is the treatment aim in this case, but the first line regime is a proton pump inhibitor, amoxicillin and either clarithromycin or metronidazole. Doxycycline is not used in the eradication of H.pylori.

Active monitoring can occasionally be considered, however when a clear precipitant such as H.pylori is identified, this should be treated.

Partial gastrectomy is not used in the management of gastric MALT lymphoma.

R-CHOP chemotherapy is incorrect. This regime is typically used in the management of non-Hodgkin lymphoma.

Question:

A 20-year-old woman presents with a 5-day history of painless light brown coloured urine. She has experienced 3 episodes of this over the 5 days. There is no dyspareunia, urgency or pain elsewhere. As of now, she is afebrile though she alludes to being ill with a respiratory infection around three weeks ago.

Urine dipstick revealed protein and blood.

What is the most likely diagnosis?

A.Post streptococcus glomerulonephritis (PSGN)

B.UTI

C.Pyelonephritis

D.Alport's syndrome

E.IgA nephropathy

Answer:Post streptococcus glomerulonephritis (PSGN)

Explanation:

PSGN develops 1-2 weeks after URTI. IgA nephropathy develops 1-2 days after URTI

Important for meLess important

The symptoms, previous illness and proteinuria point to PSGN. This is a delayed antibody-mediated disease following infection of the pharynx or skin causing nephritic syndrome. Pyelonephritis and a UTI would present differently including symptoms such as fever, dysuria and pain. Alport's is characterised by haematuria, sensory hearing loss and ocular disturbances. IgA nephropathy would occur a few days after the respiratory infection rather than weeks.

Question:

A 21-year-old man presents to the emergency department with a 5-week history of progressive lethargy and intermittent dizziness and palpitations, particularly on exertion and often related to shortness of breath. Today he has had a syncopal episode and is concerned that there may be something wrong with his heart as he has a strong family history of heart disease.

He has no past medical history, is an ex-smoker with a 3 pack year history and takes no recreational drugs. He has recently emigrated from India and is working in an office. His weight has been stable for the last year and he reports no change in bowel habit or appetite. He reports an itchy rash on his feet appearing several months ago, but this self resolved.

His full blood count results were as follows:

Hb 50 g/L Male: (135-180)

Female: (115 - 160)

Platelets 178 \*109/L (150 - 400)

WBC 7.0 \*109/L (4.0 - 11.0)

Neuts 3.0 \*109/L (2.0 - 7.0)

Lymphs 2.5 \*109/L (1.0 - 3.5)

Mono 0.7 \* 109/L (0.2 - 0.8)

Eosin 0.8 \* 109/L (0.0 - 0.4)

Blood glucose (random) 6.0 mmol/L

Which of the following would confirm the cause of the patient’s symptoms and blood test results?

A.ECG

B.Colonoscopy

C.Hba1c

D.Stool sample for ova, cysts and parasites

E.Chest X-ray

Answer:Stool sample for ova, cysts and parasites

Explanation:

Hookworms may cause an iron deficiency anaemia in patients returning from travel to endemic areas e.g. the Indian subcontinent

Important for meLess important

This patient has likely been infected with hookworm, explaining the anaemia, eosinophilia and the rash he described. Hookworms (nematodes) are acquired from skin contact with contaminated soil, commonly from walking barefoot in an affected area and are endemic in much of Asia, Africa and South America. The worm migrates from the skin into the intestine and from there causes chronic blood loss, hence causing anaemia. Diagnosis can be made from stool culture with identification of the ova in the patient's faeces.

Colonoscopy could lead to diagnosis of hookworm, but is an invasive test and hence stool culture is preferable.

Blood glucose levels are normal and the patient does not describe symptoms suggestive of diabetes.

Chest X-ray and ECG should be performed for completion but it is likely that this patient's symptoms have resulted from his anaemia as opposed to an underlying cardiac or respiratory cause.

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 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 6-year-old boy has been brought to the GP with a 2-day history of fever, malaise, and sore throat. He also has some facial redness that started yesterday evening. On examination, there is flushing of the cheeks and a fine, blanching, erythematous rash that feels like sandpaper on the anterior aspect of the neck. There is erythema of the tonsils and tongue, with no exudate. The GP also notices some erythematous, non-tender lines in the creases of the elbows. The GP decides to prescribe a 10-day course of antibiotics.

What is the most appropriate advice to give the mother regarding their child's return to school?

A.The GP must examine them in two weeks to clear them for return to school

B.They can return immediately

C.They can return to school 24 hours after taking the first dose of antibiotics

D.They must finish the course of antibiotics before returning to school

E.They must wait 7 days before returning to school

Answer:They can return to school 24 hours after taking the first dose of antibiotics

Explanation:

A child with scarlet fever can return to school 24 hours after commencing antibiotics

Important for meLess important

This history of tonsillopharyngitis (tonsillar erythema and strawberry tongue) and maculopapular exanthem (sandpaper rash and Pastia lines on the elbows) is indicative of scarlet fever. Once starting antibiotics the child can return to school 24 hours later.

There is no need for the GP to re-examine the child as the illness is likely to resolve with antibiotics.

The patient should not return to school immediately as they may still be infectious before 24 hours of antibiotic treatment.

The course will take 10 days, so finishing the antibiotics before returning to school is not necessary as only 1 day is needed to reduce their infectivity.

Similarly, after 7 days the patient is no longer infectious and can return to school as normal.

Question:

A 35-year-old female who has recently being diagnosed with Grave's disease presents for review 3 months after starting a 'block and replace' regime with carbimazole and thyroxine. She is concerned about developing thyroid eye disease. What is the best way that her risk of developing thyroid eye disease can be reduced?

A.Reduce alcohol intake

B.A diet rich in omega-3 fatty acids

C.Regular exercise

D.Stop smoking

E.Lose weight

Answer:Stop smoking

Explanation:

Smoking is the most important modifiable risk factor for the development of thyroid eye disease

Question:

A 52-year-old male with hypercalcaemia secondary to primary hyperparathyroidism presents with renal colic. USS demonstrates ureteric obstruction due to a stone. Multiple attempts at stone extraction are performed. However, the stone could not be removed. He is now septic with a pyrexia of 39.5ºC and he has been given antibiotics. What is the best course of action?

A.Cystoscopy and insertion of ureteric stent

B.Laparotomy and ureteric exploration

C.Insertion of nephrostomy

D.Laparoscopic ureteric exploration

E.Lithotripsy

Answer:Insertion of nephrostomy

Explanation:

Acute upper urinary tract obstruction is managed with nephrostomy

Important for meLess important

The likely scenario is that this man has developed a calculus causing ureteric obstruction. The stagnant column of urine can become colonised and infected. An infected obstructed system is one of the few true urological emergencies. A nephrostomy is needed as the stone could not be removed.

Question:

Which of the following local anaesthetic preparations would be most suitable for an 18-year-old male undergoing a unilateral Zadek's procedure (ingrown toenail ablation)?

A.Ring block with 0.5% bupivacaine with 1 in 200,000 adrenaline

B.Application of topical amethocaine

C.Ring block with 1% lignocaine alone

D.Ring block with 1% lignocaine and 1 in 200,000 adrenaline

E.Ring block with 0.25% bupivacaine with 1 in 80,000 adrenaline

Answer:Ring block with 1% lignocaine alone

Explanation:

This is excision of the toenail and a fast-acting local anaesthetic is indicated. Adrenaline should be avoided in this setting as it can cause digital ischaemia.

Question:

A 63-year-old farmer presents with a severely painful right leg. She accidentally impaled herself with a pitchfork whilst moving hay 12 hours ago. The wound was approximately 1cm deep, stopped bleeding within 20 minutes, and she covered it with a plaster. Over the last 12 hours, the pain has been increasing steadily and is now very severe. She has no other symptoms. She takes metformin for type 2 diabetes.

On examination, her observations are heart rate 85/minute, respiratory rate 18/min, blood pressure 124/82mmHg, temperature 38.5ºC. There is a 1cm wound on her lower right calf. It is surrounded by an area of prominent erythema and swelling that is approximately 15cm at its widest diameter. There is also a very dark purple area around the wound. There is one blister with foul-smelling discharge. The wound is very tender.

An emergency x-ray demonstrates air bubbles in the tissues.

Swabs are taken and broad-spectrum antibiotics are started. What is the most likely organism to be isolated?

A.Staphylococcus epidermidis

B.Clostridium perfringens

C.Staphylococcus aureus

D.Escherichia coli

E.Streptococcus pyogenes

Answer:Clostridium perfringens

Explanation:

Gas gangrene is caused by C. perfringens

Important for meLess important

This patient has radiologically-demonstrated gas gangrene, also known as myonecrosis. The causative organism is almost always clostridial and is typically Clostridium perfringens. It is important to note that having a peripheral vascular disease increases the risk of developing gangrene of all causes. C perfringens is a Gram-positive spore-forming bacillus.

The other condition that is in the differential is necrotising fasciitis. This affects the fascia and can be caused by all of the above organisms. However, the presence of gas indicates that gas gangrene is the more appropriate diagnosis.

Question:

A doctor is undertaking a newborn baby check and discovers that the hips are Barlow and Ortolani test positive.

Which of the following is most likely to apply to this child?

A.Female

B.Caesarean section birth

C.Low birth weight

D.Cephalic presentation

E.Polyhydramnios

Answer:Female

Explanation:

Female sex is a risk factor for developmental dysplasia of hip

Important for meLess important

Barlow and Ortolani tests are positive in developmental dysplasia of the hip. Of the answers listed, the only risk factor for DDH is being female. C-Section birth is not relevant. The opposite of the remaining answers are risk factors for DDH: high birth weight, breech presentation and oligohydramnios.

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 72-year-old man is found collapsed and unresponsive by his carers. He is unable to give any history. He is pale and cold peripherally. Observations and blood tests are as follows.

Respiratory rate 34 breaths per minute

Oxygen saturations 92% on air

Heart rate 126 beats per minute

Blood pressure 72/36 mmHg

Temperature 35.6ºC

Hb 51 g/L Male: (135-180)

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

WBC 9.6 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 18.7 mmol/L (2.0 - 7.0)

Creatinine 97 µmol/L (55 - 120)

CRP 8 mg/L (< 5)

What investigation is most likely to confirm the diagnosis?

A.Bone marrow biopsy

B.CT mesenteric angiogram

C.Colonoscopy

D.Flexible sigmoidoscopy

E.Upper GI endoscopy

Answer:Upper GI endoscopy

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

The correct answer is upper GI endoscopy. The markedly low haemoglobin with no other cytopenia is suggestive of a bleeding cause. In the absence of witnessed bleeding, the urea is then the key clue - elevation of this suggests an upper GI bleed. Common causes of this include peptic ulcer disease and oesophageal varices. Upper GI endoscopy is the investigation of choice and will also allow therapeutic measures.

Bone marrow biopsy is incorrect. This could be used to investigate haematological causes such as myelofibrosis. These often cause other cytopenias and would not explain the elevation in urea.

CT mesenteric angiogram is incorrect. This is the investigation of choice for acute mesenteric ischaemia, which usually presents with abdominal pain and lactic acidosis. It is used in some cases of GI bleeding where the source is not clear, but usually must be performed at the time of active bleeding.

Colonoscopy is incorrect. This would be used to investigate lower GI pathology which might cause bleeding such as polyps or malignancy. Lower GI bleeding tends to present with fresh red bleeding. In contrast to upper GI bleeding, it does not cause an elevation in the urea.

Flexible sigmoidoscopy is incorrect. This is also used to investigate lower GI bleeding, particularly from distal pathology such as diverticular disease. Again, this would not cause an elevation in the urea.

Question:

A 46-year-old female presents to her general practitioner with a 1-day history of a left-sided, painful blistering rash from her waist, extending towards her umbilicus. She describes a burning sensation in the area yesterday prior to the rash developing but has otherwise felt well in herself. She is known to be HIV positive with good compliance and her last viral load assessment was undetectable. She is concerned as she lives with her pregnant daughter and grandchildren and worries that she may be infectious. She is prescribed an antiviral and advised to take simple, over-the-counter analgesia (paracetamol and ibuprofen).

What is the main complication this prescription aims to address?

A.Reduce the incidence of Steven-Johnson Syndrome

B.Reduce the incidence of post-herpetic neuralgia

C.Reduce the incidence of secondary cellulitis

D.Reduce the risk of the rash spreading across her whole body

E.Reduce the risk of transmission to her daughter and grandchildren

Answer:Reduce the incidence of post-herpetic neuralgia

Explanation:

The use of antivirals for shingles may reduce the incidence of post herpetic neuralgia, particularly in older people

Important for meLess important

This patient is presenting with symptoms consistent with shingles as she reports a unilateral, painful blistering rash across one dermatome which does not cross the midline. She also describes the typical prodromal feature of burning sensation prior to rash onset. She is at higher risk of developing shingles due to her HIV status and use of antiretrovirals. She should be prescribed antivirals (such as aciclovir, famciclovir, or valaciclovir) to reduce the incidence of post-herpetic neuralgia which is the most common complication.

Steven-Johnson Syndrome is a condition causing loss of sheets of skin and mucosa which is often a complication of taking antibiotics, sulphonamides, anticonvulsants, or the NNRTI nevirapine. Although this patient may be taking the anti-retroviral medication, her history is not consistent with this condition and it is not a complication of shingles.

Secondary cellulitis may occur in shingles patients if the skin barrier is broken and the area is not kept clean and dry however antivirals would not affect bacterial colonisation of the area.

Reducing the risk of the rash spreading across her whole body is incorrect as shingles affects one dermatome only and antivirals would not affect any diffuse spread.

It is important to note that the patient's daughter is pregnant and must be counselled about the risk of measles and her fetus. Antivirals will not affect the virulence of the patient, however, and she will have already exposed the pregnant daughter to the virus.

Question:

Oscar is a 59-year-old man who presents to his general practitioner with a 4-month history of a persistent cough, dyspnoea, unintentional weight loss of 4kg and anorexia. Oscar has no significant past medical history and has never been admitted to hospital. He is a lifelong non-smoker and works as a receptionist.

On examination, his observations are blood pressure 125/90mmHg, respiratory rate 14/minute, heart rate 85/minute, afebrile and oxygen saturation 94% on room air. There is notable bilateral gynaecomastia with watery nipple discharge, hypertrophic pulmonary osteoarthropathy and supraclavicular lymphadenopathy.

Given the likely diagnosis of lung carcinoma, which is the most likely type given the history and examination findings?

A.Adenocarcinoma

B.Large cell carcinoma

C.Mesothelioma

D.Small cell carcinoma

E.Squamous cell carcinoma

Answer:Adenocarcinoma

Explanation:

Gynaecomastia - associated with adenocarcinoma of the lung

Important for meLess important

Lung malignancy is the most likely diagnosis given the symptom profile, including insidious and progressive onset, unintentional weight loss and anorexia.

Adenocarcinoma is the correct option given the gynaecomastia and hypertrophic pulmonary osteoarthropathy (HPOA). Gynaecomastia in particular is associated with lung adenocarcinoma. Adenocarcinoma is also the most common lung malignancy in non-smokers. It should be noted that gynaecomastia is an infrequent manifestation of lung cancer. It is thought that it is caused by an increased oestrogen/androgen ratio, or the tumour itself produces a substance causing hormonal change.

Mesothelioma is a type of cancer that can develop years after exposure to asbestos, and this is unlikely given the lack of exposure in this patient.

The paraneoplastic features of small cell carcinoma include Lambert-Eaton syndrome and syndrome of inappropriate anti-diuretic hormone (SIADH) secretion.

Squamous cell carcinoma is the most likely lung cancer in smokers. It is also associated with HPOA, parathyroid hormone-related protein secretion causing hypercalcaemia, and hyperthyroidism due to ectopic thyroid stimulating hormone secretion.

Large cell carcinoma is the least common histological subtype of all lung cancer, accounting for less than 10% of cases.

Question:

A 22-year-old man presents to the emergency department with breathlessness and pain in his chest on inspiration. This has started today and the patient denies any recent trauma. He has no past medical history and takes no regular medications. He is a current smoker and has a five year pack history.

Observations are as follows: blood pressure 120/80mmHg, heart rate 90 beats per minute, respiratory rate 20/minute, temperature 36.6ºC, oxygen saturation 97%.

On examination the patient is alert. He has reduced air entry on the left side.

You order an X-ray which shows a visible rim of air of 3cm between the lung margin and the chest wall.

What is the most appropriate action to take?

A.Needle aspiration should be attempted

B.Repeat the chest X-ray in 1 hour

C.Discharge home and follow up the patient

D.A chest drain should be inserted

E.Refer to thoracic surgeons

Answer:Needle aspiration should be attempted

Explanation:

In primary pneumothorax that has either shortness of breath or >2cm rim of air, aspiration should be attempted

Important for meLess important

BTS guidelines state that a patient with a pneumothorax with either shortness of breath or a >2cm rim of air should have needle aspiration attempted. In this case the patient is relatively stable, is saturating well with a normal respiratory rate but you should aspirate based on the X-ray findings.

There is no indication to repeat the X-ray at this point. It would be appropriate to order a chest X-ray after an intervention like aspiration to see the result.

It would not be recommended to discharge the patient at this point. If the rim of air was <2cm then this could be considered. Discharging the patient could mean that the patient becomes more unwell at home and the pneumothorax could worsen.

Needle aspiration is the preferred treatment for patients with a primary spontaneous pneumothorax. A chest drain can be considered if needle aspiration is unsuccessful.

Referral to thoracic surgeons would not be indicated here.

Question:

You are asked to see a baby on the post-natal ward 10 hours post vaginal delivery. The midwife informs you that the mother was positive for group B streptococcus. On examination you note a yellow discolouration to the skin. What is the next most appropriate action to take?

A.Measure serum bilirubin within 2 hours

B.Measure serum bilirubin within 6 hours

C.Measure bilirubin via transcutaneous bilirubinometer

D.Start empirical phototherapy

E.Reassess after 24 hours of age

Answer:Measure serum bilirubin within 2 hours

Explanation:

As this baby is less than 24 hours old they are high risk for developing severe hyperbilirubinaemia and must have their serum bilirubin urgently (within 2 hours). As this baby is less than 24 hours old the use of a transcutaneous bilirubinometer is inappropriate. Phototherapy is a treatment option for jaundice, but a serum bilirubin should be measured in case it is beyond the threshold for exchange transfusion.

Reference: NICE Guideline CG98: Jaundice in newborn babies under 28 days

Question:

A 42-year-old man is reviewed 2 weeks after an injury to his wrist caused by a fall onto outstretched hands. His x-rays reveal a scaphoid fracture.

What sign is most likely found in this diagnosis?

A.Pain on longitudinal compression of the thumb

B.Reduced sensation over anatomical snuffbox

C.Weakened palmar extension of the thumb

D.Weakened radial deviation of the wrist

E.Weakened thumb flexion

Answer:Pain on longitudinal compression of the thumb

Explanation:

Pain on longitudinal compression of the thumb is a sign of a scaphoid fracture

Important for meLess important

A scaphoid fracture can be difficult to first detect on radiographs and they are commonly found later on secondary radiographs. They present with tenderness in the anatomical snuffbox or on the radial side of the wrist, pain in movements that apply direct pressure to them, or weakened thumb opposition (i.e. pinch grip). One of the signs is pain on longitudinal compression of the thumb, also called thumb telescoping. This puts direct pressure onto the scaphoid since it sits on the radial side of the carpal bones.

Reduced sensation over anatomical snuffbox is incorrect. There may be tenderness of the anatomical snuffbox highlighting a scaphoid fracture, but any impaired sensation is unlikely.

Weakened palmar extension of the thumb is incorrect. This refers to the movement which creates an L-shape between the thumb and the index finger. There is no strain put onto the scaphoid during this movement so it is unlikely to be affected.

Weakened radial deviation of the wrist is incorrect. Radial deviation of the wrist is limited normally and a scaphoid fracture would not affect this range.

Weakened thumb flexion is incorrect. This refers to the movement of bringing the thumb across the palm. This doesn't affect the scaphoid bone and is unlikely to be weakened during a scaphoid fracture.

Question:

A 78-year-old patient has been undergoing treatment for symptomatic bradycardia.

After several boluses of atropine, the patient remains unwell with a blood pressure of 84/53mmHg, heart rate of 34 beats per minute, respiratory rate of 23 breaths per minute, oxygen saturation of 97%, and a temperature of 37.2ºC. The patient is confused and sweating, with cold and clammy extremities.

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

A.Adenosine

B.Amiodarone

C.Atropine infusion

D.Direct current cardioversion

E.External pacing

Answer:External pacing

Explanation:

External pacing is used for symptomatic bradycardia if atropine fails

Important for meLess important

External (transcutaneous) pacing is the next step in management of symptomatic bradycardia. It is a temporary measure that delivers pacing of the heart through the chest wall until more permanent pacing may be established.

Adenosine, used in the management of tachyarrhythmias (such as supraventricular tachycardias), is widely reported to make patients feel terrible, including a sense of 'impending doom,' although it has a very short half-life, so these side effects do not last long. It is not the next treatment option in this situation.

Amiodarone is used in the management of tachyarrhythmias (such as ventricular tachycardia), as well as in cardiopulmonary resuscitation, for ventricular fibrillation or pulseless ventricular tachycardia (which do not respond to initial chest compressions or defibrillation). It would not be an appropriate treatment option for this patient for bradycardia.

Atropine is not routinely given as an infusion, however, atropine as an intravenous bolus is used in many circumstances such as symptomatic bradycardia (in this example), or in combination with other medications in organophosphorus insecticide poisoning.

Direct-current cardioversion is not routinely used in the management of symptomatic bradycardia. If the patient deteriorated to a point of cardiac arrest with a rhythm of ventricular tachycardia or ventricular fibrillation, defibrillation would be required.

Question:

A 24-year-old man presents to the emergency department with abdominal pain, vomiting and lethargy. His mother informs you he first developed 'flu-like symptoms' around four days ago. The patient has a diagnosis of type 1 diabetes. He is on a basal-bolus regimen but has not been taking his insulin regularly since he became unwell. On examination, he is confused and is hyperventilating. His blood glucose is 22 mmol/L (<11.1 mmol/L) and his blood ketone level is 4.0 mmol/L (<0.6 mmol/L).

You request an arterial blood gas (ABG).

pH 7.19 (7.35-7.45)

pO2 14.0 kPa (10-14 kPa)

pCO2 3.6 kPa (4.5-6.0 kPa)

Bicarbonate 12 mmol/L (22-28 mmol/L)

You start the patient on IV resuscitation fluids.

Following this, what is the next most appropriate step in management?

A.Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable long-acting insulin only

B.Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable short-acting and long-acting insulin

C.Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND stop all injectable insulins

D.Variable-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable long-acting insulin only

E.Variable-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable short-acting and long-acting insulin

Answer:Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable long-acting insulin only

Explanation:

In the acute management of DKA, insulin should be fixed rate whilst continuing regular injected long-acting insulin but stopping short actin injected insulin

Important for meLess important

This patient has all three features of diabetic ketoacidosis (DKA): hyperglycaemia, ketonaemia and metabolic acidosis. He also has a background history of type 1 diabetes.

Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable long-acting insulin only is the correct answer. In the acute setting, patients with DKA should be started on a fixed-rate insulin infusion. Their long-acting insulin should be continued and their short-acting insulin stopped.

Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable short-acting and long-acting insulin is incorrect. Injectable short-acting insulin should be stopped.

Fixed-rate IV insulin infusion (0.1 units/kg/hour) AND stop all injectable insulins is incorrect. Only the short-acting insulin should be stopped.

Variable-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable long-acting insulin only is incorrect. The patient should receive a fixed-rate insulin infusion.

Variable-rate IV insulin infusion (0.1 units/kg/hour) AND continue injectable short-acting and long-acting insulin is incorrect. The patient should receive a fixed-rate insulin infusion and the short-acting insulin should be stopped.

Question:

Rhea is a 55-year-old woman who presents to her GP with fatigue and low mood. On further questioning, she also admits to suffering from muscle stiffness particularly in her shoulders. This can last up to an hour on waking. On examination, power is 5/5 in all muscle groups, however movement is painful on shoulder abduction and elevation. There is no obvious joint swelling. There is no other neurology and there is good range of movement despite the pain. She has a history of type 2 diabetes for which she takes metformin.

What is the most likely diagnosis?

A.Chronic fatigue syndrome

B.Polymyalgia rheumatica

C.Frozen shoulder

D.Rheumatoid arthritis

E.Rotator cuff injury

Answer:Polymyalgia rheumatica

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

Polymyalgia rheumatica is an inflammatory condition which results in pain, stiffness and myalgia particularly around the shoulder and pelvic girdle. In polymyalgia rheumatica there is no weakness of the muscles themselves, however, the pain can make movement difficult.

The answer is not chronic fatigue syndrome as this patient is experiencing stiffness for an hour every morning. This is suggestive of an inflammatory condition. In addition, the key symptom in chronic fatigue syndrome is fatigue as opposed to muscle pain. It is usually a diagnosis of exclusion.

Frozen shoulder can also present with pain and stiffness in the shoulders, however, it is usually unilateral. The incidence of bilateral frozen shoulder is around 14%. There are usually phases of the disease - first pain, followed by stiffness. In this case, the patient has both pain and stiffness together.

Rheumatoid arthritis typically presents with pain, stiffness and swelling of the joints. It typically affects the small joints in the hands and feet.

Rotator cuff injury can occur after an injury or as a result of long term wear and tear of the joint. It is typically unilateral and presents with pain on abduction of the arm (painful arc).

Question:

A 23-year-old woman who is 32 weeks pregnant presents to the delivery suite. She complains of feeling generally unwell. Clinical examination reveals a 28 week size foetus. Her blood pressure was noted to be 160/100 mmHg and on urinalysis 2+ protein was present. During the clinical examination she has a seizure. You suspect a diagnosis of eclampsia. What is the most immediate medication to administer?

A.Magnesium sulphate

B.Labetalol

C.Magnesium carbonate

D.Aspirin

E.Midazolam

Answer:Magnesium sulphate

Explanation:

Eclampsia - give magnesium sulphate first-line

Important for meLess important

The most immediate concern in eclampsia is to treat the seizure. In eclampsia, seizures are both prevented and treated with magnesium sulphate. If magnesium sulphate is not available, or if it fails to terminate the seizure, a benzodiazepine (such as midazolam) can be considered.

Due to the elevated blood pressure, an anti-hypertensive agent should also be administered. Labetalol, Hydralazine and Nifedipine are used in pregnancy due to their effectiveness, mechanism of action, and low teratogenicity.

Low dose aspirin commenced prior to 16 weeks of gestation has been demonstrated to have a statistically significant effect in the prevention of pre-eclampsia.

Question:

A 31-year-old male presents to the emergency department with sudden-onset 'tearing' pain in his chest. On examination, his heart rate is 70 beats per minute, respiratory rate is 16 breaths/min, temperature is 36.7ºC, oxygen saturations are 100% on room air, blood pressure is 165/82mmHg in the right arm and 138/70mmHg in the left arm. He has no past medical history but on examination, you note he has a tall stature, pectus excavatum and joint hypermobility.

Chest x-ray is performed which shows a widened mediastinum.

What is the most appropriate investigation?

A.Aortic ultrasound

B.CT angiography thorax, abdomen and pelvis

C.CT thorax without contrast

D.Magnetic resonance angiography

E.Transoesophageal echocardiography

Answer:CT angiography thorax, abdomen and pelvis

Explanation:

CT angiography is the investigation of choice for suspected aortic dissection (depending on stability of patient)

Important for meLess important

The likely diagnosis, in this case, is aortic dissection. He has the classical presentation of acute-onset 'tearing' or 'ripping' chest pain and a difference in blood pressure between the left and right sides. He also has features of Marfan's syndrome (tall stature, pectus excavatum and joint hypermobility) which is a risk factor for aortic dissection. Chest x-ray shows a widened mediastinum which also supports a diagnosis of aortic dissection. As this patient's observations are stable, according to the guidelines he should have CT angiography of the thorax, abdomen and pelvis to assess the extent of the dissection.

Aortic ultrasound is an incorrect answer. This imaging modality is used to diagnose abdominal aortic aneurysms.

CT thorax without contrast is an incorrect answer, as contrast is required to diagnose aortic dissection.

Magnetic resonance angiography (MRA) can be used to diagnose aortic dissection, however, it is not the first investigation of choice as they are difficult to obtain.

Transoesophageal echocardiography (TOE) is not the correct response in this case. TOE is more suitable for patients with suspected aortic dissection who are unstable and therefore too risky to take to the CT scanner. This patient is stable, therefore CT angiography is more appropriate.

Question:

This 17-year-old man has a history of asthma and eczema but is normally fit and well. Yesterday he developed a rash on face which extends down to his torso. He feels generally unwell with flu-like symptoms.

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What is the most likely diagnosis?

A.Erysipelas

B.Stevens-Johnson syndrome

C.Impetigo

D.Eczema herpeticum

E.Allergic contact dermatitis

Answer:Eczema herpeticum

Explanation:

Question:

Jamie is a 13-year-old girl who presents to her general practitioner complaining of right ear pain over the last three days, with slightly worse hearing over this time. She also complained of fluid leaking from her ear this morning. Jamie's past medical history includes recurrent otitis media as a child (approximately two episodes per year until the age of 5), and had grommets inserted once at age 4.

On examination, Jamie's blood pressure is 120/80mmHg, heart rate 85/min and temperature 37.4ºC. On otoscopy, the right external auditory canal appears swollen and erythematous. The tympanic membrane is slightly erythematous with no effusion is present. There is no pain on mastoid palpation, however when the GP pulls on the right tragus there is significant tenderness.

Which of the following is the most likely diagnosis?

A.Acute otitis media

B.Cholesteatoma

C.Mastoiditis

D.Otitis externa

E.Tympanosclerosis

Answer:Otitis externa

Explanation:

Otitis externa: pain on palpation of the tragus, itching, discharge and hearing loss

Important for meLess important

The answer is otitis externa. Classical symptoms of otitis externa include pain on palpation of the tragus, itching, discharge and hearing loss (symptoms which Jaime is experiencing).

Otitis media also presents with an erythematous tympanic membrane, however other signs of acute inflammation include a haemorrhagic, injected or cloudy appearance. Furthermore, this diagnosis would not explain the swollen outer ear cana, pain on tragus palpation, or hearing loss.

A cholesteatoma is a benign keratinising squamous epithelium that forms a cyst within the middle ear or mastoid. This is less likely based on the symptom profile. One would expect one with a cholesteatoma to have generally insidious and slowly progressive symptoms, including conductive hearing loss, foul smelling ear discharge, persistent otitis media, otalgia, vertigo and facial weakness.

Mastoiditis is less likely given the lack of tenderness on mastoid palpation. Other symptoms which would be related to mastoiditis include redness behind the ear, swelling causing the ear to stick out, and the patient would likely be more systemically unwell.

Tympanosclerosis is scarring of the eardrum, which may occur after injury or surgery. On otoscopy, one would expect to see bright white scarring on the membrane, therefore this answer is incorrect. Tympanosclerosis and cholesteatomas can sometimes be confused, as they both appear as white lesions.

Question:

A 24-year-old female is brought in by ambulance to the emergency department because she suddenly became short of breath. She was exercising at her local gym at the time and began to feel wheezy. She has a past medical history of asthma for which she takes a salbutamol inhaler PRN and a corticosteroid inhaler once daily. She has no known allergies.

Her heart rate was 110 beats per minute; her respiratory rate was 24 per minute, her oxygen saturation was 94% on room air, her blood pressure was 115/84 mmHg and her temperature was 37.3ºC.

Her initial arterial blood gas (ABG) was as follows:

pH 7.48 (7.35-7.45)

PaO2 9 kPa (11-15)

PaCO2 2.5 kPa (4.6-6.4)

Bicarbonate 25 mmol/L (22-30)

Potassium 4.6 mmol/L (3.5-5.3)

Sodium 138 mmol/L (135-146)

She was treated with salbutamol and ipratropium nebulisers, oral prednisolone and oxygen.

On reassessment, her heart rate was 125 beats per minute; her respiratory rate was 20 per minute, her oxygen saturation was 95% on 8L/min oxygen, her blood pressure was 114/86 mmHg and her temperature was 37.1ºC. Her wheeze was quieter, but her chest was still hyper-resonant.

Her repeat ABG after 1 hour is as follows:

pH 7.36 (7.35-7.45)

PaO2 9 kPa (11-15)

PaCO2 4.7 kPa (4.6-6.4)

Bicarbonate 25 mmol/L (22-30)

Potassium 3.4 mmol/L (3.5-5.3)

Sodium 137 mmol/L (135-146)

Which of the following is the single best management for this patient at this point?

A.Re-administer salbutamol and ipratropium nebulisers and repeat the ABG in 1 hour

B.Give intravenous 20 mmol potassium replacement over 6 hours

C.Escalate to the intensive care team

D.Wean oxygen to 6L/minute

E.Switch oxygen to a Venturi mask

Answer:Escalate to the intensive care team

Explanation:

A normal PaCO2 in an acute asthma attack indicates exhaustion and should, therefore, be classified as life-threatening

Important for meLess important

This patient has presented with an acute asthma attack. The severity of her attack on admission was severe, given her peak expiratory flow rate. After treatment, the repeat ABG shows a rising PaCO2 - it was low initially but has now normalised. In these patients, one would expect a consistently low PaCO2 as the patient is hyperventilating. A normal or raised PaCO2 indicates the patient is tiring, and this makes her asthma life-threatening. Moreover, her oxygen is 11 kPa, which is low considering she is on 8 L/min of oxygen. In deteriorating patients such as these, it would be best to escalate to intensive care, who may advise further, or commence additional treatments such as magnesium, IV salbutamol, theophylline and/or ventilatory support. The falsely-improving wheeze and respiratory rate shouldn't reassure you, as they may be due to the fact she's tiring.

Re-administering the nebulisers and repeating the ABG would be a good choice if the patient weren't tiring.

Giving potassium replacement may be a good idea, as salbutamol drives potassium into cells. However, it is not the single best management for this patient at the moment, as her breathing will likely cause more problems than the potassium at this stage.

Weaning her oxygen will likely make her worse, as one would expect a higher PaO2 on 8 L/minute.

Switching to a Venturi mask would provide more precise FiO2 delivery, but has limited use in this situation, as the priority is helping her poor respiratory effort.

Question:

Following a routine health-check at her GP surgery, 68-year-old Jenny, known to have epilepsy, is found to have an irregularly irregular heartbeat. This is later confirmed on a 12-lead-ECG to be atrial fibrillation.

After calculating her CHA2DS2-VASc score, Jenny's GP recommends that she starts on an anticoagulant. Jenny doesn't want to start a direct oral anticoagulant as her partner has taken warfarin for many years and so Jenny feels more comfortable with it. As such the GP arranges for a warfarin counselling session with the practice pharmacist, following which warfarin is prescribed.

Approximately 4 days later Jenny notices a large red, painful patch on her left thigh. Over the following days the lesion becomes hard to touch, purpuric in nature before progressing to form what Jenny describes as a large 'blister' of blood.

When she returns to her GP, he arranges urgent admission where the INR is checked and reported as follows:

International Normalised Ratio (INR) 2.3 (Target 2.5)

What is the most likely cause of Jenny's symptoms?

A.Warfarin overdose

B.Co-administration with carbamazepine

C.Pancreatitis

D.Skin necrosis

E.Co-administration with sodium valproate

Answer:Skin necrosis

Explanation:

Warfarin may rarely cause skin necrosis

Important for meLess important

The correct answer to this question is skin necrosis. Skin necrosis is a recognised side effect of warfarin administration. It has a female to male ratio of 3:1 and typically occurs within the first 10 days of warfarin administration. Whilst it starts with a large red patch often progressing to petechiae, purpura or ecchymoses, it notably occurs with an INR that is still in the therapeutic range.

Warfarin overdose or adverse effects due to co-administration of carbamazepine or sodium-valproate would all lead to a deranged INR, whereas this patient's INR is within the normal therapeutic range of 2-3.

Finally whilst pancreatitis is a side effect of warfarin administration, it would not be expected to cause bleeding in the region described here. Instead, either peri-umbilical or flank bruising would be expected.

Question:

A 52-year-old man is seen in the clinic after originally being referred with progressively increasing central chest pain but base level investigations, including ECGs and troponin level return within normal range.

The pain is exercise dependent with it occurring when the patient carries out activities such as climbing stairs and resolving on rest. As such the patient was started on atenolol 100mg OD along with a GTN spray and aspirin.

On review today the patient still reports symptoms of chest pain on exertion despite good compliance.

What alteration should be made to this patient’s management?

A.Add diltiazem

B.Add ivabradine

C.Add modified-release nifedipine

D.Add verapamil

E.Titrate up atenolol

Answer:Add modified-release nifedipine

Explanation:

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

Important for meLess important

This patient is suffering from symptoms in keeping with angina and has been correctly commenced on a beta-blocker along with aspirin and GTN spray as first-line therapy. As the patient is still experiencing symptoms, despite being on the maximum dose of a beta-blocker, a calcium channel blocker should be added. When used in combination with a beta-blocker a longer-acting dihydropyridine calcium channel blocker e.g. modified-release nifedipine should be used to improve symptom control whilst avoiding the risk of heart block dysrhythmias. A long-acting/modified-release version of the medication should ideally be used.

Diltiazem may be commenced as monotherapy initially for patients presenting with angina however its use with beta-blockers should be avoided as this can lead to significant adverse effects on cardiac conduction, heart rate and contractility.

Ivabradine is a pacemaker current or “funny” current inhibitor that blocks the If ion current present in the sinoatrial node. It can be used as a third agent if angina symptoms are not controlled with the combination of a long-acting dihydropyridine calcium-channel blocker and beta-blocker.

Verapamil again can be commenced as a monotherapy calcium-channel blocker in angina but should be avoided with beta-blockers as this can result in significant events including complete heart block.

This patient is already established on the maximum dose of atenolol and therefore titrating up the dose is not an option.

Question:

A 72-year-old gentleman is about to undergo an elective hernia repair. He has mild asthma which is well-controlled using a salbutamol inhaler PRN, on average about once per week. His asthma causes no limitation to his daily activity. What is his ASA (American Society of Anesthesiologists) status?

A.ASA 3

B.ASA 1

C.ASA 5

D.ASA 2

E.ASA 4

Answer:ASA 2

Explanation:

An ASA (American Society of Anesthesiologists) score is an indicator of a patient's fitness for surgery. A patient is classified as ASA 2 if they have a mild systemic disease without any functional limitations. Examples include (but not limited to): current smoker, social alcohol drinker, pregnancy, obesity (30 < BMI < 40), well-controlled diabetes mellitus or hypertension, and mild lung disease.

Question:

A 70-year-old woman is admitted with abdominal pain and vomiting for the past two days. An abdominal film is taken on arrival:

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What is the main finding of the film?

A.Small bowel obstruction

B.Large bowel obstruction

C.Air in the biliary tree

D.Pancreatic calcification

E.Pneumoperitoneum

Answer:Small bowel obstruction

Explanation:

This patient has gross small bowel obstruction.

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 28-year-old woman, 2 weeks postpartum, is bought in by her husband after saying her baby is the devil. She has not been sleeping and she has been talking to people who are not there. Her husband states she has had big mood swings in the past 2 weeks and is concerned for the safety of his baby.

She has no relevant medical or mental health history and no family history of mental health illnesses.

What is the next step in management for this condition?

A.Hospitalisation in Mother & Baby Unit

B.Hospitalisation in the Mental Health Unit - separating mother from baby

C.Reassure husband and follow up with GP in 2 weeks

D.Refer for electroconvulsive therapy

E.Tell the husband to keep her separated from the baby

Answer:Hospitalisation in Mother & Baby Unit

Explanation:

Women with postpartum psychosis usually requires hospitalisation, ideally in a Mother & Baby Unit

Important for meLess important

Hospitalisation in Mother & Baby Unit is correct as women with postpartum psychosis usually require hospitalisation, ideally in a Mother & Baby Unit. The Mother & Baby Unit is a specialist, in-patient unit for women with mental health problems during pregnancy, or after the birth of their child where they can be monitored closely.

Hospitalisation in the Mental Health Unit - separating mother from baby is incorrect. Hospitalisation is required, ideally in a Mother & Baby Unit, where the mother has a bed and the baby has a cot, with observation.

Reassure husband and follow up with GP in 2 weeks is incorrect as postpartum psychosis is a serious mental illness that should be treated as a medical emergency.

Refer for electroconvulsive therapy is incorrect as it is not the next step in management. It would be recommended if other treatment methods have failed.

Tell the husband to keep her separated from the baby is incorrect as postpartum psychosis is a serious mental illness that should be treated as a medical emergency.

Question:

Which one of the following statements regarding testicular cancer is correct?

A.Fragile X syndrome is a risk factor

B.Gynaecomastia is seen in the majority of men

C.Seminomas have a better prognosis than teratomas

D.Afro-Caribbean ethnicity is a risk factor

E.May present as a varicocele in up to 10% of patients

Answer:Seminomas have a better prognosis than teratomas

Explanation:

Question:

A 25-year-old man with a history of Crohn's disease presents asking for advice. He currently takes methotrexate and asks if it is alright for him and his partner to try for a baby.

What is the most appropriate advice?

A.He should wait at least 6 months after stopping treatment

B.He should wait at least 12 months after stopping treatment

C.He should have semen analysis 8 weeks after stopping treatment prior to trying to conceive

D.There are no limitations on male patients

E.He should wait at least 3 months and his partner should take folic 5 mg od

Answer:He should wait at least 6 months after stopping treatment

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:

A 45-year-old woman with type 1 diabetes mellitus is reviewed in the diabetes clinic. Three months ago her blood tests were as followed:

K+ 4.5 mmol/l

Creatinine 116 µmol/l

eGFR 47 ml/min

At the time she was started on lisinopril to treat both the hypertension and act as a renoprotective agent. Lisinopril had been titrated up to treatment dose. Her current bloods are as follows:

K+ 4.9 mmol/l

Creatinine 123 µmol/l

eGFR 44 ml/min

Of the following options, what is the most appropriate course of action?

A.Stop lisinopril and arrange investigations to exclude renal artery stenosis

B.Switch to a angiotensin 2 receptor blocker

C.Switch to a different ACE inhibitor

D.No action

E.Reduce dose of lisinopril

Answer:No action

Explanation:

The small change in both the creatinine and eGFR are acceptable and below the threshold where ACE inhibitors should be stopped

Question:

A 35-year-old woman is admitted to the hospital due to new-onset headaches associated with vomiting and changes in her vision. On examination, she has bitemporal hemianopia.

An MRI scan of her head identifies a 15mm solid suprasellar mass.

A pituitary blood profile shows the following:

Prolactin: 14 mU/L (0-15 mU/l)

FSH: 15 IU/L (25-135 IU/l)

LH: 1.3 IU/L (2.0-12.0 IU/l)

TSH 3.2 mU/L (0.35-4.5 mU/l)

Free T4 11.5 pmol/L (9.0-18.0)

GH post insulin tolerance test: 3.0 /µg/L (>5.0)

IGF-I 4.2 nmol/L (6.0-36.0)

ACTH stimulation test shows:

8am Cortisol (baseline) 326 nmol/L (171-536nmol/l)

Cortisol (30 min after stimulation) 695 nmol/L (>550 nmol/l)

What condition is the most likely cause of her presentation?

A.Addison's disease

B.Cerebral lymphoma

C.Craniopharyngioma

D.Non-functioning pituitary adenoma

E.Prolactinoma

Answer:Non-functioning pituitary adenoma

Explanation:

Non-functioning pituitary tumours present with hypopituitarism and pressure effects

Important for meLess important

The most likely diagnosis is a non-functioning pituitary macroadenoma which presents as a suprasellar mass with pressure effects, such as headaches, visual changes and vomiting and hypopituitarism with non-functioning pituitary tumours. In adults, typically the most common early complaints related to gonadotropin hormone deficiencies such as loss of libido or amenorrhoea in women.

Addison's disease is due to primary adrenal insufficiency with signs and symptoms normal include abdominal, discomfort, gastrointestinal abnormalities, weakness, and weight loss. Hyperpigmentation of the skin can also be noted. As the condition is due to an issue with the adrenal glands the pituitary is not involved and therefore patients do not experience symptoms secondary to optical chiasm compression etc. This patient's presentation is not in keeping with Addison's disease as confirmed by normal levels of cortisol and normal ACTH stimulation tests.

Cerebral lymphoma is a differential diagnosis for a brain lesion however this lesion is more typical in location and signs/symptoms with a pituitary adenoma.

Craniopharyngiomas are tumours that derive from Rathke's pouch, a fetal structure that eventually gives rise to the anterior pituitary gland. It can also cause hypopituitarism and pressure-type effects, but it would more commonly affect children. Additionally, pituitary adenomas constitute 80% of sellar lesions, whereas craniopharyngiomas represent only 1 to 3% of intracranial tumours.

Whilst prolactinomas are the most common type of pituitary tumour, this hormone profile shows normal prolactin. This pituitary tumour is non-functioning with low levels of growth hormone and sex hormones which are often the first to be affected in terms of hypopituitarism.

Question:

A 72-year-old man is brought to the emergency department by ambulance due to new-onset left-sided weakness. The patient is orientated and able to clearly describe waking up this morning and noticing weakness on their left side. On examination, the patient has reduced left arm and leg power, in addition to having a left facial droop. Ophthalmic examination identifies left homonymous hemianopia.

Examinations are otherwise unremarkable. The patient is diagnosed as having an ischaemic stroke.

What best describes the most likely stroke type?

A.Lacunar infarct

B.Lateral medullary syndrome

C.Partial anterior circulation infarct

D.Posterior circulation infarct

E.Total anterior circulation infarct

Answer:Partial anterior circulation infarct

Explanation:

Partial anterior circulation infarcts - 2 of the following:

unilateral hemiparesis and/or hemisensory loss of the face, arm & leg

homonymous hemianopia

higher cognitive dysfunction e.g. dysphasia

Important for meLess important

This scenario describes a patient presenting with an ischaemic stroke, with unilateral hemiparesis and homonymous hemianopia, but in the absence of any described higher cortical dysfunction. Therefore, the most likely stroke type is a partial anterior circulation infarct as the patient has presented with 2 out of 3 of the triad of features. This triad of features refers to:

Unilateral hemiparesis (and/or hemisensory loss of the face, arm and leg)

Homonymous hemianopia

Higher cortical dysfunction

If 2 out of 3 features of this triad are met, this would be considered as a partial anterior circulation. If all 3 features are met, this would be a total anterior circulation stroke.

Lacunar infarct is incorrect. Lacunar strokes affect the perforating arteries around the internal capsule, thalamus, and basal ganglia, meaning that presentations are often limited to being pure motor, pure sensory, or ataxic hemiparesis (depending on the area affected). In this scenario, the patient describes hemiparesis in addition to visual changes, making a lacunar stroke unlikely.

Lateral medullary syndrome is incorrect. Lateral medullary syndrome is due to occlusion of the posterior inferior cerebellar artery and can include a mixture of ipsilateral facial numbness, ataxia, and dysphagia, but contralateral limb sensory loss. This is not described in the above scenario.

Posterior circulation infarct is incorrect. A posterior circulation infarct affects the vertebrobasilar arteries and can present with isolated homonymous hemianopia or cerebellar symptoms. As the scenario describes homonymous hemianopia with motor symptoms, this would not be classified as a posterior circulation infarct.

Total anterior circulation infarction is incorrect. A total anterior circulation infarct (TACS) is a large stroke affecting the anterior and middle cerebral arteries. As a result, it affects all 3 of the previously mentioned features: unilateral hemiparesis and/or hemisensory loss of the face/arm/leg, homonymous hemianopia, and higher cognitive dysfunction. In this scenario, the patient displays 2 of these features, but no higher cognitive dysfunction is described. As not all 3 of the features are mentioned, this is not a TACS.

Question:

A 60-year-old man is diagnosed with Bell's palsy. What is the current evidenced base approach to the management of this condition?

A.Refer for urgent surgical decompression

B.Aciclovir

C.No treatment

D.Aciclovir + prednisolone

E.Prednisolone

Answer:Prednisolone

Explanation:

Eye care is also very important.

Question:

You are an F1 on a busy on-call shift, you are bleeped to a ward and while dealing with a patient, a nurse passes you a prescription chart to prescribe some IV paracetamol for a different patient who is in pain. what is the most appropriate action?

A.After you have finished, review the history of the second patient and prescribe the paracetamol if appropriate

B.Prescribe the paracetamol IV immediately

C.Prescribe the paracetamol via oral route instead

D.Tell the nurse to ask a different doctor because you are busy

E.Tell the nurse you are reviewing another patient

Answer:After you have finished, review the history of the second patient and prescribe the paracetamol if appropriate

Explanation:

GMC good medical practice makes it is clear in Domain 1: 15. 'You must provide a good standard of practice and care. If you assess, diagnose or treat patients, you must:

a. adequately assess the patients conditions, taking account of their history, their views and values; where necessary, examine the patient.

b. promptly provide or arrange suitable advice, investigations or treatment where necessary'

it would not be appropriate to prescribe medication without being aware of the indication or history of the patient. If paracetamol was indicated both IV and oral are appropriate routes depending on the specifics of the patient

It is never acceptable to be rude or dismissive to other members of the multi-disciplinary team, this does not 'foster collaboration'.

Question:

A 43-year-old woman is brought to the emergency department with a two-day history of worsening fever, diarrhoea and abdominal pain.

She has a background of insulin-dependent diabetes. She was prescribed clindamycin four days ago for an infected foot ulcer.

On examination she is drowsy with a temperature of 40.5ºC, heart rate of 110 beats/minute and blood pressure of 90/60mmHg.

A full blood count is as follows:

Hb 117 g/L (115 - 160)

Platelets 160 \* 109/L (150 - 400)

WBC 17 \* 109/L (4.0 - 11.0)

An abdominal X-ray reveals signs of toxic megacolon.

Based on the most likely diagnosis, which of the following would be the most appropriate antibiotic option?

A.Intravenous metronidazole and intravenous vancomycin

B.Intravenous metronidazole and oral vancomycin

C.Intravenous vancomycin

D.Oral metronidazole

E.Oral metronidazole and oral vancomycin

Answer:Intravenous metronidazole and oral vancomycin

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

The correct answer is intravenous metronidazole and oral vancomycin.

The recent course of antibiotics, symptoms and raised white cell count are all indicative of a diagnosis of Clostridium difficile infection. Clostridium difficile infection can be a life-threatening condition, risking sepsis, toxic megacolon and ileus. The presence of hypotension and x-ray results suggesting toxic megacolon point to a life-threatening infection, and so both metronidazole and vancomycin are required for treatment. Metronidazole should be given IV in life-threatening disease. However, vancomycin should be delivered orally. This is the only situation where oral vancomycin will be used, as it is not absorbed by the gut. This feature is used to our advantage in Clostridium difficile infection, as it allows direct delivery to the site of infection, without losing any to absorption.

As stated above, vancomycin will be delivered intravenously in all other situations, as it is not absorbed by the gut, and so oral administration is usually ineffective. However, in this situation, as delivery to the gut is the desired outcome, oral delivery is preferred. Therefore, delivery of both metronidazole and vancomycin intravenously would be less effective.

For reasons stated above, IV vancomycin is less effective in the treatment of Clostridium difficile infection than oral delivery.

Oral metronidazole is the preferred option for uncomplicated Clostridium difficile infection. However, the features of this clinical presentation (stated above) suggest that this patient's condition is not only complicated but life-threatening.

Although vancomycin should be delivered orally, metronidazole should be delivered intravenously in life-threatening situations.

Question:

A 68-year-old woman is brought into the emergency department by ambulance. She was at home when she developed crushing, central chest pain, excessive sweating, nausea, and dizziness. Her past medical history is significant for hypertension, stable angina, and type 2 diabetes.

She is pain-free when she arrives at the hospital and is asking to go home because she feels well.

An ECG on arrival shows the following:

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What is the most likely diagnosis?

A.Anterior STEMI

B.Complete heart block

C.Inferior STEMI

D.Stable angina

E.Wellen's syndrome

Answer:Wellen's syndrome

Explanation:

This trace has a rate of approximately 60bpm and the rhythm is regular. The axis is normal as the QRS complexes in leads I and II are both positive.

P-waves are clearly seen in this ECG, and each P-wave is followed by a QRS complex. This is, therefore, sinus rhythm. The PR interval is around 3 small squares (0.12s) and is therefore normal.

The QRS complexes are a normal duration (around 0.08s) and there is preserved R wave progression in the precordial waves. QRS voltages are normal throughout.

There is no obvious ST-elevation in any of the leads. However, there is clear, deep T-wave inversion in leads V1-V5.

Wellen's syndrome is the correct answer. This refers to critical stenosis of the left anterior descending artery and is a medical emergency, requiring urgent PCI as per ACS protocol. The history of self-resolving cardiac chest pain on a background of ischaemic heart disease is typical of Wellen's syndrome. ECG commonly shows deeply inverted T-waves in leads V2-V3 (which may extend to V1-V6) with no or minimal ST-elevation and preserved R wave progression.

Anterior STEMI is incorrect. Anterior ECG leads, corresponding to the left anterior descending artery, are V1-V4. Given the history of cardiac chest pain on a background of ischaemic heart disease, STEMI should always be a leading differential diagnosis. However, this patient's ECG doesn't show ST-elevation and thus this patient has not presented with a STEMI.

Complete heart block is incorrect. Complete heart block is characterised by total loss of AV conduction and often presents with symptomatic bradycardia resulting in pre-syncope or syncope. ECG in complete heart block will demonstrate complete AV dissociation - with P-waves showing no association to the QRS complexes. The PR interval in this ECG is normal, and each P-wave precedes a QRS, thus ruling out complete heart block.

Inferior STEMI is incorrect. The inferior leads on an ECG are II, III, and aVF, and correspond to the right coronary and/or left circumflex arteries. The ST segments in these leads in this ECG are normal, without ST-elevation, and thus this is not an inferior STEMI.

Stable angina is incorrect. Stable angina would produce a normal ECG. This ECG is not normal given the deeply inverted T-waves in the precordial leads. This is highly suggestive of Wellen's syndrome, or critical stenosis of the left anterior descending artery.

Question:

You are a junior doctor working in emergency medicine. You review a 20-year-old medical student who has been brought in by his concerned flatmates. He recently returned from southeast Asia where he spent several weeks volunteering following a major flood. He received all vaccinations recommended to him prior to travel.

He has a one-week history of fever and flu-like symptoms. On examination, there is hepatomegaly, red conjunctiva and he is jaundiced. Bloods reveal an acute kidney injury and deranged liver function tests.

What is the most likely diagnosis?

A.Leptospirosis

B.Hepatitis D

C.Yellow fever

D.Schistosomiasis

E.Onchocerciasis

Answer:Leptospirosis

Explanation:

Leptospirosis is far more common in the tropics so should be considered in the returning traveller

Important for meLess important

Leptospirosis is commonly preceded by flu-like symptoms, associated with subconjunctival suffusion and is a cause of hepatorenal failure. Leptospirosis is alluded to by the history of time in a flood-affected area.

Hepatitis D does not present with subconjunctival suffusion and is spread through the parental route. Moreover, this patient will have received hepatitis B vaccination and hepatitis D requires hepatitis B surface antigen to spread making this diagnosis less likely.

Although yellow fever would present with similar symptoms, it is endemic in Africa and South America, not Asia. Moreover, there is a highly effective yellow fever vaccine and this patient took all the recommended vaccinations. Yellow fever does not present with subconjunctival suffusion.

Although schistosomiasis is spread by water-borne parasites (via freshwater snails), it is not endemic in southeast Asia. Schistosomiasis presents with hepatomegaly, abdominal pain, diarrhoea, haematuria, and blood in the stool. Schistosomiasis does not present with subconjunctival suffusion.

Onchocerciasis is also known as river blindness and is not endemic in southeast Asia. Onchocerciasis presents primarily with visual and dermatological symptoms.

Question:

Which one of the following is least likely to result from Streptococcus pyogenes infection?

A.Rheumatic fever

B.Scarlet fever

C.Cellulitis

D.Type 2 necrotizing fasciitis

E.Pneumonia

Answer:Pneumonia

Explanation:

Streptococcus pyogenes rarely causes pneumonia.

Question:

An 8-year-old boy is brought to the attention of a psychiatrist by his mother with complaints of difficulty concentrating at home and at school. He is reported by the teachers to be easily distracted which is adversely affecting his learning. He also shows repeated outbursts of anger and his mother thinks he has 'too much energy'. The psychiatrist diagnoses him with attention-deficit hyperactivity disorder (ADHD) and starts him on methylphenidate (Ritalin).

Which of the following parameters must be monitored every 6 months in this patient?

A.Full blood count (FBC)

B.Urea and electrolytes (U+E)

C.Thyroid function test

D.Weight and height

E.Visual acuity

Answer:Weight and height

Explanation:

Methylphenidate - monitor weight and height every 6 months

Important for meLess important

Methylphenidate, a stimulant, may suppress appetite and cause growth impairment in children. It is advised to monitor growth as well as blood pressure and pulse in these patients on a regular basis.

Question:

An 80-year-old man presents to the emergency department with back pain. He has no documented past medical history. An x-ray spine shows vertebral wedge compression fractures and focal sclerotic bony lesions.

Which of the following diagnoses is most likely?

A.Metastatic prostate cancer

B.Multiple myeloma

C.Osteoporosis

D.Osteosarcoma

E.Paget's disease of bone

Answer:Metastatic prostate cancer

Explanation:

Bone metastases can present as pathological fractures

Important for meLess important

The most likely diagnosis in this case is metastatic prostate cancer. This disease is the most common cancer to metastasise to bone and patients often present with pathological fractures or bone pain as the first sign of disease. Prostate cancer metastases typically have a sclerotic appearance on x-ray.

The other options may all lead to pathological fractures.

Multiple myeloma and Paget's disease are typically associated with osteolytic lesions rather than sclerotic, however.

Osteoporotic fractures are common, however, focal sclerotic bony lesions are suggestive of an invasive process such as metastasis.

Osteosarcoma is a rare cancer most commonly affecting the long bones of children/young adults. It would be highly unusual to be present in the spine of man of this age. It often presents with pathological fractures of long bones such as the femur.

Question:

A 37-year-old woman presents with a history of recurrent miscarriages. She has been pregnant three times over the past 4 years but has had spontaneous termination before 10 weeks gestation in all three pregnancies.

She has a past medical history of depression and deep vein thrombosis two years ago. The examination is normal aside from a net-like mottling of the skin over the abdomen.

Given the likely diagnosis, what antibody is most likely to be positive on blood tests?

A.Anti-Ro antibodies

B.Anti-centromere antibodies

C.Anti-dsDNA antibodies

D.Anti-nuclear antibodies (ANA)

E.Anticardiolipin antibody

Answer:Anticardiolipin antibody

Explanation:

Arterial/venous thrombosis, miscarriage, livedo reticularis → anticardiolipin antibody +ve

Important for meLess important

The correct answer is anticardiolipin antibodies. This patient is presenting with a clinical picture of antiphospholipid syndrome. The classical presentation of recurrent miscarriage and venous thrombosis is seen in this patient, as well as livedo reticularis. Blood tests can be used in making a diagnosis of antiphospholipid syndrome. Anticardiolipin antibodies, as well as lupus anticoagulant, are commonly seen in patients with antiphospholipid syndrome.

Anti-Ro antibodies are incorrect. This patient is presenting with a clinical picture of antiphospholipid syndrome, commonly associated with anticardiolipin antibodies. Anti-Ro antibodies are generally seen in Sjogren's syndrome, however, there can be a crossover.

Anti-centromere antibodies are incorrect. This patient is presenting with a clinical picture of antiphospholipid syndrome, commonly associated with anticardiolipin antibodies. Anti-centromere antibodies are generally associated with limited systemic sclerosis or CREST syndrome.

Anti-dsDNA antibodies are incorrect. This patient is presenting with a clinical picture of antiphospholipid syndrome, commonly associated with anticardiolipin antibodies. Anti-dsDNA antibodies are commonly associated with systemic lupus erythematosus (SLE). It should be noted that patients with SLE can have symptoms of antiphospholipid syndrome.

Anti-nuclear antibodies (ANA) are incorrect. This patient is presenting with a clinical picture of antiphospholipid syndrome, commonly associated with anticardiolipin antibodies. Anti-nuclear antibodies are found in a variety of connective tissue diseases and vasculitides. However, they are most specific for SLE.

Question:

A 38-year-old woman complains that she is experiencing hot flushes and has not had a period for the past five months. She is worried that she going through an 'early menopause'.

What is the most appropriate investigation to diagnose premature ovarian failure?

A.Progesterone level

B.Ovarian ultrasound

C.Follicle stimulating hormone level

D.Serial measurement of basal body temperature

E.Oestrogen level

Answer:Follicle stimulating hormone level

Explanation:

Follicle stimulating hormone (FSH) level is raised significantly in menopausal patients. Test FSH to confirm menopause

Important for meLess important

Follicle stimulating hormone (FSH) and luteinising hormone (LH) are gonadotropins released from the anterior pituitary into the blood. Gonadotropins act on the ovaries to stimulate the growth and maturation of the follicle. The levels of circulating FSH and LH are regulated through negative feedback to the hypothalamus by steroid hormones produced by the ovaries. At menopause (and in premature ovarian failure), ovarian function ceases, leading to high levels of FSH due to the removal of the negative feedback mechanisms.

Question:

An 80-year-old female presents to general practice for an annual general check-up. She has no particular complaints and on examination, no abnormalities were found.

You check the blood test results which were sent by the nurse prior to the appointment:

Na+ 129 mmol/l

K+ 4 mmol/l

Urea 3 mmol/l

Creatinine 80 µmol/l

You decide to review her medications.

Which of the following medications is most likely to have caused her electrolyte abnormality?

A.Aspirin

B.Bisoprolol

C.Ramipril

D.Sertraline

E.Sildenafil

Answer:Sertraline

Explanation:

SSRIs are associated with hyponatraemia

Important for meLess important

Aspirin is not associated with hyponatraemia. A common side effect is dyspepsia.

Bisoprolol is a beta-blocker, which is not commonly associated with hyponatraemia. The main side effects are bradycardia.

Ramipril is an ACE inhibitor, which is associated with hyperkalaemia, particularly in those with reduced renal function.

Sertraline is a selective serotonin reuptake inhibitor (SSRI). This class of drugs are known to be associated with hyponatraemia, especially in the elderly

Sildenafil, also known as viagra, is not associated with hyponatraemia.

Question:

A 71-year-old man presents to the emergency department with sudden onset abdominal pain and pyrexia. On examination, he looks unwell and his abdomen is distended. His heart rate is 87/min, respiratory rate 27/min, blood pressure 143/93 mmHg and temperature is 38.6 ºC. He has been feeling constipated for the last week and has not passed air or faeces. His past medical history comprises active sigmoid cancer and type 2 diabetes managed with metformin. An erect chest x-ray shows air under the left hemidiaphragm.

Which one of the following surgical management plans is the most appropriate?

A.Hartmann's procedure

B.High anterior resection

C.Left hemicolectomy

D.Low anterior resection

E.Right hemicolectomy

Answer:Hartmann's procedure

Explanation:

Hartmann's procedure = sigmoid colectomy and formation of end stoma

Important for meLess important

The correct answer is Hartmann's procedure. It is usually executed in emergencies, such as bowel obstruction or perforation. This patient presents with the classical symptoms of perforation, such as pain, peritonism and pyrexia. Additionally, an erect chest x-ray shows air under the diaphragm, indicating a perforated viscous. His sigmoid cancer has created an occlusion that has perforated. The procedure 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.

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 sigmoid colon, not in the rectum making this option incorrect.

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. In this case, the patient is presenting with signs of perforation, making this routine management option incorrect.

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 sigmoid colon, not in the rectum making this option incorrect.

A right hemicolectomy is used to excise 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. The patient mass is located in the sigmoid colon making this choice of procedure incorrect.

Question:

A 60-year-old man has a 2-year history of progressive shortness of breath on exertion. During this time, he has had an associated cough productive of large amounts of green sputum and recurrent chest infections. He smokes 35 cigarettes a day and has done so for the past 30 years.

On lung auscultation, high-pitched inspiratory crackles and squeaks are heard throughout both lung fields.

His chest X-ray shows parallel linear densities in the lower zone of both lungs. A high-resolution CT chest is subsequently ordered:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Bronchiectasis

B.Sarcoidosis

C.Small cell lung cancer

D.Squamous cell lung cancer

E.Tuberculosis (TB)

Answer:Bronchiectasis

Explanation:

Bronchiectasis is the correct answer. The presence of recurrent chest infections and cough associated with large amounts of sputum should raise suspicion of bronchiectasis. The chest X-ray findings are consistent with 'tram-track' opacities which occur secondary to bronchial airway dilation. The CT chest shows dilated airways with the characteristic 'signet-ring' sign (the dilated bronchus appears much larger alongside the associated pulmonary artery). These findings are most suggestive of a diagnosis of bronchiectasis.

Sarcoidosis is incorrect. It has a variety of thoracic manifestations, however, the most typical finding is symmetrical hilar and mediastinal lymphadenopathy seen on the chest X-ray which is not evident here. Sarcoidosis would also typically show multi-organ dysfunction as opposed to isolated lung involvement.

Small cell lung cancer is incorrect. This would typically present with a hilar/peri-hilar mass with/without mediastinal lymph node involvement. There is no evidence of a defined mass mentioned or present on the CT image. Lung cancer would also typically associated with weight loss and haemoptysis. Although this patient does have a significant smoking history, the absence of these features makes lung cancer less likely.

Squamous cell lung cancer is incorrect. This would typically present with a hilar/peri-hilar mass with/without mediastinal lymph node involvement and may also cause bronchial obstruction (leading to lobar collapse). There is no evidence of a defined mass mentioned or present on the CT image or lobar collapse. Lung cancer would also typically associated with weight loss and haemoptysis. Although this patient does have a significant smoking history, the absence of these features makes lung cancer less likely.

Tuberculosis (TB) is incorrect. It has a variety of pulmonary manifestations which largely depend on the course of the disease. Primary TB is classically known to affect the upper zone of the lungs. Isolated endobronchial TB is rare, however, may cause bronchiectasis in the chronic setting. There is no evidence to suggest that this patient has TB or is at risk of TB, and the lung pathology in this scenario is predominantly seen in the lower zones in the chest X-ray.

Question:

A 24-year-old male is admitted with a head injury. Approximately one hour ago he was hit on the lateral aspect of his head by a high velocity cricket ball. A collateral history reveals that he lost consciousness immediately after the impact. Paramedics on the scene noted his Glasgow coma score of 15. On examination he has Glasgow coma score of 13 (M5, V4, E4) on arrival in the department. He has anterograde and retrograde amnesia to events. You arrange an urgent CT scan.

Which clinical sign would be most concerning in this patient?

A.Pyrexia

B.Hypotension

C.Bradycardia

D.Tachycardia

E.Decreased pulse pressure

Answer:Bradycardia

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

The mechanism of injury, loss of consciousness and 'lucid interval' should ring alarm bells for an extradural haematoma. The Cushing reflex is a physiological nervous system response to increased intracranial pressure that results in hypertension and bradycardia. Cerebral perfusion pressure (CPP) = mean arterial pressure (MAP) - intracranial pressure. Therefore if intracranial pressure is high, the only way the body can compensate to increase CPP is by increasing MAP. A sympathetic reflex therefore results in hypertension. This results in a counter parasympathetic reflex by stimulation of the baroreceptors resulting in bradycardia.

Question:

A 7-year-old male presents to his general practitioner accompanied by his mother. He has been suffering from a severe sore throat for the last three days. His temperature reached 39.5ºC last night so the mother decided to bring him in today.

He denies any cough or earache and was a previously healthy child, with no allergies. On examination, the doctor notices evident cervical lymphadenopathy and enlarged tonsils, but no tonsillar exudate.

Which one of the following management plans is the most appropriate?

A.Analgesia and abundant fluid administration

B.Amoxicillin for 5 days

C.Analgesia and come back in 5 days for review

D.Erythromycin for 10 days

E.Phenoxymethylpenicillin for 10 days

Answer:Phenoxymethylpenicillin for 10 days

Explanation:

Phenoxymethylpenicillin is the first line antibiotic for tonsillitis

Important for meLess important

The correct answer is phenoxymethylpenicillin for 10 days. This child is presenting with the classic signs and symptoms of acute tonsillitis: fever, sore throat and cervical lymphadenopathy. He is scoring 3 out of 4 on the Centor criteria (+1 for fever, +1 for the absence of cough and +1 for anterior cervical lymphadenopathy). This score indicates that the infection is likely to be bacterial rather than viral, requiring antibiotics. Hence, the first-line antibiotic to prescribe is phenoxymethylpenicillin. Antibiotics are of vital importance in acute bacterial tonsillitis, as it could develop into quinsy, a potentially deadly complication.

Analgesia and abundant fluid administration are suggested in cases of mononucleosis (Epstein-Barr virus). The classic triad of sore throat, pyrexia and lymphadenopathy is seen in around 98% of cases of mononucleosis, but in this case, the patient also has enlarged tonsils. Additionally, mononucleosis is most commonly found in adolescents and not children, making this diagnosis and management unlikely.

Amoxicillin for 5 days is prescribed in cases of otitis media. The most defining characteristic of otitis media is otalgia, which is absent in this patient making this diagnosis and management unlikely.

Analgesia and come back in 5 days for review is an incorrect answer. Antibiotic treatment should be given immediately if the patient is scoring 3 or more on the Centor criteria. If not given in bacterial tonsillitis, it can develop into a dangerous peritonsillar abscess.

Erythromycin for 10 days is wrong since this antibiotic is used as a second-line treatment in cases where phenoxymethylpenicillin cannot be used. In this case, there are no contraindications for the usage of the first-line treatment.

Question:

A 25-year-old man is seen in clinic with a 3-month history of a slowly enlarging, painless right neck mass, which becomes painful when drinking alcohol. He has noticed some unexplained weight loss but denies fever and night sweats. He has no past medical history.

Non-tender, firm, mobile masses are present in the right neck, right axilla, and right inguinal region. A lymph node biopsy shows the presence of Reed-Sternberg cells. Imaging shows axillary and inguinal node involvement, but no extra-lymphatic organ involvement.

What Ann-Arbor clinical stage is this patient's likely disease in?

A.Stage I

B.Stage II

C.Stage III

D.Stage IV

E.Stage V

Answer:Stage III

Explanation:

Stage III of the Ann-Arbor clinical staging of lymphomas involve lymph nodes on both sides of the diaphragm

Important for meLess important

The presence of non-tender neck lumps which become painful when drinking alcohol suggests a diagnosis of Hodgkin's lymphoma (HL), which is confirmed by this patient's lymph node biopsy showing Reed-Sternberg cells. This patient's examination and imaging demonstrate the involvement of the axillary and inguinal lymph nodes, however, no extra-lymphatic organs including the liver, lungs, or bone marrow, are affected. HL can be staged using the Ann-Arbor clinical staging system, which takes the number and sites of affected lymph nodes into account.

Stage III is correct as this patient has lymph node involvement above (axillary and neck lymph nodes) and below (inguinal lymph nodes) the diaphragm with no extra-lymphatic organ involvement.

Stage I is incorrect. This would be correct if there was only one affected lymph node. This patient has 3 affected lymph nodes both above and below the diaphragm.

Stage II is incorrect. This would be appropriate if the patient had 2 or more affected lymph nodes or regions on the same side as the diaphragm. In this patient, this would be the case if there was no involvement of the inguinal nodes (as they are below the diaphragm, and his neck and axillary regions are above the diaphragm).

Stage IV is incorrect. This would be correct if the patient had evidence of extra-lymphatic organ involvement, such as involvement of the liver, bone marrow, or lungs. Imaging has shown that there is no involvement.

Stage V is incorrect as there is no stage V of the Ann-Arbor clinical staging system of lymphomas.

Question:

You are shadowing a doctor working on the labour ward who is asked to review a 2-hour-old delivered at 41+2 weeks by ventouse as the mother is anxious about the appearance of her baby's head. On examination, you see a soft, puffy occipital swelling with some light bruising from the ventouse cup, the swelling appears to cross the suture lines. The baby seems well in herself otherwise and the neonatal hearing screen which occurred earlier that morning was unremarkable.

What is the likely cause for this appearance?

A.Bulging fontanelle

B.Caput succedaneum

C.Cephalohaematoma

D.Hydrocephalus

E.Subaponeurotic haemorrhage

Answer:Caput succedaneum

Explanation:

Caput succedaneum is a puffy swelling that usually occurs over the presenting part and crosses suture lines

Important for meLess important

This baby was delivered via ventouse delivery (a suction cup which is placed on the presenting part to facilitate manual delivery of the baby vaginally). One of the common effects of ventouse delivery (particularly prolonged ventouse delivery) is a localised oedema from the prolonged application of the suction cup on the baby's head called caput succedaneum. This will usually resolve spontaneously within 3 to 6 weeks postnatally.

A bulging fontanelle occurs when there is an increase in intracranial pressure due to increased extracellular fluid production - common causes are hydrocephalus or illness causing increased intracranial pressure. This makes the soft spot on top of the head (the fontanelle) bulge rather than a puffy swelling over the presenting part. If the baby in the vignette had a bulging fontanelle, it is likely they would have indications of what could be causing it (such as poor APGAR, temperature, or infective symptoms).

Cephalohaematoma is a swelling caused by serosanguinous fluid collecting between the periosteum and the skull which occurs due to small vessel rupture during birth. It is increasingly common in prolonged second stage of labour, delivery with ventouse or forceps, and in macrosomic babies. It does not usually cross the suture lines (unlike this vignette of caput succedaneum).

Hydrocephalus occurs when there is an accumulation of cerebrospinal fluid around the brain. It causes increased intracranial pressure typically and clinical examination may reveal a bulging fontanelle. It can occur from birth as congenital hydrocephalus (due to conditions like spina bifida or foetal rubella syndrome). The baby in the vignette is described as appearing well and there would likely be other indicators, such as a poor APGAR or facies, if the infant had hydrocephalus.

A subaponeurotic haemorrhage or subgaleal haemorrhage is a rare condition seen in newborns caused by rupturing of the emissary veins that connect the dural sinuses and the scalp veins. This leads to blood accumulating in the aponeurosis of the scalp and periosteum. These can occur secondary to ventouse delivery and are an important differential to caput succedaneum. They are not confined by cranial sutures either but run deep to the galeal aponeurosis and are bloody rather than serosanguinous or oedematous fluid in nature.

Question:

A 16-month old infant is brought to the GP by his mother, who is concerned that her child has not been eating as much over the past two days. She has also noticed some ulcers in his mouth. On examination, there are a few vesicles on the palms of his hands. Observations show a temperature of 37.9ºC, heart rate of 130/min, respiratory rate of 30/min and oxygen saturation of 99% in room air.

His mother reports that he was a term infant born vaginally, is progressing well on his growth charts with the health visitor and is up to date with his immunisations.

What is the most likely cause of his presentation?

A.Kawasaki disease

B.Rubella

C.Scarlet fever

D.Coxsackie A16

E.Parvovirus B19

Answer:Coxsackie A16

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

This child has symptoms consistent with hand, foot and mouth disease which is caused by Coxsackie A16. It presents with mild systemic upset (such as sore throat and fever), oral ulcers and vesicles on the palms and soles. It usually self-resolves after 7 to 10 days and simple, over-the-counter analgesia may help the child with any pain. Often over-the-counter oral numbing sprays can help with the symptoms of sore throat.

Kawasaki disease is associated with a higher fever than this child is presenting with - alongside some characteristic features which can be remembered by the mnemonic 'CRASH and burn'.

C: conjunctivitis (bilateral).

R: rash (non-vesicular).

A: adenopathy (cervical).

S: swollen, strawberry tongue.

H: hand swelling (or feet).

Burn: fever lasts >5 days and is very high.

Parvovirus B19 is also known as 'fifth disease'. It presents with lethargy, fever, and headache. There is a 'slapped cheek' rash that appears before spreading to the proximal arms and extensor surfaces. This child does not have the characteristic appearance, thus this option is incorrect.

Rubella presents with a pink maculopapular rash on the face which spreads to the whole body. There is also suboccipital and post-auricular lymphadenopathy. As this infant does not appear to have these symptoms and is up to date with his vaccinations, it is unlikely that he has rubella.

Scarlet fever presents with fever, tonsillitis and a 'strawberry' looking tongue. It is caused by a reaction to erythrogenic toxins produced by Group A haemolytic streptococci. This child does not have these typical features.

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 44-year-old woman presents to her Neurology clinic due to ongoing headaches. She has been troubled by frontal headaches for six months. These have proved refractory to analgesia, and she feels they are getting more frequent and more intense. She is currently taking codeine and paracetamol four times a day; ibuprofen three times a day, and sumatriptan for particularly severe episodes. Her neurologist suspects that her headaches may be caused by medication overuse, and suggests that she should try coming off her medications.

What is the most appropriate way in which to withdraw her analgesia?

A.Gradually withdraw all analgesia

B.Stop all analgesia abruptly

C.Stop codeine; gradually wean paracetamol, ibuprofen and sumatriptan

D.Stop paracetamol and ibuprofen; gradually wean sumatriptan and codeine

E.Stop paracetamol, ibuprofen and sumatriptan; gradually decrease codeine

Answer:Stop paracetamol, ibuprofen and sumatriptan; gradually decrease codeine

Explanation:

Medication overuse headache

simple analgesia + triptans: stop abruptly

opioid analgesia: withdraw gradually

Important for meLess important

The correct answer is stop paracetamol, ibuprofen and sumatriptan; gradually decrease codeine. Medication overuse headaches may be seen in patients who have been taking regular analgesia for headaches for a sustained period (usually months). They are exacerbated by increased doses of analgesics, and the definitive treatment is to withdraw analgesia altogether. The correct way in which to do this is to stop triptans and simple analgesia such as paracetamol and NSAIDs abruptly, but withdraw any opioid analgesia gradually.

Gradually withdraw all analgesia is incorrect as this patient's paracetamol, ibuprofen and sumatriptan can all be stopped abruptly.

Stop all analgesia abruptly is incorrect as this patient's codeine should be tapered down gradually to reduce the risk of discontinuation symptoms.

Stop codeine; gradually wean paracetamol, ibuprofen and sumatriptan is incorrect as codeine should be withdrawn gradually, whilst her other analgesia should be stopped instantly.

Stop paracetamol and ibuprofen; gradually wean sumatriptan and codeine is incorrect as sumatriptan can be stopped abruptly in this patient.

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 fifty-five-year-old, known alcoholic, presents to his general practitioner (GP) complaining of swelling in his right foot. He does not know when the swelling started, but it has been getting gradually worse for the past 4 months. The swelling is constantly there, and he is still able to weight bear on both limbs. It is not painful.

At night he sleeps with two pillows, and denies being short of breath or paroxysmal nocturnal dyspnoea. He smokes 10 cigarettes a day and has done for 30 years. He consumes 15 units of alcohol per day and has done so for 20 years.

On examination:

Heart rate: 84/minute; Respiratory rate: 12/minute; Blood pressure 135/74 mmHg; Oxygen saturations: 98%; Temperature 36.5ºC

Right foot: Visibly swollen and erythematous and is hot to touch. No tenderness on palpation. Reduced range of movement due to stiffness from swelling. Pulses present. Reduced sensation in all dermatomes below the knee.

Left foot: Mildly swollen, but not hot or erythematous. No tenderness on palpation of the joint or tarsal bones. Normal range of movement. Pulses present. Reduced sensation in all dermatomes below the knee.

The GP sends him for X-rays of both feet. X-ray of the right foot shows evidence of osteolysis of the distal metatarsals and wide spread joint dislocation in the forefoot. X-ray of the left foot is normal.

What is this patient's most likely diagnosis?

A.Osteoarthritis

B.Heart failure

C.Charcot joint

D.Rheumatoid arthritis

E.Gout

Answer:Charcot joint

Explanation:

Alcoholic neuropathy predisposes to the development of a Charcot joint

Important for meLess important

This patient has an alcoholic neuropathy. This can predispose to the development of a Charcot joint (also known as a neuropathic arthropathy). This a condition of insidious onset that involves progressive degeneration of a weight bearing joint, due to loss of sensation (i.e. individuals will do continued damage to the joint but will be unable to feel any pain from this, and thus will continue to walk on the joint and make the damage worse). The most common cause is diabetic neuropathy but there are several other conditions which may lead to it including alcoholic neuropathy, syphilis and cerebral palsy.

The X-ray findings of osteolysis and joint dislocation, in conjunction with the clinical findings of a non-tender, swollen, erythematous and hot foot are pathognomonic of an acute Charcot joint.

Whilst osteoarthritis (OA) (1) may be associated with a swollen and erythematous foot, OA would not have the X-ray changes mentioned in this question. The history of alcoholism and the peripheral neuropathy indicates that it is less likely to be OA.

Heart failure (2) can lead to peripheral oedema, and alcoholism can predispose to heart failure. However, he has no other symptoms of heart failure, meaning that this is an unlikely cause.

Rheumatoid arthritis (RA) (4) is an asymmetrical inflammatory arthropathy that can affect any of the joints in the body. However, the associated history of alcoholism combined with the radiological findings means that RA is less likely than a Charcot joint.

Gout (5) commonly affects the big toe (a podagra) and patients are normally in excruciating pain. It is normally an acute onset condition, whereas this patient complains of a gradual onset.

Question:

A 24-year-old nulliparous woman presents in spontaneous labour and you are involved in the vaginal delivery of a baby boy weighing 3.6 kg. An Apgar score is used to asses the health of the newborn. Which of the following contains the correct components of the Apgar score?

A.Pulse, respiratory effort, colour, muscle tone, reflex irritability

B.Pulse, respiratory effort, O2 saturation, muscle tone, colour

C.Pulse, blood pressure, respiratory effort, muscle tone, reflex irritability

D.Pulse, blood pressure, O2 saturation, muscle Tone, colour

E.Pulse, respiratory effort, colour, muscle tone, coordination

Answer:Pulse, respiratory effort, colour, muscle tone, reflex irritability

Explanation:

The Apgar scoring system is used to assess the health of the newborn. The components of the Apgar score include pulse, respiratory effort, colour, muscle tone and reflex irritability.

Question:

A 62-year-old man presents to surgery complaining of painful gums. On examination he is noted to have gingival hyperplasia. Which one of the following drugs is most likely to be responsible?

A.Carvedilol

B.Amiodarone

C.Atorvastatin

D.Nifedipine

E.Digoxin

Answer:Nifedipine

Explanation:

Gingival hyperplasia: phenytoin, ciclosporin, calcium channel blockers and AML

Important for meLess important

Question:

A 45-year-old man presents to his general practitioner concerned about his sex life. He is unable to get and maintain an erection and feel it is affecting him mentally.

He has a past medical history of atrial fibrillation and hypertension.

Which one of the following may be the underlying cause of erectile dysfunction in this patient?

A.L-arginine supplements

B.Avanafil

C.Paracetamol

D.Bisoprolol

E.Amlodipine

Answer:Bisoprolol

Explanation:

Beta-blockers, such as bisoprolol, can cause erectile dysfunction

Important for meLess important

Erectile dysfunction (ED) is a recognised adverse effect of beta-blockers.

L-arginine is a precursor for nitric oxide, which is a potent vasodilator. It can be a form of treatment for ED.

Paracetamol is not commonly known to cause erectile dysfunction. Also, there is no history to suggest paracetamol use.

Avanafil, like sildenafil, is a type of viagra that is used to treat ED.

Amlodipine is not associated with ED.

Question:

A 78-year-old nursing home resident with a long term catheter presents to general practice with a positive urine culture. This reveals an E coli sensitive to amoxicillin, trimethoprim and nitrofurantoin. He is otherwise well and denies any dysuria. He is apyrexial with normal vital signs.

What is the best management of this patient?

A.Amoxicillin for 7 days

B.Trimethoprim for 3 days

C.Trimethoprim for 7 days

D.Nitrofurantoin for 7 days

E.No treatment required

Answer:No treatment required

Explanation:

Do not treat asymptomatic bacteria in catheterised patients

Important for meLess important

This patient has an asymptomatic bacteriuria, on a background of long term catheterization. Such a result is likely to be a spurious result originating from the colonisation of the catheter and not reflective of an ongoing urinary tract infection. Therefore no treatment is required.

A 7-day course of antibiotics is used in symptomatic patients that are catheterised. Such a case would be best managed empirically or based on the sensitivities revealed on urine culture.

Question:

A 25-year-old man is visiting his GP for a new patient check-up. He is fit and well, with no concerns. On enquiry about illnesses that run in the family he reveals that both his mother and grandfather both suffer from glaucoma.

What advice should you give him regarding glaucoma?

A.Glaucoma has no hereditary component

B.He should have an annual screening commencing now

C.He should get annual screening from age 60 years

D.Due to his high risk treatment for glaucoma should be commenced now

E.He should get annual screening from age 40 years

Answer:He should get annual screening from age 40 years

Explanation:

Those with a positive family history of glaucoma should be screened annually from aged 40 years

Important for meLess important

Glaucoma has a strong hereditary component, and so those with a first-degree relative, are generally advised to have annual glaucoma screening form the age of 40.

NICE Clinical Knowledge Summaries state the following:

Family history of glaucoma. People older than 40 years of age who have a first-degree relative (parent, sibling, or child) with open angle glaucoma should be examined annually - free examination is available through the NHS.

This screening can you usually take place with their optician. It's important to stress to patients that the early stages of glaucoma are asymptomatic, so screening is needed, to prevent late presentations in which patients have already sustained severe visual field reduction.

Question:

A 57-year-old man presents to the emergency department with severe epigastric pain radiating to his right upper quadrant and back. He has vomited 3 times since the pain came on this morning. He claims to have never experienced this before.

Upon examination, there is no abdominal distention or visible jaundice. His heart rate is 98/min, respiratory rate 18/min, blood pressure 108/66mmHg and temperature 37.9ºC.

A new medication has been recently added to his regime.

What is the most likely cause of his presentation?

A.Hydroxychloroquine

B.Lithium

C.Mesalazine

D.Metformin

E.Methotrexate

Answer:Mesalazine

Explanation:

Mesalazine can cause drug-induced pancreatitis

Important for meLess important

Mesalazine is correct. This is a drug commonly used for Crohn's disease but also for other conditions such as rheumatoid arthritis and functions as an immunosuppressant. This patient has presented with acute pancreatitis, due to the epigastric pain radiating to the back, vomiting, low-grade pyrexia and lack of jaundice. This is an acute presentation that is drug-induced. The mechanism by which mesalazine causes pancreatitis is unclear, however, toxicity has been suggested as an explanation. Pancreatitis is a known albeit rare complication of mesalazine.

Hydroxychloroquine is incorrect. This is a drug commonly used for systemic lupus erythematosus and rheumatoid arthritis by suppressing toll-like receptors playing a key role in immunity. Hydroxychloroquine has even been reported to reduce the risk of pancreatitis making it an unlikely cause.

Lithium is incorrect. This is a mood stabiliser, the mechanism of which remains unclear, usually used as a prophylaxis for bipolar disorder patients. This has not been linked to pancreatitis.

Metformin is incorrect. Metformin, a first-line drug for diabetes mellitus type 2, works by decreasing hepatic gluconeogenesis and increasing insulin sensitivity in the peripheral tissues. It has not been linked to pancreatitis.

Methotrexate is incorrect. Methotrexate, an immunosuppressing drug used in conditions such as rheumatoid arthritis and psoriasis, has not been linked to pancreatitis.

Question:

A 45-year-old patient on your practice list has a BMI of 52 kg/m² and wishes to be listed immediately for bariatric surgery. They do not have any co-morbidities or contraindications for surgery.

What is the most appropriate next step?

A.Not eligible for surgery due to BMI below referral level

B.Not eligible for surgery due to lack of co-morbidities

C.Refer for bariatric surgery

D.Dietary management plan for 6 months before referral

E.Orlistat trial for 6 months before referral

Answer:Refer for bariatric surgery

Explanation:

Consider bariatric surgery as a first-line option for adults with a BMI >50

Important for meLess important

Patients without contraindications can be referred to surgery as a first-line option if their BMI is greater than 50 kg/m². If the patient had medical conditions that were affected by weight then a referral for surgery can be considered at a BMI greater than 35 kg/m².

There are no restrictions for referral to consider bariatric surgery based on his BMI which is over 50 kg/m². The decision by the bariatric surgery team will involve an anaesthetic risk assessment based on multiple factors.

Referral for bariatric surgery in patients with a BMI greater than 40 kg/m² does not require them to have a medical condition affected by their weight. The requirement applies to patients with a BMI greater than 35 and up to 40 kg/m².

A further dietary management plan may benefit the patient however the request for surgical consideration does not need to be delayed a further 6 months.

Orlistat could be trialled while awaiting surgical assessment however this does not need to delay the referral.

Question:

A 56-year-old lady is referred to rheumatology clinic due to severe Raynaud's phenomenon associated with arthralgia of the fingers. On examination you note shiny and tight skin of the fingers with a number of telangiectasia on the upper torso and face. She is also currently awaiting a gastroscopy to investigate heartburn. Which one of the following antibodies is most specific for the underlying condition?

A.Anti-Jo 1antiobodies

B.Rheumatoid factor

C.Anti-Scl-70 antibodies

D.Anti-centromere antibodies

E.Anti-nuclear factor

Answer:Anti-centromere antibodies

Explanation:

Limited (central) systemic sclerosis = anti-centromere antibodies

Important for meLess important

This lady has some features of CREST syndrome. Although ANA is positive in 90% of patients with systemic sclerosis, anti-centromere antibodies are the most specific test for limited cutaneous systemic sclerosis

Question:

A 39-year-old woman initially presented with a chest infection but deteriorated despite antibiotics and is now in ITU. She has had a bronchoscopy and bronchio-alveolar lavage which confirmed a diagnosis of invasive aspergillosis.

Which of the following is the strongest risk factor for this condition?

A.Renal failure

B.Asthma

C.TNF-α inhibitor use

D.Sarcoidosis

E.Smoking

Answer:TNF-α inhibitor use

Explanation:

Invasive aspergillosis occurs in immunocompromised patients

Important for meLess important

Invasive aspergillosis is a systemic Aspergillus infection (A. fumigatus, A. flavus, and A. terreus) that is a leading cause of death in immunocompromised patients.

Although all of the above options can cause a patient to be immunocompromised in some way, use of TNF-α inhibitors such as infliximab are at significant risk of opportunistic infections e.g. TB, Legionella, histoplasmosis.

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 21-year-old who is not yet sexually active presents to her GP requesting contraception. She is aware that she does not wish to use barrier or long-acting contraception. Currently, her menstrual cycle is 28-days and she denies any gynaecological symptoms. Her past medical history is significant for migraine with aura, for which she uses sumatriptan. She takes no other medications and has no allergies.

On examination, her BMI is 20kg/m² and her blood pressure is 105/75mmHg.

Given the most appropriate contraceptive for her, what is the most likely side effect she will experience?

A.Breast tenderness

B.Dysmenorrhoea

C.Irregular vaginal bleeding

D.Mood changes

E.Weight gain

Answer:Irregular vaginal bleeding

Explanation:

Progestogen-only pill: irregular vaginal bleeding is the most common adverse effect

Important for meLess important

Irregular vaginal bleeding is the correct answer. This is the most common side effect of the progestogen-only pill (POP), particularly in the first 3-months of use. We can deduce that this patient has been prescribed the POP as she does not wish to use barrier contraception or long-acting reversible contraceptives (the injection, implant or intrauterine devices), leaving either the POP or combined-hormonal contraception (CHC) as options. This patient has migraines with aura, meaning that all CHC (i.e. the pill, patch or vaginal ring) is contraindicated due to the unacceptable risk of stroke. She therefore will have been prescribed the POP.

Breast tenderness is incorrect. This is another side effect of the POP, although it is usually only transient. However, it is irregular bleeding, not breast tenderness, that is the most common side effect of the POP. Whilst you do not need to know the exact frequencies of all of the side effects of the POP, it is important to know that irregular vaginal bleeding is the most common, particularly as this is a common reason why women discontinue the POP.

Dysmenorrhoea is incorrect. Hormonal contraception is not associated with dysmenorrhoea. Instead, there is evidence that dysmenorrhoea improves with the use of hormonal contraception. Although it is the CHC pill that is typically prescribed for dysmenorrhoea, progestogen-only contraceptives have also been found to improve dysmenorrhoea due to the inhibition of ovulation and the reduction in prostaglandin levels.

Mood changes are incorrect. Although this is a listed side effect of the POP, they are not the most common side effect. The Faculty of Sexual and Reproductive Health states that current evidence does not establish a causal relationship between POP and depression, although some users will experience mood changes after starting the POP.

Weight gain is incorrect. It is not the most common side effect of POP. There is unclear evidence that the POP causes significant weight gain. Weight gain is more commonly associated with long-acting progestogen injection.

Question:

You are working on a busy colorectal firm with another FY1, SHO, registrar and consultant. It is just you and the other FY1 on the ward, as the rest of the team are in theatre, and your bleep is going off more than usual today. You try to answer every bleep but are struggling to get any jobs done because of this. The latest bleep is about writing up a post-op patient for some more analgesia. You ask the nurse who bleeped to contact the other FY1 as you are currently reviewing a sick patient. The nurse informs you she tried but they said they were too busy to help. It's now been 5 hours since you last saw the other FY1 and in that time you haven't had any time to stop. So you pop in the mess for a glass of water and find the other FY1 on the computer checking his emails and house hunting. What do you do?

A.Complete a clinical incident form

B.Ask the nurse to bleep your colleague instead of you the rest of the day

C.Ask your colleague what has happened and explain how stressed you have been

D.Report your colleague to your consultant

E.Ask your colleague what has happened and document this in the ward communication book

Answer:Ask your colleague what has happened and explain how stressed you have been

Explanation:

The GMC good medical practice talks about partnership and teamwork, they say;

'You must work collaboratively with colleagues, respecting their skills and contributions. You must treat colleagues fairly and with respect. You must be aware of how your behavior may influence others within and outside the team.'

This question is looking at the aspects of working in a team and working collaboratively with each other. The best answer to achieve this is to communicate this with your colleague, however, then documenting this in the communication book is unnecessary.

Escalating this up to the consultant or filling out a clinical incident form is unnecessary and you should always start by talking to the person involved first.

Asking the nurse to bleep the other FY1 neither deals with the situation or allows for the provision of the best and safest clinical care to your patients.

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 46-year-old African gentleman presents with painless haematuria. Whilst taking a urological history he mentions that he has had Schisotosoma haematobium infection in the past. What malignancy is he at increased risk of developing as a result?

A.Squamous cell carcinoma of the bladder

B.Transitional cell carcinoma of bladder

C.Adenocarcinoma of the bladder

D.Penile cancer

E.Renal cell carcinoma

Answer:Squamous cell carcinoma of the bladder

Explanation:

Painless haematuria should ring alarm bells for bladder cancer. Schistosoma infection is closely linked to risk of developing squamous cell carcinoma of the bladder.

Question:

A 60-year-old man presents with lower urinary tract symptoms and is offered a PSA test. According to NHS guidelines, which one of the following could interfere with the PSA level?

A.Vigorous exercise in the past 48 hours

B.Poorly controlled diabetes mellitus

C.Smoking in the past 48 hours

D.Current constipation

E.Drinking more than 4 units of alcohol in the past 48 hours

Answer:Vigorous exercise in the past 48 hours

Explanation:

Question:

A 10-year-old patient had a tonsillectomy 5 days ago. Her mother has bought her to the practice as earlier today she noticed a small amount of bright red bleeding from her mouth. She is otherwise recovering well and has been eating and drinking normally.

What would be the most appropriate management option for this patient?

A.Commence oral antibiotics

B.No intervention required

C.Refer immediately to ENT for assessment

D.Suggest simple analgesia and cool drinks

E.Use silver nitrate to cauterise the tonsillar bed

Answer:Refer immediately to ENT for assessment

Explanation:

All post-tonsillectomy haemorrhages should be assessed by ENT

Important for meLess important

All bleeds after tonsillectomy should be assessed by ENT. This is due to the risk that they could become severe. Secondary haemorrhage occurs between 5 and 10 days after surgery and is often associated with a wound infection. Treatment is usually with admission and antibiotics. Severe bleeding may require surgery. Secondary haemorrhage occurs in around 1-2% of all tonsillectomies.

If the patient was suffering from only pain after tonsillectomy, had no other concerning features, and had not had a bleed, then suggesting simple analgesia would be appropriate. However, as there has been evidence of bleeding, she must have an urgent assessment via the operating team.

The patient may indeed require oral antibiotics, but prescribing these in the community in the context of a post-tonsillectomy bleed would be inappropriate, for the reasons described above. Equally, the secondary team may use techniques such as silver nitrate cautery to prevent further bleeding from the tonsillar bed. However, it would not be appropriate to do this in the community without a specialist assessment.

Question:

A middle aged man develops a non-pruritic rash after starting allopurinol therapy for gout. The rash develop within 24 hours and started on the back of his hands.

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Allopurinol-associated dermatitis

B.Plaque-type tophi

C.Erythema multiforme

D.Erythema marginatum

E.Eosinophilic folliculitis

Answer:Erythema multiforme

Explanation:

Question:

You're an F2 working in the Emergency Department. You're on a night out with your housemates when you notice a group of work colleagues enjoying themselves in the same bar. You notice two of them (members of the ambulance service) are loudly telling the rest of their group about a patient they were deployed to, who suffered a subarachnoid haemorrhage during coitus with a man who wasn't her husband, they're not using the patient's name. You remember this patient as she was extremely embarrassed when you clerked her and begging the staff to not tell her husband. What is the most appropriate action to take?

A.Step in if they start using identifiable information

B.Seek advice from your consultant at your next shift

C.Report the two colleagues to their supervisors

D.Find the two colleagues at your next shift, explaining that you think their behaviour was inappropriate

E.Go over and speak to the persons in question, explaining they are speaking loudly about sensitive material

Answer:Go over and speak to the persons in question, explaining they are speaking loudly about sensitive material

Explanation:

Option 5 is the best answer in this scenario as it addresses the immediate issue over potentially breaching confidentiality, although they have not used any specific patient identifiers, that does not mean the patient or someone close to the patient might not overhear and recognise the story as being about them. Option 1 is incorrect for the above reason. Option 2 and 3 are good ideas but do not address the immediate issue in the bar. Reporting the two colleagues to their supervisor without speaking to them first about your concerns would perhaps be a bit of an overreaction at this stage and so would be an option further down the line if the two colleagues continued this behaviour despite you voicing your concerns.

GMC - Confidentiality (2009)

http://www.gmc-uk.org/guidance/ethicalguidance/confidentiality.asp

Question:

A 29-year-old woman who is 24 weeks pregnant presents to the antenatal clinic with a worsening rash on her legs. She had initially noticed multiple small red rounded lumps on both her lower legs. The lesions initially measured 3cm in diameter and have been slowly growing in size over the past two weeks. The lesions now range between 6-9cm nodules on both her shins which were becoming painful. This is her second pregnancy and she denied experiencing a similar rash before.

What is the likely cause for the rash 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 may be caused by pregnancy

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. It can occur in pregnancy due to hormonal changes.

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. It has a strong association with malignancy.

Question:

Mr and Mrs Stevens are a 35-year-old couple referred to a fertility clinic by their GP after failing to conceive despite regular unprotected sexual intercourse for 18 months.

Mrs Stevens has well-controlled asthma but no other medical conditions. Mr Stevens has a history of rheumatoid arthritis, for which he takes sulfasalazine, ibuprofen and omeprazole. He also has schizophrenia, for which he takes olanzapine. He has been taking levothyroxine for many years for hypothyroidism.

After further investigation, Mr Steven’s semen analysis reveals a semen count of 14 million/mL (15-200 million/mL).

Which of Mr Steven’s medications is most likely to explain these results?

A.Ibuprofen

B.Levothyroxine

C.Olanzapine

D.Omeprazole

E.Sulfasalazine

Answer:Sulfasalazine

Explanation:

Sulfasalazine can reduce the sperm count of patients taking it for rheumatoid arthritis.

Important for meLess important

Sulfasalazine is a DMARD which can cause oligospermia. This is reversible when the drug is stopped.

Ibuprofen can cause gastrointestinal side effects but is not associated with reduced sperm count.

Levothyroxine has not been associated with oligospermia.

Olanzapine is an antipsychotic which can cause metabolic side effects and erectile dysfunction but is not associated with oligospermia.

Omeprazole is used in this case to protect the stomach against the side effects of ibuprofen. It has no effect on sperm count.

Question:

A 44-year-old farmer presents with headache, fever and muscle aches. He initially thought he had a bad cold but his symptoms have got progressively worse over the past week. During the review of systems he reports nausea and a decreased urine output. On examination his temperature is 38.2ºC, pulse 102 / min and his chest is clear. Subconjunctival haemorrhages are noted but there is no evidence of jaundice. What is the most likely diagnosis?

A.Mycoplasma pneumonia

B.Lyme disease

C.Legionella pneumonia

D.Listeria

E.Leptospirosis

Answer:Leptospirosis

Explanation:

The main clue in the question is the patients occupation. Mycoplasma and Legionella are less likely due to the absence of chest symptoms and signs. Liver failure is seen in only 10% of patients with leptospirosis..

Question:

An obese 48-year-old man presents with lethargy and polydipsia. What is the minimum HbA1c that would be diagnostic of type 2 diabetes mellitus?

A.Cannot use HbA1c for diagnosis

B.6.0% (42 mmol/mol)

C.6.3% (45 mmol/mol)

D.6.5% (48 mmol/mol)

E.7.0% (53 mmol/mol)

Answer:6.5% (48 mmol/mol)

Explanation:

Diabetes mellitus - HbA1c of 48 mmol/mol (6.5%) or greater is diagnostic

Important for meLess important

Question:

A 63-year-old man is seen in the neurology clinic with a 4-month history of recurrent falls and feeling clumsy. His only history is gastroenteritis 6 months ago.

He has significant leg muscle atrophy and reduced power in both the upper and lower limbs which are more severe on the right. Spontaneous involuntary muscle contractions and relaxations are seen in the upper and lower limbs. Reflexes are absent in the upper limb but brisk in the lower limb. Sensation and coordination are intact. Upgoing plantar reflexes are present bilaterally.

What is the most likely diagnosis?

A.Amyotrophic lateral sclerosis

B.Charcot-Marie-Tooth disease

C.Guillain–Barré syndrome

D.Multiple sclerosis

E.Multiple system atrophy

Answer:Amyotrophic lateral sclerosis

Explanation:

'Fasciculations' - think motor neuron disease

Important for meLess important

The presence of neurological motor symptoms and fasciculations with mixed upper motor neurone (UMN), lower motor neurone (LMN) signs, and very few or absent sensory signs should raise suspicion of motor neurone disease (MND). Fasciculations (described as spontaneous involuntary muscle contractions and relaxations here), atrophy, and absent reflexes are LMN signs, and brisk reflexes and upgoing plantar reflexes are UMN signs. This patient's symptoms are more severe on the right.

Amyotrophic lateral sclerosis (ALS) is correct as this is a form of MND characterised by LMN signs in the arms and UMN signs in the legs as seen in this case. Asymmetric limb weakness (as seen here by this patient's symptoms being worse on the right) is the most common presentation of ALS, supporting this diagnosis.

Charcot-Marie-Tooth disease (CMT) is incorrect as this is a hereditary motor and sensory peripheral neuropathy characterised by progressive loss of muscle tissue in the distal peripheries. It typically presents with high-arched feet, foot drop, distal muscle weakness and atrophy, and hyporeflexia. Since this affects the peripheral nervous system, UMN signs are not seen here (as these arise from lesions in the central nervous system). Furthermore, this patient does not have sensory symptoms, making CMT less likely.

Guillain–Barré syndrome (GBS) is incorrect. Although this patient has a history of gastroenteritis, GBS usually within weeks after the infection, rather than 6 months as seen in this patient. Furthermore, GBS initially presents with sensory symptoms including pain in the back and legs, and the weakness characteristically progresses symmetrically ascending from the legs. This patient has no sensory symptoms, and their symptoms are asymmetrical. Furthermore, fasciculations are not generally seen in GBS and since GBS affects the peripheral nervous system, UMN lesions are not usually seen (as they occur due to lesions in the central nervous system).

Multiple sclerosis (MS) is incorrect as this tends to present with fatigue and the most common initial presentation is optic neuritis, characterised by vision blurring and pain on eye movement. Furthermore, patients with MS tend to have sensory symptoms (such as numbness and tingling), tremor, urinary incontinence, and ataxia, which are not seen here.

Multiple system atrophy (MSA) is incorrect as this is a neurodegenerative disorder characterised by Parkinsonism (tremor, rigidity, bradykinesia, and postural instability) and autonomic dysfunction, such as postural hypotension, erectile dysfunction, and an atonic bladder. It is not associated with UMN and LMN signs as seen in MND.

Question:

A 7-week-old baby girl is seen in the paediatric assessment unit with a 3-day history of significant vomiting and a 6-hour history of no wet nappies. She now seems tired and floppy. Despite this, her mother says she seems hungry and is constantly trying to breastfeed between vomiting episodes.

What should be used to confirm the cause of her symptoms?

A.Abdominal X-ray

B.Abdominal examination

C.Abdominal ultrasound scan

D.Arterial blood gas

E.CT abdomen and pelvis

Answer:Abdominal ultrasound scan

Explanation:

The key investigation in pyloric stenosis is ultrasound

Important for meLess important

Abdominal ultrasound scan is correct. This is a classical history of pyloric stenosis, a baby with projectile vomiting and constant hunger between vomiting episodes. Ultrasound is the imaging modality of choice for pyloric stenosis, and you will typically see a hypertrophic pyloric muscle, possibly with the classical 'target sign'. Whilst it is more common between 3-6 weeks of age, it can also occur in older babies. It is approximately 4 times more common in boys, but can also occur in girls. The treatment for pyloric stenosis is Ramstedt’s pyloromyotomy, which can be performed laparoscopically through the umbilicus or a supra-umbilical incision.

Abdominal X-ray is incorrect. Whilst this may show gastric distention, it does not allow for clear visualisation and accurate measurement of the pylorus. Therefore, with this classical history of pyloric stenosis, an abdominal ultrasound scan would be the most appropriate diagnostic investigation.

Abdominal examination is incorrect. Whilst this would be done as part of the assessment of this child, and an olive-shaped mass may be felt in the upper abdomen, the key diagnostic investigation would be abdominal ultrasound, which would show a hypertrophic pyloric muscle.

Arterial blood gas is incorrect. Whilst this would be done as part of the assessment of this child, an arterial blood gas will not show you the cause of this child's symptoms. However, it will have an important role in managing a child with pyloric stenosis as they can develop hypokalaemic, hypochloraemic metabolic alkalosis due to vomiting and renal compensation efforts.

CT abdomen and pelvis is incorrect. CT would cause exposure to radiation, which is generally avoided in young children where possible. This is an important consideration in this case where the patient is just 7 weeks old. For this child with suspected pyloric stenosis, CT is unnecessary due to ultrasound's ease and efficacy, which carries a far lower risk.

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?

A.Positive sciatic stretch test

B.Reduced perianal sensation

C.Tingling of his right leg

D.Urinary incontinence

E.Reduced anal tone

Answer:Urinary incontinence

Explanation:

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 30-year-old woman presents to the eye hospital with 2 days of acute vision changes in her left eye. She describes progressively worsening vision 'as if looking through a cloud' and has noted that the colours around her appear less bright. In this time, she has also developed retro-orbital pain which is exacerbated when she moves her eye. Her right eye is unaffected.

She has no previous ophthalmological history and no other medical history.

Given the likely diagnosis, what feature is most likely to be elicited on examination?

A.Cotton wool spots

B.Left peripheral vision loss with central sparing

C.Relative afferent pupillary defect

D.Swelling of the left optic disc

E.Vitreous haemorrhage

Answer:Relative afferent pupillary defect

Explanation:

Optic neuritis is associated with relative afferent pupillary defect

Important for meLess important

A history of rapidly worsening vision 'like seeing through a cloud' with colour desaturation and painful eye movements in a young woman is highly suggestive of optic neuritis. Relative afferent pupillary defect (RAPD) is the option on this list that is most associated with optic neuritis; it is present in approximately 90% of cases. RAPD is pathognomonic of anterior visual pathway dysfunction; the pupils respond differently to light due to unilateral disease of the optic nerve, as seen in optic neuritis. RAPD will not be seen if there is bilateral optic neuritis.

Cotton wool spots are small exudates on the retina that are associated with multiple diseases such as hypertension and diabetes mellitus. They are believed to be secondary to ischaemia due to retinal arteriole obstruction. They, therefore, may be seen in conditions that cause optic nerve ischaemia, such as giant cell arteritis. They are, however, not typically associated with optic neuritis. The retina is typically unchanged in optic neuritis.

Any type of visual field defect can be associated with optic neuritis. However, the most typical defect described is central scotoma. Purely peripheral vision loss is less associated with this condition.

The optic disc is typically normal in optic neuritis. Swelling of the optic disc, known as papillitis, is seen if the inflammation extends to this part of the optic disc. Mild swelling is seen in around one-third of patients. It is, therefore, less likely to be seen on examination than RAPD, which is seen in the majority of cases.

Vitreous haemorrhage is another cause of unilateral acute vision loss. However, unlike in this patient, it is associated with painless vision loss and a 'red hue' to the vision rather than colour desaturation. It is also unlikely to occur in someone with no history of trauma, no underlying comorbidities and no previous ophthalmological history. Vision loss is also likely to be more sudden. This history is not suggestive of a vitreous haemorrhage.

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:

A 78-year-old man is brought to the emergency department due to difficulty passing urine. On examination, the patient has a distended bladder - a catheter is inserted and a residual volume of 880ml is drained. The patient also reports pain in their upper back over the spinal vertebrae.

Past medical history includes metastatic prostate cancer, for which treatment was started last week. This presentation is suspected to be a complication of their management.

What prostate cancer treatment is the patient likely receiving?

A.Bicalutimide (non-steroidal anti-androgen)

B.Bilateral orchidectomy

C.Degarelix (GnRH antagonists)

D.Goserelin (GnRH agonist)

E.Prostate radiotherapy

Answer:Goserelin (GnRH agonist)

Explanation:

Prostate cancer: GnRH agonists may cause 'tumour flare' when started, resulting in bone pain, bladder obstruction and other symptoms

Important for meLess important

This scenario describes a 78-year-old man presenting with bladder obstruction (urinary retention) and bone pain after recently starting management for known metastatic prostate cancer. This is a challenging question, testing a phenomenon called tumour flare. Tumour flare can occur with goserelin management due to the initial increase in testosterone levels before subsequent suppression of testosterone. This is due to the mechanism of GnRH agonists which aim to suppress testosterone production by overstimulation of the hormone cascade.

Bicalutamide is an incorrect answer. Bicalutamide is alternative management for metastatic prostate cancer which avoids the testosterone surge seen with GnRH agonist use.

Bilateral orchidectomy is incorrect. This is a management approach which aims to rapidly decrease the testosterone level in the body. It is not typically associated with tumour flare.

Degarelix is not the single best answer. GnRH antagonists may be used in prostate cancer and are thought to avoid the risk of tumour flare as they avoid the testosterone surge.

Prostate radiotherapy can be used in both local and metastatic prostate cancer. The phenomenon of tumour flare is not typical. Complications, such as radiation cystitis should be considered.

Question:

A 65-year-old man is seen by his GP for a hypertension review. He is currently on ramipril 10mg ON, amlodipine 10mg OD and atorvastatin 10mg ON. His home blood pressure over the last week averages at 155/90 mmHg. He is compliant with his medications.

What medication should be added next to manage his hypertension?

A.Bendroflumethiazide

B.Candesartan

C.Doxazosin

D.Indapamide

E.Verapamil

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 already on an ACE inhibitor (ACE-i) and a calcium channel blocker (CCB) to manage his hypertension. However, his home BP readings are still more than 135/85 mmHg. In this case, a third agent should be added to control his hypertension. As per NICE guidance, a thiazide-like diuretic such as indapamide should be tried next.

Bendroflumethiazide is a thiazide diuretic. NICE recommends adding a thiazide-like diuretic instead. This is because a thiazide-like diuretic has been shown to have a better side effect profile compared to thiazide-type diuretics. For example, thiazide-like diuretics have a lower incidence of hypokalemia and hyponatraemia compared to thiazide-type diuretics when used to treat hypertension.

Candesartan is an ARB that is used if patients are intolerant to ACE-i. It is not indicated in this patient as he is already on an ACE-i.

Doxazosin is an alpha-blocker that is used as a 4th line medication for uncontrolled hypertension. It should only be tried if a thiazide-like diuretic does not control the patient's hypertension.

Verapamil is a rate-limiting CCB that is typically used for SVT and angina. While it is sometimes used to manage hypertension, it is not the most appropriate answer in this case since the patient is already on a different calcium channel blocker.

Question:

A 65-year-old man with end-stage metastatic lung cancer is currently admitted to a hospice for end-of-life care. He has nausea and has not opened his bowels in the last 2 days, but has been passing wind. On examination, he is cachectic and bloated and he has early satiety after eating very little.

What is the most appropriate anti-emetic to prescribe?

A.Cyclizine

B.Hyoscine butylbromide

C.Levomepromazine

D.Metoclopramide

E.Ondansetron

Answer:Metoclopramide

Explanation:

Dopamine (D2) receptor antagonists should be used in palliative care for nausea and vomiting that is due to gastric dysmotility and stasis

Important for meLess important

Metoclopramide is correct. This patient has nausea which is most likely secondary to gastric stasis. The recommended method of deciding which anti-emetic to give is by choosing one based on the likely cause. For cases of reduced gastric motility and stasis, dopamine (D2) receptor antagonists are useful as they are pro-kinetic and promote peristalsis. A bowel obstruction is unlikely in this patient as he is still passing wind, and the early satiety points to gastric stasis, making it safe for metoclopramide to be prescribed.

Cyclizine is incorrect. This is recommended for patients who experience nausea and vomiting due to vestibular causes. It works by reducing signs being sent from the vestibular apparatus of the middle ear to the emetic centre of the midbrain. There is nothing in the history to suggest that this patient's nausea and vomiting are vestibular in nature (an example where this may be the case is nausea and vomiting that is movement-related or if they experience vertigo).

Hyoscine butylbromide is incorrect. This is recommended for patients who experience nausea and vomiting due to causes such as bowel colic. This patient does not have any abdominal pain or cramping, making this option less appropriate.

Levomepromazine is incorrect. This is recommended for patients who experience chemically-mediated nausea and vomiting, which is often secondary to opioids, chemotherapy, or hypercalcaemia. Although this patient has metastatic lung cancer, it is unlikely they would be undergoing chemotherapy as it is end-stage and they are receiving palliative care. The only factor in the question that could point to a cause of their nausea and vomiting is the presence of gastric stasis, characterised by their bloating, early satiety, and lack of passing stool but still passing flatus.

Ondansetron is incorrect. This is recommended for patients who experience chemically-mediated nausea and vomiting, which is often secondary to opioids, chemotherapy, or hypercalcaemia. Although this patient has metastatic lung cancer, it is unlikely they would be undergoing chemotherapy as it is end-stage and they are receiving palliative care. The only factor in the question that could point to a cause of their nausea and vomiting is the presence of gastric stasis, characterised by their bloating, early satiety, and lack of passing stool but still passing flatus.

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 mental state examination is performed on a 35-year-old patient. He is asked about what he has eaten today and he begins telling a story about what he ate for breakfast that morning, then talks about his favourite cooking shows on TV, then talks about a time he was interviewed on a news programme and then explains he had toast and jam for breakfast. He speaks at a normal rate and rhythm.

What thought form is this an example of?

A.Circumstantiality

B.Derailment of thoughts

C.Flight of ideas

D.Tangentiality

E.Thought block

Answer:Circumstantiality

Explanation:

Circumstantiality is the inability to answer a question without giving excessive, unnecessary detail

Important for meLess important

Circumstantiality is correct. The goal of the conversation is reached in the end by a circuitous route i.e. the patient does eventually answer the question but does so after giving unnecessary and excessive detail, which is a feature of circumstantiality.

Tangentiality or tangential thinking is incorrect. The patient does eventually return to the topic of conversation, which is not the case in tangentiality, which is characterised by patients wandering away from a topic without returning to it.

Derailment of thoughts is incorrect as it is where there are illogical and unexpected jumps from topic to topic without any discernible links between them, and failure to answer the question. These features are not seen here.

Flight of ideas is incorrect. It is similar to tangentiality, however, patients do answer the question and then proceed to jump to another related topic, then to another and so on. This patient does not answer the question and then move to another quickly, and the rate and rhythm of their speech are normal, making this less likely.

Thought block is incorrect as it is where the patient abruptly breaks off the conversation and is silent before resuming on a different topic.

Question:

You are reading the notes of a patient on the coronary care unit. The notes say that the patient suffered a posteriorly situated myocardial infarction. You review the ECG on admission.

Which of the following ECG findings would be most likely in this scenario?

A.Bifid P waves in V1-V2

B.Increased PR interval V1-V2

C.J waves in V1-V2

D.T wave inversion V1-V2

E.Tall R waves in V1-V2

Answer:Tall R waves in V1-V2

Explanation:

Posterior MI typically present on ECG with tall R waves V1-2

Important for meLess important

Posterior myocardial infarction usually occurs due to an occlusion of the posterior descending artery (posterior interventricular artery). In 80% of people, this artery branches from the right coronary artery. The left circumflex artery may also be compromised in a posterior MI.

The standard 12-lead ECG does not visualise the posterior myocardium. Hence we use the anteroseptal leads as surrogates, allowing for us to see any reciprocal changes. We look at V1-V2, in particular, to look for: tall, broad R waves, ST depression and tall upright T waves. By doing this, we are clued to the fact that there is an infarction in the posterior myocardium and can make decisions for vital coronary reperfusion. The electrodes can also be repositioned to visualise the posterior myocardium, and the new leads are V7-V9.

Bifid P waves are often a sign of left atrial enlargement in conditions such as mitral stenosis.

Increased PR interval usually means there is delayed conduction through the atrioventricular node, which you would typically find with heart block.

The J wave is a positive deflection in the ECG at the junction between the QRS complex and the ST segment. You would find this ECG change in hypothermic patients or in those with severe hypercalcemia.

T-wave inversion in V1 is physiological and therefore, in isolation, is not a concerning feature for a posterior myocardial infarction.

Question:

A 32-year-old female presents with a 2-month history of fatigue and nocturia. On further questioning she also admits to increased thirst. She does not have dysuria or urgency, denies the possibility of pregnancy and has otherwise been well. Her brother was recently diagnosed with diabetes, although she is not sure which type. She has looked at the symptoms online and is worried about a possible diabetes diagnosis; she wants to know how she can distinguish between the types of diabetes.

Her body mass index (BMI) is 29 kg/m².

Which of the following tests would be best in differentiating these diagnoses?

A.Antibodies to cyclic citrullinated peptide (anti-CCP)

B.Antibodies to glomerular basement membrane (anti-GBM)

C.Antibodies to glutamic acid decarboxylase (anti-GAD)

D.Fasting glucose

E.HbA1c (glycosylated haemoglobin)

Answer:Antibodies to glutamic acid decarboxylase (anti-GAD)

Explanation:

C-peptide levels and diabetes-specific autoantibodies are useful to distinguish between type 1 and type 2 diabetes

Important for meLess important

Anti-GAD is the correct answer. The patient does not present with typical features of type 1 diabetes mellitus as she has a long prodrome and raised BMI. If she were found to be diabetic, C-peptide levels and diabetes-specific autoantibodies, such as anti-GAD, are useful to distinguish between type 1 and type 2 diabetes and would usually be considered in secondary care.

Anti-CCP is incorrect. This antibody may be present in patients with rheumatoid arthritis and would not help differentiate type 1 from type 2 diabetes.

Anti-GBM is incorrect. This antibody may be present in patients with Goodpasture's syndrome and would not help differentiate type 1 from type 2 diabetes.

Fasting glucose could be useful in determining a diagnosis of diabetes but not in distinguishing between the types.

HbA1c is often low in type 1 diabetes mellitus and is not used to determine the type of diabetes. Even if elevated, it is not a clear differentiating feature between the two types.

Question:

You are working in a GP surgery and your next patient is Susan, a 30-year-old woman with a diagnosis of generalised anxiety disorder (GAD). She is currently prescribed sertraline 200mg daily.

On review of her symptoms today, she states that she does not feel like the sertraline is helping, and she remains anxious almost all of the time. She experiences frequent episodes where she feels her heart pounding in her chest and her head is spinning. Furthermore, she notes that she often struggles to get to sleep and can lie awake for hours at night.

As you observe Susan, she appears obviously distressed. She seems unable to sit still in her chair and is trembling slightly.

What would be the next step in Susan's management?

A.Change the prescription to duloxetine

B.Change the prescription to mirtazapine

C.Change the prescription to pregabalin

D.Increase the sertraline dose

E.Prescribe diazepam

Answer:Change the prescription to duloxetine

Explanation:

If a first line SSRI such as sertraline is ineffective or not tolerated, try another SSRI or an SNRI for GAD

Important for meLess important

The correct answer is to change the prescription to duloxetine. This is because in the management of generalised anxiety disorder (GAD), if first-line management with a selective serotonin reuptake inhibitor (in this case sertraline) is ineffective, an alternative selective serotonin reuptake inhibitor (SSRI) or a serotonin-norepinephrine reuptake inhibitor (SNRI) should be offered. Duloxetine is an SNRI.

Mirtazapine is a noradrenaline and serotonin selective antidepressant (NaSSA). It is sometimes used in the treatment of depression as an alternative for a poorly tolerated/ineffective antidepressant or as an augment to ongoing treatment. It has been shown to have an effect on controlling the symptoms of anxiety, but at present, it is not part of the NICE guidance for drug treatment of GAD.

Pregabalin may be considered if the patient cannot tolerate either an SSRI or an SNRI. This is not yet the case with Susan.

Increasing the sertraline is not an option because she is already on the maximum dose of 200mg per day.

NICE guidelines suggest that a benzodiazepine (such as diazepam) should not be offered for the treatment of GAD in primary or secondary care except as a short term measure during a crisis.

Question:

A 14-year-old girl presents to the GP with her mum after her teachers have repeatedly reprimanded her for daydreaming during lessons. Her daughter has never caused trouble in school up until recently and this seems very out of character for her.

She has no past medical history. Occasionally, she notices her left arm jerking sharply in the morning after sleep-deprived nights, such as sleepovers with friends.

What is the most likely diagnosis?

A.Absence seizure

B.Frontal lobe focal seizure

C.Generalised tonic-clonic seizure

D.Juvenile myoclonic epilepsy

E.Myoclonic seizure

Answer:Juvenile myoclonic epilepsy

Explanation:

Juvenile myoclonic epilepsy is classically associated with seizures in the morning/following sleep deprivation

Important for meLess important

Juvenile myoclonic epilepsy is correct. This typically affects teenage girls and includes a combination of absence seizures (her daydreaming in school), generalised tonic-clonic seizures, and myoclonic seizures (arm jerking sharply). Seizures are commonly exacerbated by sleep deprivation which is why these occur for her at sleepovers.

Absence seizure is incorrect. Although this would explain the daydreaming in school, it would not account for the arm jerking sharply. Absence seizures, myoclonic seizures and tonic-clonic seizures can occur together in juvenile myoclonic epilepsy.

Frontal lobe focal seizure is incorrect. Focal seizures are more common in adults than children and adolescents causing repetitive jerking movements. Other typical features of frontal lobe seizures that are not present in this case include Jacksonian march (ipsilateral muscle contractions progressing from distal to proximal) and post-ictal weakness known as Todd's paresis. Instead, the combination of absence and myoclonic seizures makes juvenile myoclonic epilepsy more likely.

Generalised tonic-clonic seizures is incorrect. This would not account for the absence seizures (daydreaming) or myoclonic seizures (arm jerking). This would be more likely to be juvenile myoclonic epilepsy.

Myoclonic seizure is incorrect. This would account for the sharp arm jerks but would not account for the daydreaming in school. A combination of absence seizures, myoclonic seizures and tonic-clonic seizures makes juvenile epilepsy more likely.

Question:

A 25-year-old primigravida woman presents to the hospital with a headache, fever, vomiting, and three episodes of convulsions. They were tonic-clonic movements lasting one to two minutes. She has no history of hypertension or epilepsy. Her blood pressure was 186/136 mmHg, heart rate 115 beats per minute, and temperature 36.9ºC on admission. Given the suspected diagnosis, she is commenced on intravenous magnesium sulfate. The evening senior house officer is handed over to perform a neurological examination in order to monitor her reflexes.

What else would be important to monitor with this treatment?

A.Blood ketones

B.Blood sugar

C.Heart rate

D.Pupil size

E.Respiratory rate

Answer:Respiratory rate

Explanation:

Magnesium sulphate - monitor reflexes + respiratory rate

Important for meLess important

Respiratory rate is monitored to ensure there is no evidence of respiratory depression as the breath rate should not be under 16 breaths per minute, which may indicate toxicity.

Heart rate would be routinely monitored but is not specific with this treatment of intravenous magnesium sulphate.

Blood ketones would not be routinely monitored and is not specific with this treatment of intravenous magnesium sulphate to assess for toxicity.

Blood glucose would only be routinely monitored if needed and is not specific to this treatment of intravenous magnesium sulphate to assess for toxicity.

Pupil size is not required to be specifically monitored but the patient's consciousness level is to assess for any magnesium toxicity.

Question:

A 65-year-old man with myelodysplastic syndrome is attending for a blood transfusion.

He begins to feel unwell and breathless mid-way through his transfusion.

His observations are as follows:

Oxygen saturation 88%

Respiratory rate 28/min

Heart rate 112/min

BP 94/57mmHg

Temperature 38.2ºC

He is a regular patient and receives two units of blood every week. He has a history of chronic kidney disease and type 2 diabetes.

You give oxygen and assess the patient. He looks unwell, cyanosed and flushed. There is no angioedema, wheeze or urticaria.

Given the likely diagnosis, what is the most appropriate management?

A.IM adrenaline and IV fluids

B.IV antibiotics, blood cultures and fluids

C.IV furosemide

D.Paracetamol and resume the transfusion at a slower speed

E.Titrate oxygen, give IV fluids and consider escalation of care

Answer:Titrate oxygen, give IV fluids and consider escalation of care

Explanation:

TRALI is differentiated from TACO by the presence of hypotension in TRALI vs hypertension in TACO

Important for meLess important

Transfusion reactions are common and whilst some of them are minor and easily managed, there are some life-threatening reactions that can occur. Though rare, you should always be alert to transfusion-related acute lung injury (TRALI) and be aware of its severity.

The treatment of TRALI is purely supportive with oxygen but a majority of patients require further respiratory support and are likely to need a higher level of care. IV fluids can be given to support blood pressure but many patients will also need vasopressors. The correct answer, therefore, is to titrate oxygen, give IV fluids and consider escalation of care.

Transfusion-associated circulatory overload (TACO) is differentiated from TRALI by the presence of hypertension rather than hypotension and you would not expect the patient to be febrile. The treatment of TACO would be IV furosemide, so this is incorrect.

IM adrenaline and IV fluids is incorrect. This would be the treatment for anaphylaxis as per the Resus Council algorithm. Anaphylaxis is possible but less likely given there is no urticaria or wheeze.

IV antibiotics, blood cultures and fluids is not correct. This would be a suitable treatment for sepsis which may present in this way, but given the context of regular transfusion and no other pointers towards infection, this is less likely.

Paracetamol and resume the transfusion at a slower speed is also incorrect. This may be appropriate for simple febrile reactions to transfusion but in this case, the hypoxia and hypotension point away from this as patients with simple reactions are usually well and have no other adverse signs except the temperature.

Question:

A 75-year-old male with a long history of intravenous drug use is admitted with fevers, rigors and back pain. Three sets of blood cultures taken at admission grow positive for gram positive cocci in clusters. He is suspected of having Staphylococcus aureus bacteraemia and is commenced on intravenous vancomycin.

Half an hour after the infusion is commenced, he is noted by the nurse to be flushed. On examination, he is noted to have erythema over his neck, face and trunk but denies any significant distress or discomfort.

His observations are as follow: blood pressure 125/70 mmHg, heart rate 85/min, temperature of 36.8ºC, respiratory rate of 18/min and oxygen saturation of 98% on room air.

Which of the following is the most appropriate management?

A.Stopping the vancomycin infusion, administering 200mg of IV hydrocortisone and informing the patient that he is allergic to the medication

B.Stopping the vancomycin infusion and administering a single dose of 0.5mcg intramuscular adrenaline

C.Stopping the vancomycin infusion until symptoms resolve and then re-starting a slower rate

D.Stopping the vancomycin infusion and prescribing topical 1% hydrocortisone cream to affected areas

E.Continuing the vancomycin infusion and administering 1000 ml of 0.9% saline solution over 1 hour

Answer:Stopping the vancomycin infusion until symptoms resolve and then re-starting a slower rate

Explanation:

Red man syndrome is associated with rapid intravenous infusion vancomycin. It is a common adverse reaction of intravenous vancomycin use and is a distinct entity from anaphylaxis due to vancomycin use. Typical symptoms include redness, pruritus and a burning sensation, predominantly in the upper body (face, neck and upper chest). Severe cases can be associated with hypotension and chest pain.

The pathophysiology of red man syndrome is attributed to vancomycin-related activation of mast cells with release of histamine.

The management of red man syndrome involves cessation of the infusion, and when symptoms have resolved, recommencement at a slower rate. In patients who are more symptomatic antihistamines can be administered, and may require intravenous fluids if the syndrome is associated with hypotension.

References:

Sivagnanam S, Deleu D, Red man syndrome. Crit Care. 2003 Apr;7(2):119-20

Bruneira FR, Ferreira FM, Saviolli LR, Bacci MR, Feder D, et al. The use of vancomycin with its therapeutic and adverse effects: a review Eur Rev Med Pharmacol Sci. 2015 Feb;19(4):694-700.

Question:

A 35-year-old man describes two episodes of syncope in the last month. Both times he felt breathless and like his heart was racing before briefly losing consciousness.

He has no past medical history. His uncle died from an unexplained cardiac arrest at age 32.

An ECG shows a heart rate of 82 beats per minute and a regular rhythm. There is a 2.5mm coved ST elevation in leads V1 and V2 followed by an inverted T wave. This appearance is exaggerated when IV flecainide is given. An echo is performed and shows a structurally normal heart.

Given the likely diagnosis, what is the most appropriate management?

A.Atenolol

B.DC cardioversion

C.Fibrinolysis

D.Implantable cardioverter-defibrillator

E.Percutaneous coronary intervention

Answer:Implantable cardioverter-defibrillator

Explanation:

Definitive management for Brugada syndrome is implantable cardioverter-defibrillator

Important for meLess important

Implantable cardioverter-defibrillator is the correct answer. This patient's presentation is consistent with Brugada syndrome. Coved ST-segment elevation >2mm in >1 of V1-V3 followed by a negative T wave is known as the Brugada sign. It can be augmented by many factors including alcohol, sodium channel blockers e.g. flecainide, and fever. Brugada sign combined with a history of syncope and a family history of sudden death at less than 45-years-old puts this patient at high risk of sudden death. Therefore an implantable cardioverter-defibrillator is the best treatment.

Atenolol is incorrect. This is a treatment used sometimes in hypertrophic cardiomyopathy, another condition that can present with sudden cardiac death. However, in Brugada syndrome, it is not used as often and in a patient with as many risk factors as this, an implantable defibrillator would be more suitable.

DC cardioversion is incorrect. This is a treatment for unstable arrhythmias.

Fibrinolysis is incorrect. This is a treatment option for ST-elevation myocardial infarction if primary percutaneous coronary intervention (PCI) cannot be delivered within 120 minutes of the time when fibrinolysis could be given. While this patient does have ST elevation, the ECG signs are more consistent with Brugada syndrome than myocardial infarction. Furthermore, myocardial infarction would typically present with new onset chest pain in a patient with risk factors for atherosclerosis e.g. older age, obesity, and hypertension.

Percutaneous coronary intervention is incorrect. This is the treatment for ST-elevation myocardial infarction.

Question:

A 26-year-old female with sickle cell disease presents with a two day history of chest pain, fever, cough and dyspnoea. On examination the patient appears distressed and dyspnoeic, however, auscultation reveals a clear chest with normal heart sounds. Abdomen is soft non-tender with no obvious organomegaly. Oxygen saturations are 87% on air, which improves to 96% on 4L nasal cannulae.

Bloods from today:

Test Today 3 months ago Normal value

Hb 88g/L 102 g/L Male: (135-180)

Female: (115 - 160)

Platelets 126 \* 109/L 189 \* 109/L (150 - 400)

WBC 9.8 \* 109/L 7.6 \* 109/L (4.0 - 11.0)

Reticulocytes 2.6 % 2.2 % (0.5 - 1.5)

Chest x-ray - bilateral pulmonary infiltrates.

ECG - sinus tachycardia.

Which of the following is the most likely diagnosis in this patient?

A.Acute chest syndrome

B.Aplastic crisis

C.Haemolytic crisis

D.Pulmonary embolism

E.Sequestration crisis

Answer:Acute chest syndrome

Explanation:

Acute chest syndrome is a complication of sickle-cell disease and presents with dyspnoea, chest pain, cough, hypoxia and new pulmonary infiltrates seen on chest x-ray

Important for meLess important

The patient in this question is presenting with acute chest syndrome, a potentially life-threatening complication of sickle cell disease. Early recognition and management is needed to improve patient outcomes.

Acute chest syndrome typically presents with a mixture of fever, dyspnoea, chest pain, hypoxia and cough. A chest x-ray will show pulmonary infiltrates. The following is taken from a guideline produced by Howard et al on the diagnosis and management of acute chest syndrome.

'Acute chest syndrome refers to a spectrum of disease from a mild pneumonic illness to acute respiratory distress syndrome and multi‐organ failure. The initial insult, which may be pulmonary infection, fat embolism and/or pulmonary infarction, causes a fall in alveolar oxygenation tension, which causes HbS polymerization. This, in turn, leads to decreased pulmonary blood flow that exacerbates vaso‐occlusion, producing more severe hypoxia such that a vicious cycle of hypoxia, HbS polymerization, vaso‐occlusion and altered pulmonary blood flow ensues'.

Howard et al., 2015. Guideline on the management of acute chest syndrome in sickle cell disease.

Management of the condition requires stabilisation of the patient, adequate pain relief, broad-spectrum antibiotics and early referral for consideration of admission to high-dependency or intensive care units for more specialist respiratory support. The frequency of attacks can be reduced with hydroxycarbamide.

Aplastic crisis is incorrect. This condition is caused by parvovirus B19 infection stimulating bone marrow shutdown. Although this can present with dyspnoea and drop in haemaglobin, it would not explain the chest x-ray findings. The reticulocyte count would also be expected to drop in this condition. This condition is managed with blood transfusions to maintain an adequate haemaglobin level until the parvovirus B19 infection has passed.

Haemolytic crisis is incorrect. This would present with a fever, dyspnoea and a drop in haemaglobin. However, it would not explain the chest x-ray findings. Treatment of a haemolytic crisis is supportive with blood transfusions being given to maintain stable haemaglobin levels. Close monitoring for electrolyte abnormalities with prompt treatment is also needed. Treatment is also focussed on the underlying trigger, such as infection or inflammation.

Pulmonary embolism is incorrect. Although the pathophysiology of acute chest syndrome dose mimic and may be triggered by a pulmonary embolism, the best answer in this case would be a acute chest syndrome. We would not expect a fever or the chest infiltrates in pulmonary embolism.

Sequestration crisis is incorrect. The patient is not experiencing a sequestration crisis as we would expect to see splenomegaly if this was the diagnosis. Treatment again is aimed at maintaining haemaglobin levels at steady state, although clinicians should be cautious when giving blood transfusions to this group of patient as the return of the red blood cells to the circulation following sequestration can result in hyperviscosity of the blood.

Question:

A 24-year-old woman attends her GP with a 4-day history of yellow eyes and generalised itchiness. She has no myalgia, fevers or abdominal pain. She reports some darkening of her urine and gradually paler stools. She has otherwise been well in herself.

She has previously been seen for an ankle sprain 2 weeks ago and takes regular paracetamol for the pain. She has been taking the combined oral contraceptive pill for the past month.

On examination, she is visibly jaundiced in both her skin and her sclera. She has no rash, however, she has multiple excoriations along her arms. She has no palpable hepatosplenomegaly and has no abdominal tenderness.

Blood tests reveal:

Bilirubin 94 µmol/L (3 - 17)

ALP 184 u/L (30 - 100)

ALT 52 u/L (3 - 40)

γGT 103 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

What is the most likely cause of her symptoms?

A.Paracetamol

B.Viral hepatitis

C.Combined oral contraceptive pill

D.Gilbert's syndrome

E.Choledocholithiasis

Answer:Combined oral contraceptive pill

Explanation:

The oral contraceptive pill is associated with drug-induced cholestasis

Important for meLess important

This patient is presenting with a picture of cholestatic jaundice, evidenced by her liver function tests (LFTs), dark urine and pruritis.

Cholestasis can be categorised in to either intra-hepatic or obstructive. Oestrogens in the combined oral contraceptive pills (COCP) reduce the excretion of bile acids and conjugated bilirubin from the hepatocytes into the canaliculi, resulting in a build-up within the hepatocytes and diffusion into the bloodstream and what is known as intra-hepatic jaundice.

Dark urine is caused by conjugated bilirubinaemia resulting in bilirubinuria. Pale stools result from reduced intestinal excretion of bilirubin and therefore reduced stercobilin formation.

Option 1: incorrect - paracetamol is associated with hepatocellular jaundice in the setting of acute liver failure following overdose. In this circumstance, treatment dose paracetamol would not typically cause cholestatic jaundice.

Option 2: incorrect - viral hepatitis would also cause hepatocellular jaundice with evidence of hepatocyte death and hepatitis in LFTs: typically disproportionately raised transaminases compared to alkaline phosphatase/gamma-glutamyltransferase. There would also be other symptoms of acute infection such as fevers, right upper quadrant pain and generalised fatigue with myalgias.

Option 3: correct - the COCP is the most likely cause of jaundice in this patient. It would be appropriate to stop the pill and discuss alternative methods of contraception that do not include oestrogen.

Option 4: incorrect - Gilbert's syndrome is a common autosomal recessive cause of jaundice. However it is an unconjugated hyperbilirubinaemia, and therefore would not cause dark urine or pale stools as the conjugation is what enables water solubility. It also does not cause deranged LFTs.

Option 5: incorrect - choledocholithiasis (gallstones in the biliary tree) would cause obstructive cholestasis, and could have a very similar set of LFTs. However, it is usually (but not always) accompanied by biliary colic. It may be appropriate to perform additional imaging if jaundice does not resolve after ceasing the contraceptive pill.

Question:

A 47-year-old man presented with a headache to the emergency department a few days ago. His partner accompanied him and reported that he has been more confused over the last few days. He had also been febrile and complained of swollen glands in his neck. He had a self-terminating seizure whilst awaiting transfer to the medical ward.

His past medical history is significant for HIV. His partner reported he is not compliant with his anti-retroviral treatment and last year was hospitalised for severe pneumonia.

A CT head showed multiple ring-enhancing lesions. The infectious diseases team reviewed him and suggested additional blood tests, results of which are shown below:

Hb 140 g/L (135-180)

Platelets 167 \* 109/L (150 - 400)

WBC 3.8 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 8.5 mmol/L (2.0 - 7.0)

Creatinine 137 µmol/L (55 - 120)

CRP 50 mg/L (< 5)

Toxoplasmosis serology positive

Cryptococcal serology negative

β-d-Glucan normal

Galactomannan normal

What is the most appropriate treatment to give this patient?

A.Co-trimoxazole and prednisolone

B.Fluconazole

C.Pyrimethamine and sulphadiazine

D.Amphotericin B

E.Pentamidine and prednisolone

Answer:Pyrimethamine and sulphadiazine

Explanation:

Immunocompromised patients with toxoplasmosis are treated with pyrimethamine plus sulphadiazine

Important for meLess important

This man has a background of HIV and is not compliant with treatment, therefore is immunocompromised and at risk of opportunistic infections. Toxoplasmosis serology is positive and the multiple ring-enhancing lesions on CT support this diagnosis. Management of toxoplasmosis in immunocompromised patients is with pyrimethamine and sulphadiazine.

Co-trimoxazole and prednisolone is used in the management of Pneumocystis jirovecii pneumonia. There are no chest symptoms to suggest this is the cause of this patient's presentation.

Fluconazole can be used to treat fungal infections such as candidiasis.

Amphotericin B is used in the management of cryptococcal infection. Cryptococcus serology is negative, and the CT head would show cerebral oedema and meningeal enhancement if this was the diagnosis.

Pentamidine and prednisolone is an alternative treatment regimen for Pneumocystis jirovecii pneumonia.

Question:

A 55-year-old gardener presents to the Emergency Department complaining of a headache and generalised weakness. He reports feeling slightly disorientated, and admits that he has been passing urine more frequently than usual today.

On examination, he appears sweaty, and his pupils are 2mm in diameter and reactive to light. Examination of the chest and abdomen is normal. At the end of the examination, he begins to vomit, with no evidence of blood or bile in the vomitus.

His observations are as follows: respiratory rate 19/min; oxygen saturations 98% on air; temperature 36.6ºC; heart rate 50 beats per minute; blood pressure 102/62 mmHg.

Based on the likely diagnosis, what treatment should be initiated?

A.Intravenous pralidoxime

B.Oral activated charcoal

C.Intravenous atropine

D.Intravenous sodium bicarbonate

E.Haemodialysis

Answer:Intravenous atropine

Explanation:

Organophosphate insecticide - atropine

Important for meLess important

This question involves a classic presentation of organophosphate poisoning. Organophosphate poisoning tends to be seen in the context of exposure to organophosphate pesticides, as is likely to be the case for this gardener, or, rarely, secondary to bioterrorism attacks with organophosphate 'nerve agents' such as VX and sarin. Common symptoms and signs of organophosphate poisoning seen in this patient include headache, disorientation, weakness (due to over-stimulation at the neuromuscular junction), vomiting, and muscarinic effects such as miosis, bradycardia and increased urination (organophosphates are non-competitive inhibitors of acetylcholinesterase (AChE)). The most appropriate initial treatment is with IV atropine, which is an anti-muscarinic, and thus successfully mitigates the excess cholinergic transmission AChE inhibition.

Whilst -oximes such as pralidoxime are known to bind organophosphate-bound AChE and cause uncoupling of the organophosphate, their clinical utility has failed to be validated in meta-analyses, and atropine remains the first-line intervention for organophosphate poisoning.

Activated charcoal and other forms of stomach decontamination have not been shown to be effective in organophosphate poisoning; in addition, activated charcoal is rarely effective in poisoning unless it is clear that oral ingestion of the presumed poison has occurred very recently, e.g. within one hour, which is not the case here.

There is no evidence basis to support urinary alkalinisation with sodium bicarbonate in organophosphate poisoning. Sodium bicarbonate is useful in promoting the excretion of acidic drugs in the context of overdose, e.g. salicylic acid toxicity.

Haemodialysis may be required in rare cases of severe acute renal failure subsequent to organophosphate poisoning. However, it is not the most appropriate initial therapy, and there are no blood test results confirming acute renal failure in this question stem.

Question:

A 2 month old baby is brought in to hospital with a fever. The child is pyrexial, with nil respiratory signs on examination and no diarrhoea. Which of the following would be part of your initial investigations?

A.ESR

B.Blood culture

C.Chest radiograph

D.Stool culture

E.Liver function tests

Answer:Blood culture

Explanation:

Perform the following investigations in infants younger than 3 months with fever:

Full blood count

Blood culture

C-reactive protein

Urine testing for urinary tract infection

Chest radiograph only if respiratory signs are present

Stool culture, if diarrhoea is present

Source: NICE guidelines (https:www.nice.org.uk/guidance/cg160/chapter/1-recommendations).

Question:

A 31-year-old male presents to his GP complaining of a sudden onset 3 day history of fever, shivers and a sore throat. He has a past medical history of ulcerative colitis, for which he is treated with the aminosalicylate, mesalazine.

What is the most important investigation in this patient?

A.Blood cultures

B.FBC

C.LFTs

D.U&Es

E.Viral throat swab

Answer:FBC

Explanation:

Aminosalicylates are associated with a variety of haematological adverse effects, including agranulocytosis - FBC is a key investigation

Important for meLess important

Aminosalicylates, such as sulphasalazine or mesalazine have a number of side effects. Mesalazine, in particular, can cause agranulocytosis, which may present with sudden onset rigors, fever and sore throat.

In this situation, FBC is the most important investigation to order to investigate agranulocytosis.

Other important investigation will include blood cultures, viral throat swabs and baseline LFTs and U&Es.

Question:

A 35-year-old man has presented to his GP complaining of feeling increasingly tired and getting short of breath after minimal activity. He has Crohn's disease which resulted in him needing an ileocaecal resection 1 year ago due to an uncontrollable flare up. However currently his Crohn's disease is well controlled. On examination his skin and conjunctiva appear pale. His tongue also appears beefy-red and is sore. He is tachycardic with a heart rate of 110 bpm.

What is the most likely diagnosis?

A.Anaemia of chronic disease

B.Folate deficiency

C.Hypothyroidism

D.Iron deficiency

E.Vitamin B12 deficiency

Answer:Vitamin B12 deficiency

Explanation:

Ileocaecal resection may result in vitamin B12 deficiency

Important for meLess important

This patient has symptoms that can be associated with anaemia. Vitamin B12 is absorbed in the terminal ileum, therefore resection of the terminal ileum as part of ileocaecal resection would reduce vitamin B12 absorption and cause vitamin B12 deficiency. Evidence of glossitis is also a feature of vitamin B12 deficiency.

Crohn's disease can cause anaemia of chronic disease. However glossitis is not associated with anaemia of chronic disease. This makes anaemia of chronic disease less likely to be the diagnosis.

Folate deficiency is also a cause of anaemia. It can sometimes also cause glossitis as in vitamin B12 deficiency although this is less common. Folate is predominantly absorbed in the duodenum and proximal jejunum and so absorption would not be affected by ileocaecal resection. Therefore folate deficiency is less likely to be the cause of this patient's presentation.

Hypothyroidism is also a cause of anaemia and itself can cause fatigue. However hypothyroidism would be associated with bradycardia as opposed to tachycardia.

Iron deficiency would cause anaemia and glossitis. However iron is also predominantly absorbed in the duodenum and proximal jejunum. Therefore iron absorption from the gut should not be impacted by ileocaecal resection.

Question:

A 72-year-old man is day one post elective right hip replacement. He has experienced no acute post-operative complications. This morning he reports some pain and asks for additional analgesia. His past medical history is significant for heart failure caused by a previous myocardial infarction. He is NYHA II in relation to his heart failure. His pre-operative full blood count, liver function tests and renal profile were all normal.

Which of the following analgesia options would contraindicated in this patient?

A.Diclofenac

B.Naproxen

C.Oxycodone

D.Paracetamol

E.Tramadol

Answer:Diclofenac

Explanation:

Diclofenac is now contraindicated with any form of cardiovascular disease

Important for meLess important

As this man has a history of ischaemic heart disease and congestive heart failure, diclofenac is contraindicated.

Naproxen - also of the NSAID drug class like diclofenac. However naproxen is not contraindicated, and has been shown to be one of the safest of the NSAID class in cardiovascular disease.

Oxycodone - an opioid based analgesia, there is no clear contraindication in this case such as patient hypersensitivity.

Paracetamol - with normal LFTs there is no clear contraindications. If there was a history of liver disease more consideration would have to be given before administering paracetamol.

Tramadol - an opioid based analgesia, there is no clear contraindication in this case such as patient hypersensitivity.

Question:

An 18-month-old girl is admitted as she has been vomiting and unwell for the past two days. Her parents think that she has some abdominal pain as she is pointing to her abdomen. An abdominal x-ray and subsequent ultrasound are taken:

© Image used on license from Radiopaedia

What is the diagnosis?

A.Duodenal atresia

B.Intussusception

C.Pyloric stenosis

D.Incarcerated hernia

E.Meckel's diverticulum

Answer:Intussusception

Explanation:

The abdominal film demonstrates a large soft tissue opacity ('sausage-shaped') in the left upper quadrant. Ultrasound confirms an intussusception with a nice example of a target sign.

Question:

A 65-year-old woman is seen in clinic for routine breast cancer screening. A mammogram is performed which shows a lobulated, partially smooth mass and nipple retraction. A biopsy is performed which demonstrates findings in keeping with mammary duct ectasia. She is given advice regarding symptomatic relief and discharged.

If required, when will she be offered screening again?

A.She does not need further screening

B.She should be offered a mammogram after 3 years

C.She should be offered a mammogram after 5 years

D.She should be offered a mammogram only if she arranges the appointment herself

E.She should be offered a mammogram only if she develops symptoms

Answer:She should be offered a mammogram after 3 years

Explanation:

Breast cancer screening is offered to all women aged 50-70 years (mammogram every 3 years)

Important for meLess important

She should be offered a mammogram after 3 years is correct. Mammary duct ectasia is a non-malignant breast disease that is seen with increasing age and can have nipple retraction as a feature, and can mimic breast cancer. In the UK, all women between 50-70 years old are offered screening via a mammogram every 3 years. After 70, women still may have mammograms, but are encouraged to make their own appointments and are not automatically notified.

She should be offered a mammogram after 5 years is incorrect. This is how frequently cervical cancer screening is done for patients between 50-64 years old. At 5-year intervals for breast cancer, the risk of cancer developing and progressing is much higher, therefore 3-year intervals are recommended.

She does not need further screening is incorrect. All women aged 50-70 years are offered screening with mammograms every 3 years, as some screening appointments may miss potential cancers, or it may be that breast cancer develops after the screening appointment and would be missed.

She should be offered a mammogram only if she arranges the appointment herself is incorrect as this would be the case if she was over 70 years old, which is not the case here.

She should be offered a mammogram only if she develops symptoms is incorrect. Although all patients with breast lumps and associated symptoms (such as abnormal discharge) should see a doctor and may require a referral, all women aged 50-70 years old are still offered screening every 3 years, as some patients may not notice any lumps or may have no associated symptoms.

Question:

A 56-year-old man presents to the GUM clinic with a soft granuloma to the forehead. You make a clinical diagnosis of a syphilitic gumma and take bloods for syphilis serology. What stage of syphilis does he have?

A.Primary

B.Secondary

C.Early latent

D.Late latent

E.Tertiary

Answer:Tertiary

Explanation:

Gumma are associated with tertiary syphilis

Important for meLess important

A gumma is a form of granuloma which is very rare and responds rapidly to treatment.

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 45-year-old woman is on the general surgery ward and a nurse has asked for her to be reviewed. The patient recently underwent a laparoscopic cholecystectomy as she was experiencing biliary colic. When the patient is assessed she appears visibly jaundiced. She also complains of right upper quadrant pain that comes and goes and radiates to her back. Her observations reveal that she is not pyrexial. The patient's blood tests reveal the following results.

Bilirubin 54 µmol/L (3 - 17)

ALP 310 u/L (30 - 100)

ALT 45 u/L (3 - 40)

γGT 93 u/L (8 - 60)

Albumin 40 g/L (35 - 50)

WBC 10.2 \* 109/L (4.0 - 11.0)

What is the most likely diagnosis?

A.Ascending cholangitis

B.Autoimmune hepatitis

C.Common bile duct gallstones

D.Pancreatic cancer

E.Primary biliary cholangitis

Answer:Common bile duct gallstones

Explanation:

Gallstones may be present in the CBD causing ongoing jaundice and pain after cholecystectomy

Important for meLess important

Even though this patient has had a cholecystectomy, gallstones can still be present in the common bile duct. This can cause biliary colic and obstructive jaundice after cholecystectomy. Therefore common bile duct stones are the most likely diagnosis.

Ascending cholangitis can present with jaundice and right upper quadrant pain. However the patient usually pyrexial and has a raised white cell count which is not the case in this patient.

The pattern of the patient's LFTs is typical of cholestasis. Therefore autoimmune hepatitis is unlikely to be the diagnosis.

Pancreatic cancer affecting the head of the pancreas can cause obstructive jaundice. However this is typically painless and therefore is unlikely to be the diagnosis.

Primary biliary cholangitis can cause cholestasis. However, typically this would feature painless obstructive jaundice and so is unlikely to be the diagnosis.

Question:

A 73-year-old man with a long-term catheter presents to his GP with suprapubic pain and unpleasant smelling cloudy urine. His catheter is changed monthly by the district nurse and was last changed 8 days ago.

The GP prescribes a 7-day course of nitrofurantoin and gives additional safety netting advice.

What other important item of management should the GP consider?

A.Advise patient to drink 3 litres of water a day

B.Advise patient to drink cranberry juice

C.Change his catheter

D.Prescribe a bladder washout to be performed by the district nurses

E.Refer to urology for a cystoscopy

Answer:Change his catheter

Explanation:

Consider removing or changing the catheter if a UTI develops

Important for meLess important

Symptomatic patients with a catheter should be prescribed a 7-day course of antibiotics and you should change the catheter to remove the source of infection.

Whilst advising the patient to drink 3 litres of water a day might help prevent UTIs it is not the most important thing to consider.

There is conflicting evidence as to whether cranberry juice is of benefit so it would not be appropriate advice.

It is not appropriate to prescribe a bladder washout to be performed by the district nurses as it is much more effective to remove the catheter.

The patient has presented with a non-complicated UTI so it would not be appropriate to refer to urology for a cystoscopy

Question:

A 28-year-old man presents to his GP with a painless ulcer on his penis which has been present for several weeks. He otherwise has no symptoms and is generally well in himself. On examination, he also has non-tender inguinal lymphadenopathy.

The GP prescribes penicillin. Several hours later, the patient presents to the Emergency Department with fever and a new rash. On examination, he appears well but has marked flushing of his torso. There is good air entry on auscultation, with no wheeze. Observations are as follows:

Heart rate: 98 beats/min

Respiratory rate: 18 breaths/min

Blood pressure: 132/72 mmHg

Temperature: 37.9ºC

What is the most appropriate next step in management, given the likely explanation?

A.Intramuscular adrenaline

B.Intramuscular chlorphenamine

C.Intravenous corticosteroid

D.Oral loratadine

E.Oral paracetamol

Answer:Oral paracetamol

Explanation:

The Jarisch-Herxheimer reaction, unlike an anaphylactic reaction, will not present with hypotension and wheeze

Important for meLess important

The correct answer is oral paracetamol. The patient initially presented with features of syphilis, a sexually transmitted infection that is increasing in incidence in the UK. He had classic findings of a painless penile ulcer and non-tender localised lymphadenopathy. The GP then commenced management with penicillin. It is key to note here that the patient did not then present with an anaphylactic reaction to penicillin - he appeared well on examination, with normal auscultation and no hypotension. He instead presented with the Jarisch-Herxheimer reaction, which is sometimes seen following treatment of syphilis, thought to be due to the release of endotoxins. It presents as fever, rash and tachycardia, but there is crucially no wheeze and no hypotension. No treatment is required except for antipyretics, if needed.

Intramuscular adrenaline would be used if anaphylaxis were suspected. We have no reason to suspect this here, given the stable observations and good air entry.

Chlorphenamine is an antihistamine and would also be given as part of the anaphylaxis protocol, to prevent further symptoms. Anaphylaxis is unlikely as the patient is well.

An intravenous corticosteroid, such as hydrocortisone, would also be given as part of the anaphylaxis protocol.

Loratadine is another antihistamine, taken orally, often over-the-counter for the management of simple conditions such as allergic rhinitis and mild urticaria. It does not play a role here.

Question:

A 72-year-old man presents for review. His medical history includes type 2 diabetes mellitus and gout. Six months ago his blood pressure was 144/84 mmHg. You gave him basic lifestyle advice and advised him to come back six months later for a repeat blood pressure check. Three further blood pressure readings have been as follows: 144/82 mmHg, 146/88 mmHg and 148/86 mmHg. His current medications include metformin and allopurinol. What is the most suitable management of his blood pressure readings?

A.Stop the allopurinol

B.Start therapy if 10-year cardiovascular risk is greater than 20%

C.Continue lifestyle measures and review in 6 months

D.Start bendroflumethiazide

E.Start an ACE inhibitor

Answer:Start an ACE inhibitor

Explanation:

Clinical Knowledge Summaries advise that primary care decision making in Type 2 diabetes should be based on the systolic value.As this man has type 2 diabetes mellitus the target blood pressure should be < 140/80 mmHg. Lifestyle measures have failed to bring his blood pressure down so he should be offered an ACE inhibitor.

Question:

A 55-year-old man attends after puncturing the skin of his left hand with a small garden fork whilst weeding. On removing the temporary bandage there is no active bleeding but a puncture wound is noted. He has tried to clean the wound but there remains some soil in situ. He is unsure of his tetanus vaccination history but thinks he 'has never not had a vaccine he's been offered'. You can find no record on his tetanus vaccine history on his medical notes. What is the most appropriate course of action?

A.Tetanus immunoglobulin

B.Tetanus vaccine booster

C.Tetanus vaccine booster + tetanus immunoglobulin

D.Oral co-amoxiclav

E.Tetanus vaccine booster + oral co-amoxiclav

Answer:Tetanus vaccine booster + tetanus immunoglobulin

Explanation:

This is a high-risk wound (soil contamination which may contain tetanus spores) in a patient without a clear history of tetanus vaccination. He therefore requires both a tetanus vaccine booster and tetanus immunoglobulin.

Question:

A 77-year-old man is reviewed in the cardiology. He presented to his GP with intermittent dizziness and reduced exercise tolerance. An ECG accompanies the referral letter:

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What does the ECG show?

A.Left bundle branch block

B.Long QT syndrome

C.ECG changes consistent with hypokalaemia

D.Bifascicular block

E.Trifascicular block

Answer:Trifascicular block

Explanation:

RBBB +left anterior or posterior hemiblock + 1st-degree heart block = trifasicular block

Important for meLess important

The ECG demonstrates RBBB + left anterior hemiblock + 1st-degree heart i.e. trifascicular block.

Question:

A 63-year-old gentleman is diagnosed with primary open angle glaucoma. He asks how untreated glaucoma is most likely to affect vision?

A.Impairs colour vision, with red colour vision affected first

B.Impairs central vision

C.Impairs peripheral visual fields

D.Impairs visual acuity

E.Impairs night vision

Answer:Impairs peripheral visual fields

Explanation:

Glaucoma primarily causes visual field defects

Important for meLess important

Glaucoma causes an optic neuropathy, that most frequently affects patients visual field. This tends to commence in the peripheries, and if untreated, eventually leads to tunnel vision.

Visual acuity can be affected, but this is less common.

Question:

A 57-year-old man is seen in clinic with a 6-month history of progressive shortness of breath and cough. During this time, he has had unexplained weight loss and multiple episodes of haemoptysis. He has smoked 30 cigarettes a day for the last 30 years.

On examination, he is cachectic, his heart rate is 89 bpm, his blood pressure is 134/75 mmHg, and his oxygen saturations are 97%. Focal areas of wheezing and crackles are heard on auscultation. Fingernail clubbing is noted. A chest x-ray is performed, which shows cavitating lesions in the lungs.

What is the most likely diagnosis?

A.Adenocarcinoma

B.Carcinoid tumour

C.Large cell carcinoma

D.Small cell carcinoma

E.Squamous cell carcinoma

Answer:Squamous cell carcinoma

Explanation:

Cavitating lesions are more common with squamous cell than other types of lung cancer

Important for meLess important

The presence of shortness of breath, cough with haemoptysis, unexplained weight loss, and focal lung auscultation findings should raise suspicion of lung cancer, especially given this patient's smoking history. Differentiating between the different types of lung cancer is now essential as there are different drugs available to treat the subtypes.

Squamous cell carcinoma is correct; of the cancers listed, it is most commonly associated with cavitating lesions on chest radiography. This is a type of non-small-cell lung cancer (NSCLC). The presence of fingernail clubbing also supports this diagnosis.

Carcinoid tumour is incorrect. Although this can present with wheezing, it also has associated features such as flushing and diarrhoea due to increased serotonin in the systemic circulation. This is also not as strongly associated with cavitating lesions as squamous cell carcinomas.

Adenocarcinoma is incorrect. Although this is another NSCLC, it is typically seen in non-smokers and is not as strongly associated with cavitating lesions. As well as this, patients classically present with paraneoplastic features such as gynaecomastia.

Large cell carcinoma is incorrect, as it is not as strongly associated with cavitating lesions as squamous cell cancer. This subtype is often diagnosed when tumour cells lack the morphology that would classify them as other types of lung cancer, such as small-cell carcinoma, adenocarcinoma, etc.

Small cell carcinoma is incorrect as it is not as strongly associated with cavitating lung lesions as squamous cell carcinoma. It is also associated with paraneoplastic syndromes such as Cushing's syndrome (due to ectopic ACTH secretion), hyponatraemia (due to ectopic ADH secretion), and Lambert-Eaton myasthenic syndrome, which describes muscle weakness that is due to voltage-gated calcium channel antibodies. In this question, none of these paraneoplastic features have been described.

Question:

A 45-year-old man with chronic renal failure presents to his GP. He has been suffering from increased muscle tone, a funny sensation around lips, anxiety and increased confusion. His blood chemistry results are as follows:

Sodium 143 mmol/L

Potassium 4.1 mmol/L

Calcium 1.8 mmol/L

Glucose 4.1 mmol/L

The GP puts on a blood pressure cuff around the patient's arm and inflates it to 150 mmHg for 3 minutes. The patient's hand then starts to spasmodically contract.

Which is the name of the sign the GP has elicited?

A.Trousseau's sign

B.Chvostek's sign

C.Tinel's sign

D.Rovsing's sign

E.Phalen's sign

Answer:Trousseau's sign

Explanation:

Trousseau's sign is a carpopedal spasm caused by

inflating the blood-pressure cuff to a level above the systolic blood pressure in patients with hypocalcaemia

Important for meLess important

This patient is suffering from hypocalcemia. Signs and symptoms include perioral paresthesia, impaired orientation, anxiety, seizures, increased muscle tone and skin abnormalities. Trousseau's sign is elicited by inflating the blood-pressure cuff to a level above the systolic blood pressure for 3 minutes or more. This causes the patient's hand to spasmodically contract.

Chvostek's sign is also seen in hypocalcemia; tapping over the facial nerve causes twitching of the facial muscles.

Tinel's and Phalen's signs are seen in carpal tunnel syndrome

Rovsing's sign is seen in appendicitis.

Question:

A 32-year-old male with a diagnosis of schizophrenia presents to his GP to discuss a pain in his knee. He begins to describe his problem with the following sentence:

'I'm here today to talk about a pain in my knee, the problem is that I lost my wallet this morning and I suppose I've been wondering whether purple is my favourite colour because yesterday the weather was terrible!'

Which of the following signs of thought disorder is this patient demonstrating in his speech?

A.Neologisms

B.Word salad

C.Flight of ideas

D.Knight's move

E.Clang associations

Answer:Knight's move

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

This patient's speech is demonstrating thought disorder through Knight's move thinking. This is where the patient unexpectedly leaps from one idea to another without logical associations. Flight of ideas also would be demonstrated by leaps from one idea to another, however there are typically discernible links between ideas. Neologisms are new word formations and clang associations are when ideas are related to each other only by the fact that they sound similar, neither of which are demonstrated here. Word salad is when speech is completely incoherent and words are strung together into sentences which do not make sense, which is not demonstrated here.

Question:

A woman presents to her GP with a painful neck, rapid heartbeat, palpitations and feeling warm. A couple of weeks ago, she experienced general malaise and fever and suspected she had influenza - this has since resolved. She is otherwise healthy and takes no regular medications.

On examination, she is tachycardic. A goitre is palpable in the neck and elicits pain when examined. Blood tests are taken:

Thyroid-stimulating hormone (TSH) 0.08 mU/L (0.5-5.5)

Free thyroxine (T4) 26 pmol/L (9.0 - 18)

Erythrocyte sedimentation rate 56 mm/hr (1 - 20)

Which of the following is the most appropriate management, given the likely diagnosis?

A.Carbimazole

B.Carbimazole and levothyroxine

C.Naproxen

D.Propylthiouracil

E.Radioiodine

Answer:Naproxen

Explanation:

Thyrotoxicosis with tender goitre = subacute (De Quervain's) thyroiditis

Important for meLess important

The correct answer is naproxen. The diagnosis here is that of subacute (De Quervain's) thyroiditis, given the history of following a viral illness, raised ESR, tender goitre and initial hyperthyroid phase. Ultimately, this condition is usually self-limiting, and simple analgesia is all that is required.

Carbimazole is incorrect. Symptoms are due to the release of the preformed hormone, and so carbimazole will be ineffective as inhibiting new hormone synthesis will not prevent symptoms.

Similarly, a block-and-replace regime of carbimazole and levothyroxine will thus be ineffective. The preformed hormone is being released, causing symptoms.

Propylthiouracil would be a suitable alternative to carbimazole as an antithyroid medication. Again, however, this would be ineffective in subacute thyroiditis.

Radioiodine would also be unnecessary - subacute thyroiditis is generally self-limiting and so simple analgesia is usually all that is needed.

Question:

You are reviewing a set of blood tests for an 85-year-old female patient and note that there is an irregularity with her thyroid function tests (TFTs):

TSH 5.5 mU/L (ref - 0.4-4.0 mU/L)

FT3 5.1 pmol/L (ref - 3.5-7.8 pmol/L)

FT4 14.2 pmol/L (ref - 9.0-25.0 pmol/L)

She is clinically euthyroid with no symptoms and no relevant findings on clinical examination.

Based on these results, what treatment (if any) should she be offered?

A.Start long term levothyroxine replacement therapy

B.'Watch and wait' - offer no treatment immediately

C.Repeat TFTs in 1 week

D.Start carbimazole therapy

E.Trial levothyroxine replacement therapy for 1 month

Answer:'Watch and wait' - offer no treatment immediately

Explanation:

Subclinical hypothyroidism in the elderly - 'watch and wait'

Important for meLess important

This patient has subclinical hypothyroidism (very mildly raised TSH but normal T3 and T4)

NICE CKS have published guidance on the management of patients with subclinical hypothyroidism and recommend a 'watch and wait' approach in patients over the age of 80 years old.

If the patient here were below 65 years of age and was symptomatic then she may have been offered a trial of levothyroxine. Moreover, it may well be worth rechecking her TFTs but NICE recommend doing so in 6 months time.

A very severe rise in TSH (>10 mU/L) in a younger patient (<70 years old) would prompt treatment with levothyroxine replacement.

Question:

An 8-week-old boy is brought to his GP by his mother to discuss referral to private healthcare for circumcision, which she wants performed for religious reasons. She does not report any concerns regarding his health. On examination, he appears to be developing normally and the external genitalia appear normal.

Which of the following is a contraindication to this 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'.

Circumcisions are still performed today for religious and cultural reasons, however, they are not available on the NHS for these reasons. The main contraindication to circumcision is hypospadias, as the foreskin may be used in surgical repair. This must be excluded before considering the procedure.

Balanitis xerotica obliterans is a tight foreskin due to lichen sclerosis atrophicus. It causes white patches on the foreskin that may lead to skin damage and a tight foreskin due to the healing process. It is a potential indication for circumcision.

Paraphimosis is when the foreskin cannot be returned to its original position after being retracted. It causes the glans to become painful and swollen. In severe cases, circumcision may be required to treat it.

Phimosis is when the foreskin is too tight to be pulled back over the glans of the penis. Generally, it does not cause a problem unless the patient experiences symptoms. If it causes issues such as redness and swelling then circumcision may be indicated.

Balanitis is when the head of the penis becomes swollen and sore. Generally, it can be managed with topical steroids, antifungals, or antibiotics (depending on the cause). But if it is recurrent then it can be an indication for circumcision.

Question:

Charlotte is a 7-year-old girl brought in by her mother with a 2 day history of fever and sore throat. Today she has developed a rash on her torso. She is eating and drinking well, but has not been to school for the last 2 days and has been feeling tired.

On examination, Charlotte is alert, smiling and playful. She has a temperature of 37.8°C. Her throat appears red with petechiae on the hard and soft palate and her tongue is covered with a white coat through which red papillae are visible. There is a blanching rash present on her trunk which is red and punctate with a rough, sandpaper-like texture.

Given the most likely diagnosis, when is Charlotte able to return to school?

A.Charlotte does not need to take any further time off school

B.Once she has completed a course of antibiotics

C.Once the rash has resolved

D.24 hours after commencing antibiotics

E.48 hours after commencing antibiotics

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 clinical features described are typical of scarlet fever.

The description given of the tongue is classical of a strawberry tongue seen in scarlet fever along with the rough-textured punctate rash which is also characteristic. Petechiae (small red spots) visible on the hard and soft palate are called 'Forchheimer spots'.

As Charlotte is well, she does not need hospital admission but requires antibiotic treatment for scarlet fever which is a 10 day course of phenoxymethylpenicillin (penicillin V).

NICE recommends exclusion from nursery, school, or work is needed for at least 24 hours after starting appropriate antibiotic treatment.

It is also important to advise parents/carer other measures to reduce the risk of cross-infection, including effective and frequent handwashing (for example before preparing and eating food, after using the toilet, after play, and after sneezing and disposing of tissues) and avoidance of sharing eating utensils and towels, and disposing of tissues promptly.

Question:

A 42-year-old woman presents with fatigue, abdominal distension and weight loss which came on over the last two months. She has had fevers, night sweats and some diarrhoea over the same period. She has no past medical history of note.

On examination, she has bilateral inguinal lymphadenopathy.

A blood test revealed a raised tissue transglutaminase (TTG) antibody.

Which of the following is the most likely diagnosis?

A.Reactive lymphadenopathy

B.Enteropathy-associated T cell lymphoma

C.Sarcoidosis

D.Tuberculosis

E.MALT lymphoma

Answer:Enteropathy-associated T cell lymphoma

Explanation:

Coeliac disease increases the risk of developing enteropathy-associated T cell lymphoma

Important for meLess important

The scenario tells us that this is a lady with coeliac disease due to her raised TTG level. A diagnosis of coeliac disease would explain the diarrhoea, fatigue, weight loss and abdominal distension. However, it does not cause night sweats, a fever, or lymphadenopathy. Therefore, an additional diagnosis must be considered. One of the possible complications of coeliac disease is enteropathy-associated T cell lymphoma (EATL), and in medical school exams, any hints to malignancy in the context of coeliac disease should prompt its consideration.

The other answers:

1) Reactive lymphadenopathy: this can occur in the context of infection. However, the two-month history is a little long for this to explain the lymphadenopathy.

2) Sarcoidosis: there is no link between coeliac disease and sarcoidosis. In an exam, sarcoidosis will have a much more typical history, including features such as erythema nodosum, lung signs, and a raised serum ACE.

3) Tuberculosis: this could explain her presentation. However, there are no risk factors that would make TB a likely diagnosis. In an exam, the history will include pointers to TB, such as country of origin, exposure risk factors, and imaging results.

4)MALT lymphoma: this is a cancer that arises from the mucosal-associated lymphoid tissue. It is a response to chronic Helicobacter pylori infection. There are no indicators to suggest this is the diagnosis. Further, MALT lymphoma generally develops very slowly and is commonly picked up incidentally.

Question:

An 84-year-old man comes for review. Four weeks ago an opportunistic blood pressure reading was taken and recorded as 150/92 mmHg. You therefore arranged ambulatory blood pressure monitoring (ABPM) along with a standard hypertension work-up. You did not calculate his 10-year cardiovascular risk on account of his age. The following results were obtained:

Na+ 141 mmol/l

K+ 4.2 mmol/l

Urea 6.5 mmol/l

Creatinine 101 µmol/l

Total cholesterol 4.9 mmol/l

HDL cholesterol 1.2 mmol/l

Fasting glucose 5.5 mmol/l

Urine dipstick was normal. The ECG showed sinus rhythm, 72 bpm and first degree heart block.

The daytime average blood pressure reading was 145/80 mmHg. What is the most appropriate course of action?

A.Diagnose stage 1 hypertension and advise about lifestyle changes

B.Start treatment with an ACE inhibitor

C.Start treatment with a calcium channel blocker

D.Start treatment with a thiazide-like diuretic

E.Repeat the ABPM

Answer:Diagnose stage 1 hypertension and advise about lifestyle changes

Explanation:

Stage 1 hypertension is defined by an ABPM reading of >= 135/85 mmHg, with stage 2 hypertension having a cut-off of >= 150/95 mmHg.

This patient therefore has stage 1 hypertension. As they are > 80 years they do not need treatment.

Question:

A 54-year-old man with a history of epilepsy and ischaemic heart disease is seen in clinic with a 3 month history of lethargy. Blood tests are as follows:

Hb 9.6 g/dl

MCV 123 fl

Plt 164 \* 109/l

WCC 4.6 \*109/l

Which one of his medications is most likely to be responsible?

A.Clopidogrel

B.Atorvastatin

C.Carbamazepine

D.Atenolol

E.Phenytoin

Answer:Phenytoin

Explanation:

Phenytoin may cause a megaloblastic anaemia by altering folate metabolism

Question:

A 2-year-old boy attends the paediatric emergency department, brought in by his mother.

For the last 6 hours he has been very upset. Every 20 minutes he seems to scream out, and his mother thinks he is in pain. He has vomited twice over the same period, and his mother noticed a red jelly-like substance in his nappy 2 hours ago.

The young boy is extremely resistant to examination, and will not let anybody touch his abdomen. His observations reveal a mild tachycardia, but there is no fever.

What is the most appropriate investigation to clarify the diagnosis?

A.Full blood count

B.Abdominal ultrasound

C.Abdominal X-ray

D.CT abdomen and pelvis

E.Stool microscopy and culture

Answer:Abdominal ultrasound

Explanation:

Ultrasound is the investigation of choice for intussusception

Important for meLess important

This boy's history is in keeping with intussusception. He requires an urgent ultrasound of the abdomen to exclude this important diagnosis.

Whilst a full blood count might be generally helpful, it does not help point towards a specific diagnosis.

An abdominal X-ray can clarify whether there is evidence of intestinal obstruction, but it cannot show the actual cause of obstruction, which is important to know in this case.

In general, CT scans should be avoided in young children, as they require high-dose radiation to operate.

Stool microscopy and culture would not be helpful in this case, as an infectious cause of his symptoms is extremely unlikely.

Question:

Paula, an 18-year-old girl, presents to the emergency department following a sporting accident. She complains of pain in her left knee, which is aggravated by crouching. On examination, her knee is swollen and painful to palpate. There is also a painful click on McMurray’s test.

Which of the following is the most likely mechanism of injury?

A.Direct blow to knee

B.Falling hard onto bent knee

C.Hyperextension of knee

D.Repeated jumping and landing on hard surfaces

E.Twisting around flexed knee

Answer:Twisting around flexed knee

Explanation:

Twisting knee injury - possible meniscal tear

Important for meLess important

Direct trauma to the knee can result in patella dislocation. Patella dislocation is associated with a positive patellar apprehension test, and not a positive McMurray's test.

Falling hard onto a bent knee can injure the posterior cruciate ligament. This is associated with a positive posterior drawer test.

Hyperextension knee injury most commonly results in anterior cruciate ligament rupture. This is associated with a positive anterior drawer test.

Repeated jumping and landing on hard surfaces causes patella tendinopathy or 'jumper's knee'. It results in anterior knee pain over 2-4 weeks which comes on with exercise and worsens with jumping.

Twisting knee injury can result in a meniscal tear (with potential medial collateral ligament sprain). The knee would be swollen and painful to palpate. McMurray’s test would also be positive (painful click).

Question:

A 24-year-old man is brought to the Emergency Department by his friends. They believe he has taken an illicit substance but are unsure of what he has taken. The says that he is 'outside' of his body and not feeling anything. He describes a multitude of visual hallucinations including abstract, colourful shapes wherever he looks. He repeatedly expresses concerns that he is being followed or watched, as well as concern that he cannot 'return to normal'. He also describes a dry mouth, a headache and some nausea. On examination, the patient looks agitated. He is tachycardic and mildly hypertensive. His pupils are dilated. Examination of the limbs demonstrates hyperreflexia.

Which of the following would be an appropriate step in management, given the likely substance ingested?

A.Activated charcoal

B.Dantrolene

C.Flumazenil

D.Lorazepam

E.Sodium bicarbonate

Answer:Lorazepam

Explanation:

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

Important for meLess important

The picture being described here is that of lysergic acid diethylamide (LSD) intoxication, which classically causes colourful, visual hallucinations, depersonalisation and paranoia, as well as the somatic symptoms described in the scenario. If efforts to calm the patient down, through reassurance in a stress-free environment, have failed, benzodiazepines are an appropriate option - and so lorazepam is the correct answer.

Activated charcoal would not be of use here - LSD is rapidly absorbed through the gastrointestinal tract and so, by the time a patient presents to the Emergency Department, it is of little benefit.

Dantrolene does not play a role in this scenario. It would be used to manage the hyperthermia commonly caused by ecstasy poisoning. While this would have some overlapping features with LSD poisoning, the colourful hallucinations and other salient features in the history above point much more towards LSD than ecstasy.

Flumazenil is the treatment for benzodiazepine overdose. As benzodiazepines are sedatives, this would present with drowsiness, slurred speech and ataxia. Flumazenil would not play a role in this scenario - unless, of course, too high a dose of benzodiazepines was given during treatment of LSD intoxication.

Sodium bicarbonate is used for urinary alkalinization in the management of salicylate overdose. This would have presented with hyperventilation, sweating, pyrexia and seizures, but not the psychological symptoms seen here.

Question:

A 64-year-old man presents to the GP with a dry cough, fever, headaches, generalised muscle pain and weakness after returning from his trip to Spain 4 days ago.

Investigations show:

Na+ 126 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 3.9 mmol/L (2.0 - 7.0)

Creatinine 102 µmol/L (55 - 120)

Hb 143 g/L Male: (135-180)

Female: (115 - 160)

Platelets 234 \* 109/L (150 - 400)

WBC 3.7 \* 109/L (4.0 - 11.0)

What is the most appropriate initial investigation, if any, to confirm the likely diagnosis?

A.Blood culture

B.Chest x-ray

C.None - diagnosis is clinical

D.Sputum culture

E.Urinary antigen test

Answer:Urinary antigen test

Explanation:

Legionella pneumophilia is best diagnosed by the urinary antigen test

Important for meLess important

Urinary antigen test is correct. This patient has signs of pneumonia due to the cough and fever, and the presence of hyponatraemia, leukopenia, headaches, muscle pains, weakness, and the travel history make the likely underlying pathogen Legionella pneumophilia. The most appropriate diagnostic test for Legionella pneumophilia is a urinary antigen test as it is relatively quick and has high sensitivity and specificity.

Blood culture is incorrect. Although this may also be used to confirm that Legionella pneumophilia is present and can confirm antibiotic sensitivities, this takes several days before results return and would be less appropriate initially to confirm the diagnosis. Once the diagnosis is confirmed, cultures may be taken to identify the sensitivities of the bacteria to narrow down antibiotic therapy.

Chest x-ray is incorrect. This would only show the extent of infection and what lobes are affected, which would typically be the middle and lower lobes. This finding is not specific to Legionella pneumophilia and therefore would not be diagnostic, as many other forms of pneumonia can have similar chest x-ray appearances.

None - diagnosis is clinical is incorrect. Although the history is typical for pneumonia due to Legionella pneumophilia, investigations must still be performed to confirm this is the causative agent.

Sputum culture is incorrect. Although this can be used to confirm the presence of Legionella pneumophilia and its sensitivities, for the same reasons as blood cultures, they are not used as an initial diagnostic test as results take several days to be available.

Question:

Rachel, a 56-year-old patient, has just undergone a renal transplant. She has been instructed to take a medication called ciclosporin, which her doctor explained is used to reduce the likelihood of transplant rejection. As this medication is unfamiliar to her, she is quite anxious and is keen to know of any possible side effects.

Which of the following is a side effect of this medication?

A.Glaucoma

B.Hepatotoxicity

C.Myelotoxicity

D.Orange secretions

E.Peripheral neuropathy

Answer:Hepatotoxicity

Explanation:

Ciclosporin may cause hepatotoxicity

Important for meLess important

The correct answer here is hepatotoxicity. This is thought to be linked to acute arteriolar vasoconstriction caused by this drug. It is worth remembering that ciclosporin is also nephrotoxic.

Glaucoma is not a side effect of ciclosporin but may be induced by a number of other drugs including; sulfa-based drugs, anticholinergics, and tricyclic antidepressants.

Unlike other immunosuppressant drugs, the BNF states that ciclosporin is virtually 'non-myelotoxic'.

Orange secretions are a classical side effect of rifampicin, a common anti-TB medication. This is not a feature of ciclosporin.

Peripheral neuropathy, although not a known side effect of ciclosporin, can be caused by drugs such as isoniazid, disulfiram, and anticonvulsants such as phenytoin.

Question:

A 55-year-old man has a 5-month history of breathlessness on exertion and a persistent, non-productive cough. He has lost 7kg of weight. He denies haemoptysis. On examination there is finger clubbing.

Spirometry shows the following:

FEV1 1.58 L (50% of predicted)

FVC 1.65 L (39% of predicted)

Given the likely diagnosis, what is the most common feature you expect to elicit on examination?

A.Bronchial breathing

B.Coarse crackles

C.Fine end-inspiratory crepitations

D.Lower zone stony dullness

E.Widespread wheeze

Answer:Fine end-inspiratory crepitations

Explanation:

Fine end-inspiratory crepitations are seen in idiopathic pulmonary fibrosis

Important for meLess important

Fine end-inspiratory crepitations is the correct answer. The history is suggestive of pulmonary fibrosis, supported by the restrictive spirometry pattern. A restrictive spirometry is seen if the FEV1:FVC > 0.7. In this case the FEV1:FVC is 0.96. Fine end-inspiratory crepitations are a common finding in idiopathic pulmonary fibrosis causes by the sudden opening of small airways during inspiration that were held closed in the previous expiration.

Bronchial breathing is incorrect. This is where you hear a pause in the breath sounds between inspiration and expiration due to air not being able to enter the alveolar space as opposed to normal vesicular breath sounds. Causes include consolidation (pneumonia) or compression/ collapse of the lung. Pulmonary fibrosis does not cause bronchial breathing as air is still able to enter the alveoli. The alveoli instead are less elastic due to excessive collagen deposition which results in the restrictive pattern seen in the spirometry.

Coarse crackles are louder, low pitched and longer lasting crackles that occur due to fluid in the lungs so is incorrect. Causes include pneumonia and pulmonary oedema. Pulmonary fibrosis at this stage does not cause excessive mucus production so coarse crackles would not be heard.

Lower zone stony dullness is a feature of pleural effusions so is incorrect. A pleural effusion would have a shorter history and cause symptoms including chest pain and orthopnoea which is not described in this case.

Widespread wheeze is incorrect. This is caused as a result of asthma, COPD, obstruction of the airways, allergies etc., due to narrowing or spasms (bronchospasm) of the smaller airways. This is not a feature of idiopathic pulmonary fibrosis. Furthermore, a widespread wheeze would be accompanied by an obstructive spirometry pattern (FEV1:FVC < 0.7). In this case, the FEV1:FVC is 0.96 supporting a restrictive pattern.

Question:

A 23-year-old woman requests a referral to an obstetrician. She has been attempting to conceive, and her menstrual period is now 1 month late. Her home pregnancy test was positive. She has a 2-year history of seropositive rheumatoid arthritis. Her only medication is hydroxychloroquine - methotrexate was stopped 6 months ago in anticipation of conception.

On physical examination her vital signs are normal. Swelling of the second and third metacarpophalangeal joints of the right hand is noted. A pregnancy test is positive.

Which of the following is the most appropriate treatment at this time?

A.Add etanercept

B.Add leflunomide

C.Discontinue hydroxychloroquine

D.No change in therapy

E.Add steroid

Answer:No change in therapy

Explanation:

Hydroxychloroquine can be safely used during pregnancy in rheumatoid arthritis

Important for meLess important

No change in therapy is needed for this pregnant patient with rheumatoid arthritis (RA). Hydroxychloroquine can be used to treat RA and other forms of inflammatory arthritis. Hydroxychloroquine crosses the placenta; however, it does not appear to cause fetal toxicity with the doses used for the treatment of RA.

Etanercept could be used only if this patient has a significant flare of disease during pregnancy, but is not needed at the current time.

Leflunomide is contraindicated in this patient; this medication is extremely teratogenic and must not be used before/during pregnancy.

Methotrexate was discontinued prior to attempting conception. It is highly teratogenic and abortifacient and it must be discontinued at least 3 months before pregnancy.

Adding a steroid in this patient, who has no evidence of a flare, is not required.

Question:

A 56-year-old man presents to the emergency department with 4-months of abdominal pain and nausea. He has a background of alcohol excess. Eight years previously, the patient was admitted to intensive care with severe acute pancreatitis. On further questioning, he describes fatty stools that are difficult to flush.

Observations are normal. Examination reveals a mildly tender abdomen with no masses.

FBC, U&Es, CRP and amylase are all within the normal range.

What investigation should be requested to confirm the diagnosis?

A.Abdominal ultrasound

B.CT pancreas

C.Colonoscopy

D.ERCP

E.Faecal elastase

Answer:CT pancreas

Explanation:

CT pancreas is the preferred diagnostic test for chronic pancreatitis - looking for pancreatic calcification

Important for meLess important

The patient's history of chronic abdominal pain and steatorrhea on a background of alcohol excess and previous acute pancreatitis is most suggestive of chronic pancreatitis. A normal amylase and mildly raised CRP support this.

CT pancreas is sensitive for features of chronic pancreatitis including pancreatic calcification, atrophy and pseudocysts. It is generally considered the imaging modality of choice for chronic pancreatitis.

Abdominal ultrasound would be an appropriate first-line investigation for patients who present with obstructive jaundice. The LFTs in this case are normal.

Colonoscopy is not required. This patient is describing steatorrhoea which is explained by exocrine pancreatic insufficiency. There are no other concerning features for GI malignancy or inflammatory bowel disease.

ERCP is a cause of pancreatitis. It is not required to make a diagnosis of pancreatitis.

Faecal elastase would be low in cases of chronic pancreatitis causing exocrine pancreatic insufficiency. It would be helpful in this case for confirming the cause of steatorrhoea but it would not enable a diagnosis of chronic pancreatitis.

Question:

A 70-year-old man with a past medical history of osteoarthritis and asthma attends his annual health check-up. He does not complain of any ongoing symptoms, and examination is unremarkable apart from an irregularly irregular pulse. An ECG confirms your suspicion of atrial fibrillation (AF). After ruling out any underlying causes of his AF, you decide to commence this man on treatment.

Which of the following drugs should be prescribed to achieve rate-control of this man's AF?

A.Amlodipine

B.Atenolol

C.Digoxin

D.Rivaroxaban

E.Verapamil

Answer:Verapamil

Explanation:

Beta-blockers are contraindicated in patients with asthma when managing atrial fibrillation

Important for meLess important

Non-cardioselective beta-blockers may provoke bronchospasm in asthmatics. Atenolol is therefore unsuitable to achieve AF rate-control in this patient. A rate-limiting calcium channel blocker, like verapamil, should be used instead.

Amlodipine is not a rate-limiting calcium channel blocker, and therefore unsuitable for AF.

Digoxin is not used first-line in AF.

Rivaroxaban has no role in the rate-control of AF. It is however used to anticoagulate these patients.

Question:

A patient books a GP appointment for a medication review. He has recently started taking digoxin and you are discussing the possible side effects of this drug.

Which of the following can this drug cause?

A.Heartburn

B.Hypermagnesemia

C.Hypokalaemia

D.Loss of appetite

E.Red-tinged vision

Answer:Loss of appetite

Explanation:

Digoxin may cause anorexia

Important for meLess important

Loss of appetite and interest in food, also called anorexia, is a side effect of digoxin use. Digoxin toxicity may also present with anorexia as well as nausea, diarrhoea and abdominal pain.

Heartburn is not a common symptom of digoxin toxicity. Other medications, such as NSAIDs, are more likely to cause this side effect.

Hyperkalaemia, rather than hypokalemia is a symptom of digoxin toxicity, a possible consequence of taking digoxin. This is because digoxin inhibits the Na-K pump, so less potassium can be pumped into cells, and thus, extracellular potassium increases.

Digoxin lowers serum magnesium, as opposed to causing hypermagnesemia.

Digoxin may cause yellow and green vision changes rather than red. Red-tinged vision is more commonly caused by ocular pathology such as haemorrhage.

Question:

You are working as a locum on the neurosurgical unit. Three of the patients seen on the ward round have subarachnoid haemorrhages. Your consultant wants blood tests on all of them, but forgets to tell you which ones. All three patients are well. Their aneurysms are secured and they will be discharged in a few days time. Which single blood test is most useful in these patients?

A.Blood sugar

B.Thyroid function

C.Liver function

D.Urea and electrolytes

E.Full blood count

Answer:Urea and electrolytes

Explanation:

Hyponatraemia is a common complication in subarachnoid haemorrhages

Important for meLess important

Hyponatraemia is very common in these patients and sodium levels are usually closely monitored in the acute period.

Blood sugar is not useful unless they drop their consciousness or are diabetic. Liver function and thyroid function are typically not affected by subarachnoid haemorrhages. A full blood count on admission is useful on admission, but there is no need to monitor it as closely as the sodium level.

Question:

You are a final year medical student attending a neurosurgical ward round with two of your peers. At the beginning of the ward round, a helpful F1 doctor gives you a patient list to share with your colleagues in order to help you follow the ward round as it is quite high paced. At the end of the ward round, the three of you are about to leave to sit in on a clinic for the rest of the morning but one of your peers asks to take the patient list as he is interested in Neurology and would like to revise the conditions in his own time at home. The other student says she doesn't mind. What is the best initial response to this situation?

A.Remind him that the list is confidential and shouldn't be taken off the hospital site

B.Give him the patient list

C.Suggest he use the list in the library only but not take it home

D.Pretend you would like the list as well, but put it in the confidential waste bin before leaving

E.Go and ask the F1 yourself if she can print out a copy without patient identifiers

Answer:Remind him that the list is confidential and shouldn't be taken off the hospital site

Explanation:

Option 1 is the best initial response to your colleague's request. This is because he is planning to take a patient list with identifiable information home and should be reminded that this is inappropriate as the patient information will not be secure. Option 5 is a good idea but does not remind your colleague of the importance of protecting confidentiality, this is the same for option 3. Option 2 is incorrect for the above reason. Option 4 again doesn't reiterate the importance of confidentiality and means you are also being dishonest to your colleague. For further information, see the GMC guidance on confidentiality below.

GMC Confidentiality (2009)

http://www.gmc-uk.org/guidance/ethicalguidance/confidentiality.asp

Question:

A 70-year-old woman attends the emergency department with acute confusion and reduced consciousness. Her family report that she has been lethargic for the last 2 weeks with a reduced appetite and intermittent abdominal pain. There is no history of fever or vomiting and her bowels last opened 6 days ago. She has a past medical history of hypertension, type 2 diabetes mellitus and ischaemic heart disease.

Investigations:

Na+ 133 mmol/L (135 - 145)

K+ 3.4 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 77 µmol/L (55 - 120)

Calcium 2.9 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

Magnesium 0.7 mmol/L (0.7-1.0)

Which of the following medications is most likely to be responsible for her presentation?

A.Atorvastatin

B.Bendroflumethiazide

C.Furosemide

D.Gliclazide

E.Lansoprazole

Answer:Bendroflumethiazide

Explanation:

Thiazide diuretics can cause hypercalcaemia and hypocalciuria

Important for meLess important

This patient has symptoms of hypercalcaemia. Symptoms can be remembered by the rhyme “stones, bones, groans and psychic overtones”. Abdominal pain, constipation and increased confusion and lethargy are common symptoms of hypercalcaemia. Initial treatment is with intravenous fluid replacement with 0.9% sodium chloride and identifying the underlying cause. Common causes include malignancy, primary hyperparathyroidism and drugs. Bendroflumethiazide is a thiazide diuretic used in the treatment of hypertension. Common side effects include hypercalcaemia, hypokalaemia and hyponatraemia.

Side effects of atorvastatin include gastrointestinal discomfort and constipation. However, it is more likely that this is secondary to the calcium level of 2.9mmol/L and atorvastatin does not cause hypercalcaemia.

Side effects of furosemide include hypokalaemia, hyponatraemia and hypomagnesia. In contrast to thiazide diuretics, loop diuretics such as furosemide cause a hypocalcaemia.

Gastrointestinal symptoms include are common side effects of gliclazide use, along with hypoglycaemia and hyponatraemia. However, hypercalcaemia is not seen.

Proton pump inhibitors such as lansoprazole are capable of causing gastrointestinal symptoms, constipation, confusion and drowsiness. Electrolyte abnormalities include hyponatraemia and hypomagnesia but not hypercalcaemia.

Question:

A 21-year-old male presents to the neurology department with weakness. He first noticed weakness in his legs several days earlier, with it now worsening to include his arms. He is also complaining of shooting pains in his back and limbs. Three weeks previously, he had a few days history of diarrhoea and vomiting. Examination confirms weakness, with reduced tendon reflexes.

What investigation finding would you expect in this patient?

A.Abnormal nerve conduction studies

B.Cord signal changes on spinal MRI

C.Inflammatory infiltrates on muscle biopsy

D.Positive anti-acetylcholine receptor antibodies

E.Reduced CSF protein

Answer:Abnormal nerve conduction studies

Explanation:

Nerve conduction studies can help in the diagnosis of Guillain-Barre syndrome

Important for meLess important

The history of ascending weakness following an infection is consistent with Guillain-Barre syndrome. Abnormal nerve conduction studies are identified in the majority of patients with Guillain-Barre syndrome.

Cord signal changes would be consistent with spinal cord compression or spinal lesion.

Inflammatory infiltrates on muscle biopsy are seen in patients with myositis.

Anti-acetylcholine receptor antibodies are present in myasthenia gravis.

CSF protein is typically raised, rather than reduced, in Guillain-Barre syndrome.

Question:

A patient with upper gastrointestinal symptoms tests positive for Helicobacter pylori following a urea breath test. Which one of the following conditions is most strongly associated Helicobacter pylori infection?

A.Gastric adenocarcinoma

B.Gastro-oesophageal reflux disease

C.Oesophageal cancer

D.Duodenal ulceration

E.Atrophic gastritis

Answer:Duodenal ulceration

Explanation:

Helicobacter pylori infection is also associated with both gastric adenocarcinoma and atrophic gastritis but the strongest association is with duodenal ulceration.

Question:

A 30-year-old man attends complaining of pain on the inner side of his right elbow and forearm since he built a bookcase at home 3 days ago. He is normally fit and well and on no regular medication. On examination you elicit some tenderness of the medial elbow joint and the patient reports discomfort felt in the elbow on resisted pronation of the wrist. What is the likely diagnosis?

A.Golfer's elbow

B.Tennis elbow

C.De Quervain's tenosynovitis

D.Radial tunnel syndrome

E.Olecranon bursitis

Answer:Golfer's elbow

Explanation:

Epicondylitis is caused by repeated strain leading to inflammation of the common extensor tendon at the epicondyle.

Golfer's elbow or medial epicondylitis produces tenderness over the medial epicondyle and medial wrist pain on resisted wrist pronation.

Tennis elbow or lateral epicondylitis produces tenderness over the lateral epicondyle and lateral elbow pain on resisted wrist extension.

Question:

A 34-year-old woman presents to her GP with a breast lump. The lump is painless and the patient states she first noticed it 4 weeks ago.

On examination, a 2cm x 2cm hard, non-mobile lump is palpated in the upper, outer quadrant of the left breast.

What is the most appropriate course of action?

A.Provide the patient with a fibroadenoma patient information leaflet and give worsening advice

B.Re-review in 2 weeks after her next menstrual cycle

C.Routine referral to the breast team

D.Take a biopsy

E.Urgent suspected cancer referral to the breast team

Answer:Urgent suspected cancer referral to the breast team

Explanation:

Refer women aged >30 with an unexplained breast lump using a suspected cancer pathway referral

Important for meLess important

A breast lump in a patient >30 years old warrants an urgent suspected cancer (2-week-wait) referral to the breast team. When referring this patient, it is important to inform them that the service they are being referred to is a cancer service so that they are prepared for this. Explain to the patient that not all referrals to cancer services are cancer and outline some alternative diagnoses if appropriate.

Taking a biopsy is incorrect. This is an important investigation for diagnosis but will be done in secondary care rather than by the GP as an initial investigation.

While fibroadenoma is a very common cause of a breast lump in a young woman, this presentation must be referred to the breast team to rule out cancer due to the patient being over 30 (NICE guidelines). Fibroadenomas are usually mobile, firm lumps, sometimes referred to as a 'breast mouse'.

Routine referral could be considered if the patient was under 30 years old, however, as this patient is over 30 and has an unexplained breast lump that requires prompt investigation, she should be referred to the breast team as an urgent suspected cancer referral.

GP review in 2 weeks is incorrect. This needs investigating urgently by the breast team. Although fibroadenomas can increase in size during the menstrual cycle, so reviewing the patient after their cycle may result in different examination findings, it is not the most appropriate step as this breast lump needs to be referred as potential cancer to the breast team.

Question:

You receive a discharge summary for Ms Liu, a 60-year-old lady, who has had an acute surgical admission with pancreatitis. The summary notes that it was thought to be drug-related. Her past medical history includes atrial fibrillation and type 2 diabetes. Her regular medications are bisoprolol, apixaban, metformin, sitagliptin, and atorvastatin. She also takes an over-the-counter vitamin D supplement.

Which of her medications might have caused this presentation and should be reported by Yellow Card?

A.Bisoprolol

B.Apixaban

C.Metformin

D.Sitagliptin

E.Vitamin D

Answer:Sitagliptin

Explanation:

A rare, but important, side effect of DPP4-inhibitors is pancreatitis

Important for meLess important

Bisoprolol, apixaban and vitamin D do not cause pancreatitis.

Metformin does not cause pancreatitis. It can increase the risk of lactic acidosis however and should be stopped in cases where there is risk of this; this would include serious illness such as pancreatitis.

Sitagliptin is the correct answer; DPP4-inhibitors have been shown to cause acute pancreatitis and should be stopped if it is suspected and reported by Yellow Card.

Question:

You see a 53-year-old woman during duty surgery (urgent care). She is in agonising pain around her right eye and over-the-counter drops from the chemist are not helping. She has no past medical history of note, but she has been working 12-hour night shifts as a bank nurse. On examination, there is a mild vesicular rash on the conjunctiva, but the eye itself appears normal under direct vision. Her visual acuity is normal and fundoscopy is also normal.

What is the best next step?

A.Direct referral to the emergency department

B.High dose oral steroids

C.Oral aciclovir and urgent ophthalmology referral

D.Topical dexamethasone

E.Topical ganciclovir

Answer:Oral aciclovir and urgent ophthalmology referral

Explanation:

Herpes zoster ophthalmicus requires urgent ophthalmological review and 7-10 days of oral antivirals

Important for meLess important

Oral aciclovir and urgent ophthalmology referral - this is the best answer. The vesicular rash and sharp persistent pain indicate suspected herpes zoster ophthalmicus. This requires urgent ophthalmological review and 7-10 days of oral antivirals.

Direct referral to the emergency department - this may get her seen by a clinician, who would then refer on to ophthalmology and give her treatment. However, this introduces an unnecessary step and does not reflect best practices. The best option is to prescribe oral aciclovir and direct referral to ophthalmology.

High dose oral steroids - this is not a recognised treatment for herpes zoster ophthalmicus.

Topical dexamethasone - topical corticosteroids may be used to treat any secondary inflammation of the eye, but it is not the best option here. She would need to be seen by ophthalmology and have oral antiviral medication.

Topical ganciclovir - topical antiviral treatment is not given in HZO (unless complications like keratitis arise).

Question:

A 73-year-old male with a background history of prostate cancer treated by external beam radiation therapy 5 years ago presents to their general practitioner with a 3-month history of urgency, diarrhoea, and crampy abdominal pain. He is otherwise fit and active, with no medical co-morbidities.

On examination, the patient appears thin with conjunctival pallor. The abdomen is soft and non-tender, with no blood or mucus on digital rectal examination.

Which of the following diagnosis would explain this presentation?

A.Recurrence of prostate cancer

B.Colorectal cancer

C.Anal cancer

D.Inflammatory bowel disease

E.Diverticular disease

Answer:Colorectal cancer

Explanation:

Patients are at increased risk of bladder, colon, and rectal cancer following radiotherapy for prostate cancer

Important for meLess important

This presentation is most consistent with pathology relating to the alimentary tract, and therefore recurrence of prostate cancer is not likely.

The absence of symptoms such as bleeding or pain on defecation makes anal cancer less likely. Inflammatory bowel disease is unlikely given this patients age, and absence of a previous diagnosis.

Diverticular disease can present in a similar fashion to large bowel cancer, however, given this patient's history of radiation therapy for prostate cancer, they are at increased risk of colorectal cancer. Due therefore to this patient's risk factor for colorectal carcinoma in addition to the clinical context, a diagnosis of colorectal cancer best explains this presentation.

Meta-analysis of observational studies has shown that patients are at increased risk of secondary cancers of the bowel, bladder, and rectum following radiation therapy, compared to unexposed individuals.

For further information please see: Wallis Christopher J D, Mahar Alyson L, Choo Richard, Herschorn Sender, Kodama Ronald T, Shah Prakesh S et al. Second malignancies after radiotherapy for prostate cancer: systematic review and meta-analysis BMJ 2016; 352 :i851

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 21-year-old female presents to the emergency department with lower abdominal pain. The pain started centrally and is now localised on the right side. She states the severity of the pain is 8 out of 10 on the pain scale. She is sexually active and states that she is not on any form of contraception but uses condoms. On examination she has pain in the right iliac fossa with rebound tenderness. What initial investigation should be completed during admission to rule out a potential diagnosis?

A.Urine human chorionic gonadotropin

B.Serum human chorionic gonadotropin

C.Abdominal ultrasound scan

D.Trans-vaginal ultrasound scan

E.CT scan of abdomen and pelvis

Answer:Urine human chorionic gonadotropin

Explanation:

This woman has presented with right iliac fossa pain and it is important to include gynaecological problems in a differential diagnosis of the acute abdomen when pain presents in this way. An ectopic pregnancy can present in a number of ways and symptoms can include abdominal pain. A woman should be asked about periods but bleeding does not rule out an ectopic pregnancy because a symptom can also be vaginal bleeding, at times mistaken for a period.

To aid in diagnosis and further management, a pregnancy test should be completed. NICE guidelines also suggest that if a woman may be pregnant, a pregnancy test should also be offered even in the presence of non-specific symptoms. A urine pregnancy test, urine human chorionic gonadotropin (hCG), is a safe, non-invasive way to confirm or rule out a diagnosis of an ectopic or intrauterine pregnancy.

Serum hCG is used to determine management in a pregnancy of unknown location and is commonly used as a pregnancy test.

Further investigations for this woman may include ultrasound scan and CT scan of the abdomen and pelvis but this will be guided by the results from the pregnancy test.

Question:

You review a 61-year-old man who presents with a gradual history of worsening fatigue and denies any other symptoms. He has no medical history and takes no medication. Routine observations are within normal limits and there are no abnormalities on thorough examination.

You perform a set of blood tests which come back as below:

Hb 118 g/L Male: (135-180)

Female: (115 - 160)

Platelets 395\* 109/L (150 - 400)

WBC 10.9\* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Urea 6.9 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Ferritin 17 ng/mL (20 - 230)

Vitamin B12 450 ng/L (200 - 900)

Folate 5 nmol/L (> 3.0)

What would your next steps in management be?

A.Advise the patient to increase his consumption of red meat and leafy green vegetables and re-check bloods in 4 weeks

B.Prescribe oral iron supplements and refer the patient urgently under the suspected colorectal cancer pathway

C.Prescribe oral iron supplements and send a routine referral to gastroenterology

D.Prescribe oral iron supplements and re-check bloods in 4 weeks

E.Refer the patient for intravenous iron replacement and arrange an urgent colonoscopy

Answer:Prescribe oral iron supplements and refer the patient urgently under the suspected colorectal cancer pathway

Explanation:

Patient >= 60 years old with new iron-deficiency anaemia → urgent colorectal cancer pathway referral

Important for meLess important

The blood results show low haemoglobin in keeping with anaemia. The low ferritin confirms anaemia due to iron deficiency.

New-onset iron-deficiency anaemia in a patient over 60 is a red flag symptom for colorectal cancer that should be referred under the 2-week wait pathway even if the patient does not have other symptoms of malignancy. This patient, therefore, requires an urgent colonoscopy to assess for colorectal malignancy. NICE guidelines advise that oral iron replacement should be started in these patients straight away, rather than after investigations have been carried out. The appropriate answer is therefore to start iron supplementation and refer the patient urgently.

A routine referral to gastroenterology would be inappropriate in this case as the patient meets the criteria for a 2-week wait referral.

Although prescribing oral iron supplements and monitoring their efficacy is an important part of management, it would be inappropriate to do this alone without investigation for the cause of anaemia.

Intravenous iron replacement is an option used when oral replacement is ineffective or intolerable. It may also be used when ferritin is very low and needs to be replaced quickly, however this is not the case for this patient who has a ferritin of 17. Therefore, even though this answer does address the need for urgent colonoscopy, it is not the most appropriate management.

There is nothing to suggest that this deficiency is caused by a poor diet. It would be inappropriate to not treat the anaemia or investigate the cause.

Question:

A 21-year-old woman attends her GP to discuss contraception options as she is in a stable relationship. She has recently been diagnosed with partial epilepsy for which she takes carbamazepine regularly. She also has a history of heavy menstrual bleeding. Past medical history is unremarkable otherwise.

Which one of the following would be the most appropriate method of contraception at this time?

A.Intrauterine device (Copper coil)

B.Nexplanon

C.Intrauterine system (Mirena)

D.Depo- provera

E.Combined oral contraceptive pill

Answer:Intrauterine system (Mirena)

Explanation:

The choice of contraception is based on individual preference while taking in to account relative cautions or contraindications. In this case, the first consideration is the need for a method that would not be affected by the enzyme inducing effect of carbamazepine, such as the intrauterine system. The combined oral contraceptive pill (COCP) would be useful for heavy bleeding but the failure rate would be high due to enzyme induction. Nexplanon can itself cause heavy bleeding initially and in addition, the dose of progestogen in the circulation is low and will also be affected by enzyme induction. Depo-provera could be used but prolonged use in young individuals could lead to reduced bone density. The intrauterine system (Mirena) would be effective both for reducing heavy bleeding and providing contraception that would be effective along side her anti-epileptic medication.

Question:

A 43-year-old woman presents to her general practitioner with a tick bite. She reports that the bite occurred yesterday and that her husband removed the tick using a pair of tweezers. She is concerned about the possibility of developing Lyme disease and asks if there is anything that can be done to prevent it from developing.

She denies rash, headache, fever, lethargy or arthralgia. All of her observations are within normal limits and a systemic examination is normal.

What is the most appropriate management?

A.Prescribe a prophylactic course of amoxicillin

B.Prescribe a prophylactic course of doxycycline

C.Re-assure the patient and provide safety netting advice

D.Refer to an infectious diseases specialist

E.Request an ELISA for Borrelia burgdorferi antibodies

Answer:Re-assure the patient and provide safety netting advice

Explanation:

There is no need for prophylactic antibiotics for Lyme disease in asymptomatic patients bitten by a tick

Important for meLess important

This woman presents with a tick bite. She has no symptoms of Lyme disease, for example erythema migrans or systemic malaise, and so does not require antibiotic treatment. In the context of a tick bite in an asymptomatic patient, NICE guidelines do not recommend antibiotic treatment or investigation with ELISA. Similarly, as the patient is asymptomatic she does not need referral to secondary care. The most appropriate management here is to re-assure the patient and to ‘safety net’ her to be aware of possible symptoms of Lyme disease.

Question:

An 83-year-old patient's routine blood results are being reviewed. He has a history of hypertension, type 2 diabetes, osteoarthritis and heart failure.

Three days ago:

Na+ 138 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 5.9 mmol/L (2.0 - 7.0)

Creatinine 57 µmol/L (55 - 120)

Today:

Na+ 142 mmol/L (135 - 145)

K+ 5.1 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

Which of his medications does not worsen AKI but should be stopped because of the increased risk of toxicity?

A.Bisoprolol

B.Furosemide

C.Ibuprofen

D.Metformin

E.Ramipril

Answer:Metformin

Explanation:

This medication may have to be stopped in AKI as increased risk of toxicity (but doesn't usually worsen AKI itself) - metformin

Important for meLess important

As this patient's creatinine has increased 1.5-fold in less than a week, and by >26.5µmol/L, he has an AKI.

All of the above drugs should be stopped in AKI.

Metformin does not worsen AKI but can accumulate and cause toxicity in the form of lactic acidosis.

Bisoprolol is a beta-blocker that lowers blood pressure, decreasing renal perfusion which can worsen AKI by adding an element of pre-renal/hypovolaemic renal failure.

Ramipril also lowers blood pressure, decreasing renal perfusion and potentially worsening AKI. Additionally, it can cause hyperkalaemia, which is also a concern in patients with AKI when their potassium excretion becomes impaired. This patient's potassium is already high, which is a second reason why his ramipril should be stopped.

Furosemide is a loop diuretic which lowers blood pressure by increasing water and sodium excretion in the kidney, reducing the circulating blood volume. As this also reduces blood flow to the kidneys, it should also be stopped in AKI.

Ibuprofen is an NSAID and inhibits pro-inflammatory prostaglandin production. As prostaglandins have a vasodilatory effect, including on the renal vasculature, this also reduces blood flow to the kidneys and can worsen AKI.

Question:

Which one of the following is most associated with the syndrome of inappropriate ADH secretion?

A.Colorectal adenocarcinoma

B.Small cell lung cancer

C.Malignant melanoma

D.Gastric adenocarcinoma

E.Squamous cell lung cancer

Answer:Small cell lung cancer

Explanation:

A common endocrine complication of small cell lung cancer is SIADH

Important for meLess important

Question:

A 34-year-old woman with a diagnosis of depression is brought in by police under section 136 of the mental health act. Her GP has recently started her on sertraline. She was found walking barefoot down a busy road claiming to be invincible.

On assessment, she appears euphoric, her speech is pressured and she appears unable to pay attention to questions. She believes she is on a special mission to tell people about her new cure for all cancers and hasn't slept for days as a result.

The patient is sectioned and admitted to the mental health ward.

What is the most appropriate management?

A.Start lithium

B.Start olanzapine

C.Stop sertraline

D.Stop sertraline and start lithium

E.Stop sertraline and start olanzapine

Answer:Stop sertraline and start olanzapine

Explanation:

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

Important for meLess important

Stop sertraline and start olanzapine is correct. This patient is experiencing a manic episode. The introduction of an antidepressant may have triggered the manic episode. The antidepressant needs to be discontinued and a second-generation antipsychotic introduced.

Start lithium is incorrect. The antidepressant needs stopping as this has potentially triggered the manic episode. Lithium is used as a mood stabiliser but can take up to 2 weeks to become effective, so a second-generation antipsychotic would be used first. Lithium would be used if the response to the antipsychotic is inadequate.

Start olanzapine alone is incorrect. The antidepressant also needs discontinuing, as this has potentially triggered the manic episode.

Stop sertraline alone is incorrect. Although the sertraline does need stopping, the manic symptoms then need treating with a second-generation antipsychotic.

Stop sertraline and start lithium is incorrect. It is right to stop the sertraline, but lithium can take up to 2 weeks to become effective, so a second-generation antipsychotic would be used first. Lithium would be used if the response to the antipsychotic is inadequate.

Question:

A 60-year-old woman presents to your GP clinic with increased urinary frequency. She says she finds it disruptive to her work in the office as she constantly has to get up to go to the toilet. The patient has also experienced some leakage, which has been very embarrassing. She denies any association of the leakage with coughing or laughing.

The patient has a BMI of 32kg/m². A vaginal examination excludes pelvic organ prolapse and demonstrates an ability to initiate voluntary contraction of the pelvic floor muscles.

Which of the following would form part of your initial investigations for this patient?

A.A single day bladder diary

B.CT kidneys, ureter and bladder

C.CT urogram

D.Cystoscopy

E.Urine dipstick and culture

Answer:Urine dipstick and culture

Explanation:

In patients with urinary incontinence, make sure to rule out a UTI and diabetes mellitus

Important for meLess important

It is important to rule out a UTI and diabetes mellitus as causes of this patient's urinary incontinence. Of the initial investigations for urinary incontinence, urine dipstick and culture would be the first as this test can easily be performed within the GP surgery. The other initial investigations include a bladder diary for a minimum of 3 days and urodynamic studies. It should also be noted that the NICE guidelines state that a urine dip is unreliable in women aged older than 65 years, and those who are catheterised.

A bladder diary for a minimum of 3 days would form part of your initial investigation, hence a single-day diary would be inappropriate.

CT scans are generally not used for urinary incontinence but are used in the investigation of renal pathology including ureteric calculi.

Cystoscopy would be inappropriate for this patient. This investigation is usually done when bladder cancer is suspected.

Question:

A 42-year-old homeless woman is brought to ED during the day by a friend after being found slumped by a bus stop and with an acutely swollen, red, and hot right leg. She looked drowsy, emaciated, and was unable to give a coherent history. She was treated for a right leg cellulitis with intravenous flucloxacillin and fluids.

Her admission bloods showed:

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

Female: (115 - 160)

Platelets 175 \* 109/L (150 - 400)

WBC 17.0 \* 109/L (4.0 - 11.0)

Na+ 133 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 12.0 mmol/L (2.0 - 7.0)

Creatinine 145 µmol/L (55 - 120)

CRP 265 mg/L (< 5)

Glucose 4.6 mmol/L (4.0 - 11.1)

Albumin 30 g/L (35 - 50)

Alanine aminotransferase (ALT) 45 IU/L (10 - 50)

Aspartate aminotransferase (AST) 52 IU/L (10-40)

Alkaline phosphatase (ALP) 100 IU/L (25 - 115)

Bilirubin 22 μmol/L (<17)

Gamma glutamyl transferase (γGT) 110 U/L (9 - 40)

During the night, the ward nurse bleeped the doctor on-call as the patient had become sweaty, had a new tachycardia, and was trying to shake off 'bugs' that were crawling under her skin. Physical examination was normal, except for a tachycardia, sweating, and a red, hot, and swollen right leg. She was clearly agitated and constantly distracted by 'crawling' under her skin.

Her observations were:

Heart rate 110/min

Blood pressure 121/65 mmHg

Respiratory rate 26/min

Oxygen saturation 96% on room air

Temperature 37.4ºC

Glasgow Coma Score 15/15

Which one of the following measures would best treat her symptoms?

A.Intramuscular haloperidol

B.Intravenous naloxone

C.One-to-one nursing

D.Oral chlordiazepoxide

E.Escalate antibiotics to piperacillin-tazobactam (Tazocin)

Answer:Oral chlordiazepoxide

Explanation:

Chlordiazepoxide or diazepam are used in the treatment of delirium tremens/alcohol withdrawal

Important for meLess important

This woman has presented to hospital with cellulitis and little other history. Apart from raised markers for infection, her blood tests here would not explain her acute delirium. Mildly raised liver function tests (LFTs) may indicate a liver pathology - but be aware that cirrhotic patients may have normal LFTs as their liver starts to lose function. A low albumin can point towards reduced liver synthetic function, and an element of malnutrition. A raised gamma-GT is commonly seen in alcoholic patients, which is a clue in the question stem. The raised urea and creatinine are likely secondary to dehydration and sepsis.

She has developed a new tachycardia, sweating, and tactile hallucinations some hours after admission. Given her demographic, the timeframe before onset, and the nature of symptoms, you should consider acute alcohol withdrawal. This can be precipitated by admission to hospital, where the patient has lost access to alcohol. The fact she could not give enough information on admission to include a social history means this should be considered early on. This is best treated with a reducing regimen (and appropriate 'as required' cover) of chlordiazepoxide or another benzodiazepine, namely diazepam. You would choose oral over intravenous medication as an initial measure, as you should choose the least invasive or restrictive option.

Haloperidol can be used in acute delirium, but the question here points towards alcohol withdrawal, for which chlordiazepoxide is a better treatment. A delirium secondary to infection is a differential, but tactile hallucinations are uncommon, and you should consider alcohol withdrawal in patients with her risk factors and blood test results.

Naloxone is a treatment for opioid toxicity. In this, you'd expect a reduced GCS, low respiratory rate, and/or pinpoint pupils. You'd also expect a history of opioid use.

One-to-one nursing is important in patients with delirium and is often first-line in its management along with other de-escalation techniques. However, it is unlikely to treat the underlying withdrawal, and the patient is likely to get worse and is at risk of delirium tremens.

Escalating antibiotics to piperacillin-tazobactam would be premature, given she hasn't had enough time to respond to the flucloxacillin. Moreover, her presentation fits more with alcohol withdrawal - one wouldn't expect her to have tactile hallucinations, and you'd expect evidence of worsening infection; that is, drowsiness rather than agitation, hypotension, and/or a fever.

Question:

A 55-year-old man presents to the cardiology clinic for a review. He is well and currently asymptomatic and is not currently bleeding. He has a past medical history of atrial fibrillation and a mechanical valve, and he takes warfarin and amiodarone. After reading online about the health benefits of grapefruit juice, he has started drinking it.

His pulse is 87 bpm, his blood pressure is 135/82 mmHg, and his oxygen saturations are 97% on room air.

Investigations are performed:

Hb 137 g/L (135-180)

Platelets 167 \* 109/L (150 - 400)

WBC 5.3 \* 109/L (4.0 - 11.0)

INR 8.4

What is the next best step in his management?

A.Stop warfarin, give IV vitamin K and prothrombin complex concentrate

B.Stop warfarin, give IV vitamin K, and recheck INR in 24 hours

C.Stop warfarin, give oral vitamin K, and recheck INR in 24 hours

D.Stop warfarin, withhold 1-2 doses, and give lifestyle advice only

E.Stop warfarin, withhold 1-2 doses, and then restart at a lower dose

Answer:Stop warfarin, give oral vitamin K, and recheck INR in 24 hours

Explanation:

All patient with an INR above 8.0 should have medical reversal of warfarin with either vitamin K or prothrombin complex concentrate, depending on clinical picture

Important for meLess important

Stop warfarin, give oral vitamin K, and recheck INR in 24 hours is correct. This patient has an INR above 8.0 with no bleeding, possibly due to the consumption of grapefruit juice, which can interact with warfarin and increase its levels and effect. The BNF recommends that patients with an INR >8.0 should have their warfarin stopped, be given oral vitamin K to undo its effects and have their INR remeasured in 24 hours. If their INR is still raised, then they should be given a repeat dose of the oral vitamin K. If this patient were to have minor bleeding and an INR >8.0, then instead of giving oral vitamin K, they should be given IV vitamin K. In scenarios of major bleeding regardless of INR, they should have their warfarin stopped, be given IV vitamin K, and offered prothrombin complex concentrate.

Stop warfarin, give IV vitamin K and prothrombin complex concentrate is incorrect. This would be appropriate if the patient had major bleeding as it reverses the effects of warfarin the fastest. It would be wasteful and excessive to offer this patient IV vitamin K and prothrombin complex concentrate as they are not currently bleeding.

Stop warfarin, give IV vitamin K, and recheck INR in 24 hours is incorrect. This would be appropriate if the patient had minor bleeding. Oral vitamin K is sufficient for patients with an INR >8.0 without bleeding.

Stop warfarin, withhold 1-2 doses, and give lifestyle advice only is incorrect. This would be appropriate if their INR was 5.0-8.0 with no bleeding, along with reducing the subsequent dose. The patient in this scenario has an INR that is too high, meaning the risk of bleeding emerging is too high for oral vitamin K not to be offered.

Stop warfarin, withhold 1-2 doses, and then restart at a lower dose is incorrect. This would be appropriate if their INR was 5.0-8.0 with no bleeding. The patient in this scenario has an INR that is too high, meaning the risk of bleeding emerging is too high for oral vitamin K not to be offered.

Question:

A 9-month-old baby is brought to the emergency department by his father. He has had a barking cough for the past 3 days and his father says he has been feeding poorly for the past 4 days. On examination the child does not appear agitated and is easily distracted by his toys. The barking cough is audible at rest and there is mild sternal retraction. Observations are otherwise stable. A diagnosis of croup is made and treatment is commenced. What is the most suitable first-line treatment for this child?

A.Nebulised salbutamol

B.Oral dexamethasone

C.Humidified oxygen

D.IV hydrocortisone

E.Broad spectrum antibiotics

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

This scenario focuses on the immediate management of croup in a 9-month-old baby. Guidelines suggest categorising this condition into mild, moderate and severe, depending on symptoms. This baby would be mild to moderate.

The NICE guidelines suggest a single dose of oral steroids at 0.15mg/kg, regardless of severity. For this reason, the correct answer is oral dexamethasone.

Although salbutamol can be used as an airways vasodilator, it is not normally used in the treatment of croup.

Oxygen is only necessary if the oxygen saturations are <92%. This baby is stable.

IV hydrocortisone may be necessary if access to oral routes are limited but would not be the first choice.

Most croup cases are caused by a viral infection, therefore antibiotics are not a drug of choice.

Question:

A 45-year-old man presents to the GP in distress. He has recently been on holiday and forgot to renew his prescriptions, meaning that he last took his medications one week ago. The patient now feels generally unwell with nausea and profuse diarrhoea. After a thorough history and examination, the GP feels that his symptoms are due to the withdrawal of one of his medications.

The patient has a history of depression, gout, hypothyroidism and type two diabetes mellitus. He also occasionally uses zopiclone for insomnia.

Withdrawal of which of the patient's medications is the likely cause of his symptoms?

A.Colchicine

B.Levothyroxine

C.Metformin

D.Paroxetine

E.Zopiclone

Answer:Paroxetine

Explanation:

Gastrointestinal side-effects such as diarrhoea are seen in SSRI discontinuation syndrome

Important for meLess important

The correct answer is paroxetine. Withdrawal of selective serotonin reuptake inhibitors (SSRIs) is associated with numerous symptoms, including gastrointestinal symptoms, restlessness, mood changes and insomnia. Of all the SSRIs, paroxetine has a particularly high risk of discontinuation symptoms. SSRIs should be withdrawn over a period of weeks to reduce the incidence of discontinuation symptoms.

Colchicine is a gout medication that is associated with gastrointestinal side effects such as diarrhoea. However, the withdrawal of colchicine is not associated with any significant symptoms.

Levothyroxine is not associated with any particular withdrawal symptoms, although stopping levothyroxine long-term will lead to symptoms of hypothyroidism developing. It is constipation, not diarrhoea, that is a symptom of hypothyroidism.

Metformin is not associated with any acute withdrawal symptoms, although stopping metformin long-term can lead to worsened diabetic control. Diarrhoea is, however, a side effect of metformin treatment.

Zopiclone, when used regularly, can build dependence. Withdrawal can then cause symptoms such as insomnia and anxiety. However, zopiclone withdrawal is not specifically associated with gastrointestinal side effects. Furthermore, this man only uses zopiclone occasionally so is unlikely to build up the dependence needed to produce withdrawal symptoms.

Question:

A 32-year-old man presents to the general practice with toenail discolouration. He reports that this has been ongoing for the last four months. It has been causing distress and he feels uncomfortable showing his feet in public, and it has started to cause discomfort on walking. He denies any other symptoms.

He has no past medical history. However, he reports that his brother and father have been diagnosed with psoriasis.

On examination, the following can be seen:

His nail clippings are positive for Candida.

What management option is most appropriate?

A.Lifestyle changes

B.Oral itraconazole

C.Topical amorolfine

D.Topical clotrimazole

E.Topical steroids

Answer:Oral itraconazole

Explanation:

The above image shows nail changes mainly affecting the first digit, but also the second to fourth digits. These nail changes include discolouration and crumbling of the nail bed. There is no obvious erythema or swelling in the surrounding areas. Furthermore, no rashes can be seen in the surrounding tissue.

Oral itraconazole is correct. This patient has presented with a fungal nail infection, that has caused distress and affected his mobility. From the image, three nails have been clearly affected by the fungal infection, therefore oral antifungals are indicated.

Lifestyle changes is incorrect. The first line of management for fungal nail infections includes lifestyle changes / personal hygiene changes. As per NICE guidelines, this includes wearing absorbent socks, avoiding cutting the nails too short, and wearing footwear in communal areas. However, in this scenario, the patient has reported distress from his symptoms and it affects his mobility. Therefore, treatment is indicated.

Topical amorolfine is incorrect. As per NICE guidance, this is indicated in mild fungal nail infections where nail clippings are positive for dermatophytes or Candida. However, the image shows more than two nails affected therefore oral antifungals are indicated.

Topical clotrimazole is incorrect. Topical clotrimazole is used for the treatment of fungal skin infections or vaginal candidiasis. It is not part of the management of fungal nail infections.

Topical steroids is incorrect. Psoriasis can cause pitting, discolouration and fragility of the nails. The patient is at higher risk of developing psoriasis given his family history. However, the patient does not report having any psoriatic lesions at present, and given the isolation of candida in the nail clipping, this confirms a fungal nail infection. If the patient had lesions consistent with psoriasis, this may be treated with topical corticosteroids and a vitamin D analogue such as calcitriol.

Question:

A 26-year-old female was been newly started on medication by her GP. Two weeks later she reported noticeable yellowing of her eyes and abdominal discomfort, particularly over the right upper quadrant.

On examination, she appeared icteric with tenderness on deep palpation over the right upper quadrant.

Urgent blood tests were performed which showed the following:

Bilirubin 100 µmol/L (3 - 17)

ALP 250 u/L (30 - 100)

ALT 50 u/L (3 - 40)

γGT 60 u/L (8 - 60)

Albumin 40 g/L (35 - 50)

Which of the following medications is most likely responsible for this presentation?

A.Amiodarone

B.Methyldopa

C.Nitrofurantoin

D.Oral contraceptive pill

E.Phenytoin

Answer:Oral contraceptive pill

Explanation:

The oral contraceptive pill is associated with drug-induced cholestasis

Important for meLess important

Drug-induced cholestasis may present as an acute illness that promptly subsides by withdrawing the offending agent. It may present with or without jaundice and abdominal pain.

The oral contraceptive pill is known to cause cholestatic liver injury with hyperbilirubinemia and elevation of alkaline phosphatase.

Amiodarone is known to cause a hepatocellular picture with a rise in alanine transaminase (ALT) to greater than two times the upper limit of normal, not seen in this case.

Methyldopa is known to cause a hepatocellular picture with a rise in alanine transaminase (ALT) to greater than two times the upper limit of normal, not seen in this case.

Nitrofurantoin is known to cause a hepatocellular picture with a rise in alanine transaminase (ALT) to greater than two times the upper limit of normal, not seen in this case.

Phenytoin is known to cause a hepatocellular picture with a rise in alanine transaminase (ALT) to greater than two times the upper limit of normal, not seen in this case.

Question:

You are assisting an obstetrics clinic. A couple attend who are 32 weeks pregnant. They had trouble conceiving naturally but were successful in their second round of IVF. It is their first baby. On their 18 week scan the sonographer was concerned about the location of the placenta and they have been rescanned today, confirming the finding. What is the most likely abnormality?

A.Vasa praevia

B.Placenta praevia

C.Placenta accreta

D.Velamentous insertion

E.Placenta membranacea

Answer:Placenta praevia

Explanation:

In a large Norwegian study in 2006 it was found that there was a six-fold higher risk of placenta praevia in singleton pregnancies conceived by assisted fertilisation compared with naturally conceived pregnancies. Among mothers who had conceived both naturally and after assisted fertilization, the risk of placenta previa was nearly three-fold higher in the pregnancy following assisted fertilization compared with that in the naturally conceived pregnancy. Other studies around the world have shown similar data. It is theorised that the abnormal placental placement relates to the abnormal ovarian stimulation hormones which occur in IVF.

The incidence of placenta praevia is also associated with previous caesarean sections, multiparity, previous surgical termination or other gynaecological surgery.

Incidence of the other options given increase with number of previous caesarean sections

Question:

A 45-year-old woman with a history of rheumatoid arthritis continues to suffer from severe joint pain and synovitis in her hands and wrists. She has previously been prescribed methotrexate and sulfasalazine but these have not been effective in managing her symptoms.

After review by her rheumatologist, it is decided to switch her to adalimumab.

Which of the following tests is essential to be performed prior to starting this medication?

A.Chest x-ray

B.Dual-energy x-ray absorptiometry (DEXA) scan

C.Hepatitis A antibodies

D.HbA1C

E.Thiopurine methyltransferase (TPMT) activity

Answer:Chest x-ray

Explanation:

It is important to perform a chest X-ray to look for TB prior to starting biologics for rheumatoid arthritis as they can cause reactivation

Important for meLess important

Biologics such as adalimumab can cause reactivation of tuberculosis (TB). It is recommended that all patients being considered for biologics should be evaluated for both active and TB infection, which usually involves a chest x-ray as well as a tuberculin skin test or interferon-gamma release assay.

A DEXA scan is incorrect as is not routinely recommended before initiating biologics, although rheumatoid arthritis itself is associated with reduced bone density and osteoporosis. This therefore, could be considered separately as part of the patient's bone health assessment.

Hepatitis A antibody testing is incorrect. Biologics can cause reactivation of hepatitis B but is not associated with hepatitis A infection, hence it is not necessary to test for the latter.

HbA1c is incorrect. Adalimumab is commonly associated with hyperglycaemia and it would be sensible to check the patient's blood glucose levels or HbA1c on a regular basis. However, a baseline HbA1c is not required.

Thiopurine methyltransferase (TPMT) activity is incorrect as it is not required before commencing biologics. It is measured before commencing azathioprine - which is not a biologic - as there is an increased risk of myelosuppression in patients if there is reduced TPMT activity. This is because TPMT acts to break down azathioprine, therefore reduced TPMT activity would lead to increased blood azathioprine levels and increased chance of myelosuppression.

Question:

A 28-year-old female with no underlying comorbidities develops a sudden rise in temperature up to 40°C during a tonsil removal surgery. Her pulse rate rises to 160 beats per minute and systolic blood pressure is recorded as 180 mmHg. The patient also shows features of muscle rigidity in the limbs.

Her pre-anaesthetic evaluation before the surgery has been normal. There is no known family history of neuromuscular disease or complications during surgery or anaesthesia.

It is noted that anaesthesia for this patient is induced on propofol and suxamethonium.

Which of the following is the definitive treatment for this patient in this scenario?

A.Dantrolene

B.Hydrocortisone

C.Flumazenil

D.N-acetylcysteine

E.Benzodiazepine

Answer:Dantrolene

Explanation:

Malignant hyperthermia is a recognised serious side effect of suxamethonium among those who are susceptible and requires IV dantrolene therapy

Important for meLess important

Malignant hyperthermia (MH) is an autosomal dominant disorder presenting as a hypermetabolic crisis characterised by an increased end-tidal carbon dioxide [ETCO2] (hypercapnia), tachycardia, muscle rigidity, rhabdomyolysis, hyperthermia, and arrhythmia. It is commonly associated with volatile inhalational anaesthetic agents and the muscle relaxant succinylcholine (suxamethonium).

Dantrolene is the only available specific and effective treatment for MH and should be administered intravenously.

There is no evidence suggesting that IV hydrocortisone is beneficial in the management of malignant hyperthermia.

Flumazenil is an antidote for benzodiazepines overdose while N-acetylcysteine is an antidote for paracetamol overdose.

Benzodiazepines may be indicated for acute dystonia but it is not the definitive management of malignant hyperthermia.

\*Ronald S Litman. Malignant hyperthermia: Diagnosis and management of acute crisis. UpToDate. Oct 2019.

Question:

A 67-year-old man with lung cancer is currently taking MST 30mg bd for pain relief. What dose of oral morphine solution should he be prescribed for breakthrough pain?

A.5 mg

B.10 mg

C.15 mg

D.20 mg

E.30 mg

Answer:10 mg

Explanation:

Breakthrough dose = 1/6th of daily morphine dose

Important for meLess important

The total daily morphine dose is 30 \* 2 = 60 mg, therefore the breakthrough dose should be one-sixth of this, 10 mg

Question:

What is the first sign of puberty in boys?

A.Development of axillary hair

B.Height spurt

C.Development of pubic hair

D.Increase in penis length

E.Increase in testicular volume

Answer:Increase in testicular volume

Explanation:

Question:

A 27-year-old woman presents to the GP with a low mood related to her loneliness. She explains that she has always been 'shy' and describes intense fear of others judging or rejecting her for her inadequacies. As such, she has avoided close relationships and stopped seeing the few friends she did have. These fears affect all aspects of her life; she chooses to work in a solitary job, has solo hobbies and has never had a relationship. Her difficulties with social situations mean that she keeps to the same, limited daily routine, although feels unsatisfied with this.

What is the likely diagnosis?

A.Autism spectrum disorder

B.Avoidant personality disorder

C.Generalised anxiety disorder

D.Schizoid personality disorder

E.Social anxiety disorder

Answer:Avoidant personality disorder

Explanation:

A young woman complains of feeling lonely. She has stopped seeing her old friends as she is worried about not being liked or criticised - avoidant personality disorder

Important for meLess important

Personality disorders are chronic patterns of perceptual and behavioural abnormalities with onset in childhood/adolescence. This patient describes symptoms of avoidant personality disorder affecting multiple aspects of her life. As the patient describes, an avoidant personality disorder is defined by interpersonal inhibitions, fear of negative evaluation and subsequent social inhibition and fear of risk-taking due to fear of rejection. The extent and pervasiveness of her symptoms coupled with the chronicity, fear of negative evaluation and feelings of inadequacy all point to a diagnosis of avoidant personality disorder over social anxiety disorder.

Whilst autism spectrum disorder is also characterised by social difficulties with onset in childhood, the social difficulties are not underpinned by an intense fear of negative evaluation and rejection and there is no hypersensitivity to criticism. Autism is also associated with communication impairments that are restricted, repetitive behaviours, interests or activities. Whilst this patient does keep to a routine, it is stated that this is due to her fear of meeting new people, rather than any restricted or repetitive behaviours.

Generalised anxiety disorder is not associated with pervasive symptoms, fear of rejection or feelings of inadequacy. It is associated with excessive worry about multiple things; it would not present with social worries only.

Whilst schizoid personality disorder is also associated with solitary behaviour, there is not a desire for social interaction but fear of judgement or rejection. Those with schizoid personality disorder show emotional detachment, social apathy and a lack of interest in social situations. This patient feels lonely and wishes to have relationships but is stopped by her pervasive fear of rejection and inadequacy.

Social anxiety disorder is the main differential for avoidant personality disorder. This patient is more likely to have a personality disorder due to her pervasive symptoms that started in childhood and are present in all aspects of her life. Unlike social anxiety disorder, avoidant personality disorder is particularly characterised by feelings of inadequacy and hypersensitivity to any perceived rejection or criticism. A social anxiety disorder may be associated with anxiety only in particular situations, fear of embarrassment and anticipatory anxiety. It is less associated with avoidance of novel situations, as seen in this patient. Some believe that avoidant personality disorder is an extreme presentation of social anxiety disorder.

Question:

A 36-year-old patient presents with nausea, headaches and palpitations. He has had multiple previous admissions with such symptoms over the past 2 years, each time no organic cause was found. What kind of disorder is this likely to represent?

A.Munchausen's syndrome

B.Hypochondrial disorder

C.Somatisation disorder

D.Conversion disorder

E.Dissociative disorder

Answer:Somatisation disorder

Explanation:

Unexplained symptoms

Somatisation = Symptoms

hypoChondria = Cancer

Important for meLess important

Question:

A 67-year-old woman is 2 days post-op for a laparoscopic hysterectomy and develops shortness of breath. She hasn't been able to mobilise since her surgery and is suffering from poorly controlled pain. She does not have any significant past medical history.

On examination, she is lying flat in bed and saturating at 95% on air. Her calves are soft and not tender. A chest X-ray shows basal atelectasis.

What should be done immediately to help improve her breathing?

A.Antibiotics

B.Re-position the patient to an upright position

C.Refer for chest physiotherapy

D.4L via nasal specs

E.15L high flow oxygen via non-rebreathe mask

Answer:Re-position the patient to an upright position

Explanation:

Re-positioning the patient upright will allow patients to breathe easier and more comfortably and should be attempted first in any breathless patient

Important for meLess important

Re-position the patient to an upright position is the correct answer. NICE guidance on the management of breathlessness lists this as the first option to alleviate breathlessness as it promotes oxygenation and this position is optimal for chest wall expansion. It also reduces the pressure of gravity on the chest wall and relaxes the abdominal muscles all helping with breathing movements.

Antibiotics are not indicated in the treatment of basal atelectasis.

Referring the patient for chest physiotherapy is part of the management of basal atelectasis. However, it is not an immediate process and may take several hours before the physiotherapist would be able to see her.

Providing oxygen for the patient would be sensible however this would be guided on the oxygen saturations after optimising her position. It would be unnecessary to provide oxygen if she is able to maintain her saturations above 94% and could result in a prolonged admission if weaning off her oxygen became tricky. It would be unreasonable to provide high flow oxygen as this is not an emergency situation. It would be sensible to start her on 1-2L of oxygen if her saturations were still low before reassessing her oxygen requirements.

Question:

A 21-year-old presents to the GP with a 3-month history of lower back pain and stiffness that radiates into his buttocks. This is worst on waking. He is a keen cyclist and denies trauma, but finds his pain and stiffness improve with cycling. There is also associated fatigue.

He was treated with doxycycline for Chlamydia 7 months ago. There is a history of anxiety and he takes no regular medication, although he does take ibuprofen with good effect when the pain is at its worst.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Lumbar spinal stenosis

C.Psoriatic arthritis

D.Reactive arthritis

E.Sciatica

Answer:Ankylosing spondylitis

Explanation:

Inflammatory back pain (e.g. ankylosing spondylitis) typically improves with exercise

Important for meLess important

Ankylosing spondylitis is correct. This is a form of inflammatory arthritis which is more common in males. It typically presents with inflammatory back pain, which is characterised by morning stiffness, improvement with exercise, insidious onset and back pain lasting over 3 months. Inflammation can extend to the sacroiliac joints, causing buttock pain. Constitutional symptoms such as fatigue are common. These features are all present in this patient.

Lumbar spinal stenosis is incorrect. This history is typical of an inflammatory process (morning stiffness, symptoms improving with exercise, constitutional symptoms), whereas lumbar spinal stenosis results in back and buttock pain due to compression of the peripheral nerves due to narrowing of the spinal canal. Patients with lumbar spinal stenosis may also have neurological symptoms such as leg weakness, and the pain may be improved by manoeuvres that widen the spinal canal, such as sitting forwards. Although many patients report that their back pain can improve with cycling in lumbar spinal stenosis (due to leaning forward), this patient's back pain is more inflammatory in character, suggesting ankylosing spondylitis.

Psoriatic arthritis can also cause a spondyloarthritis (i.e. an inflammatory arthritis that affects the back). However, whilst it is possible for arthritis to develop before psoriasis in psoriatic arthritis, it is more typical for psoriasis to precede arthritis. There is no history of psoriasis in this patient. Psoriatic arthritis typically presents with peripheral arthritis and/or dactylitis, rather than isolated spondyloarthritis, and so is not the most likely differential in this patient.

Reactive arthritis is incorrect. Axial inflammatory arthritis is a common feature of reactive arthritis and this patient has recently had Chlamydia, which is one of the infections that commonly precedes reactive arthritis. However, this patient's infection was 4-months prior to the onset of pain, whereas reactive arthritis typically presents 1-4 weeks after infection. Furthermore, this patient has no other symptoms beyond fatigue. Patients with reactive arthritis will typically have symptoms beyond just isolated axial arthritis, with other possible features including enthesitis, peripheral arthritis, conjunctivitis, skin lesions and urethritis.

Sciatica is incorrect. This describes lower back pain that travels into the buttocks and legs and is caused by compression of the lumbar or sacral nerves. Sciatica is typically unilateral, whereas this patient has pain in both buttocks and no leg pain. Sciatica would not cause morning stiffness, which suggests an inflammatory condition. The pain of sciatica is not typically better with activity.

Question:

A 40 years old patient presents to GP with weakness of her right hand, sensory loss to her little finger and wasting of hypothenar compartment. On examination, you have noticed that the thumb adduction is weak. You recall from your anatomy lecture that adductor pollicis is responsible for the thumb adduction.

Where is the most likely site of the lesion?

A.Radial nerve

B.Ulnar nerve

C.Musculocutaneous nerve

D.Median nerve

E.Axillary nerve

Answer:Ulnar nerve

Explanation:

Adductor pollicis is innervated by ulnar nerve and therefore, damage to ulnar nerve results in loss of thumb adduction

Important for meLess important

Damage to ulnar nerve usually results in wasting of hypothenar muscles, loss of thumb adduction, wasting of 1st web space and ulnar claw hand (hyperextension at metacarpophalangeal joint, flexion at interphalangeal joint).

Radial nerve palsy would typically present with wrist drop and loss of sensation from 1st dorsal web-space.

Musculocutaneous nerve palsy would result in reduced flexion at elbow and loss of supination.

Median nerve innervates thenar muscles and provides sensory innervation to lateral three and a half digits. Median nerve compression results in carpal tunnel syndrome.

Axially nerve palsy would result in the wastage of deltoid muscles and loss of sensation from the badge area.

Question:

A 4-year-old boy was discharged from the hospital six weeks ago after an episode of viral gastroenteritis. He now has 4-5 loose stools each day which has been present for the past four weeks.

What is the most likely diagnosis?

A.Coeliac disease

B.Inflammatory bowel disease

C.Secondary bacterial infection

D.Lactose intolerance

E.Clostridium difficile infection

Answer:Lactose intolerance

Explanation:

Transient lactose intolerance is a common complication of viral gastroenteritis. Removal of lactose from the diet for a few months followed by a gradual reintroduction usually resolves the problem.

Question:

A 62-year-old man presents to the Emergency Department with sudden onset headache and pain in his jaw whilst he was chewing breakfast in the morning. High dose prednisolone is commenced and an appropriate biopsy is performed which later comes back to be normal. What is the most appropriate next step in the patient’s management?

A.Stop the prednisolone immediately and repeat the biopsy

B.Stop the prednisolone, reassure the patient and discharge him

C.Switch the oral prednisolone to IV methylprednisolone

D.Continue the prednisolone for 14 days and then repeat the biopsy

E.Continue the prednisolone, regardless of the biopsy result

Answer:Continue the prednisolone, regardless of the biopsy result

Explanation:

Skip lesions occur in giant cell arteritis and may show a normal biopsy

Important for meLess important

This man is experiencing symptoms suggestive of giant cell arteritis. Appropriate investigations include a temporal artery biopsy, however skip lesions can occur which show up as a negative result. Steroids should not be discontinued as this condition can ultimately lead to blindness. Ideally, the biopsy should be carried out within 7 days of starting steroids.

Question:

A 32-year-old woman presents with an occasional feeling of a lump in her throat when swallowing and a burning sensation in the middle of her chest following meals. She reports no pain or difficulty swallowing, no unintentional weight loss or loss of appetite, and no haematemesis or melaena. Examination of the neck is normal, with no masses, and abdominal examination is normal.

Dietary measures including cutting out fatty foods, caffeine, chocolate and alcohol have already been tried.

What is the most appropriate next step?

A.2-week wait referral to upper gastrointestinal surgery

B.H2-receptor antagonist

C.Laparoscopic fundoplication

D.Proton pump inhibitor

E.Upper gastrointestinal endoscopy

Answer:Proton pump inhibitor

Explanation:

A trial of proton pump inhibitors should be tried in patients with suspected laryngopharyngeal reflux

Important for meLess important

Proton pump inhibitor (PPI) is correct. This patient presents with dyspepsia, with no alarm symptoms (e.g. weight loss, anorexia, dysphagia, melaena, haematemesis or an abdominal mass). She has already tried lifestyle measures, so the next appropriate step would be a 1-month trial of a PPI (e.g. 20mg omeprazole daily).

2-week wait referral to upper gastrointestinal surgery is incorrect. The patient has no alarm features, so this is not the most appropriate next step.

H2-receptor antagonist is incorrect. It is correct that it could be used to treat reflux, however, it is a PPI that would be offered first-line. The BNF states 'if there is no response to a PPI, then offer a histamine2-receptor antagonist (H2-receptor antagonist).'

Laparoscopic fundoplication is incorrect. It is a procedure whereby the gastric fundus is wrapped around the lower oesophagus and sutured in place to create a sphincter. Whilst it is effective in treating reflux, it would not be the most appropriate next step in this case. Surgery in reflux is indicated if there is an inadequate response to medical therapy, the patient is not willing to take long-term medication, or in patients with complications from reflux (such as recurrent aspiration pneumonia).

Upper gastrointestinal endoscopy is incorrect. In this case, it could be appropriate at a later stage, if the patient has ongoing symptoms despite optimal medical management in primary care.

Question:

Tim is a 75-year-old man who presents to his GP with a tremor in his right hand. The tremor is worse at rest. He has also noticed that his fingers are starting to feel a little bit stiff. On examination, you notice that there is a resting tremor in his right hand. There is no tremor on movement of the hands. There are no cerebellar signs and his neurology is otherwise normal. Tim has a history of hypertension for which he takes amlodipine.

What is the next step in management?

A.Refer to neurology

B.Refer for nerve conduction studies

C.Start him on propranolol

D.Do nothing and monitor symptoms

E.Start him on levodopa

Answer:Refer to neurology

Explanation:

Parkinsons disease should only be diagnosed, and management initiated, by a specialist with expertise in movement disorders

Important for meLess important

Parkinsonism is a combination of resting tremor, bradykinesia and rigidity.

According to NICE guidelines, doctors should refer all people with suspected Parkinson's disease urgently, and untreated, to a specialist with appropriate expertise in movement disorders. Therefore referral is the correct answer. This is also the reason why a watch and wait approach is incorrect.

You should not start a patient on any medication for Parkinson's disease without a specialist assessment.

Nerve conduction studies would be appropriate for patients where neuropathy is suspected.

Propranolol can be used to manage benign essential tremor.

Question:

You are asked to see a patient on an inpatient psychiatric ward who has been feeling unwell for the last few days. He reports a severe tremor as well as muscle weakness and diarrhoea. His medication chart includes lithium, and you decide to order a lithium level as part of the workup. It comes back at 1.9mEq/l (high). You note that the nursing chart indicates he hasn't been out of bed much except to smoke and has refused food and drink.

What factor has most likely contributed to this lithium toxicity?

A.Dehydration

B.Infection

C.Cigarette use

D.Antibiotic therapy

E.Initiation of an antipsychotic

Answer:Dehydration

Explanation:

Dehydration is a risk factor for lithium overdose

Important for meLess important

This presentation describes lithium toxicity, caused by too much lithium in the blood. Blood levels are taken frequently for lithium as it has a very narrow therapeutic index (0.6-1.2). Dehydration is a common cause of lithium toxicity especially in patients that are in inpatient care and are not eating or drinking.

1: Correct

2: Infection is unlikely in this presentation but important to rule out

3: Cigarette use is not linked to lithium toxicity

4: Antibiotic use is not linked to lithium toxicity

5: Concurrent anti-psychotic use is unlikely to affect lithium levels

Question:

A 28-year-old woman presents to her GP, concerned because she was bitten by a tick 2 days ago whilst hiking in the Lake District. She managed to remove the tick herself and says she has not noticed a rash. She feels generally well in herself and has no past medical history other than migraines. On examination, no rash is visible.

What should the GP offer?

A.Prophylactic doxycycline for Lyme disease

B.Reassurance

C.Refer to infectious diseases

D.Take a blood sample to check for antibodies to Borrelia burgdorferi

E.Treat as Lyme disease with doxycycline

Answer:Reassurance

Explanation:

There is no need for prophylactic antibiotics for Lyme disease in asymptomatic patients bitten by a tick

Important for meLess important

Reassurance is correct. Provided the patient is asymptomatic, antibiotics are not recommended for tick bites.

A tick bite is a relatively common and simple medical issue, and does not warrant referral to infectious diseases.

Taking a blood sample to check for antibodies is not necessary in this case, as she has no symptoms. However, if she had symptoms suggestive of Lyme disease but didn't have the classic rash (see notes below), this would be considered.

You would not treat as Lyme disease with antibiotics. If she had presented with a tick bite AND the classic erythema migrans rash, this would be correct.

Question:

A 29-year-old woman presents with right iliac fossa pain. She has a past medical history of an ectopic 8 months previously with right sided salpingectomy. She had an ultrasound scan 3 days previously which demonstrated a viable intrauterine pregnancy. Clinically she is Rovsing sign positive with raised inflammatory markers. What is the most likely diagnosis?

A.Adnexal torsion

B.Appendicitis

C.Ectopic

D.Mesenteric adenitis

E.Ovarian torsion

Answer:Appendicitis

Explanation:

This patient is Rovsing positive which is a clinical marker for appendicitis. In addition she has heightened markers of infection/inflammation which would be most in keeping with an infectious process

Whilst she has a past medical history of ectopic pregnancy, she has already had a scan demonstrating an IUP (intrauterine pregnancy) making ectopic less likely (though not impossible. She may have a twin pregnancy with the second embryo implanted in the fallopian tube however, as she has had her right tube removed this is less likely than appendicitis).

Adnexal torsion may present similarly to appendicitis however, it is less commonly seen: making appendicitis the more likely diagnosis.

Appendicitis is the most common surgical emergency in pregnant patients with an incidence of 1:1500-2000 pregnancies. Importantly: Pregnant women have the same risk of appendicitis as non-pregnant women

While we have included Rovsing sign in this scenario it is often absent in pregnancy, as is fever.

Question:

A 44-year-old woman returns from the cardiology clinic after being diagnosed with congenital long QT syndrome following an incidental finding on a recent ECG for palpitations.

Which of the medications below is it most important to avoid in the future?

A.Amoxicillin

B.Bisoprolol

C.Clarithromycin

D.Cyclizine

E.Digoxin

Answer:Clarithromycin

Explanation:

Macrolides may cause prolongation of the QT interval

Important for meLess important

Macrolide antibiotics such as clarithromycin, erythromycin and azithromycin may cause prolongation of the QTc interval, which, in a patient with known congenital long QT syndrome, may precipitate torsades de pointes.

Bisoprolol and digoxin can both shorten the QTc interval, so they can be used.

Amoxicillin and cyclizine are not known to increase the QTc interval.

Question:

An 87-year-old man presents to the emergency department with seven episodes of diarrhoea on the last day and pyrexia. He denies blood in the stools. He has a past medical history of hypertension, treated with amlodipine, and type two diabetes, treated with three-daily insulin injections.

On examination, he looks in pain and he has dry mucosal membranes. His heart rate is 82/min, respiratory rate 20/min, blood pressure 120/78mmHg, and temperature 38.5 ºC. His blood results show the following:

Hb 176 g/L (135-180)

Platelets 346 \* 109/L (150 - 400)

WBC 12.2 \* 109/L (4.0 - 11.0)

A stool culture confirms the presence of Clostridium difficile toxin.

What is the most appropriate management plan?

A.Prescribe IV bezlotoxumab

B.Prescribe oral clindamycin

C.Prescribe oral metronidazole alone

D.Prescribe oral vancomycin

E.Prescribe oral vancomycin and IV 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

The correct answer is to prescribe oral vancomycin. This patient presents with the classical signs and symptoms of a Clostridium difficile infection, such as diarrhoea, abdominal pain, and neutrophilia. The infection is confirmed by the presence of Clostridium difficile toxin in his stools. The first-line management option for a Clostridium difficile infection is oral vancomycin, unless the infection is life-threatening. But in the stem, there are no suggestions of the patient being at risk of death, making this the correct option.

IV bezlotoxumab is a monoclonal antibody that targets Clostridium difficile toxin B. It can be used to prevent recurrence in high-risk individuals, but it is not indicated by the NICE guidelines and there is no strong evidence for it. This patient is presenting for the first time with this condition and he does not have an at-risk job, making this option incorrect.

Clindamycin is the antibiotic historically associated with causing Clostridium difficile. It is usually prescribed to treat diabetic foot infections (which is likely as the patient is diabetic). It has no role in the treatment of Clostridium difficile.

Oral metronidazole monotherapy is not an appropriate initial treatment for patients at high risk, in particular, those who present with significant predictors of disease severity or are of advanced age and have worrisome comorbidities. This patient is 87 years old with two comorbidities. Hence, it would be preferable to not prescribe it. It can be used in IV formulation in conjunction with oral vancomycin to treat life-threatening or drug-resistant infections by the pathogen.

Prescription of oral vancomycin and IV metronidazole is incorrect, as this combination is used in life-threatening cases of Clostridium difficile infection. There is no evidence of hypotension, shock, or intestinal obstruction, making this option incorrect.

Question:

A 69-year-old woman is brought to the emergency department with sudden onset unsteadiness. On examination she is haemodynamically stable, has normal visual fields, no ophthalmoplegia but a nystagmus which is present at rest, loss of pinprick sensation over the right trigeminal distribution but no facial weakness or loss of light touch sensation over the face. She also has loss of pinprick sensation in the left arm and leg although she has 5/5 power in all limbs and preserved light touch sensation in all dermatomes.

This clinical syndrome is most likely due to a stroke affecting which of the following vascular territories?

A.Right posterior inferior cerebellar artery (PICA)

B.Left posterior inferior cerebellar artery (PICA)

C.Right anterior inferior cerebellar artery (AICA)

D.Left anterior inferior cerebellar artery (AICA)

E.Basilar artery

Answer:Right posterior inferior cerebellar artery (PICA)

Explanation:

Lateral medullary syndrome can be caused by PICA strokes

Important for meLess important

Although this seems like an obscure presentation, the combination of facial and contralateral body loss of pain sensation along with nystagmus and ataxia make up a common syndrome called lateral medullary syndrome. It is an important syndrome to be aware of as it is most often due to a stroke affecting the posterior inferior cerebellar artery (PICA). It is the most commonly survived stroke that affects the brainstem and is commonly used as an exam question scenario. Given her symptoms, this would be in keeping with a right-sided posterior inferior cerebellar artery infarct.

An anterior inferior cerebellar artery infarct would present in the same way but with the additional symptoms of a same-sided facial weakness and loss of hearing. A basilar artery infarct would result in a locked-in syndrome where the patient is unable to move or communicate but is fully conscious. Both of these are more likely to affect the autonomic centres in the medulla and are associated with a higher mortality.

Question:

A woman who is 32 weeks pregnant presents to the emergency department with a painless leakage of fluid from the vagina. There was an initial gush 2 hours ago, and a steady drip since. She is examined with a sterile speculum and the fluid is confirmed as amniotic fluid. The woman also states she has a severe allergy to penicillin. What is the best management to reduce the risk of infection?

A.3 days nitrofurantoin

B.5 days nitrofurantoin

C.7 days vancomycin

D.10 days erythromycin

E.10 days piperacillin and tazobactam

Answer:10 days erythromycin

Explanation:

10 days erythromycin should be given to all women with PPROM

Important for meLess important

This is a clear history of preterm prelabour rupture of membranes. The most appropriate management of this is 10 days of oral erythromycin. Piperacillin and tazobactam (tazocin) is used often in neutropenic sepsis, and is also dangerous to used here due to the penicillin allergy. Nitrofurantoin is for urinary tract infections. Vancomycin is used against anaerobic GI infections.

Question:

A 48-year-old man comes to see you concerned that he has experienced a sudden loss of hearing in his left ear. He was watching television with his husband the previous evening when he went to the toilet and on returning, noticed that he could no longer hear speech or music from his left ear and instead, he could only hear a loud hissing sound.

On examination, both ears, ear canals and tympanic membranes look normal. Combined Weber's and Rinne's tests determine that he has a left-sided sensorineural hearing loss.

What is the most likely cause of this man's symptoms?

A.HIV

B.Idiopathic

C.Lyme disease

D.Stroke

E.Syphilis

Answer:Idiopathic

Explanation:

The majority of sudden-onset sensorineural hearing loss is idiopathic in nature

Important for meLess important

85% of sudden sensorineural hearing loss in the UK is idiopathic (with URTI-related viral infections and microvascular obstruction to the blood flow in the cochlea being potential underlying causes).

Other much rarer causes include acoustic neuroma or other intracranial tumours, from trauma, blasts and loud noise, barotrauma (SCUBA diving and flights), meningitis, herpes zoster, syphilis, immunological disease, AIDS, MS, Meniere’s disease, Lyme disease and stroke.

Question:

A 71-year-old man is referred to the emergency department by his general practitioner with a 4-day history of abdominal distension and not being able to pass flatus or stool. The patient reports no nausea or vomiting but prior to this episode, his bowel habits were a bit erratic with occasional bleeding. He also noticed some weight loss over the past few months. On examination, tinkling bowel sounds are heard and a digital rectal examination notes the presence of hard faeces. The patient reports that his mother had a significant surgical history of undergoing operations for recurrent bowel adhesions.

What is the most likely cause of the patient's symptoms?

A.Acute mesenteric ischemia

B.Large bowel obstruction

C.Paralytic ileus

D.Small bowel obstruction

E.Ulcerative colitis

Answer:Large bowel obstruction

Explanation:

Abdominal distension, absence of passing flatus or stool, late onset/no vomiting → ?large bowel obstruction

Important for meLess important

Large bowel obstruction is the correct answer. In a large bowel obstruction, we see mechanical blockage of the bowel. The most common cause of large bowel obstruction is a tumour which accounts for 60% of cases. The previously noticed rectal bleeding and history of weight loss point to this. Large bowel obstructions typically present with abdominal distension, absence of passing flatus or stool, and late-onset vomiting. The presence of hard faeces on digital rectal examination may also indicate faecal impaction.

Acute mesenteric ischemia is incorrect here because even if it could present with abdominal distension and an inability to pass stool or flatus, there would be severe pain and possibly nausea and vomiting, which isn't apparent from this patient's presentation.

Paralytic ileus is a type of functional bowel obstruction that would present with absolute constipation, abdominal distension and some nausea and vomiting. One way to differentiate from mechanical obstruction is that there will be a complete absence of bowel sounds in paralytic ileus, compared to the tinkling bowel sounds heard in mechanical obstructions.

A small bowel obstruction is an incorrect option. Small bowel obstructions are often caused by adhesions and hernias, whereas large bowel obstructions are either caused by malignancy, diverticular disease, or volvulus. Vomiting is also much more common in small bowel obstruction. Although he notes a family history of bowel adhesions there is not a significant hereditable link between adhesions.

Ulcerative colitis patients may have bloody diarrhoea but this would not explain the other aspects of the history such as the abdominal distension and absence of passing flatus or stool and is, therefore, the wrong answer. Ulcerative colitis is also associated with a family history of IBD and being HLA-B27 positive. The lack of family history points away from this.

Question:

The foster carers of a 6-month-old with a diagnosis of Down's syndrome present with her to your general practice. They state that she is struggling to gain weight as she is having difficulty feeding, often gasping and becoming breathless. She is afebrile, and they deny that she has had any other symptoms, particularly noting she has not been coughing nor vomiting. Given her history, you wonder if there might be underlying cardiac pathology responsible.

On your examination, which of these findings would be consistent with a ventricular septal defect?

A.Pulsus paradoxus

B.Early diastolic murmur

C.Displaced apex beat

D.Split S1

E.Pansystolic murmur

Answer:Pansystolic murmur

Explanation:

Ventricular septal defect - classically associated with a pansystolic murmur

Important for meLess important

In ventricular septal defects you might notice no murmur, a soft systolic murmur, or a pansystolic murmur - heard best at the lower left sternal border. Paradoxically, the larger the defect, the quieter the murmur.

Other clinical findings might including a heaving apex beat, a split S2 and signs of pulmonary hypertension and right heart failure.

Question:

A 4-year-old girl is brought into the emergency department with a sore throat and fever. She has had 4 episodes of vomiting today and is off her food. She was delivered at 32+6 weeks via Caesarean section due to a massive maternal haemorrhage. She is reaching her developmental milestones. She has no regular medications or allergies. On examination, she has an erythematous tongue and throat with no purulent tonsilar discharge. There is a coarse erythematous rash over the torso, arms, and legs which is confluent in the flexures.

Considering the likely diagnosis, what is the most appropriate management?

A.Flucloxacillin

B.Penicillin V

C.Supportive therapy (paracetamol and encourage fluid intake)

D.Topical hydrocortisone 1% cream

E.Topical ketoconazole

Answer:Penicillin V

Explanation:

Scarlet fever classically presents with a sore throat, fever, headache, bright red tongue and a coarse, red rash

Important for meLess important

This patient is presenting with symptoms and signs consistent with scarlet fever. She has a sore throat, fever, and vomiting alongside a 'strawberry' tongue (bright red and bumpy) and coarse 'sandpaper' rash. She should be managed with 10 days of oral penicillin V and can return to school 24 hours after starting the antibiotics.

Flucloxacillin is the management for cellulitis and other skin infections which are likely caused by Staphylococcal or Streptococcal species. Cellulitis presents with fever and an area of erythematous, oedematous skin usually with a skin break site for a point of entry for the bacteria. The erythema should be marked out with a pen around its borders to assess for any tracking. Flucloxacillin is not indicated in the management of scarlet fever.

Supportive therapy (paracetamol and encourage fluid intake) would be supportive if the patient was considered to have a simple viral upper respiratory tract infection, however, this patient is presenting with a rash and upper respiratory signs consistent with scarlet fever. The rash should guide the student away from considering this to be a simple viral infection. Children may develop viral exanthematous rashes, however, these are typically splotchy and red rather than like sandpaper.

Topical hydrocortisone 1% cream is used in the management of rashes, such as pityriasis rosea. This condition presents with a bumpy, red rash of scaly patches and is typically in children who are older (from 10 years onwards). This condition does not usually lead to systemic features of vomiting or fever. Most patients will have a resolution of symptoms without any medication in 2 weeks.

Topical ketoconazole is used in the management of athlete's foot and ringworm, it is used against fungal infections. As scarlet fever is caused by Group A Streptococcus this is an inappropriate option.

Question:

A 54-year-old man has presented to the emergency department having taken 28 paracetamol tablets. He is known to alcohol and drug addiction services as well as the mental health crisis team. He had been drinking heavily before the overdose. His BMI is 24 kg/m² and he has a 24 pack-year smoking history.

He is taking a statin, omeprazole and occasional aspirin for pain.

His liver function tests reveal an aspartate aminotransferase (AST) of 110 iu/l (3-30iu/l).

What feature of this patient’s history puts him at a high risk of hepatotoxicity following his overdose?

A.Acute alcohol intake before overdose

B.Aspirin use

C.Chronic alcohol use

D.Statin use

E.AST levels of 110iu/l

Answer:Chronic alcohol use

Explanation:

Paracetamol overdose - high risk if chronic alcohol, HIV, anorexia or P450 inducers

Important for meLess important

Patients who have exposed their liver to chronic alcohol intake are classified as being at high risk of hepatotoxicity. Other factors that would classify a patient as 'high-risk' include malnourished patients i.e. those with anorexia nervosa, or patients taking liver-enzyme inducing drugs such as rifampicin, phenytoin or carbamazepine.

This is a classic example of a patient who is known to mental health services presenting with a dangerous paracetamol overdose. A paracetamol overdose can cause permanent damage to the hepatocytes of the liver, leading to lifelong liver failure and clotting problems or even mortality.

Acute alcohol intake does not put a patient at a higher risk of hepatotoxicity. Some studies have suggested that it is a protective factor!

Aspirin is a COX-enzyme inhibitor and can have harmful effects on the stomach lining and the kidneys if taken too frequently. It is unlikely to have a lasting effect on the liver and consequently does not put the patient at a higher risk of hepatotoxicity.

Statin use does not put patients at a higher risk of hepatotoxicity.

Having an AST of 110iu/l is indicative of acute hepatocyte damage, but it does not tell us about the long-term effect on the liver. This would be better assessed using pro-thrombin time or albumin (synthetic function of the liver).

Question:

A 21-year-old woman presents to the emergency department with visible haematuria. On further questioning, she states that 10 days ago she had 'tonsillitis' which has resolved but she continues to feel very tired.

Her blood pressure is 182/72mmHg. Other observations are normal. Urine dip is positive for blood and protein.

What test would confirm the causative organism?

A.Anti-streptolysin O titre

B.Heterophil antibody test (Monospot test)

C.Mid-stream urine culture and sensitivity

D.Throat swab for bacterial culture

E.Throat swab for viral polymerase chain reaction (PCR)

Answer:Anti-streptolysin O titre

Explanation:

Post-streptococcal glomerulonephritis: raised anti-streptolysin O titres are used to confirm the diagnosis of a recent streptococcal infection

Important for meLess important

This is a typical history of post-streptococcal glomerulonephritis; streptococcal throat infection 1-2 weeks ago followed by visible haematuria, malaise with hypertension, and a urine dip positive for blood and protein. Therefore, anti-streptolysin O titre is correct. This measures antibodies against streptolysin O, a substance produced by group A streptococcus bacteria.

Heterophil antibody test (Monospot test) is incorrect. Monospot is used in the diagnosis of glandular fever which may cause a sore throat and malaise but would not typically cause haematuria, hypertension, or proteinuria which are mentioned in this patient.

Mid-stream urine culture and sensitivity is incorrect. This would be indicated if there were symptoms of a urinary tract infection, as part of a septic screen, or if the urine dip was positive for nitrites. However, there is no mention of any of these factors in this patient.

Throat swab for bacterial culture is incorrect. This can be used to confirm the diagnosis of active group A streptococcal infection. However, this is likely to be negative in this scenario because she no longer has symptoms of streptococcal throat infection. It would also cause unnecessary delay in the diagnosis because a positive culture can take several days.

Throat swab for viral PCR is incorrect. This is a test to identify viral pathogens that cause upper and lower respiratory tract infections. For example, influenza and coronavirus. These organisms do not cause glomerulonephritis.

Question:

A 33-year-old woman presents to the general practitioner with her partner. Her periods have become less regular over the last number of months. This frustrates her, as she has been trying to become pregnant. She also complains of frequent headaches. Otherwise, this woman is normally well and has no past medical history. She currently takes prenatal vitamins. She recently underwent a brain MRI scan, which identified a large sellar mass.

Given the most likely diagnosis, which type of visual field defect is most likely to be present?

A.Bi-temporal inferior quadrantanopia

B.Bi-temporal superior quadrantanopia

C.Homonymous hemianopia with macular sparing

D.Homonymous inferior quadrantanopia

E.Homonymous superior quadrantanopia

Answer:Bi-temporal superior quadrantanopia

Explanation:

Headaches, amenorrhoea, visual field defects → ?prolactinoma

Important for meLess important

Bi-temporal superior quadrantanopia is the correct answer. This woman is most likely suffering from a prolactinoma; a non-cancerous tumour of the pituitary gland. The sellar mass refers to an abnormally enlarged pituitary gland that is sitting within the sella turcica, the normal location of the pituitary gland in the sphenoid bone. It causes an increase in the release of prolactin, leading to the physiological manifestations of hyperprolactinaemia. High prolactin prevents the release of GnRH, thus decreasing levels of LH and FSH, causing amenorrhea in this case. Headaches are caused by the local mass effect of the tumour.

Additionally, the tumour grows upwards on the pituitary stalk, compressing the optic chiasm from below. It compresses the inferior fibres of the chiasm first, which are responsible for the superior visual quadrants. Thus, resulting in bi-temporal superior quadrantanopia.

Bi-temporal inferior quadrantanopia is incorrect. It is caused by a lesion of the optic chiasm, however, it is classically associated with a craniopharyngioma. They cause deficiencies of hormones due to damage to local structures (↓ADH, ↓TSH, ↓ACTH...). Amenorrhea is the most common presentation for women with this condition, so it could be a possible differential. However, they are unlikely in this age group, being more common in young children and adults >50 years old. This lesion compresses the chiasm from above, first involving the superior nerve fibres of the chiasm which are responsible for vision in the inferior visual quadrants. Therefore it is not the most likely visual field defect.

Homonymous hemianopia with macular sparing is incorrect. This visual field defect is classically caused by a posterior circulation stroke affecting the contralateral occipital lobe. Macular sparing occurs as the macula remains perfused after a posterior circulation stroke due to collateral flow from the middle cerebral artery. A stroke in this age group would be extremely uncommon without underlying pathology, therefore it is not the most likely condition causing this woman's symptoms.

Homonymous inferior quadrantanopia is incorrect. It is caused by a lesion in the parietal lobe, which affects contains the upper division of the optic radiations. It could be caused by a parietal stroke or tumour. Homonymous inferior quadrantanopia affects the same quadrant in each eye, in comparison to bi-temporal quadrantanopia. A stroke or temporal tumour would not explain the symptoms of hyperprolactinaemia and are less likely scenarios in this age group. This woman is likely suffering from a prolactinoma, which is a lesion of the hypothalamus.

Homonymous superior quadrantanopia is incorrect. It is caused by a temporal lobe lesion, affecting the lower division of the optic radiations (Meyer's loop). It could be caused by a temporal stroke or tumour. Again, homonymous quadrantanopia affects the same quadrant in each eye, in comparison to bi-temporal quadrantanopia. A stroke or temporal tumour would not explain the symptoms of hyperprolactinaemia and are less likely scenarios in this age group. It is not the most likely cause of visual defects in this scenario.

Question:

A 36-year-old primigravida woman, at 9 weeks gestation, presents to the emergency department due to heavy vaginal bleeding. She reports bleeding large clots associated with cramping over the last 3 hours.

On examination, she is hypotensive at 80/60 mmHg and has a heart rate of 110 beats/minute. Pelvic examination revealed blood clots around her vagina. A speculum exam revealed active vaginal bleeding, with a dilated cervical os and a uterus consistent in size with an 8-week gestation. Pelvic ultrasonography showed small amounts of fluid in the endometrium with an intrauterine sac with a crown-rump length of 20mm and no fetal cardiac activity.

Which of the following is the most appropriate next step in management?

A.Misoprostol therapy

B.Dilation and curettage

C.Methotrexate therapy

D.Bed rest and weekly follow-up pelvic ultrasound

E.Serial b-HCG measurements

Answer:Dilation and curettage

Explanation:

Miscarriage - expectant management is not suitable if evidence of infection or increased risk of haemorrhage

Important for meLess important

This patient presents with first-trimester vaginal bleeding, with a dilated cervical os and an intrauterine sac that has no cardiac fetal activity. This is diagnostic of an inevitable miscarriage.

Miscarriages can be managed through expectant, pharmacological or surgical management. Expectant management involves bed rest, avoidance of strenuous physical activity and weekly follow-up pelvic ultrasound. This is usually recommended in patients with a threatened miscarriage that may present as vaginal bleeding. Progression of threatened miscarriage may resolve spontaneously, or progress to inevitable, incomplete or complete miscarriage.

In this instance, the open cervical os and absent fetal cardiac activity indicate that the miscarriage is inevitable, and the foetus is no longer viable. Medical management involves pharmacological therapy such as misoprostol or methotrexate to medically evacuate retained products of conception in inevitable or incomplete miscarriages. However, this patient is haemodynamically unstable as evidenced by the hypotension and tachycardia from heavy vaginal bleeding.

In all cases of early pregnancy loss with haemodynamic instability, urgent surgical evacuation of products of conception is required to minimise further blood loss. Dilation and curettage is a common and controlled method of uterine evacuation.

Question:

A 22 year old woman attends the family planning clinic enquiring about contraception. She is currently taking carbamazepine for epilepsy and her BMI is 39 kg/m². She has no other past medical history. Which of the following would be the most suitable contraceptive to offer her?

A.Progesterone only pill (POP)

B.Copper intrauterine device

C.Combined oral contraceptive pill (COCP)

D.Progesterone injection (Depo-Provera)

E.Progesterone implant (Nexplanon)

Answer:Copper intrauterine device

Explanation:

All woman who are taking an enzyme-inducing drug (EID) (carbamazepine is an example of an EID) should be advised to use a reliable contraceptive that is unaffected by EIDs.

Examples of contraceptives that are unaffected by EIDs are:

Copper intrauterine device

Progesterone injection (Depo-provera)

Mirena intrauterine system

The copper intra-uterine device is usually the preferred option, as it is a non-hormonal method.

In the above scenario, the patient is obese with a BMI of 39 kg/m². Therefore, the contraceptive injection (Depo-Provera) would not be the most suitable option. This is because it is associated with weight gain (2-3kg over 1 year).

In patients on EIDs who wish to take the COCP (providing there are no contraindications) it is important to inform them that the effectiveness is decreased and there is an increased risk of pregnancy.

It is recommended that the dose of oestrogen is increased to 50mcg with no pill-free interval, or reduced to 4 days from 7 days (to reduce the chance of ovulation). In addition, barrier methods would also be advised. This applies when the patient is on an EID and for 4 weeks after stopping.

In patients on EIDs who wish to take the POP or progesterone implant, then additional barrier contraception would be required while using EIDs and for 4 weeks after stopping.

Note - rifampicin and rifabutin are potent EIDs and require longer periods of using barrier contraception after stopping (8 weeks).

If emergency contraception is required, the copper intra-uterine device is again the best option. If levonorgestrel (Levonelle) is used, then double the standard dose is recommended. Ulipristal acetate (ellaOne) is not recommended.

FSRH guidelines.

Question:

A 29-year-old man is recovering on the ward following elective surgery. A post-operative blood test shows the following:

K+ 8.1 mmol/l

He is given intravenous calcium gluconate by the junior doctor covering the ward.

What is the effect of this therapy on serum potassium levels?

A.Temporary reduction

B.Long-term reduction

C.No effect

D.Temporary increase

E.Long-term increase

Answer:No effect

Explanation:

Calcium gluconate only stabilises the myocardium and does NOT lower potassium levels

Important for meLess important

Calcium gluconate prevents arrhythmias developing due to high potassium by increasing serum calcium and reducing the excitability of the cardiac myocytes. It has no effect on the serum potassium level and further treatment is required to actually reduce the potassium levels.

Question:

A 30-year-old woman presents to the GP surgery requesting emergency contraception. She is 14 days post partum and had unprotected sexual intercourse last night. Which of the following is the most suitable management?

A.Advice the patient that she does not require emergency contraception

B.Offer the mirena coil

C.Offer the copper coil

D.Offer ulipristal acetate 30mg

E.Offer levonorgestrel 0.75mg

Answer:Advice the patient that she does not require emergency contraception

Explanation:

Post-partum, women only require contraception 21 days from giving birth

Important for meLess important

Women do not require contraception until day 21 post partum. The woman in the question presents at day 14 post partum and therefore does not require any emergency contraception. The answer therefore to the question is to advice her that she does not require emergency contraception.

Question:

A previously well 82-year-old woman is brought into the Emergency Department by her daughter. She comes up to visit every few months and was shocked to find her mother so confused and thin. On examination, you note her clothes look baggy, dry mucous membranes, epigastric tenderness and a palpable lymph node above her left clavicle. Her BP is 105/56 mmHg.

Na+ 148 mmol/L (135 - 145)

K+ 2.4 mmol/L (3.5 - 5.0)

Cl- 84 mmol/L (95 - 105)

Urea 15 mmol/L (2.0 - 7.0)

Creatinine 147 µmol/L (55 - 120)

Bicarbonate 51 mmol/L (22 - 29)

PCO2 6.9 kPa (4.5 - 6)

PO2 8.8 kPa (10 - 14)

pH 7.53 (7.35 - 7.45)

Given the likely diagnosis, which is the most likely cause of her acid-base disturbance?

A.Alkali ingestion

B.Conn's syndrome

C.Diuretic use

D.Excess liquorice ingestion

E.Prolonged vomiting

Answer:Prolonged vomiting

Explanation:

Metabolic alkalosis + hypokalaemia → ?prolonged vomiting

Important for meLess important

Firstly, it is important to correctly work out the acid-base disturbance. The raised pH identifies an alkalosis and the raised bicarbonate identifies that it is metabolic. In an attempt to protect the pH, the patient will reduce their respiratory rate to increase their PCO2, as seen here. This lower respiratory rate is also responsible for the fall in PO2 observed.

Secondly, it is important to consider the likely diagnosis. The question highlights the fact that this is recent onset and associated with weight loss, dehydration (dry mucous membranes, low BP, prerenal AKI, hypernatraemia), epigastric tenderness and a palpable supraclavicular lymph node (Virchow's node). Although the patient is confused meaning it is difficult to get the full picture, gastric cancer should be high on the list of differentials. Even if unable to work this out, the metabolic alkalosis along with the low K+ and Cl- levels point toward a history of vomiting.

Prolonged vomiting: this patient likely has a gastric outlet obstruction causing recurrent vomiting. H+ ions are lost in vomit, resulting in a metabolic alkalosis. K+ and Cl- ions are also lost. The loss of fluid will also result in dehydration.

Alkali ingestion: whilst a cause of metabolic alkalosis, this is a rare occurrence and tends to only occur in patients who have impaired kidney function. This patient has no history of renal impairment and therefore this is an unlikely cause.

Conn's syndrome (primary hyperaldosteronism): whilst associated with metabolic alkalosis and hypokalaemia, it is primarily characterised by hypertension.

Diuretic use: whilst a cause of metabolic alkalosis via K+ depletion, there is no mention of diuretic use in question and history is more suggestive of alternative diagnosis.

Excess liquorice ingestion: mimics aldosterone excess. A rare cause of metabolic alkalosis.

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:

An 18-year-old attends her GP the morning after unprotected sexual intercourse (UPSI). She would like emergency contraception to ensure she is not pregnant. A pregnancy test is negative. Which is the most appropriate next step in management?

A.Danazol

B.Clomiphene

C.Combined oral contraceptive pill

D.Levonorgestrel

E.Advise patient to return in one week to repeat pregnancy test, as it is too soon to see if she is pregnant at present

Answer:Levonorgestrel

Explanation:

Levonorgestrel must be taken within 72 hours of UPSI

Important for meLess important

A copper intrauterine contraceptive device (copper coil), an oral progesterone-only contraceptive (levonorgestrel) or a selective progesterone receptor modulator (ulipristal acetate) could be offered in the above situation as emergency contraception. These both act to prevent a fertilised ovum being implanted.

Levonorgestrel is licensed for use up to 72 hours after UPSI. Although unlicensed, use between 72-120 hours after UPSI may be considered if other methods of emergency contraception are contraindicated. It can also be used more than once in the same cycle if indicated, although in such cases patients may require referral for education regarding safe sexual practices. 5-5.8% of women will become pregnant after a single UPSI episode if emergency contraception is not sought, compared with pregnancy rates of 1.1-2.6% in patients taking levonorgestrel within 72 hours.

Clomiphene is used to induce ovulation in patients with anovulatory infertility. It will not prevent implantation.

Danazol is a derivative of ethisterone. It can be used to treat endometriosis and fibrocystic breast disease. It will not prevent implantation and can cause virilisation of female fetuses, so is contraindicated in pregnancy.

The COCP prevents ovulation and is 99% effective at preventing pregnancy when taken correctly, but it will not prevent implantation if taken after an episode of UPSI.

Question:

A 28-year-old man presents with a 1-day history of severe anal pain, in particular on defecation. On further questioning, he has been more constipated recently and has previously had 1 episode of a small amount of fresh red blood on the toilet paper 1 week ago.

On examination, you notice a palpable, bulging nodule just external to the anal opening. It is tender to touch.

What is the most likely diagnosis?

A.Anal fissure

B.External haemorrhoid

C.Perianal abscess

D.Rectal polyp

E.Thrombosed haemorrhoid

Answer:Thrombosed haemorrhoid

Explanation:

Thrombosed haemorrhoids are characterised by anorectal pain and a tender lump on the anal margin

Important for meLess important

Thrombosed haemorrhoid is the most likely due to the recent history of constipation and likely formation of a haemorrhoid which has become acutely painful (due to thrombosis) with a visible bulging mass outside of the anal opening.

Anal fissures cause pain on defecation but the examination findings are not in keeping with this as you would not expect a 'palpable, bulging nodule' but a split in the anal mucosa.

An external haemorrhoid is the next most likely - however, they would not tend to be as acutely painful.

Perianal abscesses would tend to include a history of fever and surrounding cellulitis which is not mentioned in this case. You would not expect a 'bulging' appearance external from the anal opening.

Rectal polyps are high up within the rectum, not the anus and would not tend to cause so much pain.

Question:

A sixty three year old male presents with a four month history of an unresolved varicocoele in his left testis. Initially he was given symptomatic advice. He has now presented with macroscopic haematuria and flank pain. He describes having no energy despite being fit for his age. The testes are palpable. No discharge is elicited from the urethral maetus. His urine dipstick demonstrates blood +++ but is negative for leucocytes. You send him for a cystoscopy as you're concerned he has presented with bladder cancer. The results are returned as normal. What is the most appropriate investigation to perform next in light of his normal cystoscopy?

A.Beta HCG

B.CA 19-9

C.Testicular ultrasound

D.CA 125

E.Renal tract ultrasound

Answer:Renal tract ultrasound

Explanation:

Renal tract ultrasound is required under the two week wait referral. In an unresolving left varicocoele we are concerned patients are suffering from a renal tract cancer. This is due to the embryological anatomy linking the left renal vein and the left testicular vein.

CA 19-9 - used as a tumour marker in pancreatic cancer.

CA125 - used as a tumour marker for ovarian cancer.

Beta HCG - used as a tumour marker for testicular cancer.

Question:

An 85-year-old lady presents to her GP complaining of itchy white plaques affecting her vulva. There is no history of vaginal discharge or bleeding. A similar plaque is also seen on her inner thigh. What is the likely diagnosis?

A.Candida

B.Lichen planus

C.Lichen sclerosus

D.Herpes simplex

E.Seborrhoeic dermatitis

Answer:Lichen sclerosus

Explanation:

Lichen sclerosus: itchy white spots typically seen on the vulva of elderly women

Important for meLess important

The correct answer is lichen sclerosus. Candida may cause pruritus and white plaques but lesions would not also be seen on her inner thigh

Question:

What is target blood pressure for a 56-year-old man with type 2 diabetes mellitus who has no end-organ damage, if using a clinic blood pressure reading?

A.< 125/75 mmHg

B.< 130/75 mmHg

C.< 130/80 mmHg

D.< 140/80 mmHg

E.< 140/90 mmHg

Answer:< 140/90 mmHg

Explanation:

T2DM blood pressure targets are the same as non-T2DM. If < 80 years:

clinic reading: < 140 / 90

ABPM / HBPM: < 135 / 85

Important for meLess important

The target blood pressure for patients with type 2 diabetes mellitus are no different from those without diabetes, regardless of whether they have end-organ damage.

Question:

The District Nurse phones the surgery when she is visiting a patient at home to do a dressing for a wound. She wants to check the patient's medical records to see if the patient has been fully vaccinated against tetanus. How many doses of tetanus vaccine generally confers life-long protection?

A.1

B.2

C.3

D.4

E.5

Answer:5

Explanation:

In the UK, 5 doses of the tetanus vaccine are given over the course of the routine immunisation schedule

Important for meLess important

Five doses of tetanus vaccine generally provides life-long protection. However, patients with high-risk tetanus-prone wounds such as compound fractures or burns that have been contaminated with soil, or that have extensive dead tissue, should receive tetanus immunoglobulin. Further details about this can be found the Green Book (see link below). Giving a dose of tetanus vaccine at the time of an injury might not boost immunity quick enough to prevent tetanus developing.

Source: Green Book Chapter 30

https://www.gov.uk/government/uploads/system/uploads/attachmentdata/file/148506/Green-Book-Chapter-30-dh103982.pdf

Question:

An 85-year-old female with multiple comorbidities is scheduled to receive a bowel resection in her local hospital. She attends a pre-operative assessment clinic with the senior anaesthetist to discuss her suitability for surgery and arrange any pre-operative investigations required. In whom do NICE recommend should receive a chest X-ray as part of their pre-operative assessment?

A.Patients over the age of 65

B.Patients with a degree of renal impairment

C.Patients with hypertension

D.Not routinely recommended

E.Patients with diabetes

Answer:Not routinely recommended

Explanation:

Chest x-rays are now not routinely recommended before surgery.

Patients over the age of 65 may need an ECG before major surgery.

Patients with renal disease may need a full blood count and an ECG depending on their ASA grade even before intermediate surgery.

Patients with hypertension do not need any specific investigations pre-operation.

Patients with diabetes may need an ECG before intermediate surgery.

Please see the following NICE guidelines for more information on pre-operation assessment: https:www.nice.org.uk/guidance/ng45/chapter/recommendations

Question:

An 8-year-old boy presented with progressive gait disturbance and falls. He was first seen by a paediatric neurologist for unsteady gait and toe walking at the age of 4 years. His gait unsteadiness commenced around the age of 3 years with frequent falls. Tremors in the hands were noted sometime prior to this visit. Gait was wide-based and unsteady. Further detailed examination revealed pes cavus, mild scoliosis, and absence of cardiac murmur.

What is the inheritance pattern of the underlying condition?

A.Autosomal dominant

B.Autosomal recessive

C.Mitochondrial

D.X-lined recessive

E.X-linked dominant

Answer:Autosomal recessive

Explanation:

Friedreich's ataxia is autosomal recessive

Important for meLess important

Autosomal recessive is the mode of inheritance for Friedreich's ataxia which is the diagnosis in this case. Friedreich's ataxia is the most common type of hereditary ataxia. Symptoms usually first develop before the age of 25. The condition presents with ataxia, cardiomyopathy, motor weakness, pes cavus foot deformity and scoliosis.

Autosomal dominant is not the mode of inheritance for Friedreich's ataxia. However, other conditions which are autosomal dominant include Huntington's disease and Marfan syndrome.

Mitochondrial dysfunction is not the cause of Friedreich's ataxia but conditions such as mitochondrial myopathy, diabetes mellitus and deafness and Leber's hereditary optic neuropathy are examples of this.

X-linked recessive conditions are affected by males only however it is the incorrect answer here. Examples include red-green colour blindness, non-specific X-linked mental retardation, Duchenne muscular dystrophy & Becker muscular dystrophy.

X-linked dominant is not the mode of inheritance here but examples of such conditions include vitamin D-resistant rickets, X-linked hypophosphatemia and Rett syndrome.

Question:

A 26-year-old man books an urgent appointment in your duty clinic. He reports a two-week history of left sided facial pain and malaise. He tells you that his symptoms initially were improving after seven days however they then worsened again and he is now feeling worse than he did initially. He is normally fit and well.

On examination he has a low grade pyrexia of 37.9 degrees but other observations are within normal limits. Anterior rhinoscopy shows a purulent discharge coming from the left middle meatus. There is no abnormalities of the eyes or periorbital tissues.

What is the most likely diagnosis?

A.Bacterial sinusitis

B.Cavernous sinus thrombosis

C.Sialadenitis

D.Trigeminal neuralgia

E.Viral sinusitis

Answer:Bacterial sinusitis

Explanation:

'Double-sickening' suggests bacterial sinusitis

Important for meLess important

This man has classic ‘double sickening’ associated with bacterial sinusitis – an initial period of recovery followed by a sudden worsening of symptoms. It is thought to be caused by a secondary bacterial infection following a viral rhinosinusitis. Other signs that point towards this are the fever and the purulent discharge seen on rhinoscopy.

Trigeminal neuralgia would not present with fever.

Sialadenitis would present with a unilateral swelling of one of the salivary glands.

Cavernous sinus thrombosis is a rare complication of bacterial sinusitis.

Question:

A 40-year-old pregnant woman is seen for her 41 week check. Her blood pressure has consistently been 140/90 mmHg for the last 2 weeks. Her booking blood pressure was 110/70 mmHg. You administer labetalol to treat the high blood pressure. What should be the next step in the management?

A.Give magnesium sulphate

B.Give nifedipine

C.Emergency caesarian section

D.Watchful waiting

E.Offer induction of labour

Answer:Offer induction of labour

Explanation:

The pregnancy is now post term. A woman who has reached 41 weeks gestation can be offered induction of labour, or alternatively she can choose expectant management. At this gestation the risks to the foetus are increased, and women with either pregnancy-induced hypertension or pre-eclampsia are usually delivered. Medical induction of labour would be the preferred choice. Caesarean section would usually only be indicated if there was foetal compromise. This level of blood pressure does not require treatment.

Question:

A newborn is delivered at 40 weeks gestation. Following delivery, the infant demonstrates poor muscle tone, gasping respirations, cyanosis and a heart rate of 80bpm. APGAR score is 3 and the newborn is placed in the sniffing position for airway maintenance. On reassessment, no changes are noted. Following positive pressure ventilation for 30 seconds the newborn is now showing shallow respirations and a heart rate of 50bpm. Chest compressions are initiated. What is the recommended compression: ventilation ratio for the newborn?

A.5:1

B.2:1

C.3:1

D.3:2

E.5:2

Answer:3:1

Explanation:

A healthy newborn will be pink with good tone and will cry within seconds of being delivered. The heart rate of a healthy newborn infant is 120-150bpm. This infant has poor tone, is gasping for air and a low heart rate. As no changes are noted on reassessment and the heart rate has fallen this warrants compressions. Newborn resuscitation guidelines recommend compressions and ventilations at a rate of 3:1, therefore, this is the only correct answer.

Question:

A 34-year-old woman presents with abdominal pain of the right upper quadrant, of several days' duration. She has a background of chronic knee pain, epilepsy, familial hypercholesterolaemia and a recent urinary tract infection. Her regular medications include sodium valproate, atorvastatin, paracetamol and the combined oral contraceptive pill. She is currently finishing a course of nitrofurantoin.

On examination, she has tenderness in the right upper quadrant and appears visibly jaundiced. Blood tests are shown below:

Bilirubin 68 µmol/L (3 - 17)

ALP 494 u/L (30 - 100)

ALT 82 u/L (3 - 40)

Albumin 39 g/L (35 - 50)

Which of her medications is most likely to have caused this?

A.Atorvastatin

B.Combined oral contraceptive pill

C.Nitrofurantoin

D.Paracetamol

E.Sodium valproate

Answer:Combined oral contraceptive pill

Explanation:

The oral contraceptive pill is associated with drug-induced cholestasis

Important for meLess important

An obstructive picture is seen here, much more indicative of cholestasis rather than hepatitis. As such, the correct answer is the combined oral contraceptive pill (COCP), which is known to cause cholestasis. Other drugs which may also cause cholestasis include antibiotics such as co-amoxiclav, phenothiazines, sulphonylureas, fibrates and anabolic steroids.

Atorvastatin is a statin. These drugs tend to cause more of a hepatocellular picture, rather than that of cholestasis.

Nitrofurantoin is an antibiotic commonly used in the treatment of urinary tract infections. This is also known to generally cause more of a hepatic picture, rather than cholestatic.

Paracetamol overuse tends to lead to hepatic injury, with ALT more elevated than alkaline phosphatase, and not so much of the cholestatic picture seen here.

Sodium valproate is an antiepileptic drug. It may also cause liver disease, although again tends to be a hepatocellular picture, rather than a cholestatic presentation.

Question:

A 56-year-old woman with type 2 diabetes mellitus is brought to the emergency department due to new-onset drowsiness. Her husband states that she has had mild flu-like symptoms for the last 2 days. Her past medical history is otherwise unremarkable.

The patient's husband measured her capillary glucose as 37mmol/L and gave her a significant bolus of insulin 3 hours ago.

On examination, the patient's GCS is 12 and she is very dysarthric. Her blood pressure is 110/76 mmHg.

Urine ketones 0.2 mmol/L (<1.5)

Given this information, what adverse event is this patient at risk of developing?

A.Central pontine myelinolysis

B.Hyperkalaemia

C.Hypocalcaemia

D.Pulmonary oedema

E.Unconjugated hyperbilirubinaemia

Answer:Central pontine myelinolysis

Explanation:

Insulin is only used in hyperosmolar hyperglycaemic state if the glucose stops falling while giving IV fluids

Important for meLess important

This patient's presentation is consistent with hyperosmolar hyperglycaemic state. The past medical history of type 2 diabetes mellitus, intercurrent illness with flu-like symptoms, blood pressure of 110/76 mmHg, GCS of 13, exceedingly high capillary glucose of 37mmol/L, and negligible urinary ketones are all in keeping with hyperosmolar hyperglycaemic state.

The correct answer is central pontine myelinolysis. Insulin is generally not given in hyperosmolar hyperglycaemic state, as fluid replacement is usually sufficient to normalise serum glucose and improve patient symptoms. Giving insulin in hyperosmolar hyperglycaemic state may provoke sudden and dramatic fluid shift between compartments, which may result in central pontine myelinolysis. Central pontine myelinolysis may occur if serum osmolarity is rapidly corrected with a bolus of insulin, and clinical features include reduced consciousness, dysarthria, dysphagia, and problems with balance.

Hyperkalaemia is incorrect, as this would not a common adverse effect of insulin in hyperosmolar hyperglycaemic state. Insulin is more commonly associated with hypokalaemia than hyperkalaemia. Furthermore, patients with diabetic ketoacidosis are more likely to have hyperkalaemia than patients with hyperosmolar hyperglycaemic state.

Hypocalcaemia is incorrect, as this is not commonly associated with hyperosmolar hyperglycaemic state or insulin therapy. Causes of hypocalcaemia include renal pathology, hyperparathyroidism, and vitamin D deficiency.

Pulmonary oedema is incorrect, as this is not a typical consequence of hyperosmolar hyperglycaemic state or insulin therapy. Pulmonary oedema classically arises in fluid-overloaded patients with heart failure. Fluid-depleted patients in hyperosmolar hyperglycaemic state would be unlikely to become fluid-overloaded with or without insulin therapy.

Unconjugated hyperbilirubinaemia is incorrect, as this is not a common consequence of hyperosmolar hyperglycaemic state or insulin therapy. Unconjugated hyperbilirubinemia may occur in haemolytic reactions, such as autoimmune haemolysis.

Question:

You are working on a gastroenterology ward. One of your patients has become increasingly confused over the past few hours. He is a 54-year-old man with alcoholic liver disease who presented 5 days ago feeling generally unwell. He is being treated for spontaneous bacterial peritonitis with IV antibiotics and seemed well on the morning ward round. Blood pressure is 112/76 mmHg and heart rate is 91 beats per minute. The nurses inform you that he last opened his bowels 2 days ago.

What is the most likely underlying cause for the patient's confusion?

A.High serum concentration of alanine aminotransferase

B.Increased concentration of ammonia in the systemic circulation

C.Intracranial haemorrhage

D.Systemic vasodilatation resulting in hypo perfusion of the brain

E.Thiamine deficiency due to alcohol excess

Answer:Increased concentration of ammonia in the systemic circulation

Explanation:

Ammonia crossing the blood-brain barrier contributes to hepatic encephalopathy

Important for meLess important

The history is most suggestive of hepatic encephalopathy. Whilst the pathogenesis of this condition is incompletely understood, the most recognised contributing factor is movement of ammonia from the portal circulation to the systemic circulation, allowing it to cross the blood-brain barrier and cause neurotoxicity. It may be precipitated by constipation.

Alanine aminotransferase (ALT) is a marker of hepatocyte damage. Its presence in high concentration is unlikely to be the principal cause of confusion.

Intracranial haemorrhage would be more likely to present with a focal neurological deficit or sudden onset headache.

The patient has spontaneous bacterial peritonitis so sepsis could be a contributing factor. A systemic inflammatory response may cause widespread vasodilation, fall in mean arterial pressure and hypo perfusion to the brain. In this case the patient is on IV antibiotics, appeared to be improving and was not significantly hypotensive or tachycardic. Therefore sepsis is less likely.

Thiamine deficiency may cause Wernicke's encephalopathy in patients with poor nutritional intake. It is common in alcoholic patients for this reason. It is more likely to be present nearer to the time of presentation to hospital rather than five days into hospital admission.

Question:

A 29-year-old man presents to his GP with several days of pain on defecation. There is sometimes a small amount of fresh, bright-red blood on the toilet paper. He opens his bowels once or twice a day, which is normal for him, although recently he has felt that his stool is quite hard. He is worried about the pain he will experience with the next bowel movement. He is otherwise well and has no fever or recent weight loss, nor any other symptoms. He has no significant past medical history, nor does he take any regular medication. After inspection, the GP confirms a diagnosis of an anal fissure.

Which of the following would be an appropriate management option at this stage?

A.Bulk-forming laxatives

B.Referral for botulinum toxin injection

C.Referral for rubber band ligation

D.Routine referral for surgery

E.Topical corticosteroid

Answer:Bulk-forming laxatives

Explanation:

An anal fissure usual presents as painful, bright red rectal bleeding

Important for meLess important

The diagnosis here is that of an anal fissure - the presentation is painful, bright-red, rectal bleeding. As such, the most appropriate option from the choices above would be the use of bulk-forming laxatives, as well as dietary advice involving increased fluid and fibre intake. For the majority of acute anal fissures, these conservative measures are enough. Topical analgesia and anaesthetics may also be used.

Topical corticosteroids are sometimes used in primary care if initial measures have failed. They are also used in the management of haemorrhoids, which would usually present painlessly, rather than painfully.

Referral for botulinum toxin injection would be a valid option for persistent chronic anal fissures, where medical measures have not been effective, but in the case described here, simple measures should be tried first.

Similarly, a referral for surgery would be premature here - medical options should be explored first before any referrals take place. A referral would be indicated if the fissure and symptoms have persisted despite 6-8 weeks of treatment. A more urgent referral would be indicated if rectal cancer were suspected, or a serious underlying cause such as inflammatory bowel disease or sexually transmitted infection.

Referral for rubber band ligation would be involved in the step-wise management of haemorrhoids, not of anal fissures.

Question:

A 35-year-old lady presents to the emergency department with right upper quadrant pain. She has also noticed that her skin seems slightly yellower over the last week or so and you notice a yellow tinge to her sclera. On further questioning, she complains of itching of her arms. Her only past medical history of note includes ulcerative colitis for which she takes mesalazine.

Given her presentation, what is the best investigation to diagnose the most likely underlying condition?

A.ANCA antibody testing

B.Magnetic resonance cholangiopancreatography (MRCP)

C.Serum transaminase levels

D.Liver ultrasound

E.Liver biopsy

Answer:Magnetic resonance cholangiopancreatography (MRCP)

Explanation:

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

Important for meLess important

This question is asking about a 35-year-old woman presenting with jaundice, right upper quadrant pain and pruritus on a background of ulcerative colitis. This is the typical pattern of primary sclerosing cholangitis. The best diagnostic investigation for primary sclerosing cholangitis is either ERCP or magnetic resonance cholangiopancreatography (MRCP).

ANCA antibody testing may be helpful as ANCA antibodies may be positive in these patients, however, it would not be diagnostic as it can be positive in many conditions including granulomatosis with polyangiitis or Churg–Strauss syndrome.

Serum transaminase levels will help point towards a diagnosis of primary sclerosing cholangitis, however, will not be diagnostic. They are a very general marker for liver damage and in primary sclerosing cholangitis they can either be normal or raised.

A liver ultrasound will likely be the first investigation used in this woman's case to look for any other likely causes of her jaundice and pain, such as gallstones. In primary sclerosing cholangitis, you may see bile duct dilatation, however, this would not diagnostic.

A liver biopsy can be used to help in the staging of primary sclerosing cholangitis however it is not used in its diagnosis.

Question:

A 63-year-old man presents to his GP with a 3-month history of feeling 'tired all the time' and getting out of breath when walking more easily than he used to. He has also reported feeling low in mood over the past month, with less interest in pursuing his usual hobbies. When asked about recent weight loss, although he hasn't weighed himself, he does feel as though his waist size has decreased as he has needed to tighten his belt more, recently.

His GP decides to arrange some routine blood tests which show the following:

Hb 99 g/l

MCV 88 fl

Platelets 242 \* 109/l

WBC 4.3 \* 109/l

Na+ 142 mmol/l

K+ 4.1 mmol/l

Urea 9.9 mmol/l

Creatinine 168 µmol/l

ALP 143 u/l

Corrected Ca2+ 3.01 mmol/l

Which further investigation is most useful in investigating the likely underlying cause of his symptoms?

A.Serum protein electrophoresis

B.Erythrocyte sedimentation rate

C.CT thorax, abdomen and pelvis

D.Prostate specific antigen

E.Radioisotope bone scan

Answer:Serum protein electrophoresis

Explanation:

The combination of hypercalcaemia and weight loss should raise suspicion of lytic bone metastases. The presence of renal failure and anaemia are most suggestive of myeloma, therefore serum protein electrophoresis or urinary Bence-Jones protein should be the investigations of choice. Although an erythrocyte sedimentation rate being elevated is suggestive of myeloma given the other biochemical changes, it would not be diagnostic or help rule out a diagnosis of myeloma. The same is true of a radioisotope bone scan, which would likely show lytic lesions but not indicate the cause.

A CT thorax, abdomen and pelvis to look for malignancy would be indicated if the protein electrophoresis was negative and ruled out myeloma.

A prostate specific antigen (PSA) level would not be helpful as prostate cancer often does not have an elevated PSA and when it metastasises to bone, it causes sclerotic lesions which would not produce the biochemical results this patient has.

Question:

A 24-year-old man presents to his GP with a 10-day history of foul-smelling diarrhoea, abdominal pain and feeling exhausted.

He has asthma and irritable bowel syndrome and takes beclometasone regularly and salbutamol, mebeverine and hyoscine butylbromide as required. He is allergic to penicillin. He is a non-smoker, drinks a few pints of beer a week and works as a journalist in Oman, but returned 3 weeks ago for a family event.

On examination, his abdomen is distended but there is no rigidity or guarding. Bowel sounds are present.

What is the most likely cause of this patient's presentation?

A.Campylobacter enteritis

B.Clostridium difficile infection

C.Crohn's disease

D.Giardiasis

E.Irritable bowel syndrome

Answer:Giardiasis

Explanation:

Ongoing diarrhoea, lethargy, bloating, flatulence, steatorrhoea, weight loss +/- recent travel → ?giardiasis

Important for meLess important

The history of recent travel combined with the symptoms of ongoing foul-smelling or greasy diarrhoea (due to malabsorption of fats), lethargy and bloating points to giardiasis. This is a protozoan parasite transmitted via the faecal-oral route. It has an incubation period of 3-25 days and symptoms often persist for weeks. The diagnosis can be confirmed via stool microscopy, direct fluorescence antibody test or polymerase chain reaction. Metronidazole is the first-line treatment.

Campylobacter enteritis caused by Campylobacter jejuni is a common type of food poisoning causing inflammatory diarrhoea and abdominal pain that usually resolves after 5-7 days. It is a self-limiting condition that usually doesn't require antibiotics unless symptoms persist for longer than a week, the patient is immunocompromised or the patient becomes systemically unwell. Oral rehydration is essential to prevent dehydration. Giardiasis is more likely in this case due to the prolonged diarrhoea and the foul smell indicative of fat malabsorption which is common in giardiasis.

Clostridium difficile infection is unlikely given the age of the patient and the absence of recent antibiotic use in the history. C. difficile infection usually presents with diarrhoea and abdominal pain in a person who has been treated with antibiotics. Broad-spectrum antibiotics disrupt the normal bowel flora, allowing C. difficile to colonise the colon. This is very infectious, so patients that require admission need to be nursed in a private room with a dedicated toilet to reduce risk of spread. Treatment is with oral vancomycin in the first instance.

Crohn's disease can present with a prolonged history of bloody or non-bloody diarrhoea. This can be accompanied by abdominal pain, anorexia and weight loss. A diagnosis of Crohn's disease would need to be considered if stool analysis doesn't reveal an infectious cause and symptoms are persisting. At this stage, giardiasis is more likely given the recent travel history.

A flare up of irritable bowel syndrome is not the most likely diagnosis at this stage due to the recent travel history and the signs of malabsorption (foul-smelling diarrhoea). Infective causes of diarrhoea need to be ruled out in this case due to the nature of the presentation.

Question:

Which of the following interventions is most likely to reduce the incidence of intra abdominal adhesions?

A.Peritoneal lavage with cetrimide following elective right hemicolectomy

B.Use of a laparoscopic approach over open surgery

C.Use of talc to coat surgical gloves

D.Performing a Nobles plication of the small bowel

E.Using stapled rather than a hand sewn anastamosis

Answer:Use of a laparoscopic approach over open surgery

Explanation:

Laparoscopy results in fewer adhesions. When talc was used to coat surgical gloves it was a major cause of adhesion formation and withdrawn for that reason. A Nobles plication is an old fashioned operation which has no place in the prevention of adhesion formation. Use of an anastamotic stapling device will not influence the development of adhesions per se although clearly an anastamotic leak will result in more adhesion formation

Question:

A 46-year-old man with alcohol dependence presents to the emergency department with epigastric pain of sudden onset. He describes the pain as severe and radiating to the back. He admits to consuming two bottles of vodka the night before. His heart rate is 70/min, his respiratory rate is 15/min, his blood pressure is 130/70 mmHg and his temperature is 38.1 ºC. Blood results show the following:

Hb 128 g/L Male: (135-180) Female: (115 - 160)

Platelets 270 \* 109/L (150 - 400)

WBC 5.5 \* 109/L (4.0 - 11.0)

Bilirubin 16 µmol/L (3 - 17)

ALP 78 u/L (30 - 100)

ALT 39 u/L (3 - 40)

γGT 57 u/L (8 - 60)

Albumin 39 g/L (35 - 50)

Calcium 1.9 mmol/L (2.1-2.6)

Amylase 1280 U/L (70 - 300)

Given the most likely diagnosis, which of the following factors is an indicator of poor prognosis for this patient?

A.Calcium of 1.9 mmol/L

B.Temperature of 38.1 ºC

C.Age >45

D.Haemoglobin of 128 g/L

E.Amylase of 1280 U/L

Answer:Calcium of 1.9 mmol/L

Explanation:

While amylase is an important investigation in the diagnosis of pancreatitis, it does not offer prognostic value

Important for meLess important

Out of the factors listed, only the value of calcium can be used as a marker of severity and therefore indicate a poorer prognosis. The mechanism of hypocalcaemia in this context is unclear but there is a demonstrated increased mortality rate in patients presenting with hypocalcaemia compared to those with normal calcium levels.

Temperature is not taken into account when assessing severity, but it can be used to guide the amount of support the patient will need once admitted.

Age >55, rather than 45, is a marker of severity in acute pancreatitis. This patient is not old enough to be classified as severe based on age alone.

Low haemoglobin is not a marker of severity in acute pancreatitis. This patient has a history of alcohol dependence and is therefore likely anaemic due to the suppressive effect of chronic alcohol consumption on haematopoiesis.

Amylase is a vital investigation in the diagnosis of acute pancreatitis but the level does not correlate with severity and it is therefore not useful as a prognostic marker. An amylase level >3x the upper limit of normal is diagnostic of acute pancreatitis in a patient with upper abdominal pain.

Question:

A 72-year-old female is reviewed in breast clinic after undergoing a left-sided total mastectomy and sentinel lymph node biopsy for breast cancer.

Histological analysis shows that the tumour is completely excised and 3 out of 3 lymph nodes were clear of malignancy. The tumour is a grade 1 invasive ductal carcinoma, ER positive, PR positive, HER2 negative.

Based on the above information, which further treatment should be offered to this patient?

A.Anastrozole

B.Axillary node clearance

C.Herceptin

D.Radiotherapy

E.Tamoxifen

Answer:Anastrozole

Explanation:

Adjuvant hormonal therapy for ER +ve breast cancer: anastrozole in post-menopausal women

Important for meLess important

Anastrozole is the correct answer. Anastrozole is an aromatase inhibitor that is used as an adjuvant therapy for patients with oestrogen receptor (ER) positive breast cancer who are post-menopausal, as in this case. It works by reducing the oestrogen levels in the body and is typically given for 5 years. Common side effects include hot flushes, insomnia and low mood.

Axillary node clearance (ANC) is unnecessary in this case, as there was no evidence of malignancy in the lymph nodes sampled from the sentinel lymph node biopsy (SLNB). ANC increases the risk of lymphoedema, hence it should only be performed if necessary to clear disease.

Herceptin, also known as trastuzumab, is another type of adjuvant therapy for breast cancer. It is a monoclonal antibody that is used for patients who have HER2+ breast cancer. In this case, HER2 receptor status was negative, therefore there is no role for Herceptin.

Radiotherapy is not indicated in this case. Radiotherapy is often given after breast-conserving surgery, such as wide local excision, or if the disease has spread. In this case, the patient had a total mastectomy, the lesion was completely excised and no lymph nodes were involved, therefore radiotherapy would unlikely provide any benefit.

Tamoxifen is a selective oestrogen receptor modulator (SERM), which blocks oestrogen from acting at its receptors. It is used in pre- or perimenopausal women with ER+ breast cancer. As this patient is 72 years old, she is post-menopausal, therefore an aromatase inhibitor such as anastrozole should be used instead.

Question:

A 36-year-old man is brought to the emergency department due to acute confusion and disorientation for the last 2 days.

Observations include heart rate of 122 /min, oxygen saturation of 98% on air, BP 168/88 mmHg, and temperature of 37.9ºC. On examination, the patient is sweating and there is upper limb rigidity and hyperreflexia. ECG shows sinus tachycardia.

Past medical history includes depression, anxiety, schizophrenia, and lower back pain. The patient regularly takes sertraline and was recently started on new medication after seeing their GP recently.

What medication is likely responsible?

A.Clozapine

B.Co-amoxiclav

C.Diazepam

D.Oramorph

E.Tramadol

Answer:Tramadol

Explanation:

Tramadol co-prescribed with SSRIs is a common cause of serotonin syndrome

Important for meLess important

This scenario describes a 36-year-old man presenting with symptoms suggestive of serotonin syndrome, including pyrexia, rigidity, hyperreflexia, confusion, and altered mental state. Serotonin syndrome is a condition in which there is excess serotonin in the body. Medications that increase the risk of serotonin syndrome include selective serotonin reuptake inhibitors (SSRIs) and monoamine oxidase inhibitors. Other drugs can also interact with these medications, further increasing the risk of serotonin syndrome - these include St John's wort and tramadol.

Clozapine is incorrect. Clozapine is an antipsychotic agent which is not typically associated with serotonin syndrome.

Co-amoxiclav is incorrect. Patients on SSRIs can take co-amoxiclav as it is not typically associated with increasing the risk of serotonin syndrome. However, it is worth noting that some antibiotics (such as linezolid) can increase the risk of serotonin syndrome.

Diazepam is not correct. Diazepam is a benzodiazepine that can be indicated in the treatment of serotonin syndrome.

Oramorph is incorrect. Oramorph is not typically associated with serotonin syndrome and can therefore be prescribed alongside antidepressants if indicated.

Question:

A 42-year-old woman presents to the GP with difficulty with fine movements in her hands. She mentions that her hands turn pale and numb when she goes outside.

On examination, there is tightening and thickening of the skin over the hands. The GP suspects a diagnosis of limited systemic sclerosis.

What additional symptom would suggest this diagnosis?

A.Dry eyes

B.Heartburn

C.Hypertension

D.Oliguria

E.Skin thickening over the trunk

Answer:Heartburn

Explanation:

CREST syndrome is a subtype of limited systemic sclerosis and includes: calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly, telangiectasia

Important for meLess important

The presence of heartburn would indicate oesophageal dysmotility, which is a feature of CREST syndrome. CREST syndrome is a subtype of limited systemic sclerosis and includes calcinosis (calcium deposits in the skin), Raynaud's phenomenon (vasospasm causing pale fingers on exposure to cold), oesophageal dysmotility (may present with acid reflux or heartburn), sclerodactyly (tightening and thickening of skin overlying the hands and fingers) and telangiectasia.

Dry eyes are a symptom of Sjogren's syndrome. Patients with Sjogren's syndrome may have features of limited systemic sclerosis, but the presence of dry eyes is not a part of CREST syndrome.

Hypertension is a complication of diffuse systemic sclerosis. This is a different type of systemic sclerosis that affects the proximal limbs and trunk. Complications include renal crisis and hypertension, and respiratory involvement.

Oliguria is a symptom of renal crisis, a complication of diffuse systemic sclerosis.

Skin thickening over the trunk is a symptom of diffuse systemic sclerosis.

Question:

A 29-year-old female was admitted to orthopaedics 2 days previously after a skiing accident. X-rays showed a closed left tibial shaft fracture with minimal displacement. She has become more distressed in the last 3 hours due to severe pain in the leg, despite hourly oral morphine in addition to regular paracetamol and ibuprofen. Her urine appears dark and a dipstick is positive for blood.

Day 1 admission Day 2 admission

Na+ 136 mmol/L 144 mmol/L (135 - 145)

K+ 3.9 mmol/L 5.3 mmol/L (3.5 - 5.0)

Bicarbonate 21 mmol/L 16 mmol/L (22 - 29)

Urea 4.3 mmol/L 12.3mmol/L (2.0 - 7.0)

Creatinine 64 µmol/L 204 µmol/L (55 - 120)

What is the most significant contributing factor to her acute kidney injury (AKI)?

A.Accumulation of myoglobin in the renal tubules

B.Dehydration resulting in renal hypo-perfusion and acute tubular necrosis

C.Deposition of anti-glomerular basement membrane antibodies in the glomeruli

D.Obstruction of the right ureter due to calculus formation

E.Vasoconstriction of afferent glomerular arterioles caused by ibuprofen

Answer:Accumulation of myoglobin in the renal tubules

Explanation:

Compartment syndrome is most commonly associated with supracondylar and tibial shaft fractures

Important for meLess important

Tibial fracture is the most common cause of compartment syndrome. The history of rapidly-progressive pain not controlled by high doses of analgesia is also suggestive of compartment syndrome. Increased pressure in the fascial compartment may lead to muscle breakdown and myoglobin released into the bloodstream (rhabdomyolysis). Deposition of myoglobin the renal tubules results in acute kidney injury, with myoglobinuria causing a dark, brown coloured urine, which dips positively for blood.

The patient may be dehydrated and have pre-renal AKI secondary to this, but urinalysis would unlikely to be positive for blood in this case.

Deposition of anti-glomerular basement membrane antibodies describes the pathology of Goodpasture's syndrome. This would typically present as AKI with proteinuria and additional features of pulmonary involvement such as haemoptysis and shortness of breath.

An obstructing stone would typically cause right loin pain. Obstruction of a single ureter is unlikely to cause such significant impairment of renal function.

NSAIDs can worsen renal function by inhibition of prostaglandins, which results in vasoconstriction of the glomerular afferent arteriole. This may be a contributing factor to her AKI, but compartment syndrome and rhabdomyolysis is likely to be the major cause.

Question:

A 73-year-old man undergoes an emergency laparotomy for a perforated bowel. Due to persistent hypotension intra-operatively he receives fluid resuscitation and is started on an infusion of noradrenaline. He is transferred to the intensive care unit post-operatively for ongoing vasopressor support and fluid resuscitation. In total he receives 6 litres of normal saline.

He is reviewed on the ward round the following morning along with an arterial blood gas which is as follows:

pH 7.29 (7.35-7.45)

pO2 13.1 kPa (10-14)

pCO2 4.1 kPa (4.5-6)

HCO3 18.2 mmol/L (22-28)

Lac 0.9 mmol/L (<1)

Na 151 mmol/L (135-145)

K 4.9 mmol/L (3.5-5)

Cl 121 mmol/L (96-106)

What is the cause of his acidosis?

A.Bowel ischaemia

B.Fluid resuscitation

C.Hypoventilation

D.Noradrenaline infusion

E.Vomiting

Answer:Fluid resuscitation

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 man has a hyperchloraemic metabolic acidosis. This is caused by the aggressive fluid resuscitation that he has received peri-operatively (6 litres in total). Normal saline results in the addition of a strong cation (sodium) and strong anion (chloride) in equal measure, causing a decrease in the strong ion difference and consequently an acidosis.

Bowel ischaemia can cause a metabolic acidosis via an increase in lactate. This is due to tissue hypoperfusion resulting in anaerobic respiration in cells. As the lactate is normal here, this cannot be the case.

Hypoventilation would cause a respiratory acidosis. This isn't the case here as demonstrated by the normal pCO2 and so this answer is incorrect.

Noradrenaline infusions can cause a metabolic acidosis however like bowel ischaemia, this is a result of tissue hypoperfusion and increased lactate. As the lactate is normal, this answer is incorrect.

Vomiting can cause a metabolic alkalosis but not an acidosis.

Question:

A 51-year-old woman is investigated for lethargy and pruritus. Her appetite is normal and she has not lost weight. On examination she is not clinically jaundiced and there is no organomegaly. Bloods tests are reported as follows:

Hb 12.8 g/dl

Platelets 188 \* 109/l

WBC 6.7 \* 109/l

Na+ 140 mmol/l

K+ 3.9 mmol/l

Urea 6.2 mmol/l

Creatinine 68 µmol/l

Bilirubin 30 µmol/l

ALP 231 u/l

ALT 38 u/l

γGT 367 u/l

Albumin 39 g/l

What further test is most likely to reveal the diagnosis?

A.Anti-nuclear antibodies

B.Liver ultrasound

C.Anti-mitochondrial antibodies

D.Ceruloplasmin

E.Ferritin

Answer:Anti-mitochondrial antibodies

Explanation:

Primary biliary cholangitis - the M rule

IgM

anti-Mitochondrial antibodies, M2 subtype

Middle aged females

Important for meLess important

The demographic (middle-aged female), history (lethargy, pruritus) and liver function tests (rise in ALP and γGT) all point to a diagnosis of primary biliary cirrhosis (PBC). Anti-mitochondrial antibodies are found in 98% of patients with PBC.

Question:

A 14-year-old boy is brought to the GP by his mother. He has been complaining of pain in his right leg which feels like it is coming from his bone just below his knee. He says that the pain has been there for several weeks and is constant and dull, often worsening at nighttime. On examination, there is a bony swelling on his tibia, just below his knee joint. Which of the following investigations should this child be referred to have within 48 hours?

A.Full body MRI

B.Ultrasound of the lump

C.CT CAP

D.X-ray of his right leg

E.DEXA scan of his right leg

Answer:X-ray of his right leg

Explanation:

Children and young people with unexplained bone swelling or pain: consider very urgent direct access X-ray to assess for bone sarcoma

Important for meLess important

This child has unexplained bone pain and a bony swelling on examination. Teenagers are particularly at risk of osteosarcoma and hence it is very important to investigate for this differential. For these symptoms, it is advised that an X-ray should be performed within 48 hours.

Whilst the other investigations might provide useful information and may indeed be used down the line, they are not first-line investigations and certainly do not need to be performed within 48 hours. A DEXA scan is a special type of X-ray which measures bone density and is used to investigate for osteoporosis. A standard X-ray should be used to investigate for an osteosarcoma making this incorrect.

Question:

A 63-year-old man is admitted to the emergency department with acute abdominal pain. On examination he is tachycardic and pyrexial with a soft and non-distended abdomen which is very tender on palpation throughout, there are no abdominal masses or renal angle tenderness. He has a past medical history of hypertension and stable angina.

His admission bloods show the following:

Hb 136 g/l (135-180 g/l) Urea 4.2 mmol/l (2-7 mmol/l)

Platelets 442 x 109/l (150-400 x 109/l) Creatinine 86 µmol/l (55-120 µmol/l)

WBC 11.8 x 109/l (4-11 x 109/l) CRP 11.2 mg/l (<10 mg/l)

Amylase 73 u/l (70-300 u/l) Lactate 6.9 mmol/l (0.2-2 mmol/l)

Which of the following is the most likely diagnosis for the cause of his pain?

A.Perforated duodenal ulcer

B.Perforated diverticulitis

C.Inferior myocardial infarction

D.Mesenteric ischaemia

E.Acute pancreatitis

Answer:Mesenteric ischaemia

Explanation:

Mesenteric ischaemia: triad of CVD, high lactate and soft but tender abdomen

Important for meLess important

The soft abdomen goes against there being any gastrointestinal perforations as this would cause peritoneal irritation and involuntary guarding on examination. The very high lactate level with a history of cardiovascular disease suggests acute infarction of tissue somewhere in the body and coupled with the tenderness with lack of guarding in the abdomen would make the most likely cause of his pain a mesenteric infarct. Acute pancreatitis could also present with diffuse abdominal tenderness but the normal amylase rules this out. Although it is well known that an inferior myocardial infarction can cause abdominal pain, it presents as epigastric pain and would not be associated with abdominal tenderness.

Question:

A 73-year-old woman is reviewed on the morning ward round after admission for a progressing severe right leg cellulitis infection. The patient reports feeling generally unwell and fatigued. Observations include heart rate 94bpm, respiratory rate 16/min, blood pressure 112/83mmHg, and temperature 38.2ºC.

Past medical history includes hypertension, osteopenia, and recent admission for community-acquired pneumonia.

A wound swab taken at admission is reported.

Methicillin-resistant Staphylococcus aureus Positive

What antibiotic should be prescribed?

A.Co-amoxiclav

B.Flucloxacillin

C.Meropenem

D.Rifampicin

E.Vancomycin

Answer:Vancomycin

Explanation:

Vancomycin is a useful antibiotic to treat MRSA infections

Important for meLess important

This scenario describes a 73-year-old woman presenting with severe right leg cellulitis which has tested positive for methicillin-resistant Staphylococcus aureus (MRSA). Given this positive result, the best antibiotic choice would be vancomycin. MRSA is a subtype of Staphylococcus aureus which is resistant to numerous types of antibiotics, including those belonging to the beta-lactams class.

Co-amoxiclav is incorrect. MRSA is resistant to antibiotics belonging to the beta-lactam class, and therefore co-amoxiclav would not be a suitable choice of antimicrobial.

Flucloxacillin is not correct. Whilst flucloxacillin is often used to treat cellulitis, it would not be appropriate for an MRSA infection. This is because flucloxacillin belongs to the penicillin group of antibiotics, to which MRSA is resistant.

Meropenem is incorrect. Meropenem is a beta-lactam antibiotic and is therefore not suitable for use in MRSA given the resistance profile.

Rifampicin is not the single best answer. Whilst rifampicin may be useful as an adjunct for MRSA treatment, it is not typically used as a solo agent for treatment. It is therefore not the single best answer.

Question:

A 70-year-old man presents to the emergency department following an episode of right-sided body weakness. The weakness developed gradually, and he was not able to use his right arm and leg for about 3 hours before resolved spontaneously. The patient reports a similar episode 4 days ago.

He has a past medical history of diabetes mellitus and hypertension for the past 8 years. His BMI is 32 kg/m². Current medications include metformin, sitagliptin, amlodipine, rosuvastatin, and aspirin.

A plain CT brain performed was unremarkable, while a CT angiogram revealed 40% stenosis of the left internal carotid artery.

Which of the following is the most appropriate treatment strategy to help prevent further complications?

A.Continue antiplatelet therapy with aspirin only

B.Carotid angioplasty

C.Addition of clopidogrel

D.Fibrinolytic therapy with alteplase

E.Carotid endarterectomy

Answer:Addition of clopidogrel

Explanation:

Antiplatelets

TIA: clopidogrel

ischaemic stroke: clopidogrel

Important for meLess important

Transient ischaemic attack (TIA) is defined as a transient episode of neurologic dysfunction caused by focal brain, spinal cord, or retinal ischaemia, without acute infarction. This patient had a TIA as evidenced by a reversible episode of transient right-sided body weakness. Moreover, he has a history of a similar episode within the last 7 days and his past medical history is significant for diabetes and hypertension. Therefore, this patient should be started on dual antiplatelet therapy with aspirin and clopidogrel to reduce the incidence of further episodes and the risk of an ischaemic stroke.

Recent evidence has demonstrated the benefit of using dual antiplatelet therapy over aspirin alone for secondary prevention of stroke in such patients.

Carotid stenting would not normally be the preferred strategy given the patient's advanced age as there is a high risk of peri-procedural adverse events such as embolic stroke.

Thrombolytic therapy with alteplase is the preferred treatment in acute ischaemic stroke. This patient has had a TIA with his symptoms resolved and therefore he is not eligible for alteplase therapy. It is important to get a CT scan quickly because thrombolytic therapy is most effective when given within 4.5 hours after the onset of symptoms.

Carotid endarterectomy is the preferred intervention in such patients having greater than 70% stenosis of the internal carotid artery.

Question:

A 5-month-old girl is seen in the paediatric urology clinic with recurrent urinary tract infections. She has had a renal ultrasound that showed dilatation of the ureters. Her mother recalls that when she was a child herself there was a problem with the valve in her ureters, with some backflow of urine from the bladder up towards the kidneys.

Given the likely underlying cause, what test is most appropriate to grade the severity?

A.Bladder ultrasound

B.CT abdomen

C.Dimercaptosuccinic acid (DMSA) scan

D.Micturating cystography

E.Urine culture for fungus

Answer:Micturating cystography

Explanation:

Micturating cystography is the investigation of choice for reflux nephropathy

Important for meLess important

Micturating cystography is the correct answer. 25% of children <6 years of age with a urinary tract infection (UTI) have vesicoureteral reflux (VUR). The 'valve' problem the mother recalls is alluding to VUR. The family history, combined with the age of the patient and the abnormal ultrasound findings, indicates VUR as the underlying cause of her recurrent UTI. The severity is graded (as summarised in the table below) with a voiding cystourethrogram, otherwise known as micturating cystography. This test takes around 15-20 minutes and involves injecting a dye into the bladder via a catheter, and taking x-ray images whilst the child passes urine. It is important to detect VUR early, as it can result in scarring of the kidneys (reflux nephropathy).

Bladder ultrasound is not correct. Whilst it is useful to do ultrasound imaging of the urinary tract including the kidneys (not the bladder alone), ultrasound would not be used to grade the severity of VUR.

CT abdomen is not indicated and would be unjustified exposure to radiation.

Dimercaptosuccinic acid (DMSA) scan would be useful in assessing renal parenchymal defects which may result from VUR, and would usually be performed within 6 months of an acute infection in all children with recurrent UTI. However, it is not able to grade the severity so is not the correct answer here.

Urine culture for fungus is not correct. It should be considered in immunosuppressed patients, but this case is in keeping with VUR as the cause of recurrent UTI rather than atypical organisms.

Question:

A concerned mother brings her 4-year-old son to you the GP. She says her son has not been growing relative to his peers in school. On examination, he has 6 individual, 4cm oval pigmented lesions on his trunk and has freckles in both of his axillae. What is the most likely diagnosis?

A.Neurofibromatosis type 1

B.Tuberous sclerosis

C.Peutz-Jegher syndrome

D.McCune-Albright syndrome

E.Neurofibromatosis type 2

Answer:Neurofibromatosis type 1

Explanation:

Axillary freckles are indicative of neurofibromatosis type 1

Important for meLess important

Both NF1 and tuberous sclerosis can cause developmental delays. The oval lesion on the trunk is a café-au-lait spot. This spot in McCune-Albright syndrome tends to be irregular and less in number. The axillary freckles are indicative of NF1, not NF2.

Question:

A 19-year-old man presents to the Emergency Department stating that he has had a stroke.

When asked about his symptoms, he explains that he was sitting at work 2 hours ago when he suddenly had the sensation of smelling roses. He recalls asking his colleagues where the smell was coming from, but none of them could smell it. He states that he also felt a little sweaty at the time. The episode lasted for a couple of minutes and then the smell disappeared. He has a history of headaches but is otherwise well.

What is the most likely diagnosis?

A.Complex focal seizure

B.Factitious disorder

C.Focal aware seizure

D.Migraine with aura

E.Transient ischaemic accident

Answer:Focal aware seizure

Explanation:

A woman suddenly has the sensation of smelling roses whilst at work. She is conscious throughout - focal aware seizure

Important for meLess important

Focal aware seizure is the correct answer. This is a classical presentation of a focal aware seizure - a sudden but short-lived change in senses (which may be taste, smell, tactile, or visual) during which the patient remains fully conscious. There is typically no post-ictal period with focal aware seizures, and accompanying symptoms may include sweating, twitching, or gaze deviation. This patient should be referred to the first seizure clinic for investigation.

Complex focal seizure is incorrect. Complex focal seizures are more commonly known as focal onset impaired awareness seizures and are characterised by loss of awareness, memory loss for the clinical event, and impaired responsiveness at the time of the event. This patient was aware throughout the seizure and could recall the event.

Factitious disorder is incorrect. Factitious disorder, previously known as Munchausen syndrome, is a disorder in which signs/symptoms of real disease are intentionally feigned. While this patient wrongly believes that he has had a stroke, there is nothing to suggest that he is falsely presenting symptoms. Further, isolated olfactory hallucinations are a classic presentation of focal aware seizures.

Migraine with aura is incorrect. While migraine aura can manifest as olfactory hallucinations, as this patient experienced, the patient has not complained of any headache which would be required to make a migraine diagnosis.

Transient ischaemic accident (TIA) is described as a transient episode of neurological dysfunction. It will present with a sudden-onset, focal neurological deficit that completely resolves within 24 hours of onset. It is colloquially known as a 'mini-stroke'. Olfactory hallucination is not a symptom of TIA, and thus this diagnosis is very unlikely.

Question:

A 43-year-old man is recovering on the ward several weeks following treatment for acute pancreatitis due to alcohol excess. He is clinically well apart from ongoing pain in the epigastric region. A routine set of bloods and an abdominal ultrasound scan are done which are shown below:

Bilirubin 28 µmol/l

Albumin 38 g/l

ALT 39 u/l

γGT 68 u/l

CRP 11.2 mg/l

Amylase 541 u/l

Abdominal Ultrasound Scan

Normal appearances of the kidneys and liver. Normal aortic diameter. A 53 mm x 61 mm cystic lesion is present in the head of the pancreas.

Which of the following strategies for managing this man's pancreatic lesion is most appropriate in the first instance?

A.Conservative management

B.Endoscopic drainage

C.Radiological fine-needle aspiration

D.Radiological drain insertion

E.Surgical drainage

Answer:Conservative management

Explanation:

Pancreatic pseudocyst? Manage conservatively initially

Important for meLess important

A raised amylase and a cystic lesion following pancreatitis are most likely to represent a pancreatic pseudocyst. Given this man is clinically well and has no significant derangement of liver function (a slightly raised bilirubin is not uncommon following severe pancreatitis), a procedure to manage this would be inappropriate. The best of the procedural options would be radiological fine-needle aspiration, all the other procedures would open the space and risk infection entering the pseudocyst and this comes with a high morbidity and mortality, hence why conservative management is preferred when possible.

The indications for active drainage would be signs of infection, mass effect on abdominal organs or a persisting pseudocyst beyond 12 weeks from it developing. Even in cases where patients are symptomatic from a pseudocyst, it is often managed conservatively as the risks of a procedure outweigh the symptoms it causes.

Question:

A 29-year-old woman visits her general practitioner for the results of her cervical smear. She is currently sexually active with one regular partner of 8 months. There is no history of sexually transmitted diseases and she denies spotting or bleeding after sexual intercourse.

Cervical smear results:

Human papillomavirus Positive

Cytology Low-grade dyskaryosis

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

A.Colposcopy

B.Return to normal recall

C.Repeat cytology in 3 months

D.Repeat cytology in 6 months

E.Repeat hrHPV in 12 months

Answer:Colposcopy

Explanation:

Cervical cancer screening: if sample is hrHPV +ve + cytologically abnormal → colposcopy

Important for meLess important

This patient has tested positive for a high-risk strain of human papillomavirus with abnormal cytology on her cervical smear. Anything from borderline change to high-grade dyskaryosis is classified as abnormal cytology. The next step for this patient is a referral for colposcopy to obtain a cervical biopsy to further assess for cervical malignancy.

It would not be appropriate to discharge this patient to normal recall as she has tested positive for high-risk human papillomavirus with abnormal cytology, putting her at significant risk of developing cervical cancer.

If the cytology was determined to be inadequate then it is retested in 3 months. However, the cytology specimen displays low-grade dyskaryosis, and therefore colposcopy and further assessment are warranted.

It would be inappropriate to delay repeating cytology for a further 6 months. It can be retested at 3 months if the result is inadequate. However, with definitive abnormal cytology, the next best step is to proceed with colposcopy.

If this patient's cytology were to be normal but she was positive for high-risk human papillomavirus then it would be appropriate to retest for human papillomavirus in 12 months. However, the presence of high-risk human papillomavirus and abnormal cytology means that further assessment and colposcopy are needed.

Question:

A 26-year-old woman visits her general practitioner with painful menstrual bleeding. She has a regular 28-day cycle and bleeds for approximately 5-6 days each month. She denies heavy bleeding and does not pass clots. The pain is debilitating and often requires her to take at least 2 days off work each month. Her past medical history includes a deep vein thrombosis (DVT) following the delivery of her son 2 years ago. She takes no regular medications and has no allergies.

What is the initial step in the management of this patient?

A.Combined oral contraceptive pill

B.Intrauterine device

C.Intrauterine system

D.Mefenamic acid

E.Tranexamic acid

Answer:Mefenamic acid

Explanation:

NSAIDs such as mefenamic acid are the first line treatment for primary dysmenorrhoea

Important for meLess important

Provided there are no contraindications, NSAIDs such as ibuprofen, naproxen and mefenamic acid are the 1st line choice for treating primary dysmenorrhoea and are the current recommendation in NICE guidelines. Paracetamol can be tried as an alternative if NSAIDs are contraindicated. Additionally, if treatment fails with NSAIDs then a combination of NSAIDs and paracetamol can be tried.

It is important to ask patients if they have any plans to conceive in the near future. If not, hormonal options can also be considered. The combined oral contraceptive pill can be trialled for 3-6 months as an alternative first-line treatment. However, it is important to exclude any contraindications for starting the medication. For example, this patient has a history of a previous DVT which is a contraindication to prescribing the COCP.

The intrauterine device or the copper coil can be used as an emergency or long-term contraception. A complication of its use is heavier menstrual bleeding, making it an inappropriate treatment to offer this patient.

The intrauterine system (IUS) or the Mirena coil is an alternative option to offer this patient. The IUS is 1st-line in the treatment of menorrhagia whereas the initial treatment of choice for primary dysmenorrhoea is NSAID use.

Tranexamic acid is used in the treatment of menorrhagia. It is a non-hormonal treatment option that is offered to those who do not wish to have the IUS. However, tranexamic acid is not used in the treatment of dysmenorrhoea.

Question:

An 87-year-old lady presents to the Emergency Department with a two-day history of new confusion. Her heart rate is 120 beats per minute, blood pressure 95/45 mmHg and temperature 38.4ºC. You suspect urinary sepsis and after taking urine and blood cultures you start appropriate treatment with intravenous fluids and broad-spectrum antibiotics. Later that day the microbiology lab phones to inform you the microscopy of the urine sample shows Gram-negative rods. What is the likely organism in this case?

A.Escherichia coli

B.Candida albicans

C.Staphylococcus saprophyticus

D.Enterococcus faecalis

E.Staphylococcus aureus

Answer:Escherichia coli

Explanation:

E. coli is an aerobic gram-negative rod

Important for meLess important

Prompt treatment of sepsis is essential to improve patient outcomes. Broad-spectrum antibiotics should be given promptly after microbiological specimens are taken. Antibiotic therapy should be altered when the causative organism is known. In this case, a Gram-negative bacilli grown from the urine is most likely to be E. coli. S. aureus is a common pathogen but is unusual in urinary infections. C. albicans can cause urinary infections but is a yeast. Enterococcus and S. saprophyticus are both Gram-positive cocci.

Question:

A 55-year-old presents to the Emergency Department with palpitations and shortness of breath. The results of the arterial blood gas sample is seen below.

PaO2 13.9 kPa

PaCO2 2.4 kPa

pH 7.51

HCO3 23 mmol/L

What is the correct option regarding oxygen therapy for this patient?

A.Start oxygen at 2 l/min via nasal cannulae

B.Do not give supplemental oxygen

C.Start oxygen at 24% via venturi mask

D.Start oxygen at 28% via venturi mask

E.Start oxygen at 15l/min via non-rebreather mask

Answer:Do not give supplemental oxygen

Explanation:

This patient's arterial blood gas sample shows respiratory alkalosis secondary to anxiety related hyperventilation. Oxygen therapy is not indicated in this situation as she is not hypoxic.

Question:

A 92-year-old woman passes away during the night in a local hospice and is discovered in her bed by one of the health care assistants. She was terminally ill with advanced metastatic ovarian cancer as well as heart failure, stage 3 chronic kidney disease and Alzheimer's disease. Her death has been expected for several weeks now and she has a DNACPR in place.

Who is the most appropriate person to verify her death?

A.A minister of the same faith

B.A registered nurse

C.A paramedic

D.Police forensic physician

E.The health care assistant on discovery

Answer:A registered nurse

Explanation:

Registered nurses may verify death in certain circumstances

Important for meLess important

A minister of faith may be requested by the patient or family to be present at the time of death however they are not able to verify death.

In these circumstances it is appropriate that an experienced registered nurse verifies the death. This is because the death happened in the hospice and was expected with no suspicious events surrounding it.

Emergency services are able to verify death however it would not be appropriate to call an ambulance for this patient so a registered nurse may be more suitable.

Police forensic physicians can verify death but this would not be necessary in this case as a registered nurse may certify instead.

Health care assistants are not allowed and should not verify death in any circumstance, registered nurses however may.

Question:

A 26-year-old primigravida woman attends the maternity centre at the start of labour at 38 weeks. Her pregnancy was marked high-risk because she was diagnosed with HIV last year and started on regular antiretroviral therapy. Her viral load at 36 weeks is shown below:

HIV Viral Load 35 RNA copies/mL (0-50)

What is the most appropriate delivery plan for this woman?

A.Continue with normal vaginal delivery

B.Prepare for an emergency caesarean section

C.Prepare for non-emergency caesarean section

D.Re-test her HIV viral load

E.Start an antiretroviral infusion during vaginal delivery

Answer:Continue with normal vaginal delivery

Explanation:

HIV in pregnancy: vaginal delivery is recommended if viral load is less than 50 copies/ml at 36 weeks

Important for meLess important

The correct answer is to continue with vaginal delivery. This woman has a viral load of fewer than 50 copies/mL at 36 weeks. As a result, the recommendation is that the woman goes ahead with vaginal delivery. Keep in mind that in many labs, a viral load of 200 copies/mL is considered undetectable, so a positive result is not indicative of the amount of circulating HIV.

Preparing for a caesarian section is not necessary in this case. Because this woman has a viral load of fewer than 50 copies/mL, the pregnancy is deemed safe to continue without surgical intervention. Other relevant factors are that she is on retroviral therapy, and the baby is likely to receive retroviral therapy after delivery. A caesarian section would have been appropriate if she had a viral count greater than 50 copies/mL.

Re-testing her HIV viral load is not the correct answer. The current recommendation suggests women are tested at 36 weeks to plan for delivery. It is likely that a test would take some time to return and would not change clinical outcomes at this stage.

Starting antiretroviral infusion during vaginal delivery is not the correct answer. This woman has essentially an undetectable viral load and is already on regular therapy. An antiretroviral infusion is most commonly used in the case of a caesarean section when a pregnant woman has a viral load greater than 50 copies/mL.

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?

A.Reassurance

B.Refer to physiotherapy

C.Refer urgently to the paediatrician

D.Request a shoulder X-ray

E.Review in 2 months

Answer:Refer urgently to the paediatrician

Explanation:

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 man presents with an acute, painful red eye. Which one of the following features would not support a diagnosis of acute angle closure glaucoma?

A.Vomiting

B.Patient sees haloes around lights

C.Dull cornea

D.Small pupil

E.Decreased visual acuity

Answer:Small pupil

Explanation:

Question:

A woman who is 12 weeks pregnant presents as she is concerned following a recent antenatal scan. The scan has reportedly shown increased nuchal translucency. Other than Down's syndrome, which one of the following is most associated with this finding?

A.Renal agenesis

B.Cystic fibrosis

C.Polyhydramnios

D.Cytomegalovirus infection

E.Congenital heart defects

Answer:Congenital heart defects

Explanation:

Question:

A 47-year-old man is brought in by ambulance to the emergency department. He was found agitated and wandering the street by a member of the public. Collateral history from his relative reveals that he has a past medical history of hepatic steatosis, hypertension and asthma. His regular medications include amlodipine and Symbicort. He drinks up to 1 litre of vodka daily and has smoked 20 cigarettes per day for 30 years. There is no history of recreational drug use. He has not been seen by his family for 2-3 days before these events.

His observations are heart rate 111 beats per minute, blood pressure 170/94 mmHg, respiratory rate 23 /min, oxygen saturations 97% on air and temperature 37.2ºC. He is tremulous, diaphoretic and agitated. Cardiovascular, respiratory and abdominal examinations are otherwise unremarkable.

Shortly after he is examined, he has a seizure lasting 30 seconds that is self-terminating.

Blood tests:

Hb 164 g/L Male: (135-180)

Female: (115 - 160)

Platelets 189 \* 109/L (150 - 400)

WBC 6.0 \* 109/L (4.0 - 11.0)

Na+ 129 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Urea 8.9 mmol/L (2.0 - 7.0)

Creatinine 77 µmol/L (55 - 120)

CRP 3 mg/L (< 5)

Glucose 4.1 mmol/L (4 - 11)

A CT head is organized, which is reported as being normal.

What is the most appropriate medication choice to prevent further seizures?

A.Oral chlordiazepoxide

B.Intravenous glucose

C.Intravenous hypertonic saline

D.Intravenous levetiracetam

E.Intravenous pabrinex

Answer:Oral chlordiazepoxide

Explanation:

Chlordiazepoxide or diazepam are used in the treatment of delirium tremens/alcohol withdrawal

Important for meLess important

Chlordiazepoxide is the correct answer. Minor alcohol withdrawal symptoms such as tremor, anxiety and headache start approximately 6-12 hours after alcohol is stopped. This can progress to alcoholic hallucinosis after 12-24 hours and subsequently withdrawal seizures and delirium tremens from 48 hours onwards. The combination of tachypnoea, tachycardia, agitation and seizures suggest delirium tremens and alcohol withdrawal seizures as the diagnosis. The first-line treatment for delirium tremens and to prevent further seizures is chlordiazepoxide. The Clinical Institute Withdrawal Assessment for Alcohol (CIWA) score is used for the management of alcohol withdrawal in hospital. It is a ten item scoring system where higher total scores correspond to a greater severity of alcohol withdrawal. Depending on the score, specific management decisions are suggested, such as the administration of benzodiazepines.

Intravenous glucose is incorrect. The patient's glucose is within the normal range, albeit at the lower end, making this an unlikely cause of seizures.

Intravenous hypertonic saline is incorrect. While his sodium is mildly low at 129, this value is not typically low enough to cause seizures.

Intravenous levetiracetam is incorrect. While this is an effective anti-seizure medication, it is not the most appropriate choice given the underlying diagnosis.

Intravenous pabrinex is incorrect. This will not prevent or terminate seizures but is used to prevent the development of Wernicke's encephalopathy.

Question:

A 73-year-old patient attends the respiratory clinic. He has a three year history of COPD, with frequent exacerbations over the past year. He is an ex-smoker, having quit 2 years previously. He has required 5 courses of oral amoxicillin and prednisolone for infective exacerbations within the past 12 months. His most recent FEV1 was 47% of predicted. He is on a combination inhaler containing beclomethasone, glycopyrronium and formoterol.

Which is the best intervention to reduce his exacerbation frequency?

A.Commence long-term oxygen therapy

B.Add once-daily azithromycin

C.Add long-term oral prednisolone

D.Switch to fluticasone, umeclidinium and vilanterol inhaler

E.Switch to glycopyrronium and formoterol inhaler

Answer:Add once-daily azithromycin

Explanation:

Azithromycin prophylaxis is recommended in COPD patients who meet certain criteria and who continue to have exacerbations

Important for meLess important

Patients with COPD who have frequent exacerbations, may be suitable for regular antibiotic therapy. One study found a reduced frequency of exacerbations in COPD patients with FEV1 <70% who had an exacerbation requiring steroids in the past 12 months, when given azithromycin for a year. Patients should have inhaled therapy optimised first with combination LABA/LAMA and ICS if appropriate. This patient is on a combination inhaler containing beclomethasone (steroid), glycopyrronium (LAMA) and formoterol (LABA).

Prescribing 250mg azithromycin daily or 500mg three times per week may reduce exacerbations in this type of patient.

Long-term oxygen therapy is recommended in COPD patients with chronic hypoxia, polycythaemia, pulmonary hypertension or peripheral oedema but is not a treatment for reducing frequency of exacerbations.

NICE guidelines state that if there is no evidence of benefit from inhaled corticosteroid after 3 months, patients should be switched to LABA/LAMA only. This is to reduce side-effects and would not reduce exacerbation frequency.

Changing to an alternative LABA/LAMA/ICS is unlikely to be of benefit.

Adding regular prednisolone may reduce exacerbations, but is likely to be associated with significant side-effects in the long-term. Therefore, regular antibiotic therapy is a better option.

Question:

A 6-year-old boy is found unconscious in the bath. He is brought into the emergency department as a paediatric cardiac arrest. They attempt to get peripheral IV access but cannot get a line in. The registrar decides to put in an intraosseous line. Which of the following is the most common insertion site for this type of line?

A.Proximal tibia

B.Distal tibia

C.Proximal fibula

D.Proximal humerus

E.Sternum

Answer:Proximal tibia

Explanation:

Intraosseous access is most commonly obtained at the proximal tibia

Important for meLess important

Intraosseous access can be used for both children and adult patients and is indicated when vascular access is difficult to obtain in an emergency setting. In general, in a paediatric case, it is suggested you move onto obtaining intraosseous access after 2 failed attempts at a peripheral intravenous line. The most common site for an intraosseous line is the proximal tibia, however, the distal femur and humeral head can also be used.

Question:

A 60-year-old Caucasian man attends his GP surgery for a routine health check.

He is found to have raised clinic blood pressure, and subsequent ambulatory monitoring confirms a daytime average measurement of 160/96 mmHg.

His blood and urine tests show the following:

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Creatinine 136 µmol/L (55 - 120)

Estimated glomerular filtration rate (eGFR) 56 ml/min/1.73 m² (>90)

HbA1c 39 mmol/mol (<42)

Urinary albumin : creatinine ratio 45 mg/mmol (<3)

His eGFR is unchanged from last year. He confirms that the urine sample was produced in the early morning.

What is the appropriate management?

A.Commence amlodipine

B.Commence dapagliflozin

C.Commence ramipril

D.Refer to nephrologist for further assessment

E.Suggest lifestyle modification only

Answer:Commence 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

This man has stage 2 hypertension (an ambulatory daytime average blood pressure >150/95 mmHg) as well as chronic kidney disease G3aA3 (based on a GFR 45-59 and a urine ACR >30 mg/mmol).

All patients with a urinary ACR of >30 mg/mmol and associated hypertension (regardless of age or ethnicity) should be prescribed an angiotensin-converting enzyme (ACE) inhibitor or an angiotensin receptor blocker (ARB) over other anti-hypertensives, as this is particularly beneficial in reducing the progression of kidney damage. Hence commencing ramipril is the correct answer. His blood pressure target should be less than 140/90 mmHg.

Commencing amlodipine is incorrect. NICE guidelines recommend calcium channel blockers in people aged 55 years or over and people of black African or African–Caribbean family origin (of any age), but exceptions apply for patients with chronic kidney disease who have a urinary ACR of >30 mg/mmol, in which case separate guidelines exist which recommend the use of an ACE inhibitor or ARB.

Commencing dapagliflozin is incorrect. Currently, sodium-glucose co-transporter-2 (SGLT-2) inhibitors are only recommended in the management of CKD in patients who also have type 2 diabetes. This man's HbA1c is within the non-diabetic range.

Referring to a nephrologist for further assessment is incorrect. There are clear NICE criteria whereby patients should be referred to a specialist, such as if they have a high risk of needing renal replacement therapy, have a urinary ACR of 70 mg/mmol or more, or a sustained decrease in eGFR of 15 ml/min/1.73 m² or more per year. This man does not currently fulfil any of these criteria.

Lifestyle modification alone is incorrect. While advice on diet and exercise should certainly be given, this man requires pharmacological treatment given the severity of his CKD and hypertension.

Question:

A 22-year-old man presents with 4 episodes of non-bloody diarrhoea in a 24-hour period. He has a past medical history of ulcerative colitis. Observations are within normal limits. He is started on rectal aminosalicylates however there is no improvement.

Blood results are as follows:

Hb 145 g/L Male: (135-180)

Female: (115 - 160)

WBC 8.2 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.4 mmol/L (3.5 - 5.0)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 74 µmol/L (55 - 120)

CRP 8 mg/L (< 5)

ESR 12 mm/hr Men: < (age / 2)

Women: < ((age + 10) / 2)

A colonoscopy is performed:

Colonoscopy Diffuse superficial ulceration from the rectum to the hepatic flexure

What treatment is indicated?

A.Intravenous ciclosporin

B.Intravenous steroids

C.Methotrexate

D.Oral aminosalicylates

E.Rectal mesalazine

Answer:Oral aminosalicylates

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

Oral aminosalicylates is correct. As the patient has a mild flare-up of ulcerative colitis with demonstrable disease extending past the left-sided colon, oral aminosalicylates are the agent of choice as enemas only reach the splenic flexure.

Intravenous ciclosporin is incorrect. Intravenous ciclosporin may be used in severe colitis if steroids are contraindicated.

Intravenous steroids is incorrect. Intravenous steroids are usually given first-line for severe colitis. Features of severe disease include >6 bowel movements per day with systemic upset, visible blood, pyrexia, tachycardia (>90 beats per minute), anaemia, and an ESR >30mm/hour.

Methotrexate is incorrect. Research on the use of methotrexate for ulcerative colitis has shown that it is not generally effective and it is therefore not a recommended treatment.

Rectal mesalazine is incorrect. As the patient has demonstrable disease extending past the left-sided colon, oral aminosalicylates are the agent of choice as enemas only reach so far.

Question:

A 19-year-old man presents to the emergency department following a collapse. He states that he became lightheaded whilst on a jog. This has happened on two occasions previously. He is otherwise well and takes no regular medicines (including over-the-counter and herbal supplements).

Blood results are as follows:

Na+ 136 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Calcium 2.4 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

Magnesium 0.75 mmol/L (0.7-1.0)

An ECG is performed in the department:

ECG Sinus rhythm with a rate of 74 beats per minute; markedly prolonged QTc 540ms

What is the most likely abnormality?

A.Gain-of-function of K+ channels

B.Gain-of-function of Na+ channels

C.Loss-of-function of Ca2+ channels

D.Loss-of-function of K+ channels

E.Loss-of-function of Na+ channels

Answer:Loss-of-function of K+ channels

Explanation:

Long QT syndrome - usually due to loss-of-function/blockage of K+ channels

Important for meLess important

Syncope on exercise is a red flag for a serious cardiac disorder necessitating the need for further investigations and management.

The severely prolonged QTc (> 500ms) with the absence of any obvious cause (e.g. drugs and electrolyte derangement) favours a diagnosis of a hereditary long QT syndrome (LQTS).

It is important to recognise this condition as it may lead to ventricular tachycardia/torsade de pointes and can therefore cause collapse/sudden death.

The most common variants of LQTS (LQT1 & LQT2) are caused by defects in the alpha subunit of the slow delayed rectifier K+ channel resulting in loss-of-function of K+ channels.

Question:

A 4-year-old boy is brought to the emergency department by his mother. The mother appears reluctant for her child to be examined, and concedes she does not trust modern medicine. Her child has not received any of his routine immunisations. She tells you her son was mildly unwell with coryzal symptoms and a mild cough last week, however he has deteriorated in the past 11 days. His cough has worsened to the point he now has intractable coughing spells, which have been so severe on occasion that 'his lips have gone blue' and he has had to vomit. His symptoms are especially bad at night.

You recognise that antibiotic therapy will be required in this patient, and consent the mother for her son to receive an appropriate antibiotic to help with his symptoms.

Given the most likely diagnosis, which class of antibiotics is most appropriate to prescribe?

A.Aminoglycoside antibiotics

B.β-lactam antibiotics

C.Macrolide antibiotics

D.Tetracycline antibiotics

E.3rd generation cephalosporins

Answer:Macrolide antibiotics

Explanation:

Whooping cough - azithromycin or clarithromycin if the onset of cough is within the previous 21 days

Important for meLess important

This boy is suffering from whooping cough, caused by Bordetella pertussis. Pertussis is normally a part of the routine immunisation schedule, however neonates and unvaccinated school age children remain at risk of infection. Macrolide antibiotics are the first choice drug, typically azithromycin or clarithromycin.

Pertussis infection typically has an incubation period of 5-10 days (21 days maximum), before the catarrhal phase, coryzal symptoms, a low-grade fever and a mild, occasional cough (which gradually becomes more severe). This is followed by the paroxysmal phase, characterized by:

Clusters/paroxysms of numerous, rapid coughs due to difficulty expelling thick mucus from the bronchial tree

Long inspiratory effort, followed by a high-pitched “whoop” at the end of the paroxysms, giving whooping cough its name

Cyanosis

Vomiting and exhaustion. Vomiting episodes frequently follow coughing bouts and is referred to as 'post-tussive' emesis'

After the worst of the paroxysms have passed, the patient enters the convalescent phase, where recovery is gradual and coughing spells are less persistent; normally disappearing in 2-3 weeks but with the chance of recurrence with subsequent respiratory infections for months after onset. This phase is variable in length from weeks to several months.

Patients are regarded as infectious from the onset of the catarrhal phase until 3 weeks after the start of the paroxysmal phase. This timeframe also coincides with the decision to administer antibiotics, which are only indicated if the patient presents within 3 weeks of onset of the paroxysmal phase.

β-lactam antibiotics, 3rd generation cephalosporins, tetracyclines and aminoglycosides are not indicated in pertussis infection.

Question:

A 78-year-old female presents to the emergency department after falling at home. On examination, her left leg is shortened and externally-rotated. A radiograph confirms an intertrochanteric femoral fracture. She is usually mobile, and able to complete all activities of independent living independently.

What is the most appropriate surgical management of this patient?

A.Dynamic hip screw

B.Hemiarthroplasty

C.Internal fixation

D.Intramedullary nail

E.Total hip arthroplasty

Answer:Dynamic hip screw

Explanation:

Dynamic hip screws are the preferred surgical management for intertrochanteric (extracapsular) proximal femoral fracture

Important for meLess important

This patient has suffered an intertrochanteric (extracapsular) femoral fracture. These femoral fractures are best managed with a dynamic hip screw. The screw is dynamic as its telescoping property allows the screw to get tighter as the bone heals.

Hemiarthroplasty is incorrect. This would be used in cases of a displaced (disrupted blood supply) intracapsular fracture in patients with major comorbidities or are immobile. They are preferable in this patient group as while they typically don't last as long as total hip replacements; they carry a lower risk of dislocation.

Internal fixation is incorrect as this is the preferred management of an undisplaced, intracapsular fracture in mobile patients without serious comorbidity.

Intramedullary nail is incorrect as this is the preferred management of subtrochanteric fractures.

Total hip arthroplasty is incorrect. This would be used in cases of a displaced intracapsular fracture in mobile patients without major comorbidities. They produce better functional outcomes than hemiarthroplasty but are more prone to dislocation.

Question:

A 22-year-old man presents to the emergency department complaining of feeling generally unwell and not having passed only 200ml of urine in the last twelve hours. His past medical history is unremarkable except for a cold he developed two days ago. Additionally, he has noticed a new-onset cough with blood-streaked sputum. He denies any dysuria or polyuria.

The doctor performs a urine dipstick which shows the following results:

Glucose -

Proteins ++

Blood ++

Leukocytes -

What is the most likely diagnosis?

A.Alport's syndrome

B.Anti-glomerular basement membrane (GBM) disease

C.Diabetic nephropathy

D.Membranoproliferative glomerulonephritis

E.Post-streptococcal glomerulonephritis

Answer:Anti-glomerular basement membrane (GBM) disease

Explanation:

Anti-GBM disease typically presents with haemoptysis + AKI/proteinuria/haematuria

Important for meLess important

The correct answer is anti-glomerular basement membrane (GBM) disease. This condition is defined as a small-vessel vasculitis associated with both pulmonary haemorrhage and rapidly progressive glomerulonephritis. The disease is more common in men and can be exacerbated by a respiratory tract infection (this patient recently had a cold). It classically presents with haemoptysis accompanied by acute kidney injury, with proteinuria and haematuria. This patient has not passed urine for twelve hours and has positive blood and proteins in his urine, making this diagnosis likely. To fully confirm the diagnosis, a renal biopsy showing linear IgG deposits along the basement membrane is needed.

Alport's syndrome is an X-linked dominant disease. It presents with microscopic haematuria, bilateral sensorineural deafness, and lenticonus. This patient does not have any of these characteristics.

Diabetic nephropathy usually presents with microalbuminuria and glucosuria. This patient's specimen is negative for glucose. Additionally, he has no past medical history of diabetes, making the diagnosis unlikely at his age.

Post-streptococcal glomerulonephritis is caused by immune complex (IgG, IgM, and C3) deposition in the glomeruli. This happens more slowly, typically 7-14 days following a group A beta-hemolytic Streptococcus infection and causes proteinuria. This patient did not have a precious bacterial infection and has haematuria and haemoptysis, as well as proteinuria.

Membranoproliferative glomerulonephritis can present as nephrotic syndrome, haematuria, or proteinuria. It rarely affects young people and it can be caused by multiple factors such as cryoglobulinemia, hepatitis B or C, and partial lipodystrophy. This patient does not have any of these comorbidities.

Question:

A 65-year-old man with a background of benign prostatic hyperplasia attends his GP with a 6-month history of increased urinary frequency and urgency. In addition, he has a feeling of incomplete emptying after urinating. He takes both tamsulosin and finasteride as part of his routine medications and has been listed for a transurethral resection of the prostate (TURP).

What would be appropriate to help alleviate his symptoms while waiting for his operation?

A.Add oxybutynin

B.Desmopressin

C.Furosemide in the evening

D.Pelvic floor muscle training

E.Stop tamsulosin

Answer:Add oxybutynin

Explanation:

Antimuscarinic drugs are useful in patients with an overactive bladder

Important for meLess important

The patient has benign prostatic hyperplasia (BPH) and is experiencing mixed symptoms of voiding and storage. Therefore adding an anti-muscarinic such as oxybutynin is the most appropriate answer.

Desmopressin may help with symptoms of nocturia, but would not help with the symptoms of voiding and storage, which would be better alleviated by an antimuscarinic as the first line of treatment.

Furosemide given in the evening could precipitate nocturia, and so would be inappropriate in this patient.

Pelvic floor muscle training would be the first line in a patient with predominantly voiding symptoms, however, this patient has a mixture of voiding and storage symptoms.

Tamsulosin is an alpha antagonist which relaxes smooth muscle cells, and should therefore be continued in this patient with benign prostatic hyperplasia.

Question:

A 43-year-old lady presents with central chest pain, worse on deep inspiration, and shortness of breath. After her history and examining her, you suspect a pulmonary embolus (PE). Her Wells' score is 9. You plan to do a CTPA, but the radiologists request you order one further investigation prior to a CTPA. What investigation is this likely to be?

A.Ultrasound doppler of right leg

B.Chest xray

C.High resolution CT Chest

D.V/Q scan

E.D-Dimer

Answer:Chest xray

Explanation:

A chest xray is an essential investigation when investigating a PE

Important for meLess important

It is essential to organise a chest xray, to rule out other pathologies causing chest pain, such as a pneumothorax. The NICE guidance is clear this should happen prior to a CTPA or V/Q in suspected PE's.

A D-Dimer is not indicated as the Wells' score is greater than 4.

High resolution CT Chest is not an investigation for PE's.

There is no suggestion of a DVT, so an ultrasound is not indicated.

Question:

A 6 month old boy is brought to the clinic by his mother. She is concerned that his testes are not located into the scrotum. She has noticed them only when he is in the bath, but not at any other time. What is the most likely underlying diagnosis?

A.Retractile testis

B.Ectopic testis

C.Undescended testis

D.Testicular agenesis

E.Intersex child

Answer:Retractile testis

Explanation:

A testis that appears in warm conditions or which can be brought down on clinical examination and does not immediately retract is usually a retractile testis.

Question:

A 34-year-old woman presents to the GP complaining of palpitations, tremors, sweating, and diarrhoea. Her past medical history includes gestational hypertension and type 1 diabetes controlled with insulin. She gave birth to her first child 10 weeks ago with no complications.

She is alert and oriented. Her observations show:

Heart rate 109 bpm

Respiratory rate 19 breaths/minute

Temperature 37.7ºC

Oxygen saturation 98%

Blood pressure 129/88 mmHg

Blood glucose 4 mmol/L

Given the most likely diagnosis, what is the most appropriate treatment?

A.Carbimazole

B.Dexamethasone

C.Levothyroxine

D.Propranolol

E.Propylthiouracil

Answer:Propranolol

Explanation:

The thyrotoxicosis phase of postpartum thyroiditis is generally managed with propranolol alone

Important for meLess important

Propranolol is correct. This patient presents with postpartum thyroiditis. The immune system attacks the thyroid within around 6 months of giving birth. This causes a temporary rise in thyroid hormone levels and symptoms of hyperthyroidism. Such symptoms can be managed often with propranolol alone. In most women, thyroid function returns to normal within 12 months of childbirth.

Carbimazole is incorrect. This patient presents with postpartum thyroiditis and symptoms of hyperthyroidism. This is usually only a mild, temporary rise in thyroid hormone levels and thyroid function returns to normal in most women within 12 months of childbirth. Thus, symptoms can usually be managed with propranolol alone. Since the hyperthyroidism is most likely due to postpartum thyroiditis and thus will be transient, only symptomatic treatment is needed. Carbimazole is not usually needed to lower thyroid levels as this is commonly a self-solving, transient condition.

Dexamethasone is incorrect. This is part of the treatment for a thyroid storm, the complication of thyrotoxicosis. Additional features to support a thyroid storm would include a fever >38.5ºC, confusion and agitation, nausea and vomiting, and hypertension. This would be co-prescribed with thioamides, such as methimazole, IV fluids, and propranolol. Since these severe signs of thyrotoxicosis are not present and this patient is presenting with post-partum thyroiditis, the most appropriate treatment is symptomatic control with propranolol.

Levothyroxine is incorrect. This is the appropriate treatment for hypothyroidism. Since this patient is presenting with symptoms of hyperthyroidism due to post-partum thyroiditis, the most appropriate treatment is symptomatic control with propranolol

Propylthiouracil is incorrect. Although this can be used to treat hyperthyroidism, it is less commonly used than carbimazole. It is usually first-line during pregnancy because carbimazole has teratogenic properties. However, this patient is no longer pregnant and thus carbimazole would be the first-line drug to lower dangerously high thyroid levels. This woman has postpartum thyroiditis which is usually only a temporary rise in thyroid hormone levels and thyroid function returns to normal in most women within 12 months of childbirth. Thus, symptomatic control with propranolol is most appropriate.

Question:

A 29-year-old man attends the fertility clinic with his wife after unsuccessfully attempting to conceive for the past 18 months. Prior to organising fertility testing, the consultant performs a physical examination of both patients. On examination, the man has small testicles and pronounced gynaecomastia. He also has truncal obesity, is 188cm tall (UK average = 175cm) and has sparse axillary and pubic hair. The examination is otherwise normal as is the patient's medical history.

Which of the following syndromes is the most likely explanation for this patient's physical characteristics and inability to conceive?

A.Kallmann syndrome

B.Klinefelter's syndrome

C.Turner's syndrome

D.Marfan's syndrome

E.Kartagener's syndrome

Answer:Klinefelter's syndrome

Explanation:

Klinefelter's syndrome is associated with above average height and infertility

Important for meLess important

Klinefelter's syndrome is a chromosomal disorder that affects males and is caused by the presence of an additional X chromosome (i.e. a 47, XXY karyotype). Its characteristic features are small testes, infertility, gynaecomastia, above average height and a lack of secondary sexual characteristics.

Kallmann and Kartagener's syndrome both cause infertility. Kallmann syndrome is due to a failure of GnRH secretion and patients characteristically suffer from anosmia and would not exhibit gynaecomastia. Kartagener's syndrome is associated with dextrocardia and a history of recurrent sinusitis/bronchiectasis.

Marfan's syndrome leads to increased height but does not affect fertility.

Turner's syndrome (46X) only affects women.

Question:

A 28-year-old pregnant female attends a routine clinic appointment. She is concerned because one of her fetal ultrasound reports shows evidence of a large patent ductus arteriosus in the fetus. She has read on the internet that indomethacin can treat this condition, and wants to know more about the drug.

What will you tell the mother about the administration of this drug?

A.It is given to the mother if repeat fetal ultrasound shows a large patent ductus arteriosus

B.It is given to the newborn right after delivery

C.It is given to the newborn if the echocardiogram shows patent ductus arteriosus one week after delivery

D.It is not used for closing the patent ductus arteriosus as it keeps the ductus arteriosus open

E.It is given to the mother between week 26 and 28 of pregnancy

Answer:It is given to the newborn if the echocardiogram shows patent ductus arteriosus one week after delivery

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

Patent ductus arteriosus (PDA) is a non-cyanotic congenital heart disorder. It is a type of left-right shunt in which blood passes from the aorta to the pulmonary vessel via the patent ductus arteriosus. Newborns may have a normal presentation, but on auscultation, a continuous machine-like murmur is characteristic. Indomethacin is the drug of choice for treating the patent ductus arteriosus in a newborn. It acts by inhibiting prostaglandin E2.

PDA is commonly found in premature babies. It is observed for spontaneous closure in asymptomatic patients. Symptomatic babies undergo an echocardiogram a few days after birth. Depending on the echocardiogram findings, the PDA is managed medically or surgically. Medical management involves giving indomethacin or ibuprofen to the newborn. Giving these medicines to the mother has no role in the closure of the PDA. Prophylactically treating a newborn right after delivery is also not recommended.

Prostaglandin analogues can keep the ductus arteriosus patent after birth. They are given to the baby after delivery and are useful in managing some congenital heart diseases.

Question:

A 67-year-old man is admitted to the acute medical unit. He has recently emigrated to the UK after living in rural Russia for several decades. He was admitted with confusion and serology has shown evidence of active syphilis. He is now being treated for tertiary neurosyphilis and is receiving his first dose of benzathine benzylpenicillin.

He later beckons over a nurse and complains of fever and nausea.

His observations show a low-grade fever but are otherwise unremarkable.

What is the most appropriate next management step?

A.Add anaerobic cover e.g. metronidazole

B.IV paracetamol

C.Send blood cultures

D.Stop the antibiotics

E.Take a viral swab for COVID-19

Answer:IV paracetamol

Explanation:

The Jarisch-Herxheimer reaction is a known phenomenon following syphilis treatment that does not require any specific treatment or investigations other antipyretics

Important for meLess important

This case is discussing a complication of the management of tertiary syphilis.

Jarish-Herxheimer reaction is a known complication of syphilis treatment, or other spirochete infections, with antibiotics and is associated with flushing, nausea, tachycardia and headaches.

It is managed supportively and the antibiotic treatment for syphilis should continue. In this case, IV paracetamol would be warranted to deal with the fever. Therefore, this is the most appropriate answer.

This is a known phenomenon of syphilis treatment and is not suggestive of antibiotic failure. Additional anaerobic cover such as metronidazole is not needed.

Whilst a fever can be an indication of sepsis, the patient's observations are otherwise unremarkable and he is already being managed with antibiotics. Given the fever likely being due to the Jarish-Herxheimer reaction, blood cultures are not the most appropriate next step but may be a sensible future step if the symptoms worsen or observations deteriorate.

The antibiotics should not be stopped. The Jarish-Herxheimer reaction is a documented effect of syphilis management and antibiotics must continue to clear the infection.

A viral swab for COVID-19 is not necessary for a fever with an alternative explanation. Additionally, this patient has no complaints of respiratory symptoms and there is no evidence of him being a close contact with a COVID-19 patient. Therefore, this is not the most appropriate answer.

Question:

A 38-year-old man is reviewed by his general practitioner. He reports difficulties in maintaining positive relationships with colleagues.

On further questioning, it becomes clear that the man has a very strict value system and moral code. He is inflexible with respect to different beliefs and work practices and this inflexibility makes it difficult to form relationships with colleagues, collaborate or delegate.

What type of personality disorder best describes this patient?

A.Antisocial personality disorder

B.Borderline personality disorder

C.Narcissistic personality disorder

D.Obsessive-compulsive personality disorder

E.Paranoid personality disorder

Answer:Obsessive-compulsive personality disorder

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

An obsessive-compulsive personality disorder is correct. Patients with this personality disorder are very rigid with respect to morals, ethics and values and are reluctant to surrender work to others, as in this case. Other features are preoccupation with details, rules, lists and orders and perfectionism impairing the ability to complete tasks.

An antisocial personality disorder is incorrect. This personality disorder is characterized by aggression, repeated unlawful behaviour, deception and aggression.

A borderline personality disorder is incorrect. This personality disorder is characterized by an unstable self-image, unstable interpersonal relationships, efforts to avoid abandonment and chronic feelings of emptiness.

A paranoid personality disorder is incorrect. This personality disorder is characterized by hypersensitivity to insult, an unwarranted tendency to question the loyalty of friends and preoccupation with conspiratorial beliefs and hidden meaning.

The narcissistic personality is incorrect. This is characterized by a grandiose sense of self-importance, sense of entitlement, lack of empathy and preoccupation with fantasies of unlimited success, power or beauty.

Question:

John is a 22-year-old male who is brought in by ambulance to the emergency department following a motor vehicle accident. The glasgow coma score (GCS) on arrival is E2V2M4. The anaesthetist present decides that the patient should be intubated following rapid sequence induction, as there is concern over the patient's airway. The anaesthetist delivers the sedation, then follows by delivering the muscle relaxant to allow for intubation.

Shortly after this, you notice a number of fine muscle twitches across John's body for a few seconds, before profound paralysis occurs.

Which of the following medications has the anaesthetist most likely used to result in these symptoms?

A.Atracurium

B.Glycopyrrolate

C.Propofol

D.Suxamethonium

E.Vecuronium

Answer:Suxamethonium

Explanation:

Depolarising muscles relaxants like suxamethonium can cause fasciculations and are not reversible due to their mechanism of non-competitive agonism

Important for meLess important

Suxamethonium, otherwise known succinylcholine, is the most likely answer.

Succinylcholine is a non-competitive (or depolarising) muscle relaxant, which works by inducing prolonged depolarisation of the skeletal muscle membrane. Clinically, this manifests as fasciculations (a number of un-coordinated muscle contractions/twitches) which last for a few seconds before profound paralysis occurs. Please note that succinylcholine tends to be used as a muscle relaxant only for select cases, usually for rapid sequence intubation in emergency settings. This is because it has one of the fastest onsets and shortest duration of action among the muscle relaxant drugs.

Atracurium and vecuronium are both competitive (or non-depolarising) muscle relaxants. These work by competitive antagonism of acetylcholine at nicotinic receptors at the neuromuscular junction. Clinically, you would not expect to see fasciculations if these muscle relaxants were used, hence why these options are incorrect.

Glycopyrrolate is a distractor, as it is not a muscle relaxant. Glycopyrrolate is a competitive antagonist of acetylcholine at peripheral muscarinic receptors, therefore has a profound anti-secretory action. This is used in conjunction with other anti-cholinesterases (e.g. neostigmine) to reverse muscle relaxation at the end of surgery if required.

Propofol is not a muscle relaxant. It is an induction agent used commonly for rapid sequence intubation. It would not act to cause fasciculations or profound paralysis.

Question:

An 18-year-old man presents to his GP complaining of sore eyes. He says that his eyes are often sticky in the morning and can feel gritty when he blinks. He is not having issues with dry eyes. The only finding on examination is slightly red eyelid margins.

Given the likely diagnosis, what is the most appropriate treatment?

A.Artificial tears

B.Hot compresses

C.Topical chloramphenicol

D.Topical sodium cromoglicate

E.Topical steroids

Answer:Hot compresses

Explanation:

1st line of treatment for blepharitis is hot compresses

Important for meLess important

The correct answer is 'hot compresses'.

The most likely diagnosis in this patient is blepharitis. This typically presents with bilateral grittiness and discomfort in the eyes. The eyes may be sticky in the morning, and eyelid margins are often red. The first-line management for this is to advise the patient to carry out hot compresses twice a day.

Artificial tears are sometimes prescribed for symptom relief in blepharitis if the patient is complaining of dry eyes. However, as the patient doesn't have a problem with this they are not required.

Topical chloramphenicol would only be needed if secondary conjunctivitis had occurred alongside blepharitis.

Topical sodium cromoglicate is a mast cell stabiliser that would normally be prescribed for allergic conjunctivitis. This would normally present in the context of hayfever, and itch would be a prominent feature.

Topical steroids are generally prescribed for inflammatory conditions such as uveitis. These patients would present with a painful red eye and reduced visual acuity.

Question:

A 26-year-old male presents via ambulance to the emergency department of your local hospital following a motor vehicle accident. He was a restrained passenger. The paramedics have secured his c-spine before transporting him. He is complaining of chest pain and shortness of breath. A primary and secondary survey are undertaken and the following pertinent findings are reported:

Young, otherwise healthy looking male in clear pain and respiratory distress.

Glasgow coma scale (GCS) of 14.

Heart rate of 104/min.

Blood pressure of 94/50mmHg.

Respiratory rate of 24/min.

Oxygen saturation: 99% on 15L non-rebreather.

Temperature: 36.8 degrees.

There is a tender contusion on the anterior chest. No abnormal chest movements. JVP can been seen at the level of the earlobe. Auscultation reveals soft heart sounds and bibasal crepitations. There is air entry throughout both lung fields.

An ECG is performed.

Which of the following ECG findings is most likely to be reported in this patient?

A.Electrical alternans

B.QT prolongation

C.T wave inversion in leads II, III and AVF

D.Widespread ST elevation

E.Short PR, QRS >120ms and delta waves

Answer:Electrical alternans

Explanation:

Electrical alternans is suggestive of cardiac tamponade

Important for meLess important

Due to history of anterior chest trauma and the presence of Beck's triad (hypotension, raised JVP, soft heart sounds), the most likely cause of this presentation is cardiac tamponade. Tension pneumothorax is less likely as there is air entry throughout the chest.

Electrical alternans is a relatively specific but non-sensitive ECG sign of cardiac tamponade. Electrical alternans is characterised by beat to beat variation in QRS amplitude and morphology. This variability is due to the heart 'swinging' in the pericardial fluid.

Short PR, QRS >120ms and delta waves is a description of Wolff-Parkinson-White syndrome. WPW syndrome is a congenital presence of an accessory with episodes of tachyarrhythmias. It can be found in younger patients and is associated with a small risk of sudden cardiac death.

QT prolongation is usually caused by electrolyte abnormalities (hypokalemia, hypocalcemia) or medications (antipsychotics). QT prolongation is not associated with cardiac tamponade.

T wave inversion in leads II, III and AVF is highly suggestive of inferior myocardial ischaemia. It is important to remember that cardiac tamponade is a potential complication of a myocardial infarction. However given this patient's young age and history of trauma, it is unlikely that a myocardial infarction is the cause of this tamponade.

It is possible for widespread ST elevation to be present in cardiac tamponade. This occurs when the tamponade is caused by pericarditis, which is unlikely to be the case in this patient.

Question:

A 43-year-old man from South Africa is reviewed in clinic. He has recently started treatment for tuberculosis but is complaining of a deterioration in his vision. Which one of the following drugs is most likely to cause decreased visual acuity?

A.Rifampicin

B.Streptomycin

C.Isoniazid

D.Ethambutol

E.Pyrazinamide

Answer:Ethambutol

Explanation:

Optic neuritis is common in patients taking ethambutol

Important for meLess important

Isoniazid may also cause optic neuritis but it is not as common a cause as ethambutol.

Question:

A 24-year-old woman with Charcot-Marie-Tooth disease (type 1) asks how likely it is that any future children will have the disease. What is the most accurate answer?

A.Three times as likely as background population

B.25%

C.Between 5 - 10%

D.Same as background population

E.50%

Answer:50%

Explanation:

Charcot-Marie-Tooth disease (hereditary sensorimotor neuropathy type I) is an autosomal dominant condition and therefore 50% of children will be affected

Question:

A 65-year-old man, who is currently being treated for melanoma, presents to the emergency department with non-exertional chest pain and shortness of breath. On examination, a raised jugular venous pressure (JVP) is noted and the heart sounds are not clear to auscultate.

His heart rate is 142/min his blood pressure is 88/42 mmHg, his respiratory rate is 24/min, his temperature is 37.4ºC, and his oxygen saturation is 96% on room air.

What is most likely required as part of his management?

A.Anticoagulants

B.Chest drain at the safe triangle

C.IV gentamicin

D.Needle aspiration at the second intercostal space in the midclavicular line

E.Percutaneous balloon pericardiotomy

Answer:Percutaneous balloon pericardiotomy

Explanation:

Beck’s triad of falling BP, rising JVP and muffled heart sound is characteristic of cardiac tamponade

Important for meLess important

Percutaneous balloon pericardiotomy - is used to treat cardiac tamponade when the patient has a neoplastic disease, which is melanoma in this case. Malignancy is one of the most common causes of haemodynamically significant cardiac tamponade. In this patient, it is likely to be a metastasis from the melanoma.

Anticoagulants anticoagulants are not required for cardiac tamponade especially not in this case as he would need surgical management. We would consider this in conditions where a thrombus is involved, such as in acute coronary syndromes, but this is not the case in cardiac tamponade.

Chest drain at the safe triangle - this is used to drain the fluid built in the pleural space. This patient has cardiac tamponade due to Beck's triad. In cardiac tamponade, there is fluid between the heart and the pericardial sac that a chest drain cannot drain.

IV gentamicin - this should be used if the patient has an infection, such as endocarditis which would also present with chest pain. However, it is unlikely they have an infection as the patient is afebrile. Therefore, cardiac tamponade is much more likely.

Needle aspiration at the second intercostal space in the midclavicular line - this is used to treat pneumothorax. This patient has cardiac tamponade due to Beck's triad and the neoplasm which is a risk factor for tamponade. This does not target the pericardium and cannot drain out the fluid.

Question:

A 29-year-old man presents with a 12 day history of watery diarrhoea that developed one week after returning from India. He had travelled around northern India for two months. On examination he is apyrexial and his abdomen is soft and non-tender. What is the most likely causative organism?

A.Amoebiasis

B.Giardiasis

C.Campylobacter

D.Shigella

E.Salmonella

Answer:Giardiasis

Explanation:

The incubation period and prolonged, non-bloody diarrhoea point towards giardiasis

Question:

A 44-year-old woman attends with progressive shortness of breath on exertion. On examination, you note fine bibasal inspiratory crepitations and thickening of the skin of her proximal limbs. Observations are as follows: heart rate 85 beats per minute, respiratory rate 20 breaths per minute, blood pressure 145/95 mmHg, temperature 37.5ºC, and oxygen saturation 95% on air.

A high-resolution CT (HRCT) is performed:

HRCT Ground glass changes present in the lower lobes

What antibody is most specific to the underlying condition?

A.ANA

B.Anti-centromere antibodies

C.Anti-dsDNA

D.Anti-scl-70

E.Rheumatoid factor

Answer:Anti-scl-70

Explanation:

Diffuse cutaneous systemic sclerosis is associated with anti Scl-70 antibodies

Important for meLess important

Anti-scl-70 is correct. The clinical presentation is of diffuse cutaneous systemic sclerosis with interstitial lung disease (ILD). The most specific antibody for this subtype is anti Scl-70.

ANA is incorrect. Although ANA is most often positive (>90%) it is not specific to diffuse cutaneous systemic sclerosis. Other conditions associated with a positive ANA include systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), Sjögren's syndrome, Addison Disease, and autoimmune hepatitis.

Anti-centromere antibodies is incorrect. Anti-centromere antibodies are associated with limited cutaneous systemic sclerosis which is characterised by skin thickening distal to the elbows, distal to the knees, and/or face without trunk involvement. Interstitial lung disease is not common in the limited subtype. The presence of proximal skin thickening and interstitial lung disease, therefore, favours the diagnosis of the diffuse subtype.

Anti-dsDNA is incorrect. These antibodies are specific to SLE. Although SLE can also cause ILD, the presence of cutaneous thickening is more in keeping with systemic sclerosis. Furthermore, the absence of any other diagnostic features of SLE (e.g. oral ulcers, and arthralgia) makes this a less likely diagnosis.

Rheumatoid factor is incorrect. Rheumatoid factor is positive in approximately 30% of cases of systemic sclerosis, however, it is not specific to this condition. Although RA can also cause ILD, the presence of cutaneous thickening and absence of arthritis is more in keeping with systemic sclerosis.

Question:

A 61-year-old man with a recent diagnosis of congestive cardiac failure and a background of psoriasis attends his GP due to a worsening of his psoriatic plaques. He recently started several medications following a consultation with his cardiologist to improve his cardiac symptoms.

Which of the following recently started medications is most likely the cause of this man's worsening symptoms?

A.Amlodipine

B.Bisoprolol

C.Clopidogrel

D.Furosemide

E.Spironolactone

Answer:Bisoprolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

Beta-blockers such as bisoprolol are known to exacerbate psoriatic plaques.

Amlodipine is a calcium channel blocker used to treat hypertension and not known to worsen psoriasis. Other anti-hypertensives such as ramipril are known to worsen psoriasis though.

Clopidogrel is an antiplatelet agent and is not associated with worsening psoriasis symptoms. However, NSAIDs including aspirin can cause worsening of psoriasis.

Furosemide is a loop diuretic and also has no effect on psoriasis.

Spironolactone is an aldosterone receptor antagonist and is used as a potassium-sparing diuretic. It has no effect on psoriasis.

Question:

A 25-year-old woman presents with a 3 year history of dysmenorrhoea and deep dyspareunia. The pain she experiences during her period can be severe and is associated with nausea. She also states that she and her partner have now been trying for a baby for 24 months with no success. What is the likely diagnosis?

A.Pelvic inflammatory disease

B.Endometriosis

C.Bicornuate uterus

D.Cervical carcinoma

E.Uterine fibroids

Answer:Endometriosis

Explanation:

The classic symptoms of endometriosis are pelvic pain, dysmenorrhoea, dyspareunia and subfertility

Important for meLess important

The key signs and symptoms of endometriosis are cyclical abdominal pain and deep dyspareunia. It can be associated with fertility problems.

Pelvic inflammatory disease can also cause sub-fertility, dyspareunia and pelvic pain, but this pain is not typically associated with menstruation.

A bicornuate uterus is an embryological abnormalilty giving the uterus 2 fundi, giving a 'heart-shaped' uterus. It is thought to be associated with an increased risk of recurrent miscarriages.

Cervical carcinomas typically cause abnormal bleeding such as post-coital and inter-menstrual bleeding. It is unlikely to have such a long history as 3 years.

Uterine fibroids are more common in women older than this patient, usually presenting between the ages of 30 and 50. They can cause menorrhagia when large and submucosal fibroids can cause infertility. This is usually reversed on removal.

References and Resources:

European Society of Human Reproduction and Embryology: Management of Women with Endometriosis. http://www.eshre.eu/~/media/Files/Guidelines/ESHRE%20guideline%20on%20endometriosis%202013.pdf

Patient UK: Fibroids. http://patient.info/doctor/fibroids-pro

Patient UK: Pelvic Inflammatory Disease. http://patient.info/doctor/pelvic-inflammatory-disease-pro

Question:

A 52-year-old woman with multiple sclerosis (MS) is reviewed in the neurology clinic.

She reports to her neurologist that she has been increasingly suffering from stiffness and painful spasms in her legs, which are affecting her mobility as well as her sleep. She has tried over-the-counter analgesia and mobility aids but is keen to try medication as her symptoms remain troublesome.

Which of the following medications is likely to be offered?

A.Amitriptyline

B.Diazepam

C.Gabapentin

D.Quinine

E.Ropinirole

Answer:Gabapentin

Explanation:

Baclofen and gabapentin are first-line for spasticity in multiple sclerosis

Important for meLess important

This patient is suffering from spasticity, which is a common symptom in patients with multiple sclerosis. This presents with feelings of stiffness and a range of involuntary muscle spasms. Severity can vary from mild tightness to debilitating pain. It usually affects the legs. Gabapentin, is one of the first-line treatment options for spasticity in multiple sclerosis according to NICE guidance. An alternative would be baclofen, a muscle relaxant.

Amitriptyline is incorrect as it is not routinely recommended for MS-related spasticity. However, it is mentioned in NICE guidance as an off-label treatment for patients with emotional lability secondary to multiple sclerosis. It is a tricyclic antidepressant and is commonly used to treat neuropathic pain.

Diazepam is incorrect as it is only considered as a third-line treatment option for spasticity. It is a benzodiazepine and carries risks such as excess sedation and dependence.

Quinine is incorrect as it has no role in the treatment of spasticity. It is a cinchona alkaloid that is sometimes used in the treatment of nocturnal leg cramps that are not related to MS, although it is increasingly recognised that the benefit-to-risk ratio of treatment is poor. Adverse effects of quinine include nausea and vomiting, headache, tinnitus and deafness, convulsions and visual loss.

Ropinirole is incorrect as it not used to treat spasticity. It is a dopamine agonist that is used in the management of restless legs syndrome and is also used in Parkinson's disease.

Question:

A 66 year old male has just undergone transurethral resection of the prostate (TURP). The operation notes describe using 1.5% glycine as the irrigation fluid. A prolonged operative time (1 hour 30 minutes) occurred due to the size of the resection required to optimise flow from the gland. The patient has now become agitated, confused and developed worsening of his breathlessness. You conduct a venous blood gas which demonstrates the patient to be hyponatraemic (118mmol/l). What is the likely diagnosis?

A.Acute myocardial infarction

B.Syndrome of inappropriate anti diuretic hormone secretions

C.Acute kidney injury

D.Bladder perforation

E.TURP syndrome

Answer:TURP syndrome

Explanation:

TURP Syndrome is a rare and life threatening complication of transurethral resection of the prostate surgery. The pathophysiology is venous destruction and absorption of the irrigation fluid.

There are risk factors for developing TURP syndrome are :

surgical time > 1 hr

height of bag > 70cm

resected > 60g

large blood loss

perforation

large amount of fluid used

poorly controlled CHF

More information - http://lifeinthefastlane.com/ccc/turp-syndrome/

Question:

A 73-year-old man presents after a fall at home. The patient says he fell in the bathroom of his home, turning around to use the toilet. He has been struggling to move around his home for the past few days, saying he 'feels weak' in both legs, and in the past 4 hours has had 2 episodes of urinary incontinence. The fall did not involve a head strike and was witnessed by his wife, a former nurse, who states her husband did not suffer any injuries but she is concerned for why he fell.

The patient has a history of prostate cancer with known spinal metastases, and resulting chronic back pain. Upon further questioning, the patient believes his back pain may have worsened in the past few weeks. You are concerned about the presentation and decide to obtain some imaging.

Which imaging should be obtained in order to ensure an accurate diagnosis?

A.CT (brain)

B.CT (whole spine)

C.MRI (lumbar spine)

D.MRI (whole spine)

E.X-ray (lumbar spine)

Answer:MRI (whole spine)

Explanation:

Patients with suspected neoplastic spinal cord compression should have an urgent MRI of the whole spine

Important for meLess important

This patient is likely suffering from spinal cord compression secondary to his bone metastases. NICE clinical guidelines recommend whole-spine MRI as soon as possible in order to facilitate diagnosis and ongoing management.

Whole spine imaging is important to assess for other sites of the spine that may be at risk, as bone metastases are rarely limited to a single site. Additionally, MRI allows localisation of the involved spinal cord level as clinical evaluation may be imprecise. The compressive lesion may be several levels higher than what is suggested by a sensory level or motor strength findings on examination.

CT brain is incorrect as a witness to the fall states the patient had no head strike, and there is no evidence suggesting a stroke.

CT spine may be used in patients with a contraindication to MRI such as a permanent pacemaker or certain metal implants in-situ, however there is no evidence of that in this patient.

A lumbar spine MRI may not be substantial enough to visualise potential lesions elsewhere in the spinal column.

X-ray may be an appropriate initial imaging modality in assessing back pain, however will not provide adequate quality of images in this case, particularly of the spinal cord and central nervous system.

Question:

A 62-year-old female presents to her general practitioner with symmetrical annular papulosquamous lesions on sun-exposed areas, which she developed two weeks ago. She was diagnosed with primary tuberculosis four months ago, for which she is currently being treated with rifampicin and isoniazid.

Which of the following antibodies are most likely to be seen in this patient?

A.Anti-Ro antibodies

B.Anti-centromere antibodies

C.Anti-double stranded DNA antibodies

D.Anti-histone antibodies

E.Anti-Mi-2 antibodies

Answer:Anti-histone antibodies

Explanation:

Antihistone antibodies are associated with drug-induced lupus

Important for meLess important

The correct answer is anti-histone antibodies.

This patient has presented with symmetrical annular (ring-like) papulosquamous (raised scaly) lesions on sun-exposed areas. This description fits cutaneous lupus, and given she is currently taking isoniazid, the most likely cause is drug-induced lupus. Antihistone antibodies are associated with drug-induced lupus.

Anti-Ro antibodies are incorrect. Anti-Ro antibodies are commonly associated with Sjogren's syndrome, an autoimmune condition affecting exocrine glands, which causes dry mucosal surfaces.

Anti-centromere antibodies are incorrect. These are associated with limited systemic sclerosis, particularly CREST syndrome (Calcinosis, Raynaud's, Esophageal dysmotility, Sclerodactyly and Telangiectasia).

Anti-double stranded DNA antibodies are incorrect. These are associated with systemic lupus erythematosus (SLE). SLE is less likely in this patient given her age (SLE usually affects those of childbearing age) and clinical presentation. SLE more commonly produces a malar rash (butterfly rash which spares the nasolabial folds) and will often affect other organ systems too.

Anti-Mi-2 antibodies are incorrect. These are associated with dermatomyositis (and to a lesser extent polymyositis).

Question:

A 33-year-old woman presents to the Emergency Department complaining of fatigue, palpitations, nausea, and vomiting. She has been breaking out in severe sweats for the last week and recorded a temperature of 39.7ºC at home today. She gave birth to her first child a month ago and is otherwise fit and well.

Her electrocardiogram shows sinus tachycardia at a rate of 144 beats per minute.

Her blood results are as follows:

Thyroid stimulating hormone (TSH) 0.1 mU/L (0.5-5.5)

Free thyroxine (T4) 24.3 pmol/L (9.0 - 18)

She is commenced on propranolol and propylthiouracil by the attending doctor.

What additional drug is most important to administer at this stage?

A.Carbimazole

B.Co-amoxiclav

C.Digoxin

D.Hydrocortisone

E.Levothyroxine

Answer:Hydrocortisone

Explanation:

Thyrotoxic storm is treated with beta blockers, propylthiouracil and hydrocortisone

Important for meLess important

This woman presents with thyrotoxic storm which should be treated with beta-blockade, anti-thyroid drugs, and steroids. Therefore hydrocortisone is the most important additional drug to prescribe her. Steroids prevent the peripheral conversion of T4 to T3 and are vital in controlling her symptoms and preventing complications of thyrotoxic storm (including heart failure).

Levothyroxine is incorrect as this woman has extremely high levels of thyroid hormone which need suppressing, not thyroid hormone replacement. In the future, she may have a radio ablation of her thyroid gland and need levothyroxine at that point.

Antibiotics including co-amoxiclav can form part of the acute treatment for thyrotoxic storm as infection may be a trigger. However, there are no specific hints to infection in the brief (her trigger may have been parturition) and steroid therapy is the priority.

Digoxin may be used in patients whose tachycardia does not respond to beta-blockade. However, there is no indication of this in the question, and steroid therapy is the priority.

Carbimazole is an anti-thyroid drug that may be given as an alternative to propylthiouracil, not in addition.

Question:

A 52-year-old man asks you to look at the side of his tongue. The white patches have been present for the past few months and are asymptomatic. He is a smoker who is known to have type 2 diabetes mellitus.

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What is the most likely diagnosis?

A.Candidiasis

B.Squamous cell carcinoma

C.Lichen sclerosus

D.Oral leukoplakia

E.Geographic tongue

Answer:Oral leukoplakia

Explanation:

The asymptomatic and prolonged nature of the symptoms goes against a diagnosis of candidiasis. Lichen planus (rather than sclerosus) is a differential diagnosis but tends to have a slightly different appearance - typically a symmetrical white lace-like pattern on the buccal mucosa. Squamous cell carcinoma is not the most likely diagnosis as only around 1% of oral leukoplakias become malignant.

This patient should be referred for a biopsy to confirm the diagnosis.

Question:

A 57-year-old woman with a history of type I diabetes presents to her GP with a 4-day history of decreased left-sided visual acuity. When assessing her blind spot, the patient states that the object used appears a different colour when using her left eye than it does when she uses her right eye.

What is the most likely diagnosis?

A.Acute-angle closure glaucoma

B.Age-related macular degeneration

C.Cataract

D.Optic neuritis

E.Retinal detachment

Answer:Optic neuritis

Explanation:

Colour vision ('red desaturation') is affected in optic neuritis

Important for meLess important

The most likely diagnosis is optic neuritis. This is associated with multiple sclerosis, diabetes and syphilis.

The patient has a unilateral decrease in visual acuity over days and has poor discrimination of colours, red desaturation. The significance of the blind spot assessment is that a red-tipped object is usually used to assess the blind spot. The patient may report that the red colour appears 'washed out', pink or orange when viewed with the affected eye.

The other findings on examination would include pain on eye movement, a relative afferent pupillary defect and central scotoma.

Acute angle-closure glaucoma would present with decreased visual acuity but not colour desaturation. Type I diabetes is not a risk factor for this condition.

Whilst there is an increased risk of age-related macular degeneration in people with type I diabetes, patients typically present with a subacute onset of reduction in visual acuity without affecting colour vision.

Whilst cataracts can also be associated with diabetes and can present with faded colour vision, the history would be more likely to be over a greater period of weeks-months.

Retinal detachment should be suspected if a patient presents with sudden onset painless visual field loss. There is usually a preceding history of new-onset flashes or floaters.

Question:

A 63-year-old man with rheumatoid arthritis attends the day surgery unit to have a procedure. He is undergoing surgery to treat carpal tunnel syndrome.

Which of the following structures is divided during the surgery to treat this condition and decompress the median nerve?

A.Palmar fascia

B.Flexor carpi ulnaris tendon

C.Flexor digitorum superficialis bursa

D.Flexor retinaculum

E.Palmaris longus tendon

Answer:Flexor retinaculum

Explanation:

The flexor retinaculum is the structure divided in surgical management of carpal tunnel syndrome

Important for meLess important

During surgery to decompress the median nerve, the structure which is divided to actualise the decompression is the flexor retinaculum. All the other structures here would cause further injury or disability if divided and should be protected during surgery.

Question:

A four-week old girl is brought to the emergency department by ambulance after losing consciousness. Her mother explains she can often be short of breath and has a blue tinge to her skin when feeding, which she thought was normal.

Imaging shows that the baby has a right ventricular hypertrophy, a ventricular septal defect and a displaced aorta. Further imaging is requested.

Given the likely diagnosis, what type of murmur would you expect in this child?

A.Continuous machinery murmur

B.Decrescendo early diastolic murmur

C.Ejection systolic murmur

D.Mid-diastolic murmur with opening click

E.Pansystolic murmur

Answer:Ejection systolic murmur

Explanation:

Tetralogy of Fallot: Cyanosis or collapse in first month of life, hypercyanotic spells. Ejection systolic murmur at left sternal edge

Important for meLess important

An ejection systolic murmur is the correct answer. Tetralogy of Fallot has four characteristic features. One of the features, pulmonary stenosis, can cause an ejection systolic murmur heard at the left sternal edge. The other features are right ventricular hypertrophy, a ventricular septal defect and an overriding aorta.

A continuous machinery murmur is heard with a patent ductus arteriosus.

A diastolic decrescendo murmur is heard in aortic or pulmonary regurgitation.

A mid-diastolic murmur with an opening click is heard with mitral stenosis.

Pansystolic murmurs can be heard in mitral and tricuspid regurgitation.

Question:

A 21-year-old woman visits her GP, two weeks after having a medical termination of pregnancy.

She took a urine pregnancy test this morning and is worried that the termination was unsuccessful as the urinary pregnancy test is still positive.

When should her pregnancy test have become negative if the termination has been successful?

A.It should have been negative 1 week ago

B.Negative 2 weeks from today

C.Negative 4 weeks from today

D.Negative 8 weeks from today

E.Today

Answer:Negative 2 weeks from today

Explanation:

Termination of pregnancy: Urine pregnancy test often remains positive for up to 4 weeks following termination. A positive test beyond 4 weeks indicates incomplete abortion or persistent trophoblast

Important for meLess important

Urinary pregnancy tests can be positive up to 4 weeks post-termination. Here, the correct answer is by 2 weeks from now - as she had the termination 2 weeks ago, this would be 4 weeks from the original termination. After this time, a positive test requires investigation, as the abortion may have been unsuccessful or she may have persistent trophoblastic tissue that requires management.

Negative one week ago is incorrect, as she is still within this 4-week window.

4 weeks from today is incorrect as that would make a total of 6 weeks since the termination, by which time the pregnancy test should have been negative

8 weeks from today is incorrect, as this would be 10 weeks since the termination, by which time the pregnancy test should have been negative.

Today is incorrect as it has only been 2 weeks since the termination, which is well within the 4-week window.

Question:

A 35-year-old woman comes to your GP practice complaining of double vision. Her problems started a couple of weeks ago and has remained stable. She has noticed that these problems tend to occur later in the evening, especially after watching a lot of TV or reading a book. She does not experience any other symptoms.

Given the likely diagnosis, what is the most appropriate first line treatment for her condition?

A.Prednisolone

B.Pyridostigmine

C.Azathioprine

D.Suxamethonium

E.Rituximab

Answer:Pyridostigmine

Explanation:

Pyridostigmine is the 1st line drug in the management of ocular myasthenia gravis

Important for meLess important

Her symptoms are suggestive of myasthenia gravis, MG. Double vision is a common manifestation of the disease. A clue from the history that MG is causing her problems is that it occurs later in the day, especially after activity requiring extensive use of her extraocular muscles.

Considering the fact that her symptoms are mild and limited to her eyes, pyridostigmine is first line. Prednisolone is added as adjunctive treatment if pyridostigmine does not resolve her symptoms well enough. It's best to spare her steroid treatment if possible, as there are consequences to using them in the long term.

Question:

A 52-year-old man is brought into the emergency department with an ST-elevation myocardial infarction. Moments later he has a cardiac arrest and cardiopulmonary resuscitation is started by the resuscitation team.

All defibrillator readings up until now have shown pulseless ventricular tachycardia. A total of 4 shocks have been given along with a total of amiodarone 300mg and 1x adrenaline 1mg. At the next rhythm check, the rhythm shows ventricular fibrillation, then a 5th shock is administered.

At this point in the cardiac arrest, what is the best step in the management of this patient?

A.Amiodarone 150mg

B.Amiodarone 300mg

C.Amiodarone 600mg

D.Intravenous sodium chloride

E.Lidocaine 1mg/kg

Answer:Amiodarone 150mg

Explanation:

In ALS, a further dose of amiodarone 150 mg should be given to patients who are in VF/pulseless VT after 5 shocks have been administered

Important for meLess important

Patients with a shockable rhythm in a cardiac arrest are to receive amiodarone 300mg and adrenaline 1mg after the 3rd shock. As part of the ALS algorithm, the same patients are then to receive a further 1mg adrenaline after every other cycle (or every 3-5 minutes). In patients in a shockable rhythm, an additional amiodarone 150mg can be given after the 5th shock, along with adrenaline 1mg.

Amiodarone 300mg is incorrect. Although patients can receive both adrenaline and amiodarone after the 5th shock, a lower dose of 150mg is given instead of 300mg.

Amiodarone 600mg is too high of a dose to be given in a cardiac arrest.

Intravenous sodium chloride should be given during a cardiac arrest if there are concerns about a hypovolaemic cause. However, it is not the most immediate treatment to give and is not within the shockable algorithm for a cardiac arrest.

Lidocaine 1mg/kg can be given as an alternative to amiodarone if amiodarone is not available. However, as this patient already received amiodarone in the previous cycle, the use of lidocaine is incorrect.

Question:

A 2-year-old child comes to the emergency department with a 2 day history of right knee pain and irritability. She had recently recovered from a viral respiratory tract infection and is apyrexial and asymptomatic now.

On examination, the joint is painful to move but not hot or erythematous, and she is able to weight bear. Blood results show the following:

Haemoglobin (Hb) 140 g/L Male: (135 - 180)

Female: (115 - 160)

Platelets 450 \* 109/L (150 - 400)

White cell count (WCC) 11.5 \* 109/L (4.0 - 11.0)

C reactive protein (CRP) 29 mg/L (<5)

Erythrocyte sedimentation rate (ESR) 32 mm/hr (0 - 10)

What is the likely diagnosis?

A.Septic arthritis

B.Transient synovitis

C.Juvenile idiopathic arthritis

D.Psoriatic arthritis

E.Osteochondritis dissecans

Answer:Transient synovitis

Explanation:

Kocher's criteria is used to assess the probability of septic arthritis in children

Important for meLess important

Kocher's criteria is used to assess the probability of septic arthritis in children using 4 parameters:

Non-weight bearing - 1 point

Fever >38.5ºC - 1 point

WCC >12 \* 109/L - 1 point

ESR >40mm/hr

The probabilities are calculated thus:

0 points = very low risk

1 point = 3% probability of septic arthritis

2 points = 40% probability of septic arthritis

3 points = 93% probability of septic arthritis

4 points = 99% probability of septic arthritis

This girl scores 0, and with a history of recent viral infection, the likely culprit is transient synovitis.

Juvenile idiopathic arthritis (JIA) is more likely to give a polyarticular presentation with systemic features, including fever and rashes.

There is no indication of psoriasis in the presentation, making psoriatic arthritis unlikely.

Osteochondritis dissecans occurs when small segments of articular cartilage and bone come loose into the joint due to reduced blood supply. It tends to present in older children with a more insidious onset.

Question:

A 63-year-old man attends a clinic for regular follow up with his cardiologist. He has a past medical history of chronic kidney disease, heart block and ischaemic heart disease. He reports that he is generally well, although intermittently suffers from palpitations. As a part of his review, a 12-lead ECG is performed:

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What is the most likely cause of these ECG findings?

A.Hyperkalaemia

B.Left bundle branch block

C.Non ST-elevation myocardial infarction

D.Pacemaker

E.Ventricular tachycardia

Answer:Pacemaker

Explanation:

The correct answer is a pacemaker. This ECG shows the presence of long straight lines preceding QRS complexes - these are pacing spikes delivered by a pacemaker to stimulate contraction of the heart. The other changes seen on the ECG (QRS complexes and T waves are discordant/going In opposite directions, broad QRS complexes) can be explained by the fact that the pacemaker is delivering signals to the ventricles. As such, the electrical activity is moving through the heart outside of the normal conduction pathways. Given the clinical scenario, this has likely been put in place to treat the patient's heart block.

The other answers are incorrect. While they can be associated with some of the ECG changes and current/past medical history that are seen, none of them would explain the presence of pacing spikes. The characteristic ECG changes of the remaining answers are as follows:

Hyperkalaemia causes tall peaked T waves, broad QRS complexes and flattened/absent p-waves. Hyperkalaemia can occur as a complication of chronic kidney disease, and as such these changes are important to look out for.

Left bundle branch block causes broad QRS complexes, with a deep QS wave in V1 and a wide notched complex in V6. This can occur following a myocardial infarction as a result of ischaemic damage to the left bundle branch.

Non-ST elevation myocardial infarction typically causes horizontal or downsloping depression of the ST segment and flattening/inversion of T waves. While this is important to consider in a patient with a history of ischaemic heart disease, the patient has no symptoms that suggest myocardial ischaemia (e.g. chest pain).

Ventricular tachycardia causes a rapid ventricular rate (>100 bpm) with broad QRS complexes. While this is important to consider in someone presenting with palpitations, the patient in the above scenario is only experiencing these intermittently, and their current ECG has a normal ventricular rate.

Question:

A 75-year-old woman presents with urinary incontinence. She describes a sudden and very intense need to pass urine which is often followed by incontinence. She has a past medical history of Alzheimer's disease and closed-angle glaucoma.

What is the preferred treatment?

A.Darifenacin

B.Duloxetine

C.Mirabegron

D.Oxybutynin

E.Tolterodine

Answer:Mirabegron

Explanation:

Anticholinergics for urge incontinence are associated with confusion in elderly people - mirabegron is a preferable alternative

Important for meLess important

This is a classical case of urge incontinence.

Mirabegron is correct. Mirabegron (a beta-3 agonist) is the preferred agent in this case due to the side effect profile of anticholinergic agents.

Darifenacin, Oxybutynin, and Tolterodine are incorrect. These agents are all anti-muscarinic agents which can cause confusion and exacerbate closed-angle glaucoma.

Duloxetine is incorrect. This is the agent of choice for stress incontinence.

Question:

A pregnant woman is brought to the Emergency department with nausea, severe itching and lethargy. She is 37 weeks pregnant and this is her second pregnancy. On examination she is clinically jaundiced but observations are normal.

Her blood tests are as follows:

Hb 121 g/l

Platelets 189 \* 109/l

WBC 8.7 \* 109/l

Bilirubin 90 µmol/l

ALP 540 u/l

ALT 120 u/l

γGT 130 u/l

Albumin 35 g/l

INR 1.0

Acute viral hepatitis screen is negative. 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:Cholestasis of pregnancy

Explanation:

The most likely diagnosis is cholestasis of pregnancy as demonstrated by severe itching, jaundice, obstructive LFTs, normal WBC and no evidence of coagulopathy. Clinically, cholestasis of pregnancy is characterised by severe pruritis, whereas acute fatty liver of pregnancy has predominantly non-specific symptoms (e.g. malaise, fatigue, nausea). With a normal FBC and viral screen a diagnosis of HELLP syndrome or viral hepatitis is unlikely. Finally, pre-eclampsia is characterised by hypertension and proteinuria.

Reference:

https://www.rcog.org.uk/globalassets/documents/guidelines/gtg43.pdf

Question:

A 65-year-old man presents with a 3 month history of numbness and paraesthesia in his feet. On examination there is widespread numbness of both feet which does not fit a dermatomal distribution. A recent gamma-glutamyl transpeptidase (gamma GT) is 4 times the upper limit of normal.

What is the most likely diagnosis?

A.Alcoholic peripheral neuropathy

B.Diabetic peripheral neuropathy

C.Hepatic failure

D.Charcot-Marie-Tooth syndrome

E.Chronic inflammatory demyelinative polyneuropathy

Answer:Alcoholic peripheral neuropathy

Explanation:

The neurological findings are suggestive of polyneuropathy. An increased gamma GT is suggestive of excessive alcohol consumption. Therefore the most likely answer is alcoholic peripheral neuropathy.

Question:

A concerned mother brings her 4-year-old son to see the GP, worried about his walking and balance. The child learned to walk around 2 years old, much the same as his older sister. However, over the last few months, his mum has noticed that he has become reluctant to walk and often trips or falls when he does.

On examination, the child is slim built but has disproportionately large calves. When asked to walk across the room he does so on his tiptoes. Gowers test is positive.

What investigation is considered most appropriate to confirm the likely diagnosis?

A.CT imaging of legs

B.Creatine kinase levels

C.Genetic analysis

D.Muscle function tests

E.Proximal muscle biopsy

Answer:Genetic analysis

Explanation:

Duchenne muscular dystrophy: genetic testing rather than a muscle biopsy is now used to make a diagnosis

Important for meLess important

Genetic analysis is correct. The history and presentation outlined are strongly suggestive of a diagnosis of Duchenne muscular dystrophy (DMD), an x-linked recessive genetic disorder that causes wasting and weakness of the muscles. Calf hyperplasia and a positive Gowers test (walking the arms up the legs to get up from the floor) are classical features of DMD. The majority of affected individuals will be wheelchair-bound by puberty, and management is mostly conservative.

CT imaging of the legs is incorrect. This may show evidence of muscle breakdown and fat hyperplasia in the calves. However, it is not typically used in the diagnosis of DMD.

Creatine kinase is incorrect. Creatine kinase is released in the blood when muscles are damaged. A high creatine kinase can be a strong indicator of muscular dystrophy in children. However, genetic testing is more appropriate for obtaining a definitive diagnosis.

Muscle function testing is incorrect. This is often used to monitor the disease progression of DMD, however, it is not used in the initial diagnostic process.

Proximal muscle biopsy is incorrect. Although a biopsy of the affected muscles would also provide the correct diagnosis and has previously been considered the gold standard, genetic analysis is now preferred.

Question:

A 58-year-old woman presents to the emergency department with palpitations and dizziness which began suddenly 20 minutes ago. An ECG is performed which suggests she has atrioventricular nodal re-entry tachycardia (AVNRT). Minutes later, once the patient has received treatment, she complains of severe sudden onset chest pain.

What is the most likely cause of this chest pain?

A.Anxiety

B.Cardiac tamponade

C.Iatrogenic

D.Myocardial infarction

E.Myocardial ischaemia

Answer:Iatrogenic

Explanation:

Adenosine may cause chest pain

Important for meLess important

'Adenosine is given as the first-line pharmacological agent when treating atrioventricular nodal re-entry tachycardia (AVNRT). Adenosine has multiple adverse effects including chest pain. Other adverse effects are impending feeling of doom, bronchospasm, and transient flushing. The timing of the chest pain coming on shortly after the diagnosis makes it likely that it was caused by the treatment, and is therefore iatrogenic, because treatment for AVNRT is commenced very promptly.

Anxiety can cause chest pain and is a possible cause of her chest pain here as she is in an anxiety proking situation. However, she wasn't experiencing chest pain before the treatment and the treatment is not likely to have caused anxiety. However, adenosine is very likely to have been administered in this case, which very commonly causes chest pain, making this the more likely cause.

Cardiac tamponade can be a cause of chest pain, however, it is very unlikely to have occurred spontaneously here. Cardiac tamponade most commonly has a cause, such as cardiac surgery, trauma, or malignancy, and given that none of these have occurred it is unlikely that this is the cause of her chest pain.

AVNRT can cause myocardial infarction which could cause chest pain. However, adenosine is very likely to have been administered in this case, which very commonly causes chest pain. The timing of the onset of the chest pain makes adenosine the much more likely cause as it came on minutes after the diagnosis, and under half an hour after the onset of symptoms, which is much less time than it would likely take for myocardial infarction to occur as a result of AVNRT.

AVNRT can cause myocardial ischaemia (angina) which could cause chest pain. However, adenosine is very likely to have been administered in this case, which very commonly causes chest pain. The timing of the onset of the chest pain makes adenosine the much more likely cause as it came on minutes after the diagnosis, and under half an hour after the onset of symptoms, which is much less time than it would likely take for myocardial ischemia to occur in AVNRT.

Question:

A 36-year-old patient with known HIV presents with malaise and loose stools 4-5 times per day for 2 weeks. He has no weight loss or night sweats. On examination, there are no focal neurological signs. His CD4 count is reduced.

What is the most likely causative organism?

A.Cryptosporidium parvum

B.Helicobacter pylori

C.Mycobacterium tuberculosis

D.Pneumocystis jirovecii

E.Toxoplasma gondii

Answer:Cryptosporidium parvum

Explanation:

HIV, diarrhoea, Ziehl-Neelsen stain showing protozoa → Cryptosporidium parvum

Important for meLess important

This patient has gastrointestinal symptoms on a background of immunodeficiency (HIV exacerbated by having a reduced CD4 count). This changes the likely organisms that are implicated in the disease process. Whilst organisms like Escherichia coli or Campylobacter jejuni are common causes of gastroenteritis, these are not likely organisms for a patient with a reduced immune response. Furthermore, these are not options given. For a patient with HIV presenting with diarrhoea, Cryptosporidium parvum is the most likely organism.

Helicobacter pylori is incorrect. This organism is implicated in peptic ulcers and does not typically cause lower gastrointestinal symptoms classically.

Mycobacterium tuberculosis is incorrect. This is an organism that causes tuberculosis which can present in a multitude of ways, including fever, night sweats and weight loss. Immunocompromised patients such as those with HIV are more likely to be susceptible to active tuberculosis but this does not generally present with diarrhoeal disease.

Pneumocystis jirovecii is incorrect. Pneumocystis jirovecii is an organism that typically causes a respiratory infection in immunocompromised patients. Patients may desaturate on walking. It wouldn't present with diarrhoea usually.

Toxoplasma gondii is incorrect. The patient in this case didn't have any focal neurological signs, making this less likely. Toxoplasma gondii is more likely to cause encephalitis or other neurological manifestations in immunocompromised individuals.

Question:

What is the investigation of choice to diagnose vesicoureteric reflux?

A.CT

B.Abdominal x-ray

C.DMSA

D.Micturating cystourethrogram

E.Ultrasound

Answer:Micturating cystourethrogram

Explanation:

Question:

A 36-year-old woman presents to the emergency department with abdominal pain and nausea. She has a past medical history of gallstones and alcohol dependence.

On examination, she has a temperature of 38.3ºC, is hemodynamically stable and her right epigastrium is tender. She is immediately started on intravenous antibiotics and treated as per the sepsis protocol. Her blood results show a raised white cell count and C-reactive protein, alongside normal liver profile and serum amylase/lipase results.

Given the likely diagnosis, what is the most appropriate next step in this patient's management?

A.Conservative management

B.Laparoscopic cholecystectomy once inflammation has subsided

C.Laparoscopic cholecystectomy within 1 week of diagnosis

D.Open cholecystectomy once inflammation has subsided

E.Open cholecystectomy within 1 week of diagnosis

Answer:Laparoscopic cholecystectomy within 1 week of diagnosis

Explanation:

Acute cholecystitis treatment: intravenous antibiotics + early laparoscopic cholecystectomy within 1 week of diagnosis

Important for meLess important

laparoscopic cholecystectomy within 1 week of diagnosis is the correct answer. This patient's presentation and biochemical findings are most in keeping with acute cholecystitis. The current NICE recommendation for treatment following the administration of intravenous antibiotics is laparoscopic cholecystectomy within 1 week of diagnosis.

Conservative management is incorrect as there is a risk of chronic disease and recurrence of infection which will impact the patient's quality of life and morbidity.

Laparoscopic cholecystectomy once inflammation has subsided is incorrect. This used to be the NICE recommendation. This is no longer recommended as delaying treatment has been associated with increased rates of sepsis, jaundice and cancer.

Open cholecystectomy once inflammation has subsided is incorrect. This is no longer recommended as delaying treatment has been associated with increased rates of sepsis, jaundice and cancer. Furthermore, laparoscopic cholecystectomy is preferred over open cholecystectomy as it is associated with lower postoperative morbidity, mortality, and reduced length of stay in the hospital compared to the open procedure.

Open cholecystectomy within 1 week of diagnosis is incorrect. This is a potential management option. However, laparoscopic cholecystectomy is the gold-standard treatment of acute cholecystitis as it is associated with lower postoperative morbidity, mortality, and reduced length of stay in hospital compared to the open procedure.

Question:

A 40-year-old man with known end-stage renal failure has been on peritoneal dialysis for the past 5 years.

Family screening for a possible donor identified a potential match with his brother and following appropriate counselling a successful renal transplant was performed. On his 3-monthly review, there is no evidence of graft rejection.

What malignancy is this patient most at risk of in the future?

A.Adenocarcinoma of the bowel

B.Adenocarcinoma of the prostate

C.B-cell lymphoma

D.Chronic lymphocytic leukaemia

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

All patients who undergo renal transplantation must be commenced and remain on immunosuppression therapy for the rest of their life to prevent the risk of transplant rejection. As an adverse effect, this immunosuppression therapy results in patients having an increased risk of carcinomas as their immune system is less able to identify and destroy newly formed cancer cells or prevent infections that may cause cancer. Squamous cell carcinoma of the skin has been shown to be the most common malignancy associated with immunosuppression.

Adenocarcinoma of the bowel is the commonest form of colorectal cancer. Although its incidence, like most cancers, is increased in immunosuppressed patients there are several other risks factor associated with this cancer including dietary imbalances, smoking and a lack of physical exercise. As such colorectal cancer is less common in immunosuppressed patients when compared to other cancers.

Adenocarcinoma of the prostate is mainly associated with obesity, hypertension and elevated testosterone levels. There is an increased risk of this form of cancer in immunosuppressed patients however it is not the commonest associated cancer.

B-cell lymphoma is the group of blood and lymph tumours that develop from the B lymphocytes including both Hodgkin’s and most non-Hodgkin lymphomas. Although there is an increased risk of lymphoma in patients on immunosuppression their incidence remains low.

The association between immunosuppression and chronic lymphocytic leukaemia (CLL) is not fully understood and although an increased risk may exist, the incidence of CLL in these patients is lower than other cancers.

Question:

A 70-year-old man is brought to the emergency department by ambulance after suddenly losing consciousness. He has a past medical history of longstanding hypertension and takes ramipril, amlodipine, indapamide, and spironolactone.

On examination, he has quadriplegia and small bilateral pupils that remain small even in bright light. His Glasgow coma score is 6 (M2, E2, V2).

His capillary blood glucose and oxygen saturations are normal and a non-contrast CT head is awaited.

What is the most likely diagnosis?

A.Chronic subdural haemorrhage

B.Lacunar infarct

C.Pontine haemorrhage

D.Posterior circulation syndrome

E.Total anterior circulation syndrome

Answer:Pontine haemorrhage

Explanation:

Pontine haemorrhage commonly presents with reduced GCS, paralysis and bilateral pin point pupils

Important for meLess important

Pontine haemorrhage is correct. This patient has severe sudden-onset neurological deficits, which should ring alarm bells for a stroke, which can either be ischaemic or haemorrhagic in nature. The presentation can help narrow down what type of stroke may be likely and what anatomy is affected. This patient has signs and symptoms of a pontine haemorrhage (reduced Glasgow coma scale, paralysis, and bilateral small or 'pin point' pupils). Pontine haemorrhages are a form of intracerebral haemorrhage which can be caused by long-standing hypertension. This patient is taking 4 antihypertensives for his longstanding hypertension, suggesting it may be difficult to control. Poorly-controlled hypertension predisposes the penetrating arteries from the basilar artery extending into the pons to rupture. Pontine haemorrhages are associated with a very poor prognosis.

Chronic subdural haemorrhage is incorrect. Although this can happen in elderly patients due to the presence of more fragile small bridging veins in the subdural space, the history is typically a several-week to month progressive history of confusion, reduced consciousness, or neurological deficit, unlike in this patient whose neurological deficits are sudden-onset in nature.

Lacunar infarct is incorrect. These are strokes that lead to one of the following: pure sensory impairment, unilateral weakness, or ataxic hemiparesis. It is due to the involvement of perforating arteries around the internal capsule, thalamus, and basal ganglia. It does explain the reduced Glasgow coma scale or bilateral small pupils, making this diagnosis less likely.

Posterior circulation syndrome is incorrect. This involves the vertebrobasilar arteries and presents cranial nerve palsy and contralateral motor and/or sensory deficits, nystagmus, cerebellar dysfunction, vertigo, or isolated homonymous hemianopia. It does explain the reduced Glasgow coma scale or bilateral small pupils, making this diagnosis less likely.

Total anterior circulation syndrome is incorrect. This is characterised by all 3 of the following: higher cognitive dysfunction (e.g. dysphasia or decreased consciousness), homonymous hemianopia, and unilateral hemiparesis and/or sensory loss. This patient has quadriparesis and bilateral small pupils, which is not explained by this diagnosis, making it less likely.

Question:

A 51 year-old woman presents to her GP with a nine month history of urinary incontinence. Examination of her abdomen is normal. Urinalysis is normal. A diagnosis of detrusor muscle over-activity is made and the patient is commenced on oxybutynin. What is the mechanism of oxybutynin?

A.Anti-adrenergic

B.Anti-GABAergic

C.Anti-nicotinic

D.Anti-muscarinic

E.Anti-oestrogenergic

Answer:Anti-muscarinic

Explanation:

The contraction of the detrusor muscle is controlled by muscarinic cholinergic receptors, with oxybutynin being a direct antimuscarinic agent. Serotonin and noradrenaline are important for sympathetic control, which intrinsically reduces detrusor muscle activity. There are no GABAergic or oestrogen receptors in the bladder.

Question:

A 65-year-old man is admitted with fever and dyspnoea. A chest x-ray shows extensive shadowing in the right lower zone. Which one of the following is associated with a poor prognosis in patients with community-acquired pneumonia?

A.Diastolic blood pressure 65 mmHg

B.Sodium 131 mmol/l

C.Urea 12 mmol/l

D.White blood cell 27 \* 109/l

E.Respiratory rate 25/min

Answer:Urea 12 mmol/l

Explanation:

Question:

A 60 year-old man with haemophilia A has just become a grandfather. He wants to know what the chances are of his daughter's son having haemophilia. His daughter's partner is well with no past medical history.

What is the probability that his daughter's son has haemophilia A?

A.Impossible to calculate

B.50%

C.25%

D.No increased risk

E.100%

Answer:50%

Explanation:

Haemophilia A is an X-linked recessive disease. This means that all female offspring of affected men will be carriers. There is then a 50% chance of these females passing the gene on. If the female's children are male, they will therefore have a 50% chance of having the condition.

Question:

A 42-year-old woman presents to general practice complaining of puffy hands and feet for the last 3 months, saying that it is worse when it gets cold and that her fingers often turn blue. She now has trouble making a fist with both her hands. Over the last month she has also noticed skin thickening spreading up the arms and thighs. Furthermore, she complains of a dry cough that has come on over the last month associated with breathlessness on exertion.

What is the most likely diagnosis?

A.Diffuse systemic sclerosis

B.Eosinophilic fasciitis

C.Limited systemic sclerosis

D.Primary Raynaud's phenomenon

E.Systemic lupus erythematosus

Answer:Diffuse systemic sclerosis

Explanation:

Systemic sclerosis is associated with scleroderma - tightening and fibrosis of skin

Important for meLess important

Diffuse systemic sclerosis is the most likely diagnosis. There are features of cutaneous disease with features of sclerotic changes to the lungs indicated by the dry cough. Furthermore involvement of the proximal limbs points towards a diagnosis of diffuse disease.

Eosinophilic fasciitis is a rare form of systemic sclerosis. It is characterised by red forearms and lower legs with pitting oedema, as well as uneven skin. Importantly eosinophilic fasciitis spares the hands and is not associated with Raynaud's phenomenon, so this is unlikely to be the correct diagnosis.

Limited systemic sclerosis is often referred to as CREST syndrome. This is because it presents with a pentad of calcinosis, Raynaud's phenomenon, oesophageal dysmotility, scleroderma and telangiectasia. There is evidence here of lung involvement, that points more towards a diagnosis of diffuse systemic sclerosis. Diffuse disease has a worse prognosis than limited disease.

Primary Raynaud's phenomenon is relatively common. However it does not present with sclerotic features. In this case it is part of a wider autoimmune disease.

Systemic lupus erythematosus (SLE) can present in a multitude of different ways and affects several different systems. The classic feature of SLE is a malar rash over the nose and cheeks. Furthermore SLE rarely presents with lung or skin sclerosis. While SLE could be a possible diagnosis, it is much more likely that this is some form of systemic sclerosis.

Question:

You are a junior doctor working in a surgical firm. One of your patients is a 53-year-old female with metastatic breast cancer who has been admitted with worsening abdominal swelling and ascites. Over the last 6 weeks, she has been refusing her chemotherapy as she has decided to opt for a herbal treatment. Her disease is worsening and she is in a lot of pain. What do you do?

A.Advise her to continue with the herbal medication

B.Advise them to discuss this with their oncologist and offer to ask the oncologist to see her on the ward

C.Inform her that the herbal medication is pointless

D.Inform her she must restart chemotherapy for any of the doctors to take her seriously

E.Make the decision that if she doesn't want more chemotherapy she is to start end of life care

Answer:Advise them to discuss this with their oncologist and offer to ask the oncologist to see her on the ward

Explanation:

The GMC good medical practice states that you should treat patients fairly and with respect whatever their beliefs or life choices.

It wouldn't be fair or treating this lady with respect to respond with either answer 3 or 4. Answer 5 is highly inappropriate, just because she is refusing chemotherapy doesn't mean you should withdraw all care and place her just on symptomatic relief, she is only 53 and thus there may be other options available for her.

This leaves you with answer 1 and 2, answer 1 wouldn't be ideal, although you are respecting her there may be other options available to her that, if you explained would be beneficial.

Question:

A 64-year-old man presents with a right-sided lump in his groin and is unsure when it first emerged. There is no abdominal pain, discomfort, or changes to his bowel habit. He has a history of hypercholesterolaemia and type 2 diabetes and takes atorvastatin and metformin.

His heart rate is 85 bpm and his blood pressure is 143/85 mmHg. On examination, a mass is visible superior and medial to the pubic tubercle, which disappears when lying down and does not transilluminate. There is no abdominal tenderness or bruising.

Given the likely diagnosis, what, if any, is the most effective next step in his management?

A.Continue monitoring for strangulation only

B.Discharge with safety-netting advice

C.Offer hernia truss as they are asymptomatic

D.Refer routinely for open repair with mesh

E.Refer urgently for open repair with mesh

Answer:Refer routinely for open repair with mesh

Explanation:

Unilateral inguinal hernias are generally repaired using an open approach with a mesh

Important for meLess important

Refer routinely for open repair with mesh is correct. This patient has signs and symptoms of a unilateral inguinal hernia characterised by a groin lump that disappears when lying down. The lump being superior and medial to the pubic tubercle supports 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. The most appropriate step for patients who are asymptomatic with a unilateral inguinal hernia is a referral for open repair with mesh, as this is relatively low-risk and has a lower recurrence rate. Recurrence rates are higher in patients who have undergone laparoscopic repair.

Continue monitoring for strangulation only is 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.

Offer hernia truss as they are asymptomatic is incorrect. This is offered to patients 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 urgently for open repair with mesh is incorrect. There is nothing in the history to suggest strangulation has emerged (there is no fever, pain, overlying erythema etc.), therefore an urgent referral would not be necessary. This patient is asymptomatic, so it would be more appropriate to routinely refer them.

Discharge with safety-netting advice is incorrect. Although this patient is currently asymptomatic, it would be inappropriate to discharge them, even if safety-netting advice is given. This is because complications such as strangulation may occur and can have subtle symptoms to begin with, which the patient may not notice. 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.

Question:

A 65-year-old woman is referred in from her GP with deranged blood tests. She initially went to see the GP due to pain in her tongue and pain on swallowing. On examination, she has angular stomatitis, a red smooth tongue and splenomegaly.

Blood tests show:

Hb 102 g/L

WCC 10.9 10\*9/L

plts 223 10\*9/L

MCV 72 fL

What is the most likely diagnosis?

A.Kawasaki disease

B.Plummer-Vinson syndrome

C.Vitamin B12 deficiency

D.Behcets syndrome

E.Oesophageal malignancy

Answer:Plummer-Vinson syndrome

Explanation:

Question:

A 55-year-old man presents to the emergency department with crushing, central chest pain. The symptoms started three hours ago and don't seem to subside. An ECG shows an ST-elevation anterior myocardial infarction.

He has a past medical history of hypertension and types two diabetes mellitus. He regularly takes ramipril, amlodipine and metformin. The primary percutaneous coronary intervention (PCI) centre is 160 minutes away from the hospital. A loading dose of antiplatelets was given in the ambulance during transport.

What is the next appropriate management plan?

A.Fibrinolysis

B.Low molecular weight heparin

C.Percutaneous coronary intervention after 2 weeks post stabilisation

D.Prasugrel

E.Unfractionated heparin

Answer:Fibrinolysis

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

Fibrinolysis is the correct answer. According to NICE acute coronary syndrome (ACS) 2020 guidelines, consider fibrinolysis if there is a significant delay in being able to provide PCI. As there will be a significant delay to provide PCI in the given context so that urgent fibrinolysis should be started to prevent myocyte loss. After that, urgent PCI is recommended.

Low molecular weight heparin is incorrect as the patient has presented within 12 hours so the main priority would be revascularization.

Percutaneous coronary intervention after 2 weeks post stabilisation is incorrect. According to recent NICE guidelines, urgent PCI is recommended to prevent re-infarction and further myocyte loss.

Prasugrel is incorrect. It should be provided as part of post-ACS secondary prevention therapy, these do not represent the immediate next definitive management of this patient.

Unfractionated heparin is incorrect. Heparin is commonly, but by no means universally, used after acute myocardial infarction. Full-dose IV heparin, with or without thrombolytic therapy, is indicated for the prevention of re-infarction and thromboembolism after acute myocardial infarction. As the patient has presented within 12 hours so the main priority would be revascularization either fibrinolysis or PCI.

Question:

Four days after undergoing a right hemicolectomy for colon cancer, a 67-year-old woman develops vomiting. On examination she has a distended abdomen and no bowel sounds. Her temperature is 36.8 ºC, her blood results show the following:

CRP 124 mg/l

WBC 5.2 \* 109/l

The nursing notes indicate she has not opened her bowels since undergoing surgery. What is the most likely cause of all her symptoms and signs?

A.Constipation

B.Hirschsprung's disease

C.Peritonitis

D.Caecal volvulus

E.Paralytic ileus

Answer:Paralytic ileus

Explanation:

In this patient:

The vomiting and absent bowel sounds makes simple constipation less likely than paralytic ileus, especially this soon after surgery. Constipation would not account for all of her symptoms and signs.

The caecum will have been removed as part of the right hemicolectomy so it could not be a caecal volvulus.

The raised CRP is a normal response after surgery.

Peritonitis would more commonly be associated with severe abdominal pain, tenderness and guarding as well as more severely raised inflammatory markers and fever.

Hirschsprung's disease is a congenital condition and would be very unlikely to present for the first time in a 67-year-old lady.

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 33-year-old woman presents to her GP with headaches.

She initially noted unilateral, throbbing headaches that occurred every few weeks and would be relieved by lying in a darkened room.

The patient began to use regular paracetamol, ibuprofen and codeine for these headaches, taking them daily.

She now describes a constant headache that she feels all across her head and is not relieved by lying in a darkened room.

Her neurological examination is unremarkable.

What is the most appropriate management?

A.Stop all analgesia immediately

B.Taper off current analgesia whilst introducing propranolol

C.Taper off current analgesia whilst introducing topiramate

D.Wean down dose of codeine and stop paracetamol/ibuprofen immediately

E.Wean down dose of paracetamol/ibuprofen and stop codeine immediately

Answer:Wean down dose of codeine and stop paracetamol/ibuprofen immediately

Explanation:

Medication overuse headache

simple analgesia + triptans: stop abruptly

opioid analgesia: withdraw gradually

Important for meLess important

Wean down dose of codeine and stop paracetamol/ibuprofen immediately is correct. This patient initially described migraine-like symptoms and began to use daily analgesia. The headache then became a medication overuse headache, the treatment for which is the cessation of the analgesia. The paracetamol and ibuprofen can be stopped abruptly, but the codeine requires gradual dose reduction to avoid withdrawal symptoms.

Stop all analgesia immediately is incorrect. Whilst the paracetamol and ibuprofen can be stopped abruptly, the codeine must be withdrawn gradually to avoid withdrawal symptoms.

Taper off current analgesia whilst introducing propranolol is incorrect. The paracetamol and ibuprofen can be stopped abruptly and do not need to be tapered or weaned. Because this patient’s primary problem is now medication overuse headache, this must be treated first. The treatment for this involves cessation of current analgesia. Once the analgesia has been withdrawn, propranolol could be introduced if the patient was still struggling with migraine symptoms.

Taper off current analgesia whilst introducing topiramate is incorrect. The paracetamol and ibuprofen can be stopped abruptly and do not need to be tapered or weaned. Because this patient’s primary problem is now medication overuse headache, this must be treated first. The treatment for this involves cessation of current analgesia. Once the analgesia has been withdrawn, migraine prophylaxis could be considered if the patient was still struggling with migraine symptoms. Topiramate would, however, not be the first choice as this patient is a female of child-bearing age and topiramate is associated with a risk of teratogenicity. Propranolol would therefore be preferred as prophylaxis if required.

Wean down dose of paracetamol/ibuprofen and stop codeine immediately is incorrect. These options are the wrong way around; in medication overuse headache the paracetamol and ibuprofen can be stopped abruptly but the codeine dose should be gradually reduced to avoid withdrawal symptoms.

Question:

A 34-year-old primiparous woman is 33+6 weeks pregnant. During a recent antenatal visit she had a blood pressure of 152/101 mmHg. She reports some swelling of her hands and feet but no other symptoms. Urinalysis is negative for protein. She has a past history of asthma for which she uses a salbutamol inhaler PRN and depression but she stopped her antidepressant medication when she became pregnant. What is the best management?

A.Oral methyldopa

B.IV magnesium sulphate

C.Oral labetalol

D.Oral lisinopril

E.Oral nifedipine

Answer:Oral nifedipine

Explanation:

Gestational hypertension is new onset hypertension diagnosed after 20 weeks without significant proteinuria. This woman has moderate gestational hypertension as her systolic blood pressure is between 150-159 mmHg and her diastolic blood pressure is between 100-109 mmHg.

Hypertension Systolic Diastolic

Mild 140-149 mmHg 90-99 mmHg

Moderate 150-159 mmHg 100-109 mmHg

Severe >160 mmHg >110 mmHg

Moderate gestational hypertension does not need to be managed in a hospital setting and patients are normally prescribed oral labetalol. This woman has a history of asthma so a beta blocker is contraindicated. NICE guidelines recommend nifedipine and methyldopa as alternatives to labetalol. Methyldopa is contraindicated in depression. The best option for treatment for this woman's gestational hypertension is oral nifedipine which is a calcium channel blocker.

IV magnesium sulphate is indicated in eclampsia. Lisinopril is an ACE inhibitor and is contraindicated in pregnancy.

Question:

A 27-year-old woman comes to her GP with concerns about her vision. She reports temporary loss of vision occasionally when she coughs, which she describes as her vision 'losing colour'. These symptoms started a few weeks ago and were accompanied by an early morning headache, which gets gradually better during the day. She also adds that 1 week before these symptoms started, she was started on a 3-month course of antibiotics by her dentist, for a gum infection.

On examination, her cranial nerves were intact, but papilloedema was noted on fundoscopy.

Given her current symptoms, which antibiotic was she likely to have been started on?

A.Amoxicillin

B.Clarithromycin

C.Doxycycline

D.Erythromycin

E.Metronidazole

Answer:Doxycycline

Explanation:

Tetracyclines increase the risk of idiopathic intracranial hypertension

Important for meLess important

This woman has described symptoms of intracranial hypertension. There is characteristic papilloedema, which is swelling of the optic disc, caused by the increased pressure. It is seen in virtually all cases of intracranial hypertension. Whilst it is rarely symptomatic, this woman has symptoms related to papilloedema, in her transient vision loss. The headache is equally typical, as sleeping horizontally increases the intracranial pressure further, and results in an early morning headache, which goes away when patients get up.

The only drug mentioned which can lead to idiopathic intracranial hypertension is doxycycline. All tetracyclines have this rare side effect in their use. Doxycycline is used in dentistry for periodontitis, for a period of 3 months. It is the second most common antibiotic used in dentistry.

Amoxicillin is a penicillin-like antibiotic, which can occasionally be used in dentistry. It is not known to cause idiopathic intracranial hypertension.

Clarithromycin is a macrolide and is not known to cause idiopathic intracranial hypertension. However, it is the most commonly used antibiotic in dentistry.

Erythromycin is also a macrolide, and similar to clarithromycin is not known to cause idiopathic intracranial hypertension. However, it is commonly used in dentistry.

Metronidazole is a nitroimidazole, which is sometimes used in dentistry. It is not known to cause idiopathic intracranial hypertension.

Question:

A 45-year-old patient comes in with a polyarthralgia. She is getting cyclical fevers along with the pain and also mentions she gets a salmon pink rash on her torso. She says she has had flares of this in the past and previously has been admitted to ITU for intravenous medications but she cannot recall their names. Her flares started in her late twenties. She has not had a flare for many years now. Her regular medications consist of paracetamol 1g PRN and naproxen 500mg PRN. On examination, she is tender in most of her joints including her hips, knees, wrists, shoulders and the small joints of her hands. Her observations show a heart rate of 110/min, respiratory rate of 24/min, blood pressure of 96/65mmHg, oxygen saturations of 98% on room air and temperature 39ºC. Her blood tests reveal:

Hb 135 g/l Na+ 136 mmol/l

Platelets 269 \* 109/l K+ 4.6 mmol/l

WBC 8 \* 109/l Urea 5 mmol/l

Neuts 6 \* 109/l Creatinine 90 µmol/l

Lymphs 2 \* 109/l CRP 55 mg/l

Eosin 0.1 \* 109/l Ferritin 1559 ng/ml

What is the most likely diagnosis?

A.Adult-onset Still's disease

B.Rheumatoid arthritis

C.Septic arthritis

D.Psoriatic arthritis

E.Tuberculosis

Answer:Adult-onset Still's disease

Explanation:

This patient is suffering from adult-onset Still's disease shown by the triad of fever, polyarthralgia and rash. The raised ferritin is another hint at the diagnosis as ferritin is the acute phase protein of choice for monitoring disease activity in these patients. Adult-onset Still's disease can lead to severe flares that mimic sepsis.

A range of biologic therapies can be used to treat these flares such as anti-TNFs and anakinra along with more traditional disease modifying anti rheumatic drugs (DMARDs) and non-steroidal anti inflammatories.

Rheumatoid arthritis would be a differential but the triad listed is more associated with Still's disease. In this case, it is adult onset Still's as it started in her twenties. Septic arthritis tends to be monoarthritis or occasionally an oligoarthritis, not a polyarthritis, hence this is not the correct answer. The rash described is not that psoriasis.

Question:

A 27-year-old woman is brought to the resuscitation unit following a road traffic accident. Her GCS scale is 8 (E2V3M3). The on-call anaesthetist is called to perform a rapid sequence intubation.

The A-E assessment reveals agonal breathing at 20 breaths/min, oxygen saturations of 93%, a central trachea and a clear chest bilaterally. Her heart rate is 138 bpm with a thready pulse. Pre-oxygenation is started, following which the patient’s saturations rise to 100%. Following intubation, the saturations slowly drop to 90%.

What is the likely cause of the patient’s dropping saturation?

A.Acute respiratory distress syndrome

B.Internal haemorrhage

C.Normal physiological response post-intubation

D.Oesophageal intubation

E.Tension pneumothorax

Answer:Oesophageal intubation

Explanation:

Dropping sats following intubation → ? oesophageal intubation

Important for meLess important

The correct answer is oesophageal intubation. This patient had a PaO2 of 93% prior to being pre-oxygenated, and yet following intubation, their saturations dropped to 90% over time. Given that this would likely have happened over the course of 10 minutes or so, it is unlikely that anything substantial that may otherwise cause hypoxia has happened in the meantime. The first differential to consider would be an inappropriately sited endotracheal tube; oesophageal intubation would not allow for lung ventilation. Capnography should also be present to confirm the correct siting.

Acute respiratory distress syndrome is incorrect. Although this can cause hypoxia and can present quite rapidly, it would usually take at least a few hours to manifest. There is nothing from the history suggesting that this patient was experiencing any deterioration of respiratory function prior to intubation.

Internal haemorrhage is incorrect. This is very important to consider given the patient’s history of a road traffic accident, and hypoxia can manifest quickly. However, given the recent intubation, it is more likely that the endotracheal tube was sited incorrectly.

Normal physiological response post-intubation is incorrect. Pre-oxygenation usually allows for around eight minutes of the apnoeic reserve by filling the lungs’ residual volume with oxygen. Following correct intubation, the person would be oxygenated immediately, so significant desaturation post-intubation is unusual.

Tension pneumothorax is incorrect. The A-E assessment conducted prior to intubation did not suggest a pneumothorax was present as the chest was clear bilaterally with a central trachea, so it is more likely that something else is causing the desaturation.

Question:

A 77-year-old man on the ward has only produced 120 mL of urine in the past 8 hours. Which metabolic abnormality is the most serious potential complication of his condition?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hyperphosphataemia

D.Hyperuricaemia

E.Hypocalcaemia

Answer:Hyperkalaemia

Explanation:

Hyperkalaemia is the most serious electrolyte abnormality that can complicate acute kidney injury. It can result in muscle weakness, paralysis, arrhythmias and cardiac arrest. ECG changes are a more accurate way of identifying cardiac toxicity than plasma potassium level. If characteristic ECG changes of hyperkalaemia are seen, then it is important to give the patient either calcium gluconate or calcium chloride, which acts as a cardiac membrane stabiliser, while potassium-lowering treatments are given.

Hyperphosphataemia and hypocalcaemia are both complications of chronic kidney disease.

Question:

A 61-year-old male attends his general practice due to a lesion on his leg. He tells you he has had the lesion for over a year, but his wife advised him to get it checked, in case it is something serious. You examine his leg and identify the lesion, which is shown below.

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Based on the history and clinical examination, what is the most likely diagnosis?

A.Actinic keratosis

B.Bowen's disease

C.Malignant melanoma

D.Naevus

E.Seborrhoeic keratosis

Answer:Seborrhoeic keratosis

Explanation:

This lesion is characteristic of a seborrhoeic keratosis. Seborrhoeic keratoses are benign skin lesions that are common in people over 50. Note the brown nodule with a fissured greasy surface that is well demarcated against the skin. It has the classic 'stuck on' appearance of seborrhoeic keratoses. Most seborrhoeic keratosis lesions are asymptomatic and therefore no treatment is required.

Actinic keratosis (AK) is incorrect. AK is associated with chronic UV exposure and are typically flesh-coloured, irregularly shaped, small macules or plaques. Actinic keratoses have the potential to progress to squamous cell carcinoma. The lesions are small (typically 1-5mm) and do not have a 'stuck on' appearance as in this case.

Bowen's disease is also known as squamous cell carcinoma (SCC) in situ. Typically these lesions are slow-growing, red, scaly patches.

Malignant melanoma is an important differential to consider. However, a malignant melanoma typically varies more in colour, such as brown/blue/black and red. Furthermore, melanomas do not have a 'stuck on' and greasy appearance as in this case.

Naevus is not the correct answer in this case. Naevi typically develop within the first 20 years of life, whereas seborrhoeic keratosis is more common with advancing age.

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:

A 22-year-old man complains of hearing problems. You perform an examination of his auditory system including Rinne's and Weber's test:

Rinne's test: Left ear: bone conduction > air conduction

Right ear: air conduction > bone conduction

Weber's test: Lateralises to the left side

What do these tests imply?

A.Normal hearing

B.Left conductive deafness

C.Right conductive deafness

D.Left sensorineural deafness

E.Right sensorineural deafness

Answer:Left conductive deafness

Explanation:

Question:

A 16-year-old boy comes to see his GP with his mother after complaining of a rash and tiredness. He has felt generally unwell for about 1 week now since returning from an adventure holiday in the USA. On examination he has a circular rash which is worse in the centre and the edges. This rash is warm and red but painless.

Which of the following illness should be considered in this patient?

A.Cellulitis

B.Lyme disease

C.Erysipelas

D.Impetigo

E.Tularemia

Answer:Lyme disease

Explanation:

The clue in this question is the adventure holiday that patient has been on. When out in the countryside or forests, insect bite can be common and in the USA, tick bites are a concern. The characteristic bulls-eye rash seen in Lyme disease is known as erythema migrans and occurs in 50-75% of patients bitten by a tick and subsequently infected by the bacteria Borrelia. Other symptoms of Lyme disease are quite non-specific and tend to include fever, headache, and tiredness and can even include loss of ability to move one or both sides of the body.

Question:

A 45-year-old man presents with a 6-month history of loss of libido and impotence. He also states that he has developed a rash around his anus. He has a background of alcohol excess and he currently drinks 60 units per week. On examination, you note red, crusted lesions around his anus.

Blood results are as follows:

Hb 146 g/L Male: (135-180)

Female: (115 - 160)

Platelets 172 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

MCV 86 fL (80 - 100)

Testosterone 1.6 nmol/L (8.7 - 29)

FSH 0.2 IU/L (0 - 6.0)

LH 0.6 IU/mL (1.24 to 7.8)

What is the most likely diagnosis?

A.B12 deficiency

B.Iron deficiency

C.Niacin deficiency

D.Vitamin C deficiency

E.Zinc deficiency

Answer:Zinc deficiency

Explanation:

Dermatitis in acral, peri-orificial and perianal distribution → ?zinc deficiency

Important for meLess important

The combination of hypogonadotropic hypogonadism and peri-anal dermatitis favour the diagnosis of zinc deficiency. Other features can include cognitive impairment, alopecia and hepatosplenomegaly. Alcohol excess as seen in this case is a well-known risk factor for zinc deficiency.

The normal FBC and MCV make B12 deficiency unlikely. This condition presents with a macrocytic anaemia. Mucocutaneous features include glossitis and angular cheilitis.

Iron deficiency would generally present with a microcytic anaemia. It is important to remember that microcytosis can predate the onset of anaemia. Mucocutaneous features include angular cheilitis, atrophic glossitis, pruritus, dry skin, and koilonychia.

Niacin deficiency causes pellagra which is characterised by the classic triad of diarrhoea, dermatitis, and dementia. Mucocutaneous features include a photosensitive rash and anogenital and mucosal lesions. Genital lesions can present with redness, erosions, and maceration. The presence of hypogonadotropic hypogonadism and dermatitis in this case favour a diagnosis of zinc deficiency.

Vitamin C deficiency can result in scurvy. This condition presents with ecchymoses, perifollicular haemorrhages, and corkscrew hairs and purpura.

Question:

A 55-year-old man is admitted under general surgery for a two-week history of mild back pain and jaundice. He also has a deranged liver function test and an elevated amylase. He undergoes a magnetic resonance cholangiopancreatography (MRCP) which reveals a 'double duct' sign on imaging.

What is the most likely diagnosis from the results found above?

A.Acute pancreatitis

B.Ascending cholangitis

C.Chronic pancreatitis

D.Hepatocellular carcinoma

E.Pancreatic cancer

Answer:Pancreatic cancer

Explanation:

The 'double duct' sign may be seen in pancreatic cancer

Important for meLess important

The 'double duct' sign on MRCP is when there is dilatation of both the common bile duct and pancreatic duct which is usually indicative of pancreatic cancer (typically the head of the pancreas) so this would be the correct answer. It is also commonly indicative of ampullary tumours.

Acute pancreatitis would not typically cause a distal common bile duct obstruction. Chronic pancreatitis can cause a 'double duct sign' on MRCP but in few cases and much less in comparison to those with pancreatic cancer and is therefore not the correct answer.

Ascending cholangitis is an infection of the biliary tract, usually due to gallstone obstruction but can also be caused by benign or malignant strictures. The classic triad for ascending cholangitis is right upper quadrant pain, jaundice and a fever (Charcot triad). In more severe cases of toxic cholangitis, signs of sepsis may be present. Given that this patient does not have a fever or other signs and symptoms of severe infection, this diagnosis is unlikely. However, this is something to be aware of in these group of patients with common bile duct obstruction.

Hepatocellular carcinoma can cause jaundice but would not typically cause back pain nor obstruction of the pancreatic duct and common bile duct due to its location.

Question:

A 38-year-old male presents with chronic fatigue, headaches, and poor hearing. He reports struggling a work with seemingly decreased memory and difficulty concentrating. On direct questioning, the patient confirms he has gained a significant amount of weight since his symptoms began.

On examination, the patient has cool extremities and a cranial nerve exam reveals bitemporal hemianopia.

Blood tests are taken:

Patient's results Reference range

8 am ACTH 5 pg/mL 10-50

Prolactin 2 μg/L <17

TSH 0.2 mIU/L 0.4–4.0

FSH 2 IU/L 4–25

LH 4 IU/L 6–23

GH 0 μg/L < 5

What is the most likely diagnosis?

A.Cushing disease

B.Sheehan’s syndrome

C.Pituitary adenoma

D.Primary hypothyroidism

E.Prolactinomas

Answer:Pituitary adenoma

Explanation:

Non-functioning pituitary tumours present with hypopituitarism and pressure effects

Important for meLess important

This patient has presented with features in keeping with a non-functioning pituitary adenoma. There is evidence of dura stretching around the pituitary fossa and compression of the optic chiasm causing headaches and visual field defects. Blood hormone investigations show hypopituitarism resulting from compression of the normal functioning pituitary gland and this accounts for the patient’s symptoms of hypothyroidism.

Cushing's disease is characterised by increased adrenocorticotropic hormone (ACTH) secretion from the anterior pituitary, normal resulting from an ACTH-producing pituitary adenoma. Although this would account for the compression symptoms and depletion of other hormones the patient's ACTH levels are low and there is no evidence of the classic Cushing syndrome features (i.e. hypertension, fat redistribution).

Sheehan’s syndrome is a condition resulting in hypopituitarism however it is specifically caused by ischaemic necrosis due to post-partum blood loss and hypovolemic shock. It is an acute condition and is not associated with optical chiasm compression.

Primary hypothyroidism is due to an inadequate function of the thyroid gland itself; a reduction in the T3 and T4 production. This would explain the patient’s symptoms of fatigue, poor concentration and weight gain, however, you would expect an increased TSH level due to positive feedback secondary to a lack of T3 and T4. Other hormone levels should also be unaffected.

A prolactinoma would produce similar symptoms of headache, compression of the chiasm and hypopituitarism. However, the patient’s prolactin level is low and therefore his tumour is non-functioning i.e. not producing prolactin.

Question:

An 85-year-old man is admitted with dense right-sided weakness. His blood pressure on admission is 175/95 mmHg and National Institutes of Health Stroke Scale (NIHSS) is calculated at 24.

He has a past medical history of gastric ulcer disease and had a nephrectomy 2 months ago due to renal cell carcinoma.

CT head shows a hyperdense collection in the left basal ganglia with evidence of chronic small vessel disease.

What would be an absolute contraindication to thrombolysis in this case?

A.His CT findings

B.His age

C.His blood pressure on admission

D.His past medical history

E.His surgical history

Answer:His CT findings

Explanation:

CT head in suspected stroke: a hyperdense collection is suggestive of a haemorrhage and hence a contraindication to thrombolysis/thrombectomy

Important for meLess important

CT findings of a hyperdense collection signifies an area of haemorrhage, this is an absolute contraindication to thrombolysis.

The patient's age of 85 years is not an absolute contraindication to thrombolysis. Many of the studies into the use of thrombolysis do not include patients in the extremes of age. An age of greater than 80 years is a relative contraindication to thrombolysis but decisions are made on a case by case basis.

His blood pressure on admission would not be an absolute contraindication to thrombolysis. Uncontrolled hypertension with a systolic blood pressure of >185mmHg and or diastolic blood pressure of >110mmHg would be a contraindication to thrombolysis in stroke due to increase bleeding risk.

Past medical history of gastric ulcer disease and renal cell carcinoma would not be a contraindication to thrombolysis if there was no active bleeding.

Surgical history of a nephrectomy 2 months ago wouldn't be an absolute contraindication to thrombolysis. Major surgery in the last 3 weeks would be a contraindication to thrombolysis, but in this case, the surgery was 2 months ago.

Question:

An 8-year-old girl is brought to the GP by her mother. She has had itching around her vulva and anus for the last 3 days. Her mother has noticed redness and the skin has broken in the affected areas due to intense itching.

The itching does not resolve with over-the-counter topical clotrimazole and emollients. She has no other past medical history.

Given the likely diagnosis, what is the most appropriate step for the GP to take?

A.Prescribe a 3-day course of mebendazole to her

B.Prescribe a 7-day course of mebendazole to her

C.Prescribe a 7-day course of mebendazole to her and the whole house

D.Prescribe a single dose of mebendazole to her

E.Prescribe a single dose of mebendazole to her and the whole household

Answer:Prescribe a single dose of mebendazole to her and the whole household

Explanation:

Perianal itching in children, possibly affecting other family members → Enterobius vermicularis (threadworms)

Important for meLess important

Prescribe a single dose of mebendazole to her and the whole household is correct. Perianal itching and vulval irritation in a young child should raise suspicion of threadworms, which is a common infection in children. NICE recommends prescribing a single dose of mebendazole to the patient and the whole household as threadworms are highly transmissible and many patients can remain asymptomatic but remain infectious. Although the 'Scotch tape test' (sticking tape on an affected area to identify worms or eggs), many patients are now treated based on clinical features if they are characteristic.

Prescribe a 3-day course of mebendazole to her and Prescribe a 7-day course of mebendazole to her are incorrect. Although she should be prescribed mebendazole, only a single dose is necessary. Furthermore, since threadworms are highly transmissible and many patients can remain asymptomatic yet infectious, her whole household should also be offered a single dose of mebendazole.

Prescribe a 7-day course of mebendazole to her and the whole house is incorrect. Although the patient and her whole household should be offered treatment with mebendazole, NICE states that only a single dose is required, rather than a 7-day course.

Prescribe a single dose of mebendazole to her is incorrect. Although a single dose of mebendazole is appropriate, treatment should also be offered to the whole household as threadworms are highly transmissible and many patients can remain asymptomatic yet infectious.

Question:

John is a 40-year-old man who presented to his GP with abdominal pain. The pain was burning in nature and was localised to his epigastric area. A stool test for Helicobacter pylori was done, which came back as positive. Accordingly, he was treated with eradication therapy for one week. Despite the treatment, his symptoms have continued. He would like to be tested to check the bacteria has been eradicated. He is not keen on being referred for an endoscopy.

Which of the following investigations should he be referred for?

A.Blood test

B.CLO testing

C.No investigation necessary

D.Stool test

E.Urea breath test

Answer:Urea breath test

Explanation:

Urea breath test is the only test recommended for H. pylori post-eradication therapy

Important for meLess important

The urea breath test is the only test recommended for Helicobacter pylori post eradication therapy. NICE guidelines suggest that as this patient has persistent symptoms, he can be referred for eradication testing. This should ideally be 8 weeks after the initial eradication treatment.

The stool test is often used to diagnose Helicobacter pylori, but cannot be used to test for eradication as there is insufficient evidence for this.

Although there is an IgG blood test for Helicobacter pylori it is not widely used by clinicians. In addition, the antibodies tend to remain in the blood a long time after the infection has cleared and therefore are not useful as a test of cure.

CLO testing is a rapid urease test that is done during endoscopy to detect Helicobacter pylori and relies on the fact that the bacteria contain the urease enzyme. It is approximately 90% sensitive, however it is an invasive test and is not recommended for eradication testing unless a patient requires an endoscopy.

In this case, there are no red flag\* symptoms and therefore an endoscopy is not indicated. If the H.pylori eradication test is negative, the next step would be a trial of a proton pump inhibitor for one month. If the symptoms persist or there is failure of two treatment courses for Helicobacter pylori then an endoscopy should be arranged.

\*weight loss, iron deficiency anaemia, GI bleeding, persistent vomiting, epigastric mass

Question:

Which one of the following is least characteristic of Wernicke's encephalopathy?

A.Ataxia

B.Confusion

C.Ophthalmoplegia

D.Confabulation

E.Nystagmus

Answer:Confabulation

Explanation:

An inability to acquire new memories and confabulation suggests the development of Korsakoff's syndrome

Question:

A 57-year-old man visits his GP with bilateral knee pain that has developed insidiously over two years. The pain is most pronounced when walking and abates with rest. It is associated with locking of the knees, and twice the patient has fallen due to his knees 'giving way'. There is no other joint pain and the patient is systemically well.

Past medical history is significant for obesity only.

On examination, bilateral crepitus and patella tenderness are noted. There is a small left-sided knee joint effusion.

What x-ray findings would be consistent with the likely diagnosis?

A.Joint margin erosions and osteophyte formation at joint margins

B.Juxta-articular osteopenia and loss of joint space

C.Juxta-articular osteopenia and subchondral cysts

D.Loss of joint space and joint margin erosions

E.Subchondral cysts and subchondral sclerosis

Answer:Subchondral cysts and subchondral sclerosis

Explanation:

X-ray changes of osteoarthritis (LOSS)

Loss of joint space

Osteophytes forming at joint margins

Subchondral sclerosis

Subchondral cysts

Important for meLess important

Subchondral cysts and subchondral sclerosis are both typical x-ray findings in patients with osteoarthritis, developing due to trauma to the cartilage and subchondral bones. This patient has a typical history of osteoarthritis, with activity-related pain in weight-bearing joints that improves with rest. Knee-locking, morning stiffness lasting under 30 minutes and small to moderate joint effusions are all typical features of osteoarthritis. This patient's increasing age and history of obesity increase his risk of osteoarthritis.

Joint margin erosions and osteophyte formation at joint margins is incorrect. Although osteophyte formation at joint margins is a typical feature in osteoarthritis (occurring due to bone remodelling), joint margin erosions do not occur. These are due to damage from inflammation and so are seen in conditions that cause inflammatory arthritis such as rheumatoid arthritis.

Juxta-articular osteopenia and loss of joint space is incorrect. Although the loss of joint space (due to cartilage loss) is a typical (but non-specific) x-ray feature of osteoarthritis, juxta-articular osteopenia is not seen in osteoarthritis. This change is caused by reduced bone mineral density, again due to inflammatory causes of arthritis.

Juxta-articular osteopenia and subchondral cysts is incorrect. Although subchondral cysts are most commonly seen in patients with osteoarthritis, as above, juxta-articular osteopenia is not an x-ray finding of osteoarthritis.

Loss of joint space and joint margin erosions is incorrect. Joint margin erosions are, again, a result of an inflammatory process and so are not seen in osteoarthritis. Loss of joint space is non-specific and may be seen in both osteoarthritis and inflammatory arthritis such as rheumatoid arthritis.

Question:

A 60-year-old woman has presented to her GP with fatigue and constipation.

She has a history of hypertension and depression and normally takes amlodipine, venlafaxine and over-the-counter vitamin D supplements. She has a 30-pack-year smoking history.

Blood test results show the following:

Calcium 2.80 mmol/L (2.1-2.6)

Phosphate 0.65 mmol/L (0.8-1.4)

Na+ 141 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 6.4 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

Parathyroid hormone 5.0 pmol/L (1.6-6.9)

Vitamin D 125 nmol/L (50-250)

What is the likely cause of her hypercalcaemia?

A.Drug-induced

B.Lung cancer

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

The combination of raised serum calcium and low serum phosphate is suggestive of increased activity of parathyroid hormone (PTH). This woman's PTH level is 'inappropriately normal' given her hypercalcaemia - we would expect her PTH to be suppressed as a result of negative feedback mechanisms. Therefore the 'normal' level actually represents excess endogenous secretion of PTH i.e. primary hyperparathyroidism.

Drug-induced hypercalcaemia is incorrect as amlodipine and venlafaxine do not tend to cause hypercalcaemia. Although vitamin D can cause hypercalcaemia in excess, her normal serum vitamin D levels exclude this.

Lung cancer is incorrect. Some lung cancers can cause hypercalcaemia secondary to the secretion of PTH-related peptide (PTHrp). Although her smoking history is a risk factor for this, we would expect her PTH to be very low (rather than normal) as it would be suppressed by PTHrp.

Secondary hyperparathyroidism is incorrect. This occurs when there is excess secretion of PTH in response to hypocalcaemia, usually in the context of chronic kidney disease. This results in the biochemical pattern of low calcium and high PTH. This woman has a normal renal function, which makes secondary hyperparathyroidism very unlikely.

Tertiary hyperparathyroidism is incorrect. This arises when there is autonomous oversecretion of PTH due to hyperplasia of the parathyroid glands as a result of longstanding secondary hyperparathyroidism. We would normally expect PTH levels to be much higher and renal function to be significantly deranged.

Question:

A 62-year-old man is admitted with palpitations. He has no chest pain, physical examination is normal apart from tachycardia and he is haemodynamically stable. Cardiac monitoring shows a regular, monomorphic, broad complex tachycardia. A 12-lead electrocardiogram does not show any features of myocardial ischaemia.

His past medical history includes type 2 diabetes mellitus and previous percutaneous coronary intervention to his left anterior descending, right coronary and circumflex arteries.

Which of the following management options is contraindicated in this scenario?

A.Adenosine

B.Amiodarone

C.Magnesium sulphate

D.Vagal manoeuvres

E.Verapamil

Answer:Verapamil

Explanation:

Ventricular tachycardia - verapamil is contraindicated

Important for meLess important

The correct answer is verapamil.

The most likely diagnosis of ventricular tachycardia (VT). Verapamil is contraindicated in VT as intravenous administration of a calcium channel blocker can precipitate cardiac arrest.

Adenosine is used to treat regular narrow complex tachycardias. If this patient was known to have supraventricular tachycardia (SVT) with bundle branch block then his broad complex tachycardia could be treated with adenosine, and adenosine is not contraindicated in broad complex tachycardias.

Amiodarone is the recommended treatment for regular broad complex tachycardia (300mg IV over 20-60 minutes then 900mg over 24 hours).

Magnesium sulphate 2g intravenously over 10 minutes is the treatment for torsades de pointes. Whilst magnesium sulphate is not the first-choice treatment for monomorphic VT, it is unlikely to be harmful in this patient and is not contraindicated.

Vagal manoeuvres are used to treat regular narrow complex tachycardias. If this patient was known to have an SVT with bundle branch block then his broad complex tachycardia could be treated with vagal manoeuvres.

Question:

A 71-year-old woman who takes warfarin for atrial fibrillation presents with lethargy. A blood test is arranged:

Hb 14.7 g/dl

Plt 198 \* 109/l

WBC 5.3 \* 109/l

INR 6.1

What is the most appropriate management?

A.Oral vitamin K 5mg + continue warfarin at a lower maintenance dose

B.Give half the usual dose for 5 days then continue as normal

C.Oral vitamin K 5mg + stop warfarin for 2 days

D.Withhold 2 doses of warfarin and reduce subsequent maintenance dose

E.Admit to hospital until INR normal

Answer:Withhold 2 doses of warfarin and reduce subsequent maintenance dose

Explanation:

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

Important for meLess important

If the INR is between 5.0-8.0 and there is no bleeding the BNF advises that 1-2 doses of warfarin should be withheld and the subsequent maintenance doses reduced.

Question:

A 56-year-old man presents to his GP for a diabetes review. He has a history of type 2 diabetes and is currently being treated with one diabetes drug (500mg metformin BD). He is tolerating this well with no side effects.

His recent retinopathy screening is normal. You take blood to check his HbA1c.

What should this man's target HbA1c be?

A.42 mmol/mol

B.42-47 mmol/mol

C.48 mmol/mol

D.53 mmol/mol

E.58 mmol/mol

Answer:48 mmol/mol

Explanation:

The standard HbA1c target in type 2 diabetes mellitus is 48 mmol/mol

Important for meLess important

NICE guidelines suggest a standard target of 48mmol/mol for patients managed by lifestyle and/or a single antidiabetic drug.

The target may change to 53 mmol/mol if the patient is started on a second agent, or if they are receiving a medication that carries the risk of hypoglycaemia (e.g. sulphonylurea).

Remember that there is a difference between target HbA1c and the HbA1c threshold for changing medications.

Question:

A 72-year-old woman presents to the emergency department with a 1-hour history of dyspnoea and fatigue. She reports no chest pain and inspiration is not painful. She has a past medical history of type 2 diabetes and hypertension, and she is a long-term smoker.

On examination, her chest sounds clear to auscultation, her blood pressure is 170/85 mmHg, pulse rate of 98 bpm and oxygen saturations are 96% on room air. An ECG shows broad complex tachycardia, consistent with a new-onset left bundle branch block compared to a previous ECG.

Given this information, what is the most appropriate next investigation?

A.B-type natriuretic peptide (BNP)

B.CT pulmonary angiogram

C.High-sensitivity troponin

D.Observe and repeat ECG in 2 hours

E.V/Q scan

Answer:High-sensitivity troponin

Explanation:

A new left bundle branch block should prompt investigation for an acute coronary syndrome

Important for meLess important

High-sensitivity troponin is correct. This patient presents with relatively non-specific symptoms. The new left bundle branch block on ECG indicates there may be acute coronary syndrome. This requires investigation, with the first test usually looking for a troponin rise. Troponins are not necessarily specific for acute myocardial injury, however, as they can be elevated in other conditions like renal or cardiac failure.

B-type natriuretic peptide is incorrect as it is a test with high sensitivity for heart failure. Serum BNP and a chest x-ray may help differentiate whether her dyspnoea is due to heart failure or another underlying pathology. A BNP level would not be the first test to order in this patient, as ACS needs to be excluded with a serum troponin in view of her new left bundle branch block.

CT pulmonary angiogram is incorrect. This is the best test in most patients when a pulmonary embolism (PE) is suspected. The Well's score is calculated to determine who would be appropriate for further PE workup. This patient has symptoms that may be caused by a PE, but the new LBBB is concerning for myocardial damage. A PE could be looked into if other tests are equivocal.

Observe and repeat ECG in 2 hours is incorrect. A repeat ECG is important to look for any dynamic changes in the heart, which may indicate ACS. However, a new left bundle branch block can indicate ACS, and more urgent testing needs to be done.

V/Q scan is incorrect and would be used to look for pulmonary emboli. Another test that can be used is the CT pulmonary angiogram. This patient likely has ACS and needs further workup for that. If other testing comes back normal, then other differentials, like a pulmonary embolism, can be investigated.

Question:

Anisah is a 25-year-old woman who has come to her GP with shortness of breath. She has a history of asthma and has been using her salbutamol inhaler regularly, but it has not been helping. On examination, there is bilateral wheeze on auscultation. Her oxygen saturations are 94% and her peak expiratory flow is 200 L/min. Her usual peak flow is 420L/min. You decide to give her a nebuliser and re-assess. Following the nebuliser, her peak flow is only 210 L/min.

What is the next step in managing this patient?

A.Give her another nebuliser

B.Increase the dose of her inhaled steroids

C.Refer her to the medical registrar for admission

D.Send her home with a course of prednisolone

E.Start her on a course of antibiotics

Answer:Refer her to the medical registrar for admission

Explanation:

Severe asthma PEFR 33 - 50% best or predicted

Important for meLess important

In this situation, the peak flow is 50% of normal. This is classified as a severe exacerbation of asthma. According to the NICE guidelines, you should admit a patient if there are features of a severe attack and these persist after a trial of bronchodilators. In this case, the peak flow has not improved and therefore the patient should be sent to the hospital.

This patient is unwell and may need multiple nebulisers; she should be in an environment where she can be monitored closely. Therefore giving her another nebuliser is the incorrect answer in this situation.

As the patient has not improved following the nebuliser, it is unsafe to simply increase her inhaled steroid dose and send her home. This is an inappropriate option that may lead to adverse outcomes.

You can prescribe 40mg prednisolone for 5 to 7 days for patients who are safe to be treated at home. This is not appropriate in this case and may lead to adverse outcomes for this patient who has severe asthma which requires inpatient assessment and management.

You would prescribe the patient antibiotics if they had no features of severe or life-threatening asthma and if they had symptoms of infection. As the patient has severe asthma which has not improved despite the initial treatment, it is not suitable to send them home with antibiotics.

Question:

A 70-year-old man with small cell lung cancer has presented to the emergency department complaining of weakness in his limbs. He says the weakness is worse in his legs, but he gets slightly less weak the more that he moves, and he has no pain anywhere and no other symptoms. Which of the following is he most likely to be suffering from?

A.ADH (anti-diuretic hormone) excess

B.Cauda equina syndrome

C.Lambert Eaton syndrome

D.Myasthenia gravis

E.Spinal cord compression

Answer:Lambert Eaton syndrome

Explanation:

Lambert Eaton syndrome involves weakness in the muscles of the proximal arms and legs, and one of the ways it can be differentiated from myasthenia gravis is that the legs are normally worse affected

Important for meLess important

This is a typical history of lambert eaton syndrome- small cell lung cancer with weakness that is worse in the legs. It can be differentiated from myasthenia gravis, which typically affects the face and arms earlier, and lambert eaton syndrome gets slightly better with muscle use, whereas myasthenia gravis is worsened by muscle use. Nothing in the question points towards ADH excess. Spinal cord compression and cauda equina syndrome are important differentials to consider in cancer patients with weakness, however he reports no back pain and no other symptoms, so it is not the most likely diagnosis.

Question:

A 25-year-old G1P0 woman who is 30 weeks pregnant presents to her GP complaining of intense itching of her palms. She also complains of fatigue but has been struggling with this throughout her pregnancy. On examination, you cannot see any rash on her hands.

Given the likely diagnosis, which of the following is she at an increased risk of?

A.Eclampsia

B.Miscarriage

C.Oligohydramnios

D.Primary post-partum haemorrhage (PPH)

E.Stillbirth

Answer:Stillbirth

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 correct answer is 'stillbirth'.

This patient is likely to be suffering from intrahepatic cholestasis of pregnancy (also known as obstetric cholestasis). Patient's typically present in the third trimester with intense itching that is generally worst on the palms of the hands and soles of the feet. It is not associated with a rash. Intrahepatic cholestasis of pregnancy increases the risk of stillbirth.

Eclampsia is the occurrence of at least one convulsion in a pre-eclamptic woman. It is an obstetric emergency. Intrahepatic cholestasis of pregnancy is not known to increase the risk of this. Risk factors for pre-eclampsia (and therefore eclampsia) include nulliparity, hypertension and chronic kidney disease.

A miscarriage is the loss of a pregnancy at less than 24 weeks gestation. As this patient is past this point in her pregnancy she can no longer have a miscarriage and a loss of her pregnancy would instead be classed as a stillbirth.

Oligohydramnios refers to a low level of amniotic fluid during pregnancy. Intrahepatic cholestasis of pregnancy is not known to increase the risk of this. Causes of oligohydramnios include placental insufficiency, renal agenesis and viral infections.

Primary PPH is the loss of at least 500ml blood per-vagina within 24 hours of delivery. Intrahepatic cholestasis of pregnancy is not known to increase the risk of this. Risk factors for PPH include multiple pregnancy, placental problems and instrumental delivery.

Question:

The radiograph below was taken from a patient who presented with pain, swelling and erythema of the right knee.

© Image used on license from Radiopaedia

What is the diagnosis?

A.Osteoarthritis

B.Rheumatoid arthritis

C.Pseudogout

D.Gout

E.Tibial plateau fracture

Answer:Pseudogout

Explanation:

Chondrocalcinosis helps to distinguish pseudogout from gout

Important for meLess important

The radiograph demonstrates chondrocalcinosis (visible calcification of cartilage), a sign pathognomonic of pseudogout.

Question:

A 45-year-old obese man with a history of type 2 diabetes mellitus is reviewed in clinic. He is well and asymptomatic. His recent annual blood tests have shown slightly abnormal liver function tests:

Bilirubin 20 µmol/L (3 - 17)

ALP 104 u/L (30 - 100)

ALT 53 u/L (3 - 40)

γGT 58 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

A follow-up liver ultrasound is reported as showing fatty changes. Other standard liver screen bloods, including viral serology, are normal. His alcoholic intake is within recommended limits.

What is the most appropriate next test to perform?

A.Endoscopic ultrasound (EUS)

B.Enhanced liver fibrosis blood test

C.Repeat liver ultrasound after calorific restricted diet for 1 month

D.Liver biopsy

E.High-sensitivity C-reactive protein

Answer:Enhanced liver fibrosis blood test

Explanation:

In patients with non-alcoholic fatty liver disease, enhanced liver fibrosis (ELF) testing is recommended to aid diagnosis of liver fibrosis

Important for meLess important

This is a typical patient who has non-alcoholic fatty liver disease - obese and with type 2 diabetes mellitus.

NICE recommend that if NAFLD is found incidentally then an enhanced liver fibrosis (ELF) blood test should be performed to assess for more severe liver disease.

Question:

A mother on the postnatal ward informs the doctor that her baby has not been tolerating feeds, and has been vomiting a 'green-coloured' substance.

The baby was born via caesarean section at term 6 hours ago. He was diagnosed with Down's syndrome antenatally.

On examination, the abdomen is soft but appears to be distended. An abdominal x-ray is ordered, which shows a 'double bubble' sign.

What is the most likely diagnosis?

A.Biliary atresia

B.Intestinal atresia

C.Malrotation with volvulus

D.Necrotising enterocolitis

E.Oesophageal atresia

Answer:Intestinal atresia

Explanation:

Bilious vomiting on the first day is likely due to intestinal atresia

Important for meLess important

The correct answer is intestinal atresia. The presence of bilious vomiting in early life typically suggests a bowel obstruction. The fact that this has occurred on the first day of life indicates there is most likely an underlying structural issue, such as intestinal atresia. Additionally, children with Down's syndrome are at a higher risk of developing this condition, especially at the duodenum. The diagnosis of intestinal/duodenal atresia is further supported by the presence of the 'double bubble' on the x-ray.

Biliary atresia is incorrect as this would not cause the clinical picture outlined above. This is a condition in which there is blockage of the biliary system, resulting in neonatal jaundice beyond 14 days, of life, with dark urine and pale stools.

Malrotation with volvulus is incorrect. While this can cause bilious vomiting, it tends to present around 3 days to 7 days following birth.

Necrotising enterocolitis is incorrect. Again, this can cause bilious vomiting but typically does not occur so early following birth. Additionally, it is typically a condition of prematurity and is rarely seen in infants born at term.

Oesophageal atresia is incorrect. Blockage at the level of the oesophagus would not result in bilious vomiting, as this is proximal to the point at which bile enters the gastrointestinal tract. This condition typically presents coughing/choking during feeding, and tends to be associated with a series of other birth defects, which is often summarised as VACTERL:

Vertebral anomalies

Anorectal malformations

Cardiovascular anomalies

Tracheoesophageal fistula

Esophageal atresia

Renal anomalies

Limb defects

Question:

A 3-month-old boy is brought to the clinic by his parents who are concerned about a bluish-tinge to their child's lips and skin. This tends to occur in episodes whenever he is upset.

He has also been breathing faster than usual and looks generally unwell. On examination, there is an ejection systolic murmur. A chest X-ray reveals a 'boot-shaped heart'.

What feature of his condition would most determine the degree of cyanosis and clinical severity?

A.Overriding aorta

B.Patent ductus arteriosus

C.Right ventricular hypertrophy

D.Right ventricular outflow obstruction

E.Ventricular septal defect

Answer:Right ventricular outflow obstruction

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

This infant has episodes of cyanosis, typically when upset, which alongside the ejection systolic murmur (due to pulmonary stenosis) and a 'boot-shaped heart' on a chest x-ray, suggests a diagnosis of tetralogy of Fallot (TOF).

Right ventricular outflow obstruction (due to pulmonary stenosis) is correct. If there is significant stenosis, deoxygenated blood entering the right ventricle can only travel into the arterial circulation via the overriding aorta (i.e. it cannot travel into the pulmonary circulation like normal due to the stenosis of the pulmonary valve). This will lead to an increased amount of deoxygenated blood in the arteries, causing a bluish-tinge to the skin (i.e. cyanosis). If the degree of pulmonary stenosis is less, deoxygenated blood entering the right ventricle can travel into the pulmonary circulation and not into the aorta, thus allowing oxygenation and less severe cyanosis.

Overriding aorta is incorrect. The presence of an overriding aorta means that blood pumped from both the right and left ventricles enters the systemic circulation. However, it does not impact the severity of cyanosis as this is dependent on the amount of oxygenation the returning venous blood gets.

Patent ductus arteriosus (PDA) is incorrect as this is not a feature in TOF.

Right ventricular hypertrophy is incorrect. This is a consequence of right ventricular outflow obstruction as the muscle undergoes hypertrophy in response to the obstructed pulmonary valve and does not contribute to clinical severity as much as the degree of pulmonary stenosis.

Ventricular septal defect (VSD) is incorrect. VSD allows deoxygenated blood to enter the systemic circulation, thereby contributing to cyanosis and disease severity. However, it does not determine the severity, as it has nothing to do with the obstruction of deoxygenated blood from entering the pulmonary circulation and becoming oxygenated.

Question:

A 65-year-old lady is undergoing a total hip replacement. Her past medical history includes hypertension, polymyalgia rheumatica and asthma. Seven hours post-op the patient becomes unwell.

The post-op bloods are as follows:

Hb 96 g/l

Platelets 256 \* 109/l

WBC 7.8 \* 109/l

Neuts 5.7 \* 109/l

Na+ 131 mmol/l

K+ 6.0 mmol/l

Urea 6.5 mmol/l

Creatinine 90 µmol/l

CRP 59 mg/l

Glucose 3.4 mmol/l

From the following options, what is the most likely reason for this patient becoming unwell?

A.Osteomyelitis

B.Sepsis

C.Acute kidney injury

D.Anaemia

E.Addisonian crisis

Answer:Addisonian crisis

Explanation:

The combination of the blood results (low sodium, high potassium, low glucose) and the history of steroid use makes Addisonian crisis the most relevant answer.

Question:

A 74-year-old woman sees her GP when ongoing urinary symptoms. She reports 'leaks' whenever she coughs or sneezes. Despite regular pelvic floor muscle exercises, these episodes of incontinence are still occurring.

Upon discussion of possible management options, the patient states that she would not like any form of surgical intervention for this problem.

What is the next appropriate treatment option?

A.Bladder retraining exercises

B.Duloxetine

C.Oxybutynin

D.Desmopressin

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

This patient is suffering from stress incontinence. As pelvic floor muscle exercises have failed to improve her symptoms, duloxetine is the next step in management in patients who decline surgical intervention.

Bladder retraining exercises are effective in patients with urge incontinence, they aren't used in the management of stress incontinence.

Oxybutynin and tolterodine are anti-muscarinic agents that are used to manage patients with urge incontinence.

Desmopressin is used in the treatment of nocturnal enuresis.

Question:

Which of these is correct in regards to the management of endometrial cancer?

A.Most patients present with stage 1 disease, and are therefore amenable to surgery alone

B.Endometrial biopsy is not required for diagnosis

C.Chemotherapy is used more extensively in treatment than radiotherapy

D.Lymphadenectomy in early stage disease is usually beneficial

E.Progestogens are often used in treatment

Answer:Most patients present with stage 1 disease, and are therefore amenable to surgery alone

Explanation:

1: Correct, 75% of patients present with stage 1 disease, which is generally treated with a hysterectomy and bilateral salpingo-oophorectomy.

2: Endometrial biopsy is required for diagnosis.

3: Radiotherapy is used more often than chemotherapy, particularly in treating high-risk patients post-hysterectomy or in pelvic recurrence.

4. Routine lymphadenectomy is not usually beneficial.

5. Progestogens are now seldom used in treatment.

Question:

A 74-year-old female presents with worsening shortness of breath for the past week. She has a background of COPD and smokes around 10 cigarettes a day. She has a chronic cough which she has had 'for years.' The cough has not changed in character recently. On chest auscultation, she has reduced air entry throughout, diffuse wheeze, and no focal crepitations. Her respiratory rate is 23 breaths/min, her temperature is 37.80ºC, and her oxygen saturations are 95% on air. Her heart rate and blood pressure are normal.

Which of the following is the most appropriate management?

A.Admit to hospital

B.Increase use of bronchodilator inhaler and prescribe amoxicillin and prednisolone for five days.

C.Prescribe amoxicillin for seven days and continue normal inhaler regime

D.Increase use of bronchodilator inhaler and prescribe a five day course of oral prednisolone

E.Stop usual inhalers and prescribe a five day course of oral prednisolone

Answer:Increase use of bronchodilator inhaler and prescribe a five day course of oral prednisolone

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 patient does not have any signs of bacterial pneumonia - her cough hasn't changed and she has no clinical signs of consolidation. Therefore NICE recommends a trial of steroids with increased inhaler use first line.

Her observations are reasonable, she does not need to be admitted to the hospital-based on the information given above, though she should be monitored for any deterioration. A tool like CURB65 can be used to help guide decisions around whether or not a patient needs hospital admission.

Amoxicillin and prednisolone are indicated in combination where there are specific markers of infection clinically, ie focal consolidation, or purulent sputum.

A patient with COPD should never stop their inhalers, especially when unwell.

Question:

A 56-year-old man presents to the GP with a 5-day history of lower back pain after he was moving a TV in the house. During this time, he has found that his right foot has been numb. He has had no saddle paraesthesia or incontinence.

On examination, there is sensory loss over the posterolateral aspect of the leg and lateral aspect of the foot and weakness in plantarflexion of the foot. When raising the right leg keeping the knee in extension, he feels pain described as 'shooting' down his leg. The ankle reflex is reduced and all other reflexes are normal.

What site is most likely to be affected in this patient?

A.L3

B.L4

C.L5

D.S1

E.S2

Answer:S1

Explanation:

S1 lesion features = Sensory loss of posterolateral aspect of leg and lateral aspect of foot, weakness in plantar flexion of foot, reduced ankle reflex, positive sciatic nerve stretch test

Important for meLess important

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. 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).

S1 is correct. Since the ankle reflex is mediated by the S1 and S2 nerve roots, and is weak in this scenario, L4 and L5 are less likely to be involved. The shooting pain experienced when flexing the hip keeping the knee extended describes the sciatic nerve stretch test, which becomes positive at the levels of L4, L5, and S1 (the roots of the sciatic nerve), which helps narrow down the likely answer. Therefore, the likely site affected is S1. Overall, S1 nerve root compression causes sensory losses over the posterolateral aspect of the leg and lateral aspect of the foot, weakness in plantarflexion, a reduced ankle reflex, and a positive sciatic nerve stretch test, which are all seen here.

L3 is incorrect as since this is not involved in the ankle reflex (mediated by S1 and S2), this does not explain the patient's weak ankle reflex. This also does not form the roots of the sciatic nerve (L4, L5, and S1), therefore, it does not have a positive sciatic nerve stretch test. A lesion at this level also has sensory loss over the anterior thigh, weak hip flexion, knee extension, hip adduction, and a reduced knee reflex, which are not seen here.

L4 is incorrect. Although this can have a positive sciatic nerve stretch test (as it forms one of the roots of the sciatic nerve), this is associated with a reduced knee reflex (which is not seen here) and does not explain the weak ankle reflex seen in this patient. Furthermore, this causes sensory loss over the anterior aspect of the knee and medial malleolus and weak knee extension and hip adduction which are not seen here.

L5 is incorrect. Although this can have a positive sciatic nerve stretch test (as it forms one of the roots of the sciatic nerve), this does not explain the weak ankle reflex seen in this patient. Furthermore, this causes a sensory loss over the dorsum of the foot and weakness in big toe dorsiflexion which is not seen here. Reflexes are intact in an L5 lesion as it is not involved in the knee jerk reflex (L3 and L4) or the ankle reflex (S1 and S2).

S2 is incorrect. Although this can cause a weak ankle reflex (as it is mediated by S1 and S2), this does not have a positive sciatic nerve stretch test (as the sciatic nerve has nerve roots L4, L5, and S1). Furthermore, this causes sensory loss on the medial side of the inferior aspect of the foot and the posterior middle segment of the leg which are not seen here.

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 45-year-old woman present to her general practitioner with a new-onset rash on her forearms. She says that it is not itchy and denies any other symptoms. She has a past medical history of recurrent urinary tract infections that she usually treats with amoxicillin. Otherwise, she feels well and does not take any regular medication. Her rash is shown below:

© Image used on license from DermNet NZ

Which one of the following is the most likely diagnosis?

A.Bullous pemphigoid

B.Erythema marginatum

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 giant non-itchy target lesions on her forearm. 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 or drugs usage. This patient is taking amoxicillin (penicillin) for her recurrent urinary tract infections, which probably triggered the reaction.

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 marginatum is a form of reactive inflammatory erythema seen in around 10% of the cases of rheumatic fever and it is rare in adults. It involves pink rings on the torso and inner surfaces of the limbs that are barely raised and are non-itchy. In this case, the lesions are not itchy, but they are clearly raised. This patient does not complain of other symptoms, making this diagnosis 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. This patient's lesions are targeted lesions, whilst in erythema nodosum, you would expect a more of a 'bulging' lesion.

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 woman who is taking the combined oral contraceptive pill comes to see you in clinic. She is worried about the risk of cancer from taking the pill after hearing something on the news. You sit down with her and talk about evidence-based medicine. The combined oral contraceptive pill is thought to reduce the risk of which of the following types of cancer?

A.Breast

B.Ovarian

C.Liver

D.Lung

E.Cervical

Answer:Ovarian

Explanation:

Combined oral contraceptive pill

increased risk of breast and cervical cancer

protective against ovarian and endometrial cancer

Important for meLess important

Studies have shown that the combined oral contraceptive pill (COCP) causes a slight risk in breast cancer. However, the evidence suggests that after 10 years of stopping the pill, a woman would remain at her background risk.

The COCP is also thought to increase the risk of cervical cancer. However, this may be because women who are taking the pill are less likely to be using barrier contraception and more likely to pick up HPV which is a risk factor for cervical cancer.

The combined oral contraceptive pill is also associated with an increased risk of benign and malignant tumours.

Evidence has shown there is no increase in the risk of lung cancer in women who take the oral contraceptive pill, compared to women who don't.

The oral contraceptive pill has been shown to reduce the risk of ovarian cancer, endometrial cancer and bowel cancer.

Question:

A 48-year-old female attends for an appointment with her GP as she has been experiencing some green-brown coloured nipple discharge. She is otherwise well and denies any other changes to her breasts. She has had 3 children which she has breastfed and isn't on any hormonal contraception. What is the most common cause of brown-green nipple discharge?

A.Breast cancer

B.Duct ectasia

C.Prolactinoma

D.Fat necrosis of the breast

E.Paget's disease of the breast

Answer:Duct ectasia

Explanation:

Brown-green nipple discharge is most commonly associated with duct ectasia.

Important for meLess important

Brown-green nipple discharge is often associated with duct ectasia. This is a condition often found in women around the menopause and occurs due to a dilation of the milk duct as a result of ageing. This may or may not be associated with a small lump right under the nipple.

Breast cancer can sometimes present with nipple discharge, however, this is likely to be bloody and coming from one nipple. A prolactinoma is a benign pituitary tumour which produces prolactin. As a result, there is bilateral lactation, often a cream colour discharge.

Fat necrosis of the breast often occurs due to blunt trauma to the breast, as a result, a hard lump may be felt, but there is no associated nipple discharge. Paget's disease of the nipple often presents with a change in the skin of the nipple and areola. There is often no associated nipple discharge.

Question:

A 55-year-old man presents to the GP with fatigue and shortness of breath on exertion. Blood tests are performed which show the following:

Hb 102 g/L (135 - 180)

Mean cell volume 110 fL (82 - 100)

Platelets 200 \* 109/L (150 - 400)

WBC 5.6 \* 109/L (4.0 - 11.0)

Folate 2.0 nmol/L (>3.0)

Vitamin B12 150 ng/L (200 - 900)

Intrinsic factor positive

He started taking over-the-counter folic acid supplements prior to taking B12 injections, and, he presents to the emergency department with weakness in the lower limbs.

Given the likely diagnosis, what other features are most likely to be seen?

A.Hyperreflexia and no loss of sensation

B.Hyperreflexia, loss of pain sensation, and loss of temperature sense

C.Hyperreflexia, loss of proprioception, and loss of vibration sense

D.Hyporeflexia, loss of pain sensation, and loss of temperature sense

E.Hyporeflexia, loss of proprioception, and loss of vibration sense

Answer:Hyperreflexia, loss of proprioception, and loss of vibration sense

Explanation:

Distal sensory loss, tingling + absent ankle jerks/extensor plantars + gait abnormalities/Romberg's positive → subacute combined degeneration of the spinal cord

Important for meLess important

This patient has macrocytic anaemia secondary to a B12 and folate deficiency, as shown by their blood tests. The positive intrinsic factor indicates that pernicious anaemia is likely. The management of a B12 and folate deficiency involves replacing B12 before replacing folate (which can be remembered as BeFOre). This patient has taken folate supplements before taking B12 injections, which can precipitate subacute combined degeneration of the spinal cord (SCDSC), which is characterised by losses of myelin in the dorsal and lateral columns of the spinal cord, and the spinocerebellar tracts. A helpful way of remembering the tracts affected is Subacute Combined Degeneration (SCD): Spinocerebellar tract, Corticospinal tract, and Dorsal columns.

Hyperreflexia, loss of proprioception, and loss of vibration sense is correct. The corticospinal tract is involved in the control of spinal reflexes, therefore its impairment can lead to hyperreflexia. The dorsal columns are involved in proprioception and vibration, therefore, impairment can lead to sensory loss and impaired proprioception and vibration sense.

Hyperreflexia and no loss of sensation is incorrect. As mentioned above, although impairment of the spinocerebellar tract can lead to hyperreflexia, SCDSC also affects the dorsal columns, which are involved in proprioception and vibration sense, therefore these two are also impaired.

Hyperreflexia, loss of pain sensation, and loss of temperature sense is incorrect. Although impairment of the spinocerebellar tract leads to hyperreflexia, pain and temperature sense are mediated by the lateral spinothalamic tract, which is not usually affected by SCDSC.

Hyporeflexia, loss of pain sensation, and loss of temperature sense is incorrect as impairment of the spinocerebellar tract leads to hyperreflexia, not hyporeflexia. Furthermore, pain and temperature sense is mediated by the lateral spinothalamic tract, which is not usually affected by SCDSC.

Hyporeflexia, loss of proprioception, and loss of vibration sense is incorrect as although involvement of the dorsal columns leads to impaired vibration sense and proprioception, involvement of the spinocerebellar tract leads to hyperreflexia, not hyporeflexia.

Question:

A 64-year-old woman presents with her husband to the GP. Her husband describes how she has become more irritable and impulsive over the past year, buying expensive jewellery without telling him. He thinks she has developed more of a sweet tooth lately. During the consultation, the patient starts crying without warning. There is no previous psychiatric history. Her father developed a gambling addiction in later life.

What is the most likely diagnosis?

A.Bipolar affective disorder

B.Schizophrenia

C.Borderline personality disorder

D.Frontotemporal dementia

E.Lewy-body dementia

Answer:Frontotemporal dementia

Explanation:

Frontotemporal dementia presents with social disinhibition and often has a family history

Important for meLess important

In frontotemporal dementia, memory and visuospatial skills are usually not the main complaint, and the differential often includes psychiatric disorders. However, it develops later in life and often has a family history.

Bipolar affective disorder, schizophrenia and borderline personality disorder would present earlier in life with different predominant symptoms: depression and mania in bipolar disorder, hallucinations and delusions in schizophrenia, and difficult emotions and behaviours in borderline personality disorder.

Lewy-body dementia has more prominent memory features than frontotemporal dementia, and patients may experience visual hallucinations and Parkinsonian symptoms.

Question:

During your night shift you are called to see a 19-year-old man complaining of severe abdominal pain. The nurse informs you that he received an allogenic bone marrow transplant ten days previously and on examination you note a tender maculopapular rash primarily confined to his neck, the palms of his hands and the soles of his feet. He also reports passing two type 7 stools just before your arrival.

Given the clinical history and features, what is the most likely diagnosis?

A.Viral gastroenteritis

B.Graft verses host disease

C.Acute mesenteric ischaemia

D.Aplastic crisis

E.Sepsis of unknown origin

Answer:Graft verses host disease

Explanation:

A painful maculopapular rash is a common feature of graft versus host disease

Important for meLess important

The above symptoms, coupled with a painful maculopapular rash, should make you think of graft verses host disease (GVHD) in a patient with a recent history of allogenic bone marrow transplant.

Viral gastroenteritis could certainly present with acute abdominal pain and watery diarrhoea, however it would not present with this particular rash.

The same also applies to acute mesenteric ischaemia - it would also be very unlikely in this age group with no pro-thrombotic factors.

Aplastic crisis secondary to parvovirus B19 infection in patients with sickle cell disease can present with a rash and acute abdominal pain. However, the question specially mentions an allogenic bone marrow transplant and there is no mention in this patient's history of sickle cell disease.

Sepsis of unknown origin can also present atypically in haematological patients. However, there is not enough information in the question to make this diagnosis.

Question:

A 2-year-old boy is brought to the Emergency Department, during the autumn period, with severe dyspnoea at rest. He has been unwell for the past week with a barking cough and inspiratory stridor which are typically worse in the late evening. On examination, intercostal and subdiaphragmatic recessions are noticeable. A chest radiograph shows tapering of the upper trachea.

What is the most likely causative organism for this boy's presentation?

A.Bordetella pertussis

B.Parainfluenza virus

C.Parvovirus B19

D.Respiratory syncytial virus

E.Streptococcus pyogenes

Answer:Parainfluenza virus

Explanation:

Croup is more common in autumn months

Important for meLess important

The correct answer is parainfluenza virus. This patient is presenting with dyspnoea at rest on a background of being generally unwell. This, combined with the time of year and X-ray findings make a diagnosis of croup most likely. Croup is most likely caused by parainfluenza virus.

Bordetella pertussis is incorrect as this is the cause of pertussis (whooping cough). This is more likely to present with an intense paroxysmal cough followed by a loud, high-pitched whooping sound.

Parvovirus B19 is incorrect as this is the cause of fifth disease (AKA erythema infectiosum). This is more likely to present with a feverish prodrome before a red rash appears on the cheeks which may spread to the torso.

Respiratory syncytial virus is incorrect as this is a cause of bronchiolitis. This is more likely to present with coryzal symptoms followed by a cough. There is unlikely to be any upper airway obstruction, making stridor and 'steeple sign' very unlikely.

Streptococcus pyogenes is incorrect as this is a cause of scarlet fever. This is more likely to present with fever, malaise, strawberry tongue and a fine punctate erythema on the torso which spares the palms and soles.

Question:

A 37-year-old man patient presents to the emergency department with severe chest pain for the past hour. He has never experienced pain like this before. Prior to this, the patient had profuse vomiting. He reports excessive drinking prior to admission. In the last 30 minutes, he has begun to sweat excessively, shake, and feel light-headed. He was otherwise previously well.

On examination, his heart rate is 110 beats per minute, his blood pressure is 80/40mmHg, and his respiratory rate is 25 breaths per minute, and there is crepitus on palpation of the chest wall.

What is the most likely cause of his symptoms?

A.Acute pancreatitis

B.Anterior myocardial infarction

C.Aortic dissection

D.Boerhaave syndrome

E.Mallory-Weiss tear

Answer:Boerhaave syndrome

Explanation:

Vomiting → severe chest pain, shock - Boerhaave syndrome

Important for meLess important

This patient had an episode of vomiting which subsequently resulted in severe chest pain and shock. He has likely had a rupture of his oesophagus, a condition known as Boerhaave syndrome. This is supported by the presence of crepitus on examination.

Acute pancreatitis is less likely in this patient due to the presence of crepitus, which is highly suggestive of oesophageal rupture. Oesophageal rupture is also supported over acute pancreatitis by the presence of chest pain: acute pancreatitis more commonly presents with upper abdominal pain rather than chest pain.

Anterior myocardial infarction is a possibility but is less likely given the history of heavy drinking. There is also no mention of any cardiovascular risk factors in this patient however ACS is not completely ruled out and an immediate 12-lead ECG would be appropriate.

Aortic dissection is a possible differential; however, it is less likely in a young male with no risk factors. Boerhaave's syndrome more adequately explains both history and examination findings in this patient, such as the surgical emphysema which would not be found in aortic dissection.

Mallory-Weiss tear is unlikely to cause enough blood loss to result in shock and also does not cause severe chest pain.

Question:

You are speaking to a 24-year-old man who is known to have haemophilia A. His wife has had genetic testing and was found not to be a carrier of haemophilia. He asks you what the chances are of his future children developing haemophilia. What is the correct answer?

A.0%

B.25%

C.50%

D.50% if male, 0% if female

E.100%

Answer:0%

Explanation:

X-linked recessive conditions - there is no male-to-male transmission. Affected males can only have unaffected sons and carrier daughters.

Important for meLess important

As we now know that mother is not a carrier of the disease there is no chance that any future children could develop haemophilia. You should of course also discuss with him that any daughters that he has will be carriers of the condition.

Question:

A 32 year-old lady has a diagnosis of fibroids and has been trying for a baby for 18 months. She has been under investigation at the sub-fertility clinic and no abnormality has been found except for three uterine fibroids, for which she does not have any symptoms. Her partner has had sperm analysis which found no abnormality.

Which of the following treatments are most appropriate in this situation?

A.Myomectomy

B.Goserelin acetate (GnRH agonist)

C.Endometrial ablation

D.Uterine artery embolisation

E.Ulipristal acetate

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

Myomectomy is the only treatment option here that will also retain this lady's fertility. Depending on the operation performed, and whether the uterine cavity was entered, the lady would need counselling in regards to delivery, since often a caesarean section is advised due to risk of uterine rupture.

GnRH agonists effectively turn off the ovaries, which causes the fibroids to shrink and therefore are easier to remove surgically. On stopping the medication, the fibroids grow back. As this treatment turns off the ovaries, it inhibits ovulation and therefore means that pregnancy is not possible during this time. As a treatment on its own, it would not be suitable in this case as it causes temporary infertility and fibroid regrowth on cessation. However, if combined with a myomectomy, it would provide a suitable treatment option.

Endometrial ablation destroys the endometrial lining, therefore meaning that an embryo would not be able to implant.

Uterine artery embolisation is not recommended if trying to conceive as it cuts down the blood supply to the uterus significantly, therefore meaning that the fetus would be unable to implant and grow.

Ulipristal acetate is a selective progesterone receptor modulator. It is used pre-operatively for women with fibroids as it has been proven to shrink them, thus making surgery easier. This medication affects fertility, thus is not suitable for women trying to get pregnant, unless (like GHRH agonists) it is used for a short period in combination with surgery.

Question:

An 8-year-old boy presents to the emergency department severely short of breath and wheezy. He is extremely short of breath and cannot complete sentences fully. His peak expiratory flow rate is 300 l/min (40% of normal). His oxygen saturations are 93%. His pCO2 is 4.9 kPa.

Which of the above is most concerning?

A.Wheeziness

B.pCO2 (kPa)

C.Peak expiratory flow rate

D.Oxygen saturations

E.Cannot complete sentences

Answer:pCO2 (kPa)

Explanation:

A normal pCO2 in an acute asthma attack indicates it is life-threatening

Important for meLess important

The most specific indicators of a life-threatening asthma attack are:

Cyanosis

Poor respiratory effort

Peak expiratory flow rate < 33%

Silent chest

Altered level of consciousness

An oxygen saturation of <92% is life threatening, not 93%.

A normal pCO2 is indicative of reduced respiratory effort in asthma as is, therefore, a life-threatening sign. Normal pCO2 is 4.8-6 kPa.

Wheeziness does not indicate the severity of attack (although does exclude a life-threatening attack as the chest is usually silent in this case).

The patient's expiratory flow rate is 40% and so would be classed as severe.

An inability to complete sentences would also indicate a severe attack.

Question:

A 40-year-old woman visits the GP with a two-month history of unintentional weight loss. She reports feeling more fatigued than usual but otherwise has no localising signs or symptoms. On examination, hyperpigmentation and thickening of the skin in her groin and axilla are noted; the patient believes this has also been present for approximately 2 months.

Which malignancy is most associated with this presentation?

A.Ductal cell carcinoma of the breast

B.Gastric adenocarcinoma

C.Gastric squamous cell carcinoma

D.Multiple myeloma

E.Pancreatic carcinoma

Answer:Gastric adenocarcinoma

Explanation:

The most common malignancy associated with acanthosis nigricans

is gastrointestinal adenocarcinoma

Important for meLess important

This presentation is consistent with a diagnosis of acanthosis nigricans. Although a multitude of benign conditions such as hyperinsulinaemia and obesity can cause this, 90% of malignant causes of acanthosis nigrans are gastrointestinal adenocarcinoma.

Ductal cell carcinoma of the breast is associated with extramammary Paget's disease.

Gastric squamous cell carcinoma is most associated with acrokeratosis paraneoplastica, in regards to cutaneous manifestations.

Multiple myeloma can cause pityriasis rotunda but is seldom a cause of acanthosis nigricans.

Pancreatic carcinoma is associated with superficial thrombophlebitis also known as Trousseau syndrome.

Question:

A 24-year-old male presents to your GP surgery with a 2-week history of widespread swollen and painful joints. It affects the majority of his joints; both large and small. It started suddenly one morning when he woke up and it is affecting his job and he is struggling to walk. He denies any recent sexual exposure.

On examination, many of his joints are warm to touch and have effusions. You cannot see any signs of a rash or nail changes. You do some basic blood tests.

His rheumatoid factor (RF) and anti-CCP are negative. However, his serum ACE levels are twice the upper level of normal. What is the most likely diagnosis?

A.Acute sarcoidosis

B.Rheumatoid arthritis

C.Reactive arthritis

D.Psoriatic arthritis

E.Fibromyalgia

Answer:Acute sarcoidosis

Explanation:

Sarcoidosis is often asymptomatic but it can present acutely with arthritis. It is often a sudden onset and can mimic other types of arthritis.

ACE levels are normally high with sarcoidosis. Treatment is with steroids to try and get the flare under control. Interval chest x-rays should be considered to keep the bilateral hilar lymphadenopathy under surveillance.

Rheumatoid is very unlikely given the negative RF and anti-CCP. Reactive arthritis needs to be considered in this age group however you don't get a raised ACE level. Psoriatic arthritis again needs to be considered but again with no rash no other signs it is unlikely. Fibromyalgia would present with more widespread soft tissue pain rather than specifically just joint pain.

Question:

An 81-year-old woman is due to have a contrast-enhanced CT scan to investigate suspected lung cancer. She suffers from chronic kidney disease, due to a history of hypertension.Her most recent eGFR is 50ml/min/1.73m2. Due to the increased risk of contrast-induced acute kidney injury in this patient, which of the following would be most appropriate?

A.Wait for eGFR to improve

B.Offer IV hydration before and after contrast infusion

C.Maintain tight blood pressure control

D.Offer IV infusion of acetylcysteine

E.Temporarily stop patient's ACE inhibitors

Answer:Offer IV hydration before and after contrast infusion

Explanation:

There is evidence that an infusion of IV 0.9% sodium chloride at a rate of 1 mL/kg/hour for 12 hours pre- and post- procedure reduces the incidence of contrast-induced acute kidney injury in patients at increased risk.

There is some evidence to support an IV infusion of acetylcysteine, but this evidence is not strong. As such this practice is not recommended by NICE.

The guidelines also suggest that a discussion takes place with at-risk patients, around whether or not contrast is truly necessary.

Waiting for the patient's eGFR to improve is not realistic in this scenario, as it is unlikely to improve given that she has chronic kidney disease.

Maintaining tight control of blood pressure is not recommended in this setting.

Potentially nephrotoxic medications such as NSAIDs should be stopped therapy, but NICE guidelines state that temporary cessation of ACE inhibitor therapy should be considered only when a patient's eGFR is less than 40ml/min/1.73m2.

References:

NICE (2013). Acute Kidney Injury: Prevention, detection and management up to the point of renal replacement therapy.

Question:

A 32-year-old woman at 17 week gestation attends the early pregnancy assessment unit. She complains of light vaginal bleeding and fevers for 2 days and increasing abdominal pain for 6 hours.

On examination, there is diffuse abdominal tenderness and foul-smelling vaginal discharge.

Her temperature is 39.2ºC and blood pressure 112/78 mmHg.

Her full blood count is as follows:

Hb 107 g/L Male: (135-180)

Female: (115 - 160)

Platelets 189 \* 109/L (150 - 400)

WBC 13.2 \* 109/L (4.0 - 11.0)

Ultrasound scan confirms miscarriage.

What is the most appropriate management?

A.Intravenous syntocinon

B.Manual vacuum aspiration under local anaesthetic

C.Oral methotrexate

D.Oral mifepristone

E.Expectant management for 7 days

Answer:Manual vacuum aspiration under local anaesthetic

Explanation:

Miscarriage - expectant management is not suitable if evidence of infection or increased risk of haemorrhage

Important for meLess important

This patient has evidence of infection (raised WCC and raised temperature), possibly due to septic miscarriage. NICE state that patients with evidence of infection or increased risk of haemorrhage should receive either medical management (oral or vaginal misoprostol) or surgical management (including manual vacuum aspiration). The options include only surgical management.

Syntocinon is used in the medical management of postpartum haemorrhage.

Methotrexate is used in the medical management of ectopic pregnancy.

Oral mifepristone is used in combination with misoprostol in termination of pregnancy. Mifepristone is not recommended by NICE in the management of miscarriage.

Expectant management is not appropriate for a patient with evidence of infection.

Question:

A 36-year-old male presents to the general practitioner with a 2-month history of generalised weakness and headaches.

Observations show:

Respiratory rate 16 breaths/min

Heart rate 63 beats/min

Blood pressure 168/132mmHg

Temperature 37.2ºC

Oxygen saturations 98% on room air

Blood results include:

Na+ 169 mmol/L (135 - 145)

K+ 2.9 mmol/L (3.5 - 5.0)

Bicarbonate 34 mmol/L (22 - 29)

Urea 4.2 mmol/L (2.0 - 7.0)

Creatinine 74 µmol/L (55 - 120)

A plasma aldosterone/renin ratio is subsequently performed which suggests a peripheral cause of the patient's presentation.

What is investigation could be used to further differentiate the likely underlying diagnosis?

A.Adrenal venous sampling (AVS)

B.Long synacthen test

C.Short synacthen test

D.24-hour urinary metanephrine

E.24-hour urinary serotonin

Answer:Adrenal venous sampling (AVS)

Explanation:

Adrenal venous sampling (AVS) can be used to distinguish between unilateral adenoma and bilateral hyperplasia in primary hyperaldosteronism

Important for meLess important

This patient is presenting with symptoms of lethargy and headache, accompanied by hypertension, hypokalaemia, hypernatraemia and high serum bicarbonate (caused by metabolic alkalosis). This is a classical presentation of primary hyperaldosteronism, otherwise known as Conn syndrome. The first-line investigation of this condition is with an aldosterone/renin ratio, which in this case indicates a peripheral source of excess aldosterone secretion, suggesting an underlying aetiology of either unilateral adrenal adenoma or bilateral adrenal hyperplasia. These two peripheral causes of hyperaldosteronism can be distinguished with adrenal venous sampling. An adrenal adenoma will show excess aldosterone in only one adrenal vein, whereas levels will be raised in both adrenal veins in cases of bilateral adrenal hyperplasia.

Short synacthen test is used to diagnose Addison's disease, a condition characterised by hypoaldosteronism. This would commonly present with weakness, anorexia, weight loss, hyperpigmentation, hyponatraemia and hyperkalaemia. It has no role in hyperaldosteronism.

Long synacthen test is used to differentiate adrenal from pituitary causes of Addison's disease. Again, it has no role in hyperaldosteronism.

24-hour urinary metanephrine is a test used to diagnose pheochromocytomas. These are adrenal tumours that present with episodic hypertension, sweating, anxiety and palpitations. This does not match the patient's presentation.

24-hour urinary serotonin is used to diagnose carcinoid syndrome, a paraneoplastic syndrome commonly characterised by flushing and diarrhoea. Again, this does not match the patient's presentation.

Question:

A 56-year-old man presents to his general practitioner with a mild, productive cough. The cough started three months ago and does not seem to be improving. It is worse on exertion and the sputum is clear. He denies haemoptysis, weight loss and tiredness. He does not have any relevant past medical history. He has a 25-pack-years history of smoking.

Post-bronchodilator spirometry is performed, which shows the following results:

FEV1 2.98 L Expected: 3.60 L

FVC 4.47 L Expected: 4.55 L

FEV1/FVC 0.67 >0.7

How would you classify the condition of this patient?

A.Stage 1 COPD

B.Stage 2 COPD

C.Stage 3 COPD

D.Stage 4 COPD

E.Stage 5 COPD

Answer:Stage 1 COPD

Explanation:

Stage 1 COPD has normal FEV1 readings, but is symptomatic

Important for meLess important

The correct answer is stage 1 COPD. This patient is presenting with a continuous productive cough accompanied by clear sputum and a long history of smoking. These two features should prompt an investigation for COPD. Post-bronchodilator spirometry is usually used to diagnose this condition. The FEV1/FVC ratio need to be inferior to 0.7 indicating an obstructive pattern. The FEV1 is used to stratify the progression of the disease. If the FEV1 is more than 80% of the predicted one as in this case, which is normal, but the patient still has symptoms then the disease is considered to be in stage 1.

Stage 2 COPD is defined as moderate and characterized by an FEV1/FVC<0.7 and an FEV1 50-79% of the predicted one.

Stage 3 COPD is defined as severe and characterized by an FEV1/FVC<0.7 and an FEV1 30-49% of the predicted one.

Stage 4 COPD is defined as very severe and characterized by an FEV1/FVC<0.7 and an FEV1 <30% of the predicted one.

Stage 5 COPD does not belong to the classification suggested by the NICE guidelines.

Question:

A 28-year-old man with no past medical history of note is admitted to the Emergency Department with palpitations. His blood pressure is 120/78 mmHg and his pulse is 165 bpm. An ECG is taken:

What is the treatment of choice?

A.Intravenous amiodarone

B.Oral digoxin

C.Intravenous adenosine

D.Oral bisoprolol

E.Intravenous verapamil

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. If vagal manoeuvres fail to terminate the arrhythmia adenosine should be given.

Question:

A 37-year-old woman presents for review. She is 26 weeks pregnant and has had no problems with her pregnancy to date. Blood pressure is 144/92 mmHg, a rise from her booking reading of 110/80 mmHg. Urine dipstick reveals the following:

Protein negative

Leucocytes negative

Blood negative

What is the most appropriate description of her condition?

A.Moderate pre-eclampsia

B.Mild pre-eclampsia

C.Gestational hypertension

D.Normal physiological change in blood pressure

E.Pre-existing hypertension

Answer:Gestational hypertension

Explanation:

Question:

A 46-year-old man attends the emergency department with a 6-hour history of palpitations. He describes having a fluttering sensation in his chest and feeling intermittently dizzy. There is no history of chest pain or shortness of breath. He was treated for a lower respiratory tract infection 1 week ago with a course of antibiotics but has otherwise been well. His past medical history includes epilepsy, type 2 diabetes and hypertension.

ECG: Sinus rhythm with 1st-degree heart block, prominent U waves are seen.

Which of the following medications is most likely to be responsible for his presentation?

A.Bendroflumethiazide

B.Erythromycin

C.Glimepiride

D.Ramipril

E.Sodium valproate

Answer:Bendroflumethiazide

Explanation:

Thiazides may cause hypokalaemia

Important for meLess important

A prolonged PR interval and prominent U waves are a sign of hypokalaemia. Flattened T waves and ST-segment depression are also features of hypokalaemia. The clinical history can vary from muscular spasms in more mild disease to arrhythmias secondary to myocardial hyperexcitability and the potential to develop re-entrant arrhythmias. Diuretic use including the thiazide diuretic bendroflumethiazide cause hypokalaemia and is, therefore, the correct answer in this question.

Erythromycin is a macrolide antibiotic used in the treatment of multiple bacterial infections, particularly if there is an allergy to penicillin. It can commonly cause gastrointestinal upset. ECG irregularities associated with its use include QT interval prolongation and it should be used with extreme caution in patients with underlying electrolyte abnormalities or those who are predisposed to prolonging of the QT interval. However, hypokalaemia is not a complication of erythromycin.

Glimepiride is a sulfonylurea used in the management of type 2 diabetes mellitus. Common side effects include hypoglycaemia and gastrointestinal symptoms. However, hypokalaemia is not a feature.

Ramipril is an ACE inhibitor used to treat hypertension. In contrast to chlorthalidone, ramipril can cause hyperkalaemia particularly if renal function is impaired. Tall T waves are common ECG findings in hyperkalaemia.

Sodium valproate has multiple side effects including anaemia, alopecia and pancreatitis. It can also cause hyponatraemia but not hypokalaemia.

Question:

A 13-year-old boy is admitted to the orthopaedic ward following an operation to internally fixate his fractured femur. It is day 6 post-op and the nurse has called the Foundation Year 1 doctor as the patient has spiked a temperature overnight at 38.9ºC. On assessment the patient's respiratory rate is 30/minute, heart rate 135 bpm, blood pressure is 126/76 mmHg and the patient has a productive cough. What is the most appropriate management option?

A.Doxycycline

B.Piperacillin with tazobactam

C.Clarithromycin

D.Flucloxacillin

E.Amoxicillin

Answer:Piperacillin with tazobactam

Explanation:

As this patient has been in hospital for 6 days, he is showing signs of a late onset hospital-acquired pneumonia and should be treated with an antipseudomonal penicillin (e.g. piperacillin with tazobactam) or antipseudomonal beta-lactam.

Question:

A 45-year-old man with a history of depression and gastro-oesophageal reflux disease presents with a milky discharge from his nipples. The following blood results are obtained:

Prolactin 700 mu/l

Which one of his medications is most likely to be responsible?

A.Omeprazole

B.Fluoxetine

C.Metoclopramide

D.Cimetidine

E.Amitriptyline

Answer:Metoclopramide

Explanation:

Causes of raised prolactin - the p's

pregnancy

prolactinoma

physiological

polycystic ovarian syndrome

primary hypothyroidism

phenothiazines, metoclopramide, domperidone

Important for meLess important

Selective serotonin reuptake inhibitors such as fluoxetine have rarely been associated with hyperprolactinaemia but the most likely cause in this patient is metoclopramide. Cimetidine is generally associated with gynaecomastia rather than galactorrhoea.

Question:

A 78-year-old woman presents with post-menopausal bleeding. She has had multiple episodes over the past 8 months. She has to wear sanitary pads due to the bleeding, and says it can be quite heavy but denies any clots. She does not have any bowel or urinary symptoms. She denies weight loss and is otherwise well. She went through the menopause at the age of 49 years and took hormone replacement therapy to reduce symptoms of hot flushes and mood swings for 3 years. She has 1 child who was born by spontaneous vaginal delivery 50 years ago. There is no family history of any gynaecological problems. What is the most likely diagnosis?

A.Submucosal fibroid

B.Cervical ectropion

C.Vaginal cancer

D.Endometrial cancer

E.Ovarian cancer

Answer:Endometrial cancer

Explanation:

In women presenting with postmenopausal bleeding (PMB), we must rule out endometrial cancer. A speculum examination should first be performed to look for any obvious abnormalities and ultimately endometrial biopsy and hysteroscopy should be carried out in women over 40 years of age in order to diagnose endometrial cancer. Risk factors for endometrial cancer include ...

Increased age

Nulliparity

Unopposed oestrogen therapy

Early onset of menarche and late onset of menopause

Obesity

Submucosal fibroids usually calcify after the menopause. Ovarian cancer usually presents with minimal symptoms and rarely PMB - more frequently patients will complain of bloating, abdominal pain, weight loss, urinary incontinence. Vaginal cancer usually presents with vaginal discharge. Cervical ectropion does present with bleeding but is usually in younger patients.

Question:

A 32-year-old pregnant woman of South Asian origin is 10+0 weeks into her second pregnancy. She has had one natural delivery at 39 weeks to a healthy child, and no other previous pregnancies. Since she has a strong family history of type 2 diabetes mellitus, she is offered a fasting glucose test at her booking visit. Her fasting glucose level is 7.2 mmol/L.

What is the most appropriate initial management given her fasting glucose level?

A.Advice on diet and exercise

B.Advice on diet and exercise plus daily blood glucose monitoring

C.Gliclazide

D.Insulin

E.Metformin

Answer:Insulin

Explanation:

If at the time of diagnosis of gestational diabetes, the fasting glucose level is >= 7 mmol/l immediate insulin (plus or minus metformin) should be started

Important for meLess important

When fasting glucose is >7 mmol/L at the diagnosis of gestational diabetes insulin should be started immediately. This makes insulin the correct answer here.

Advice on diet and exercise alone would be inappropriate here due to her high fasting glucose level. Advice should be given alongside insulin therapy. Although regular glucose monitoring is key to the management of gestational diabetes when fasting glucose >7 mmol/L at diagnosis insulin should be started.

Sulfonylureas such as gliclazide are contraindicated in pregnancy due to increased risk of fetal macrosomia.

Metformin may be given alongside insulin in this case, but not as monotherapy.

Question:

You a reviewing a 24-year-old man who complains of auditory hallucinations. These have become increasingly common and are now happening on a daily basis. Which one of the following factors in his history is the strongest risk factor for psychotic disorders?

A.Indian subcontinent ethnicity

B.Having a parent with schizophrenia

C.A history of long-term cannabis use

D.A history of being sexually abused when younger

E.Working in the performing arts

Answer:Having a parent with schizophrenia

Explanation:

Family history is the strongest risk factor for psychotic disorders

Important for meLess important

Question:

A 6-week old baby presents with profuse vomiting and constipation. The mother states he has vomited on multiple occasions but generally, he has been happy feeding. The baby looks visibly dehydrated. On examination, there is a small mass located in the abdominal region. An arterial blood gas was performed.

Which blood gas picture would you expect?

A.Low bicarbonate, hyperchloraemia, hypokalaemia

B.Low bicarbonate, hypochloraemia, hypokalaemia

C.Elevated bicarbonate, hypochloraemia, hyperkalaemia

D.Elevated bicarbonate, hypochloraemia, hypokalaemia

E.Elevated bicarbonate, hyperchloraemia, hyperkalaemia

Answer:Elevated bicarbonate, hypochloraemia, hypokalaemia

Explanation:

Pyloric stenosis classically leads to hypochloraemic, hypokalaemic alkalosis

Important for meLess important

Question:

A 28 kg 7-year-old boy has to fast for an elective surgery.

On examination, he is clinically well and there are no signs of dehydration. His vital signs are normal.

What is the amount of maintenance intravenous fluid needed by this patient in 24 hours?

A.700 ml

B.840 ml

C.1360 ml

D.1660 ml

E.1900 ml

Answer:1660 ml

Explanation:

Routine maintenance IV fluid rates for children and young people who do not need an accurate calculation of insensible losses should be calculated using the Holliday–Segar formula

Important for meLess important

An accurate calculation of insensible losses is not necessary for this patient as there is no underlying medical condition. Routine maintenance IV fluid rates for children and young people who do not need an accurate calculation of insensible losses should be calculated using the Holliday–Segar formula\*:

Body weight Fluid requirement/24 h

First 10 kg 100 ml/kg

Second 10 kg 50 ml/kg

Subsequent kg 20 ml/kg

Calculation for patient weighing 28 kg:

First 10 kg x 100 ml/kg = 1000 ml

Second 10 kg x 50 ml/kg = 500 ml

Last 8 kg x 20 ml/kg = 160 ml

1000 ml + 500 ml + 160 ml = 1660 ml over 24 hours

\*Algorithm 2: Fluid resuscitation. Algorithms for IV Fluid Therapy in Children And Young People in Hospital. NICE Guidelines.

Question:

You are working on a night shift and get called to see a nil-by mouth 62-year-old man complaining of generalised tingling and weakness in his arms and legs and blurry vision that has been worsening for the past 20 minutes.

He has a past medical history of type 1 diabetes mellitus (T1DM), previous myocardial infarction and gout. He takes metformin, insulin, ramipril, allopurinol, simvastatin, clopidogrel and bisoprolol.

What immediate investigation would be diagnostic?

A.CT angiogram

B.CT head

C.Capillary glucose

D.MRI head

E.Nerve conduction studies

Answer:Capillary glucose

Explanation:

Hypoglycaemia can lead to focal neurological symptoms and needs to be ruled out as a mimic of TIA

Important for meLess important

Hypoglycaemia is the diagnosis here. Given this patient's history of T1DM and concomitant use of a beta-blocker, it is extremely plausible that this patient is suffering from a hypoglycaemic event whose traditional symptoms are being masked by the use of bisoprolol. Furthermore, he is nil-by mouth and is at further risk of developing hypoglycaemia. A simple bedside BM can be done to diagnose or rule out hypoglycaemia and hence should be done first. In patients who are concomitant beta-blocker therapy, sympathetic symptoms of hypoglycaemia can be masked and as a result they present with abnormal features. In this case, the generalised tingling, weakness and blurry vision in the patient are a cluster of neuroglycopenic symptoms caused by hypoglycaemia.

A stroke syndrome (applies to TIAs) is characterised by dysfunction of the neurovascular unit. A typical stroke presentation occurs hyperacutely, is focal, predominantly negative (loss of a feature), and should fit into a vascular territory. Presenting symptoms do not progress over time (worsening of symptom) e.g. progressive weakness from distal to proximal lower limb. If there is suspicion that the presentation does not fit into the criteria above, stroke/TIA mimics should be considered.

There are many stroke/TIA mimics and some can be ruled out through history (migraine) and some through quick bedside tests (hypoglycaemia).

In this scenario, the patient is complaining of symptoms that do not fit in a vascular territory (generalised tingling all over but right-sided hemiplegia) and progression of symptoms over time (progressive right-sided weakness) which makes a TIA/stroke unlikely.

CT angiogram - is usually only considered following abnormal carotid artery doppler results. Not routinely used to diagnose or rule out TIA/stroke/stroke mimics.

CT head - is poor at showing ischaemia in TIA.

MRI head - not routinely used to diagnose or rule out TIA/stroke/stroke mimics.

Nerve conduction studies - not used in the diagnosis of TIA/stroke. Could be an investigation down the line if MS is considered as a differential for TIA/stroke mimic.

Question:

A 62-year-old man is undergoing an ECG in order to look for evidence of symptomatic heart block following an episode of pre-syncope. He regularly takes citalopram and propranolol for anxiety, regular paracetamol for chronic pain and indapamide and spironolactone for hypertension.

Prolongation of the PR interval confirms first-degree heart block. The ECG report also notes an incidental finding of some widespread flattening of the T-waves.

Which medication may cause this incidental finding, based on its side effect profile?

A.Citalopram

B.Indapamide

C.Paracetamol

D.Propranolol

E.Spironolactone

Answer:Indapamide

Explanation:

Thiazides may cause hypokalaemia

Important for meLess important

This ECG showed flattening of T-waves, which can be found in both hypokalemia, and hypercalcemia. Thiazide diuretics, such as indapamide, can cause both of these electrolyte abnormalities, along with hyponatraemia. Therefore, this is the correct answer.

Citalopram is an anti-depressant that may cause QT-prolongation.

Paracetamol is not known to cause any significant electrolyte imbalance, or have any effect on an ECG tracing.

Propranolol is a beta blocker which may marginally cause hyperkalemia, but not to any significant level.

Spironolactone is a potassium-sparing diuretic and is more likely to cause hyperkalemia, which may cause tenting of the T-waves on an ECG.

Question:

A 76-year-old woman with a history of atrial fibrillation presents with abdominal pain and bloody diarrhoea. On examination her temperature is 37.8ºC, pulse 102 / min and respiratory rate 30 / min. Her abdomen is tender with generalised guarding. Blood tests reveal the following:

Hb 10.9 g/dl

MCV 76 fl

Plt 348 \* 109/l

WBC 23.4 \* 109/l

Na+ 141 mmol/l

K+ 5.0 mmol/l

Bicarbonate 14 mmol/l

Urea 8.0 mmol/l

Creatinine 118 µmol/l

What is the most likely diagnosis?

A.Diverticulitis

B.Mesenteric ischaemia

C.Campylobacter infection

D.Ruptured abdominal aortic aneurysm

E.Ulcerative colitis

Answer:Mesenteric ischaemia

Explanation:

The low bicarbonate points to a metabolic acidosis - highly suggestive of mesenteric ischaemia.

Question:

A 65-year-old man presents to his general practitioner with pain in his hands, which is worse with activity and at the end of the day. He has a past medical history of psoriasis. He does not take any regular medications.

On examination, there were bony tender swellings of 3 distal interphalangeal (DIP) joints on both hands.

What is the likely diagnosis?

A.Osteoarthritis

B.Psoriatic arthritis

C.Reactive arthritis

D.Rheumatoid arthritis

E.Systemic lupus erythematosus

Answer:Osteoarthritis

Explanation:

Swelling at the DIP joints (Heberden’s nodes) is a feature of osteoarthritis in the hand

Important for meLess important

Osteoarthritis is the correct answer. Bony swelling of the DIP joints is known as Heberden’s nodes. Pain worse with activity (rather than rest) is more characteristic of OA than inflammatory arthritis.

Psoriatic arthritis is incorrect. This can cause swelling of the DIP joints. However, the swelling is more likely to be boggy rather than bony in inflammatory arthritis. Additionally, the pain of inflammatory arthritis tends to be worse in the morning and improves with activity.

Reactive arthritis is incorrect. This tends to cause a large joint lower limb oligoarthritis rather than a DIP predominant arthritis. There is also no history of recent infection.

Rheumatoid arthritis is incorrect. This does not affect the DIP joints.

Systemic lupus erythematosus is incorrect. This typically affects the MCP and PIPs joints and is usually associated with some other evidence of systemic autoimmune disease, which is not present in this case.

Question:

An 80-year-old man presents with sudden-onset difficulty walking and a droopy eyelid. He noticed slurred speech a few weeks ago, but as this resolved after 10 minutes he did not seek medical attention.

On general examination, he has an ataxic gait and loss of sensation in his right arm and leg. On examination of his cranial nerves, he has nystagmus to the left, ptosis, meiosis and loss of sensation on the left-hand side of the face.

Where is the likely arterial lesion?

A.Anterior inferior cerebellar

B.Pontine

C.Posterior cerebral

D.Posterior inferior cerebellar

E.Superior cerebellar

Answer:Posterior inferior cerebellar

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

Posterior inferior cerebellar artery (PICA) is the correct answer. Left-sided Horner’s syndrome depicted here with cerebellar signs and a contralateral sensory loss of the limbs is consistent with a left-sided PICA infarct. The lateral brainstem signs involve the sympathetic outflow tract, (hence Horner’s with ptosis and meiosis), spinocerebellar tract (hence cerebellar signs), the sensory nucleus of cranial nerve V (hence the sensation over the left-hand side of the face would be affected) and spinothalamic tract (hence pain and temperature loss on the contralateral, right side in this case).

Anterior inferior cerebellar artery (AICA) is incorrect as this does not affect the same region as the PICA and hence produces a different neurological deficit. The AICA lesions are less well known and have been purported to cause central vestibular loss and hearing loss, since the inner ear, lateral pons and anterior inferior cerebellum are supplied.

Pontine is incorrect because this artery causes a variety of syndromes, with none of the syndromes creating the lateral medullary syndrome associated with PICA infarct. Pontine infarcts can cause the locked-in syndrome, pure motor hemiparesis, sensorimotor deficits, ataxic hemiparesis and more rarely dysarthria–clumsy hand syndrome.

Posterior cerebral is an incorrect answer. The posterior cerebral artery supplies the occipital lobe therefore an infarct here would cause a visual field loss or homonymous hemianopia to the contralateral side.

Superior cerebellar is an incorrect answer as infarction in the superior cerebellar artery does not cause the brainstem signs seen in this case of PICA infarction. Superior cerebellar artery stroke commonly results in vertigo, dizziness, nystagmus, ataxias and sometimes mild hemiparesis.

Question:

Anne a 91-year-old woman has been diagnosed with atrial fibrillation. She has uncontrolled hypertension (165/90 mmHg), and a history of liver cirrhosis. Anne's daughter has informed you that she has fallen several times at home in the past year.

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

Female: (115 - 160)

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

WBC 5 \* 109/L (4.0 - 11.0)

Is Anne suitable for anticoagulation?

A.No - Anne does not require anticoagulation

B.No - Anne's history of falls makes the bleeding risk greater than the stroke risk

C.Yes - Anne should be anticoagulated, the risk of bleeding cannot be modified

D.Yes - Anne should be anticoagulated and her bleeding risk factors modified

E.No - Anne's ORBIT score and falls risk makes the bleeding risk greater than the stroke risk

Answer:Yes - Anne should be anticoagulated and her bleeding risk factors modified

Explanation:

Risk of falls or old age alone is not sufficient reasoning to withhold anticoagulation

Important for meLess important

Anne does require anticoagulation following her diagnosis of atrial fibrillation, to lower her stroke risk. From the question you can determine that she does require anticoagulation as her CHA2DS2-VASc score is 4 (female +1, age >75 +2, hypertension) +1). Anticoagulation is recommended for all with a score of 2 or more.

The stem outlines that Anne will be at increased risk of bleeding events due to her risk of traumatic falls. The risk of falls is not an automatic contraindication to anticoagulation, Anne can be offered supports such as home modification or walking aids to limit the risk of falls. The risk of suffering a stroke is greater than the theoretical risk of bleeding from a fall.

Anne's haemoglobin (<120g/L, +2) and age (>74,+1) give her an ORBIT score of 3. The ORBIT score should always be calculated to assess bleeding risk. Hypertension, history of cirrhosis and age >65, give a HAS-BLED score of 3. It is important to note that the risk factors for stroke are non-modifiable, while the risk factors for bleeding are modifiable. For example, hypertension will continue to be a risk factor for Anne having a stroke, however, if her blood pressure becomes well-controlled it will no longer be a risk factor for bleeding. It would not be appropriate to solely initiate anticoagulation for Anne and discharge her without addressing her modifiable bleeding risks.

This answer is correct as it addresses both the risk of bleeding caused by anticoagulation and the risk of stroke.

This answer is incorrect, as Anne would not be protected against the risk of stroke and it ignores the modifiable nature of blood pressure, anaemia and falls as bleeding risks.

Question:

A 40-year-old man presents to surgery as he has noted an abnormality around his right eye:

What is the most likely diagnosis?

A.Hypertriglyceridaemia

B.Hypercholesterolaemia

C.Hypothyroidism

D.Wilson's disease

E.Diabetes mellitus

Answer:Hypercholesterolaemia

Explanation:

This patient has developed xanthelasma secondary to hypercholesterolaemia.

Question:

A 38-year-old woman presents to her GP with severe dizziness. She experienced nausea and vomited three times over the past 24 hours. She also had a mild viral infection last week which has since resolved. When asked, the patient reported no associated tinnitus or hearing loss.

What is the first-line option to manage her dizziness?

A.Beta-histine

B.Dix-Hallpike manoeuver

C.Epley's manoeuver

D.Hydrocortisone

E.Prochlorperazine

Answer:Prochlorperazine

Explanation:

Prochlorperazine is recommended to alleviate vertigo, nausea and vomiting associated with vestibular neuronitis

Important for meLess important

This patient has vertigo following a viral infection. This is most consistent with a diagnosis of vestibular neuronitis. A common differential for this presentation would be vestibular labyrinthitis, but this would also be associated with tinnitus and hearing loss. Equally, Meniere's disease is unlikely in this case since symptoms have been present for only 24 hours and the patient does not have tinnitus or aural fullness.

The main management for vertigo, in this case, is a vestibular sedative, with prochlorperazine being the recommended option.

Beta-histine is a long-term treatment for Meniere's, which acts by increasing blood flow. As a result, this would not be a helpful treatment for this patient.

Dix-Hallpike and Epley manoeuvers are a specific set of movements involved in the diagnosis and management of benign paroxysmal positional vertigo (BPPV). BPPV causes vertigo when a person moves their head. These manoeuvers aim to trigger and address these symptoms directly. As a result, they would not be helpful to a patient with vestibular neuronitis.

Hydrocortisone is a steroid medication. According to NICE guidelines, steroid medications are not recommended for the treatment of vestibular neuronitis.

Question:

A 29-year-old mother presents to the GP. She had given birth to her child 6 weeks ago. During the consultation, she is tearful explaining how motherhood 'isn't how she thought it would be'. Her quality of sleep is poor, her appetite has diminished and she also feels guilty about her situation. Fortunately, she has not expressed any suicidal ideation.

Which of the following is a screening tool that should be performed on this lady?

A.Edinburgh Scale

B.FAST

C.GAD7

D.Bishop score

E.CAGE

Answer:Edinburgh Scale

Explanation:

The Edinburgh Scale is a screening tool for postnatal depression

Important for meLess important

Patients exhibiting symptoms similar to this should be assessed using the Edinburgh scale questionnaire. NICE state the Edinburgh scale or the PHQ-9 form can be used to assess patients like this for depression postnatally. GAD 7 is a questionnaire that measures the severity of anxiety. Bishop score is a scoring system informing if induction of labour will be required. CAGE and FAST are questionnaires used for patients with possible alcohol dependence.

Question:

A 14-year-old boy is brought in to the General Practitioner as his mother states that he has been struggling at school over the past year. He has a past medical history of recurrent otitis media. The mother states that her nephew and niece have both needed additional support at school and the latter also has Attention Deficit Hyperactivity Disorder (ADHD). His birth history and early childhood development were normal. On examination, he has an elongated face and protruding ears. Which of the following is the most likely diagnosis?

A.Down's syndrome

B.DiGeorge syndrome

C.Prader-Willi syndrome

D.Congenital hypothyroidism

E.Fragile X syndrome

Answer:Fragile X syndrome

Explanation:

Fragile X syndrome is the most common cause of inherited neurodevelopmental delay

Important for meLess important

The combination of a family history of neurodevelopmental delay, the characteristic facies and the past history of recurrent otitis media all point towards Fragile X syndrome, Fragile X syndrome is largely considered to have an X-linked dominant inheritance albeit with variable expressivity. It is more common in males than females, with approximately 1 in 4000 men being affected. It is also commonly associated with Attention Deficit Hyperactivity Disorder.

Although the remaining four options are also associated with neurodevelopmental delay, they are not inherited in an autosomal dominant fashion, except DiGeorge syndrome. DiGeorge syndrome, although inherited in a dominant manner, is associated with different facies (specifically palatal abnormalities) and cardiac abnormalities.

Further, the other four conditions described tend to present during infancy or early childhood whereas Fragile X syndrome tends to present around the time of puberty.

Question:

Nancy is a 37-year-old woman who is 19 weeks pregnant. She presents to the emergency department with a 2 day history of sharp abdominal pain. There is no vaginal bleeding. She also has a low grade fever of 37.8 ºC. Her pregnancy until now has been unremarkable. On examination, she is haemodynamically stable, but there is tenderness on palpation of the right lower quadrant of her abdomen. Fetal heart rate was normal. An ultrasound scan was performed which showed a singleton pregnancy, and multiple large fibroids in the uterus. The ovaries appeared normal and there was no appendix inflammation.

What is the most likely cause of the patient's symptoms?

A.Appendicitis

B.Fibroid degeneration

C.Threatened miscarriage

D.Ovarian torsion

E.Placental abruption

Answer:Fibroid degeneration

Explanation:

Fibroid degeneration may develop during pregnancy, presenting with low-grade fever, pain and vomiting.

Important for meLess important

Absence of appendix inflammation on the ultrasound scan makes a diagnosis of appendicitis unlikely.

As this woman has fibroids in her uterus, she is at risk of fibroid degeneration. Red degeneration is a common complication of fibroid during pregnancy and may present with fever, pain and vomiting.

This patient does not have any vaginal bleeding which makes it unlikely to be a threatened miscarriage.

Ovarian torsion presents with pain and vomiting, however there are usually risk factors such as an ovarian cyst or ovarian enlargement.

Placental abruption presented with vaginal bleeding usually after 24 weeks of pregnancy.

Question:

A middle-aged woman is admitted to the Emergency Department with pleuritic chest pain ten days after having a hysterectomy. There is a clinical suspicion of pulmonary embolism. What is the most common chest x-ray finding in patients with pulmonary embolism?

A.Right heart enlargement

B.Normal

C.Pleural effusion

D.Linear atelectasis

E.Dilatation of the pulmonary vessels proximal to the embolism

Answer:Normal

Explanation:

Pulmonary embolism - normal CXR

Important for meLess important

The vast majority of patients with a pulmonary embolism have a normal chest x-ray.

Question:

A 75-year-old man is brought to the emergency department with sudden onset numbness affecting his face and limbs. He has a past medical history of hypertension and hypercholesterolaemia. His medications are amlodipine and atorvastatin.

On examination, he is ataxic and there is nystagmus. Right-sided ptosis and miosis are noted. There is an absence of right-sided facial sensation and left-sided arm and leg sensation. There is no weakness.

What is the likely diagnosis?

A.Benedikt syndrome

B.Lateral medullary syndrome

C.Millard-Gubler syndrome

D.Nothnagel syndrome

E.Weber syndrome

Answer:Lateral medullary syndrome

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

The lateral medullary syndrome is correct. The sudden onset of symptoms suggests a vascular event. The lateral medullary syndrome is caused by a posterior inferior cerebellar artery lesion. It causes cerebellar signs (ataxia, nystagmus), ipsilateral facial numbness and Horner's syndrome (ptosis, miosis) and contralateral sensory loss.

Benedikt syndrome is incorrect. This is a syndrome caused by a lesion (infarction, haemorrhage, tumour or infection) in the tegmentum of the midbrain and cerebellum. Occlusion of the posterior cerebral artery is a possible cause. It causes 3rd nerve palsy, cerebellar ataxia and movement disorders (including tremor and chorea).

Millard-Gubler syndrome is incorrect. This is caused by a lesion affecting the pons. It results in ipsilateral 6th and 7th nerve palsies and contralateral hemiparesis.

Nothnagel syndrome is incorrect. This is an uncommon midbrain syndrome, which involves the tectum of the midbrain and superior cerebellar peduncle. It can be caused by stroke or neoplasm. It causes an ipsilateral 3rd nerve palsy and limb ataxia.

Weber syndrome is incorrect. This is a stroke that affects the medial portion of the midbrain. It can be caused by the occlusion of a branch of the posterior cerebral artery. It causes contralateral hemiparesis and a 3rd nerve palsy, neither of which are present in this case.

Question:

A 42-year-old man presents to the GP with a 2 year history of watery diarrhoea which is green in colour, associated with abdominal bloating and cramping. He reports no blood in his stool, and denies fevers or weight loss. Other than a previous cholecystectomy he is fit and well, and takes no regular medications. His doctor suspects the diarrhoea is a complication following his cholecystectomy.

What is next most appropriate step in his management?

A.Cholestyramine

B.Lactulose

C.Loperamide

D.Omeprazole

E.Ursodeoxycholic acid

Answer:Cholestyramine

Explanation:

Bile-acid malabsorption may be treated with cholestyramine

Important for meLess important

A long history of watery green diarrhoea post cholecystectomy is caused by bile-acid malabsorption, a condition which can also be idiopathic, or seen in patient's with Crohn's disease. The initial treatment of bile acid malabsorption is with bile acid sequestrants such as cholestyramine, making this the correct answer.

Omeprazole is a proton pump inhibitor. It can worsen severe diarrhoea. Therefore, this is an incorrect answer.

Loperamide can be used as a treatment for diarrhoea. However, in bile acid malabsorption, bile acid sequestrants, such as cholestyramine, are used first line. If these are not effective, loperamide can also be considered. Therefore, loperamide is an incorrect option.

Lactulose is a medication used to treat constipation, and would worsen diarrhoea, making it an incorrect option.

Ursodeoxycholic acid is a naturally occurring hydrophilic bile acid that can be used to treat cholestatic liver disease, such as primary biliary cirrhosis. It is not used for bile acid malabsorption, making this an incorrect option.

Question:

A 25-year-old male is brought to the emergency department after being found lying unconscious on the pavement. A syringe and a used pack of oxycodone and alprazolam were also found next to him.

On examination, he is drowsy with bilateral pupil constriction noted. His bowel sounds are decreased and fresh needle marks are noted on his right arm.

His observations are: blood pressure 110/70 mmHg, heart rate 55/min, oxygen saturation of 95% on room air and temperature 36ºC, and respiratory rate of 5 breaths per minute.

Blood glucose level: 8 mmol/L

Which one of the following is the most appropriate management?

A.Flumazenil

B.Midazolam

C.Adrenaline

D.Insulin

E.Naloxone

Answer:Naloxone

Explanation:

Opiate - naloxone

Important for meLess important

This patient has the typical signs of acute opioid toxicity with bradypnoea, miosis and altered mental status. Naloxone is administered to patients with suspected opiate overdose, with the main aim of restoring adequate ventilation. In apnoeic patients, ventilation and oxygenation with a bag-valve mask is recommended to decrease the risk of acute lung injury in hypercapnoeic subjects.

Most cases of benzodiazepine overdose are managed expectantly with supportive care. Flumazenil is a competitive antagonist of the benzodiazepine receptor and its use is usually reserved for iatrogenic cases (e.g. sedation following general anaesthesia). Flumazenil can precipitate withdrawal seizures in patients with chronic benzodiazepine use and is therefore contraindicated in this patient group.

Reference:

Mills CA, Flacke JW, Flacke WE, Bloor BC, Liu MD. Narcotic reversal in hypercapnic dogs: comparison of naloxone and nalbuphine. Can J Anaesth. 1990;37(2):238.

Question:

A 27-year-old woman presents complaining of heavy menstrual bleeding. She reports saturating her pads with blood regularly and frequently has to change them hourly. She is otherwise asymptomatic and has no desire to have children in the near future. Following a normal examination, what is the most appropriate management?

A.Tranexamic acid

B.NSAID

C.Norethisterone

D.Intrauterine system

E.Combined oral contraceptive pill

Answer:Intrauterine system

Explanation:

Menorrhagia - intrauterine system (Mirena) is first-line

Important for meLess important

If there is no structural or histological abnormality causing the heavy menstrual bleeding, the intrauterine system is the first line treatment. NICE CG44

Question:

A 70 year-old man, who is currently an inpatient after having a hip replacement develops urosepsis.

His past medical history includes ulcerative colitis and ischaemic heart disease. He is commenced on high-dose intravenous cephalosporin and gentamicin and after five days feels better with his observations returning to normal. However, on the fifth day he develops left-sided abdominal tenderness and diarrhoea. Sigmoidoscopy reveals yellow plaques. What is the most likely diagnosis?

A.Campylobacter infection

B.Ulcerative colitis flare-up

C.Pseudomembranous colitis

D.Osmotic diarrhoea

E.Diverticulitis

Answer:Pseudomembranous colitis

Explanation:

Considering this patient has finished a course of high dose IV cephalosporins, his most likely diagnosis is pseudomembranous colitis. The most common cause of this is clostridium difficile infection, which can present on sigmoidoscopy with yellow plaques on the intraluminal wall of the colon.

Question:

Frankie is a 32-year-old woman who attended for cervical cancer screening 2 years ago. The result was positive for high-risk human papilloma virus (hrHPV) and cervical cytology was normal.

She had repeat testing 12 months later and again tested positive for hrHPV with normal cytology. She was booked in for repeat testing in a further 12 months.

This was carried out 2 weeks ago. The result reveal that Frankie remains hrHPV positive and cytology is normal.

What is the most appropriate next step?

A.Refer for colposcopy

B.Repeat HPV testing only in 3 months

C.Repeat sample in 3 months

D.Return to routine recall every 3 years

E.Repeat sample 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

The NICE guidelines on cervical cancer screening state:

Individuals who are positive for high-risk human papillomavirus (hrHPV) and receive a negative cytology report as part of routine primary HPV screening should have the HPV test repeated at 12 months.

If HPV testing is negative at 12 months, individuals can be safely returned to routine recall.

Individuals who remain hrHPV positive, cytology negative at 12 months should have a repeat HPV test in a further 12 months.

Individuals who become hrHPV negative at 24 months can be safely returned to routine recall.

Individuals who remain hrHPV positive, cytology negative or inadequate at 24 months should be referred to colposcopy.

Therefore the correct answer is to refer for colposcopy.

Question:

A mother brings her 5-week-old newborn baby to see you. She reports that she has noticed that his belly button is always wet and leaks out yellow fluid. On examination, you note a small, red growth of tissue in the centre of the umbilicus, covered with clear mucus. The child is otherwise well, apyrexial and developing normally.

Which one of the following is the most likely diagnosis?

A.Omphalitis

B.Umbilical hernia

C.Umbilical granuloma

D.Umbilical cellulitis

E.Gastroschisis

Answer:Umbilical granuloma

Explanation:

An umbilical granuloma is an overgrowth of tissue which occurs during the healing process of the umbilicus. It is most common in the first few weeks of life. On examination, a small, red growth of tissue is seen in the centre of the umbilicus. It is usually wet and leaks small amounts of clear or yellow fluid. It is treated by regular application of salt to the wound, if this does not help then the granuloma can be cauterised with silver nitrate.

Omphalitis or umbilical cellulitis is a bacterial infection of the umbilical stump which presents as a superficial cellulitis, usually a few days after birth.

Umbilical hernias occur in 1 in 5 newborn children and usually resolves by 2 years.

Gastroschisis is a congenital condition which is characterised by a defect in the anterior abdominal wall through which the abdominal contents protrude.

Question:

A 26-year-old pregnant woman with type 1 diabetes asks you how often she should test blood glucose levels throughout her pregnancy?

A.Daily fasting test

B.Daily bedtime test

C.Daily 1-hour post meal test

D.Daily fasting, pre-meal, 1-hour post-meal and bedtime tests.

E.Daily pre-meal test

Answer:Daily fasting, pre-meal, 1-hour post-meal and bedtime tests.

Explanation:

Pregnant patients with type 1 diabetes should monitor their blood glucose levels closely. They should test their levels multiple times during the day. NICE NG3

Question:

You are reviewing a 74-year-old man with hypertension, type 2 diabetes and osteoarthritis. He takes 10mg of ramipril once a day, 10mg of amlodipine once a day, indapamide 2.5 mg once a day, 500mg of Metformin twice a day, co-codamol PRN and atorvastatin 20mg at night.

His blood pressure (BP) is consistently raised on his home BP monitor and today in the clinic today is 158/95 mmHg. You would like to start a further medication to try and lower his BP. His K+ is 4.0 mmol/l.

What would be the most appropriate next medication to add according to the NICE guidelines?

A.Bendroflumethiazide

B.Chlortalidone

C.Candesartan

D.Spironolactone

E.Doxazosin

Answer:Spironolactone

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor, calcium channel blocker and a thiazide diuretic. K+ < 4.5mmol/l - add spironolactone

Important for meLess important

This patient has resistant hypertension as he is already on three agents to try and control his BP. He is already taking an ACE-inhibitor (ramipril) and a calcium channel blocker (amlodipine) at the maximum doses. He is also taking a thiazide-like diuretic (indapamide). The next step would be to add spironolactone if the K+ is <4.5 mmol/l. Therefore, option 4, spironolactone is the correct answer.

If his K+ was > 4.5 mmol/l, the next step would be to consider higher-dose thiazide-like diuretic treatment.

Bendroflumethiazide is a conventional thiazide diuretic which is inappropriate here as the patient is on indapamide. Chlortalidone is a thiazide-like diuretic (as is indapamide) so is inappropriate to add in. Candesartan is an angiotensin receptor blocker and shouldn't be used in combination with an ACE-inhibitor. Doxazosin is an alpha blocker which is used if further diuretic therapy is not tolerated.

Question:

A 24-year-old woman presents to the clinic for family planning. She requests a form of contraception that will not interfere with sexual intercourse and is reversible upon stopping.

She currently experiences heavy, painful, and irregular periods, but is otherwise fit and well. It is suggested she starts the combined oral contraceptive pill (COCP) as there are no contraindications and it might help her symptoms.

What additional health benefits might this medication provide?

A.Decreased risk of breast cancer

B.Decreased risk of cervical cancer

C.Decreased risk of endometrial cancer

D.Decreased risk of sexually transmitted infections

E.Decreased risk of stroke and ischaemic heart disease

Answer:Decreased risk of endometrial 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 (COCP) is a highly effective form of birth control made up of both oestrogen and progestogen. As naturally occurring oestrogen and progesterone levels are known to affect the occurrence of certain cancers, research has confirmed the use of the COCP can increase and decreased specific cancer risks. Studies have confirmed the use of the COCP is associated with a decreased risk of endometrial cancer which is thought to be due to the COCP suppressing endometrial cell proliferation.

Research has shown that breast cancer risk is increased with prolonged COCP use. It has been proposed that breast cancer expresses receptors for oestrogen and/or progesterone hormones and therefore additional, synthetic versions of these female hormones may stimulate the development and growth of breast cancer.

Similar to breast cancer, research has shown an increased risk of cervical cancer associated with the use of the COCP, not a decrease. It has been proposed that the use of the COCP may change the susceptibility of the cervical cells to persistent human papillomavirus infections which is the cause of nearly all cases of cervical cancer.

As the COCP is not a barrier form of contraception it has no effect/does not reduce the risk of sexually transmitted infections alone.

The use of oestrogen containing contraception has been associated with an increased risk of both strokes and ischaemic heart disease, with patients on pills with higher doses of oestrogen having a relatively higher risk than those on contraception with a lower dose. This increase is greatest in patients with additional risk factors such as smoking and diabetes. The mechanism for this increased risk is unclear but is believed to be due to increased blood pressure and/or increased hypercoagulation.

Question:

A 32-year-old man presents to the emergency department with blurred vision and difficulty swallowing. He says that these symptoms started the previous day and he has attended now as he is concerned that his speech has become slurred. He denies any past medical history, or current medications.

On examination, the patient is unkempt. You note multiple track marks on both arms with some surrounding erythema. Vital signs are within normal limits. Examination of the cranial nerves reveals a bilateral ptosis. The patient reports diplopia bilaterally and there is impaired pupil accommodation. The gag reflex is impaired, and the patient’s speech is slurred. Examination of the upper limbs reveals hypotonia and power is 4/5 bilaterally. Sensation is intact. Examination of the lower limbs is unremarkable.

What is the most likely organism causing this patient’s presentation?

A.Campylobacter jejuni

B.Clostridium botulinum

C.Clostridium tetani

D.Staphylococcus aureus

E.Streptococcus pyogenes

Answer:Clostridium botulinum

Explanation:

A history of Intravenous drug use coupled with a descending paralysis, diplopia and bulbar palsy is characteristic of infection with Clostridium botulinum

Important for meLess important

The clinical syndrome produced by botulinum toxin is an afebrile, descending, flaccid paralysis. Presenting features typically include difficulty speaking or slurred speech, blurred or double vision, and/or dysphagia. Other features include ptosis and facial muscle weakness. Without treatment, paralysis may progress to the upper limbs, trunk, lower limbs and respiratory muscles.

Botulism does not usually present with fever, loss of sensation or loss of awareness. There may be involvement of the autonomic nervous system, presenting with signs such as dry mouth, fixed or dilated pupils, urinary retention or constipation.

Intravenous drug users are particularly at risk of developing infection with clostridium botulinum, through injecting contaminated drugs into skin or muscle. Botulism spores are found naturally in the environment (such as in soil), so they can contaminate supplies of drugs such as heroin.

Most cases of botulism make a full recovery if treated appropriately, however the recovery period can be many months, especially if diagnosis is delayed. The disease is fatal in 5-10% of cases.

Campylobacter jejuni is a common cause of diarrhoea, and can be indicated in Guillain-Barre syndrome.

Clostridium tetani infection causes tetanus.

Streptococcus pyogenes is a group A streptococcus, and infection can result in a number of presentations including tonsillitis, cellulitis, scarlet fever and post-streptococcal glomerulonephritis.

Staphylococcus aureus can cause a variety of infections, including impetigo, cellulitis, endocarditis, pneumonia, osteomyelitis and toxic shock syndrome.

Question:

A 37-year-old woman presents to her general practitioner with amenorrhea. She has not been having her period for seven months now and she denies any changes in her lifestyle that would explain it. Additionally, she has been feeling tired all the time and severely constipated. She has a negative past medical history and does not take any medication. The doctor suspects a secondary cause for her amenorrhea and decides to perform some blood tests:

Hb 110 g/L (115 - 160)

Platelets 267\* 109/L (150 - 400)

WBC 6.6 \* 109/L (4.0 - 11.0)

Cortisol 50 nmol/L (68-357)

Thyroid-stimulating hormone (TSH) 0.3 mu/L (0.5-5.5)

Free thyroxine (T4) 4 pmol/L (9-18)

Free triiodothyronine (T3) 1.9 pmol/l (3.5-7.8)

Which one of the following is the most likely underlying cause of her symptoms?

A.Craniopharyngioma

B.Haemochromatosis

C.Non-secretory pituitary macroadenoma

D.Pituitary apoplexy

E.Sheehan's syndrome

Answer:Non-secretory pituitary macroadenoma

Explanation:

Non-secretory pituitary macroadenomas are the most common cause of hypopituitarism

Important for meLess important

The correct answer is a non-secretory pituitary macroadenoma. This patient presents with a picture of hypopituitarism: amenorrhea (caused by low FSH/LH), tiredness (caused by low ACTH), constipation (caused by low TSH). The blood tests show low haemoglobin (anaemia is thought to be due to loss of thyrotrophic and adrenotrophic hormones), low cortisol, low thyroid-stimulating hormones, and low T3 and T4, confirming a picture of hypopituitarism. The most common cause of hypopituitarism is non-secretory pituitary macroadenomas, which usually go unnoticed for a long time since they do not cause specific symptoms. The diagnosis can be confirmed with imaging and managed surgically.

A craniopharyngioma is the most common paediatric supratentorial tumour. It is a solid mass growing into the sellar region, hence it can potentially cause hypopituitarism via compression. Being a rare tumour itself and rarely presenting in adults, this diagnosis is unlikely.

Haemochromatosis can cause hypopituitarism via infiltration. This condition causes an accumulation of iron that accumulates into structures reducing their functionality. Given the absence of other characteristic symptoms such as liver cirrhosis and skin hyperpigmentation, this diagnosis is unlikely.

Pituitary apoplexy is a sudden enlargement of a pituitary tumour secondary to haemorrhage or infarction. The main presentation is sudden onset headache similar to that seen in subarachnoid haemorrhage. This patient does not complain of this, making the diagnosis unlikely.

Sheehan's syndrome is defined as postpartum pituitary necrosis secondary to a postpartum haemorrhage. This patient has not given birth recently, making this diagnosis unlikely.

Question:

A 23-year-old woman is being reviewed in the post-natal ward, 24 hours after a vaginal delivery. The delivery was uncomplicated and she is ready to go home. She has started breastfeeding and is bonding well with her baby.

When asked about contraception, she states that she used to take the progesterone-only pill and is keen to start this again.

What is the earliest she can begin taking this contraception again?

A.Immediately

B.Three weeks

C.Six weeks

D.Six months

E.Whenever she stops breastfeeding, since it is contraindicated

Answer:Immediately

Explanation:

Postpartum women (breastfeeding and non-breastfeeding) can start the progestogen-only pill at any time postpartum

Important for meLess important

Postpartum contraception is an important topic within obstetrics. The progesterone-only pill is UKMEC category 1 (no restriction on use) for postpartum use. There is no restriction on when it can be started, and it is safe to take it immediately if the woman wants to. Whilst contraception is theoretically only required after 3 weeks, there is no restriction on taking the progesterone-only pill before then. Therefore the correct answer is immediately.

Three weeks is incorrect. This is the stage at which the combined oral contraceptive pill (COCP) can be taken as UKMEC 2 (advantages outweigh risks) in non-breastfeeding women as long as there are no risk factors for venous thromboembolism.

Six weeks is incorrect. This is the stage at which the COCP can be taken as UKMEC 2 (advantages outweigh risks) in breastfeeding women or as UKMEC 1 (no restriction on use) in non-breastfeeding women.

Six months is incorrect. This is the stage at which the COCP can be taken as UKMEC 1 (no restriction on use) in breastfeeding women.

Whenever she stops breastfeeding is incorrect. The progesterone-only pill is not contraindicated in breastfeeding women, since there is only a minor transference of progesterone into breast milk, and there is no risk to the baby of this dosing.

Question:

A 63-year-old male comes to see you for a review of his likely fungal toenail infection. The infection developed slowly over time, discolouring the nail unit with white/yellow streaks and distorting the nail bed in the process and is moderate in severity. Nail scrapings were taken for microscopy and culture at his last appointment, both of which recently came back showing a dermatophyte infection.

The patient would like treatment for the fungal infection as he finds walking is becoming uncomfortable.

What is the best treatment option for this patient?

A.Topical amorolfine 5% nail lacquer

B.Advice on self-care

C.Topical fluconazole

D.Oral terbinafine

E.Oral griseofulvin

Answer:Oral terbinafine

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Because the infection is moderate/severe and the results of the microscopy and culture were positive oral terbinafine should be used first-line.

Griseofulvin is not a recommended treatment. Options 1 and 2 are unlikely to treat his aggressive fungal infection.

NICE Clinical Knowledge Summaries - Fungal Nail Infection

https://cks.nice.org.uk/fungal-nail-infection#!scenario

Question:

A 67-year-old man is admitted to the coronary care unit following an inferior non-ST segment elevation myocardial infarction (NSTEMI). He is being treated with dual antiplatelet therapy, fondaparinux and glyceryl trinitrate (GTN) as required. The following morning he complains of palpitations and dizziness. He is sweating profusely. His repeat observations are taken with a heart rate of 145bpm and blood pressure of 89/58mmHg. An ECG shows a monomorphic ventricular tachycardia.

What is the next step in the initial management of this patient?

A.Intravenous amiodarone

B.Intravenous magnesium sulphate

C.Intravenous metoprolol

D.Synchronised DC cardioversion

E.Intravenous adrenaline 1mg 1:10000

Answer:Synchronised DC cardioversion

Explanation:

A synchronised cardioversion is the treatment for a unstable patient in VT

Important for meLess important

This patient has ventricular tachycardia, most likely as a complication of myocardial ischaemia. During the assessment of a patient with ventricular tachycardia, it is important to establish whether the patient is haemodynamically stable. This man is tachycardic and hypotensive with a systolic blood pressure < 90mmHg. This is an indication for synchronised DC cardioversion, making this the correct choice.

Intravenous amiodarone is the pharmacological treatment for chemical conversion of ventricular tachycardia in a stable patient. As this patient is hypotensive, DC cardioversion is the treatment of choice.

Intravenous magnesium sulphate is the treatment of choice of torsades de pointes, a polymorphic ventricular tachycardia with a prolonged QT interval. Causes of a prolonged QT interval include drugs, electrolyte disturbances and toxins. However, in a peri-arrest scenario, if the patient has torsades de pointes, the treatment of choice is also synchronised DC cardioversion.

Metoprolol is a beta-blocker that is given when there is a need to lower the heart rate. An example of its use includes fast atrial fibrillation. Metoprolol is not indicated in the treatment of ventricular tachycardia and therefore is not the correct option.

Intravenous adrenaline 1mg 1:10000 is used in a cardiac arrest scenario. It would be used should the patient lose cardiac output and develop pulseless ventricular tachycardia or an alternative cardiac arrest rhythm. However, this patient is conscious and has a cardiac output making it inappropriate in this setting.

Question:

A 40-year-old man presents for an annual review of his COPD. Over the last 3 months he has had increased shortness of breath, but no changes to his cough. He has a past medical history of COPD and takes salbutamol, salmeterol, tiotropium, and a beclometasone inhaler. There is no family history. He is plethoric.

Investigations are performed which show:

Hb 190 g/L (135-180)

Platelets 200 \* 109/L (150 - 400)

WBC 5.7 \* 109/L (4.0 - 11.0)

Arterial blood gases show:

pH 7.36 (7.35-7.45)

pO2 7.9 kPa (10 - 14 kPa)

pCO2 7.8 kPa (4.5 - 6.0 kPa)

HCO3 32 mmol/L (22 - 26 mmol/L)

Base excess +6 mmol/L (-2 to +2 mmol/L)

What would explain all of his abnormal findings?

A.JAK2 mutation

B.Polycythaemia rubra vera

C.Secondary to COPD

D.Secondary to haemochromatosis

E.Secondary to renal artery stenosis

Answer:Secondary to COPD

Explanation:

Polycythaemia is a complication of COPD

Important for meLess important

Secondary to COPD is correct. COPD can cause secondary polycythaemia if a patient is chronically hypoxic. Also, patient's results show they have a chronic respiratory acidosis with metabolic compensation (making his pH normal), which can contribute to the development of polycythaemia. The fact that this patient is also taking many medications for his COPD suggests that it may be difficult to control, which supports this diagnosis.

Secondary to haemochromatosis is incorrect. Haemochromatosis does not typically cause polycythaemia. This patient does not have any signs or symptoms of haemochromatosis, except for his ruddy appearance, which is due to the polycythaemia itself. If he were to have haemochromatosis he would have other symptoms such as arthralgia, signs of liver disease, arthralgia, and fatigue. This diagnosis would also not explain his arterial blood gas results.

JAK2 mutation is incorrect. Although this mutation is associated with polycythaemia vera, which could be a possibility, polycythaemia secondary to his COPD is more likely due to the patient's chronic hypoxia and possibly difficult-to-control COPD (as indicated by his many medications).

Polycythaemia vera is incorrect. Although this could explain his increased haemoglobin, this would not explain his other findings (PO2 etc.). Polycythaemia vera also typically presents in the 6th decade of age, which does not apply to this patient. The presence of polycythaemia, chronic respiratory acidosis with metabolic compensation, and presumably difficult-to-control COPD (due to how many medications he is on) should raise suspicion of secondary polycythaemia.

Secondary to renal artery stenosis is incorrect. Although this can cause polycythaemia, this would not explain his symptoms. This diagnosis would also not explain his arterial blood gas results.

Question:

A 50-year-old woman presents to her GP with fatigue and intermittent itch. She describes the itch as being 'under the skin'; there is no rash. Her past medical history includes hypothyroidism, for which she takes levothyroxine. The examination is unremarkable aside from xanthelasma around the eyes. Blood tests are as follows:

Hb 118 g/L Male: (135-180)

Female: (115 - 160)

Platelets 245 \* 109/L (150 - 400)

WBC 8.7 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 98 µmol/L (55 - 120)

Bilirubin 15 µmol/L (3 - 17)

ALP 289 u/L (30 - 100)

ALT 84 u/L (3 - 40)

γGT 135 u/L (8 - 60)

Albumin 37 g/L (35 - 50)

She is referred to a specialist, who performs further blood tests.

Which of the following is typically associated with the likely diagnosis?

A.Anti-mitochondrial antibodies

B.Anti-smooth muscle antibodies

C.Antinuclear antibodies

D.Perinuclear anti-neutrophil cytoplasmic antibodies

E.Anti-Mi-2 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

The correct answer is anti-mitochondrial antibodies (AMA). The diagnosis here is that of primary biliary cholangitis, given the patient's demographic, symptoms and blood tests. Typically, AMA is found to be positive (specifically the M2 subtype) in this condition.

Anti-smooth muscle antibodies are typically associated with autoimmune hepatitis. This would present differently, usually with some abdominal pain, jaundice, nausea and signs of chronic liver disease.

Antinuclear antibodies are highly non-specific and are found in a number of conditions - these are therefore not specific to primary biliary cholangitis.

Perinuclear anti-neutrophil cytoplasmic antibodies are also non-specific but may be associated with primary sclerosing cholangitis, which would also present differently. They are also found in eosinophilic granulomatosis with polyangiitis (formerly Churg-Strauss syndrome).

Anti-Mi-2 antibodies are typically associated with dermatomyositis. This would present differently - a heliotrope rash and proximal muscle weakness.

Question:

A 52-year-old woman presents to the emergency department (ED) with headaches and oliguria.

On examination she has swollen, tight fingers and rough, thickened patches of skin over her neck and arms, and has telangiectasia on the face. She has bilateral lower limb pitting oedema to the mid-tibia and is confused.

At triage, her blood pressure is 223/125mmHg.

Her bloods were as follows:

Na+ 136mmol/L (135 - 145)

K+ 4.9mmol/L (3.5 - 5.0)

Bicarbonate 23mmol/L (22 - 29)

Urea 9.7mmol/L (2.0 - 7.0)

Creatinine 325µmol/L (55 - 120)

Her bloods one year ago showed the following:

Na+ 134mmol/L (135 - 145)

K+ 3.6mmol/L (3.5 - 5.0)

Bicarbonate 23mmol/L (22 - 29)

Urea 6.5mmol/L (2.0 - 7.0)

Creatinine 118µmol/L (55 - 120)

Which therapy is most likely to reduce the risk of her re-presenting with a renal crisis again?

A.Bisoprolol

B.Bosentan

C.IV cyclophosphamide

D.Ramipril

E.Sildenafil

Answer:Ramipril

Explanation:

Renal complications of systemic sclerosis - ACE-inhibitors

Important for meLess important

This patient examines in a manner that suggests she has diffuse cutaneous systemic sclerosis. This condition is associated with diffuse involvement of the skin as suggested by the name but also results in early organ fibrosis. One complication of this condition is a scleroderma renal crisis, which can be fatal.

The typical presentation of a patient suffering from a scleroderma renal crisis is that of abrupt onset severe hypertension alongside a rapidly progressing, often anuric or oliguric, renal failure. They may also have encephalopathic features and congestive heart failure.

Angiotensin-converting enzyme inhibitors (ACE-inhibitors) such as ramipril may reduce 1-year mortality and risk of further renal crises. They should be used in the acute setting to rapidly lower blood pressure and subsequently given regularly to maintain blood pressure. If this fails, a calcium channel blocker can be added.

IV cyclophosphamide is used as part of immunosuppressive regimens for organ involvement or progressive skin involvement. It is the first-line therapy for treating systemic sclerosis-associated interstitial lung disease. It is not used to treat renal crises.

Bisoprolol has no real role in the management of systemic sclerosis.

Sildenafil and bosentan are both used in the management of pulmonary hypertension which is a complication of limited cutaneous systemic sclerosis.

Question:

Which one of the following statements regarding metformin is false?

A.Does not cause hypoglycaemia

B.Increases insulin sensitivity

C.Decreases hepatic gluconeogenesis

D.Increases endogenous insulin secretion

E.Reduces GI absorption of carbohydrates

Answer:Increases endogenous insulin secretion

Explanation:

Sulphonylureas have the property of increasing endogenous insulin secretion

Question:

A 65-year-old woman presents with shortness-of-breath associated with a productive cough. A chest x-ray is done on admission.

© Image used on license from Radiopaedia

What does the chest x-ray show?

A.Right-middle lobe pneumonia

B.Pulmonary oedema

C.Right upper lobe collapse

D.Bronchiectasis

E.Right-sided pneumonia + pneumothorax

Answer:Right-middle lobe pneumonia

Explanation:

The x-ray shows a right middle lobe pneumonia. On this x-ray the breast tissue is prominent.

Question:

You see a 60-year-old man in clinic.

He says that in recent months he has had progressive slurred speech. This is embarrassing - as part of his job he often has to give presentations, some observers have joked that he sounds drunk.

On examination of the head and face, there is no droop or drooling. However, the patient struggles to articulate certain phrases, such as 'British constitution', and finds it difficult to swallow a sip of water. When he sticks his tongue out, it seems to fasciculate.

On examination of the limbs, there is general mild weakness and hypotonia. However, knees and ankles have slight hyperreflexia.

What is the most likely cause of his presentation?

A.A 'missed' stroke

B.Cerebellar tumour

C.Motor neurone disease

D.Multiple sclerosis

E.Parkinson's disease

Answer:Motor neurone disease

Explanation:

'Fasciculations' - think motor neuron disease

Important for meLess important

The combination of upper and motor neurone signs is suggestive of motor neurone disease. His slurred speech and swallowing difficulties could be due to bulbar palsy. In addition, tongue fasciculation has a relatively strong association with the condition.

A stroke would typically present with sudden onset of neurological symptoms, rather than progressive symptoms over weeks or months like in this case.

A cerebellar tumour may indeed cause progressive slurring of speech. However, this would usually be accompanied by other symptoms such as gait change (ataxia), vertigo (with nystagmus) and difficulty performing basic movements.

A diagnosis of multiple sclerosis is uncommon in late-middle-aged men. Furthermore, it is an upper motor neurone disease, but this patient has a combination of upper and lower motor neurone signs.

In the absence of a documented tremor or bradykinesia, Parkinson's disease is unlikely.

Question:

You are reviewing an elderly man with prostate cancer. Unfortunately his pain is not currently controlled by co-codamol 30/500 2 tablets qds and diclofenac 50mg tds. You decide to switch him to oral morphine. What is the conversion factor between oral codeine and oral morphine?

A.Divide by 4

B.Divide by 15

C.Divide by 6

D.Divide by 20

E.Divide by 10

Answer:Divide by 10

Explanation:

Codeine to morphine - divide by 10

Important for meLess important

Question:

A 67-year-old woman presents to her GP complaining of intermittent central chest pain.

She explains that her chest pain is severe and frequently occurs while walking to the shops or climbing her stairs. She denies loss of consciousness, dizziness, and palpitations but states that she often gets short of breath during these episodes.

She has a past medical history of asthma for which she takes salbutamol and an inhaled corticosteroid, hypertension treated with ramipril, and type 2 diabetes.

An ECG taken during her consultation is normal.

What is the most appropriate management for this patient?

A.Bisoprolol

B.Ivabradine

C.Long-acting nitrate

D.Nicorandil

E.Verapamil

Answer:Verapamil

Explanation:

A beta-blocker or a calcium channel blocker is used first-line to prevent angina attacks

Important for meLess important

Verapamil is the correct answer. This patient has stable angina, characterised by cardiac chest pain brought on by exercise and the presence of risk factors such as hypertension and diabetes. First-line management for stable angina is a single anti-anginal medication, either a calcium channel blocker or a beta blocker. Given this patient's history of asthma and beta-agonist use, a calcium channel blocker should be offered as beta-blockers can exacerbate asthma.

Bisoprolol is incorrect. While beta-blockers are used first-line to manage stable angina, this patient has a history of asthma with salbutamol use and beta-blockers risk causing bronchospasm and interfering with beta-agonist activity. As such, a calcium channel such as verapamil would be the preferred first-line management.

Ivabradine is incorrect. Ivabradine is a 'funny' channel inhibitor used in the management of heart failure and stable angina which doesn't respond to first-line therapy such as calcium channel blockers. This patient should first be tried on a calcium channel blocker, such as verapamil, before escalating to second-line therapy.

Long-acting nitrate is incorrect. Long-acting nitrates are used second-line in the management of angina where patients fail to respond to first-line therapy or in whom calcium channel blockers and beta blockers are contraindicated/not tolerated. This patient should first be tried on a calcium channel blocker (a beta blocker would not be suitable given her history of salbutamol use and asthma).

Nicorandil is incorrect. This is a cardiac medication which relaxes vascular smooth muscle and is used second-line in the management of angina. As this patient has not yet received treatment for her angina, first-line therapy such as a calcium channel blocker, such as verapamil, should be tried first.

Question:

A 30-year-old lady from Eswatini presents with progressive shortness of breath and lethargy. She reports recurrent chest infections over the last few years but this episode is different. She does not have a cough. She is taking no medications. On examination her chest is clear. Her saturations are 98% on air, at rest and 94% after she walks around the consultation room. Chest X-ray is normal.

What is the most likely diagnosis?

A.Pulmonary embolism

B.Tuberculosis

C.Pneumocystis jiroveci

D.Toxoplasmosis

E.Avian flu

Answer:Pneumocystis jiroveci

Explanation:

Pneumocystis jiroveci commonly presents desaturation on exertion and often Chest x-ray appears normal. It almost exclusively happens in immunosuppressed patients. Eswatini has one of the highest prevalences of HIV in the world (source WHO), making it relevant in this particular scenario. The patient has had recurrent chest infections which in such a young patient should be suggestive of immunosuppression.

Pulmonary embolism could cause the desaturation but would not explain the recurrent chest infections.

Question:

A 62-year-old man attends his general practitioner 4 weeks after his myocardial infarction, worried that he is losing his exercise tolerance. He feels he has been steadily declining since he was discharged and is now becoming short of breath even when climbing his stairs - he was previously fit and well before this. His initial treatment was with percutaneous coronary intervention.

On examination, he has bibasal crackles, and a prominent S3 and S4 heart sound. There are no added sounds.

An ECG shows ST elevation in V1-6.

What is the most likely diagnosis?

A.Left ventricular aneurysm

B.Left ventricular free wall rupture

C.Mitral valve prolapse

D.Re-infarction

E.Ventricular septal defect

Answer:Left ventricular aneurysm

Explanation:

A patient is noted to have persistent ST elevation 4 weeks after sustaining a myocardial infarction. Examination reveals bibasal crackles and the presence of a third and fourth heart sound - left ventricular aneurysm

Important for meLess important

This man is presenting with a likely complication of his myocardial infarction. His reduced exercise tolerance appears to be due to pulmonary oedema, suggested by his bibasal crackles. This suggests some form of failure of the left ventricle to pump properly, leading to a back-up of blood in the lungs. The presence of an S3 heart sound suggests the left ventricle is larger than normal (as S3 represents the sloshing of blood into a large ventricle during diastole). The presents of an S4 heart sound suggest that the left ventricle is stiffer than normal (as S4 represents the forceful atrial push of blood against a hard ventricular wall). These combined, suggests the left ventricle is larger than usual, with stiff walls and causing pulmonary congestion. This is highly suggestive of a left ventricular aneurysm. A left ventricular aneurysm will cause persistent ST elevation in V1-6 on an ECG. This is because the fibrosis and dead tissue is not able to properly move as expected.

Left ventricular free wall rupture is incorrect. This tends to develop sooner, with 50% of cases occurring within 48 hours of the original infarction. The most common symptom is chest pain, which this patient doesn't have. Pulmonary congestion is not a common presentation, and so this diagnosis wouldn't explain the crackles or reduced exercise tolerance. An ECG may show ST elevation in all leads, not just chest leads. Equally, it wouldn't explain the S3 and S4 heart sounds, as more commonly, there may be muffled heart sounds due to a pericardial effusion forming.

Mitral valve prolapse is incorrect. This normally presents 2-7 days after the myocardial infarction. It presents as sudden pulmonary oedema, with sudden shortness of breath, not the gradual worsening that is described by this patient. On examination, you would expect a prominent murmur to be present, not S3 and S4 heart sounds. It also would not explain the ECG findings, as the only expected finding is sinus tachycardia, alongside evidence of recent ischaemia.

Re-infarction is incorrect. This wouldn't explain the added heart sounds, or the bibasal crackles, and would normally be associated with characteristic chest pain seen in myocardial infarctions. Equally, his presentation is a steady decline, whilst a re-infarction would present as sudden onset.

Ventricular septal defect is incorrect. This may indeed cause acute pulmonary oedema, but it would tend to have more of an acute onset than described here. There is almost always a pansystolic murmur on examination, and S3 and S4 heart sounds wouldn't be expected. There wouldn't be ST elevation on an ECG for a ventricular septal defect.

Question:

A 72-year-old woman has rapidly progressing Parkinson's disease. With help from her Parkinson's nurse, she writes an 'advance directive' regarding her future care.

She states that when she loses mental capacity due to her Parkinson's, she does not wish to receive cardiopulmonary resuscitation, invasive ventilation, or antibiotics. She does not have a separate 'do not attempt cardiopulmonary resuscitation (DNACPR)' order in place.

What element is most crucial to ensure the document she writes is valid?

A.A DNACPR order is put in place

B.Her family is aware of her wishes

C.It refers to specific treatments when she loses mental capacity

D.She consults an expert nurse in drafting it

E.She has a rapidly progressive neurodegenerative disease

Answer:It refers to specific treatments when she loses mental capacity

Explanation:

Advance directive - refers to a specific treatment in a specific circumstance

Important for meLess important

Advance directives must refer to specific treatments in specific circumstances. In this case, her advance directive only applies when she has lost mental capacity due to the progression of her Parkinson's, and it only covers the specific treatments that she has included. It refers to specific treatments when she loses mental capacity is the correct answer.

An advance directive records the wishes of the patient and is a legally binding document. A DNACPR is put in place by medical staff, to guide management, and is not legally binding. For a DNACPR to be legally binding it would need to be included in the advance directive. The question states that she wants to refuse the named treatments when she has lost capacity, but she would presumably consent to receive them up to that point. Putting a DNACPR order in place now would therefore be inappropriate. It would be against the patient's wishes and there is no suggestion that her medical team currently has reason to put one in place. A DNACPR order is put in place is therefore not the correct answer.

A person is not obliged to consult a medical professional when drawing up an advance directive, although the guidance encourages it. Therefore, she consulted an expert nurse in drafting the advance directive is not the correct answer.

Anyone aged over 18 years who have mental capacity can make an advance directive; that she has a rapidly progressive neurodegenerative disease is not relevant to the validity of her decision.

A person is encouraged to ensure their family is aware of their wishes, but it is not essential for the validity of an advance directive. Her family was aware of her wishes is therefore not the correct answer.

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 44-year-old woman presents with pain in her right hand and forearm which has been getting worse for the past few weeks. There is no history of trauma. The pain is concentrated around the thumb and index finger and is often worse at night. Shaking her hand seems to provide some relief. On examination there is weakness of the abductor pollicis brevis and reduced sensation to fine touch at the index finger. What is the most likely diagnosis?

A.C6 entrapment neuropathy

B.Thoracic outlet syndrome

C.Carpal tunnel syndrome

D.Cervical rib

E.Pancoast's tumour

Answer:Carpal tunnel syndrome

Explanation:

More proximal symptoms would be expected with a C6 entrapment neuropathy e.g. weakness of the biceps muscle or reduced biceps reflex.

Patients with carpal tunnel syndrome often get relief from shaking their hands and this may be an important clue in exam questions.

Question:

A 72-year-old woman is brought to surgery with confusion and pallor. Her daughter reports that she has been getting more confused and tired for the past three months. Blood tests are reported as follows:

Hb 8.9 g/dl

MCV 125 fl

Plt 148 \* 109/l

WBC 4.4 \* 109/l

In light of the macrocytic anaemia some further tests are ordered:

Intrinsic factor antibodies Negative

Vitamin B12 94 ng/l (200-900 ng/l)

Folic acid 1.1 nmol/l (> 3.0 nmol/l)

What is the most appropriate management?

A.Perform an ECG immediately

B.Oral folic acid + start Intramuscular vitamin B12 when folic acid levels are normal

C.Intramuscular vitamin B12 + start oral folic acid when vitamin B12 levels are normal

D.Refer to the local alcohol dependency services

E.Admit for blood transfusion

Answer:Intramuscular vitamin B12 + start oral folic acid when vitamin B12 levels are normal

Explanation:

It is important in a patient who is also deficient in both vitamin B12 and folic acid to treat the B12 deficiency first to avoid precipitating subacute combined degeneration of the cord. Consideration in this case should also be given to secondary care referral to identify the underlying cause

Question:

A 32-year-old woman, who gave birth a week ago presents to the GP for a routine appointment. She has concerns about her medications as she is taking multiple drugs for various conditions and is worried about the effect they may have on the baby as she wishes to breastfeed her baby.

What medication can she continue to take?

A.Carbimazole

B.Diazepam

C.Isotretinoin

D.Lamotrigine

E.Sulfonylureas

Answer:Lamotrigine

Explanation:

Breast feeding is acceptable with nearly all anti-epileptic drugs

Important for meLess important

Lamotrigine is an AED commonly prescribed for seizures. It is usually preferred in women compared to other AEDs as it does not carry the risk of lowering child-bearing potential. Most AEDs are fine for the patient to have during breastfeeding.

Carbimazole can be passed on to the baby through breast milk.

Diazepam's active metabolite can be transferred to the baby via breast milk. The half-life of this drug is long and therefore should be avoided during breastfeeding as it could elicit adverse effects such as lethargy and weight loss in infants.

The effect of isotretinoin on breastfed infants is not well studied. However, as a general rule, oral retinoids should be avoided when breastfeeding.

Sulfonylureas can be transferred to the baby via breast milk. Due to their severe hypoglycaemic effects, breastfeeding patients should avoid taking them.

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 23-year-old female has presented to your clinic with genital irritation. She has been experiencing pain in her genital area for the past 4 days that is extremely itchy, and has also noticed some red 'sores'. On exploration of her relevant history, you establish that she has pain on passing urine, and that she has recently had unprotected sex with multiple other individuals. There are no reports of abnormal vaginal discharge or intermenstrual bleeding.

You consent her for an examination with a chaperone. On inspection you notice multiple erythematous ulcers over the external genital area, and there is evidence of excoriation. No discharge can be seen.

Which of the following is the most appropriate management?

A.Doxycycline

B.Oral aciclovir

C.Simple hygiene guidance only

D.Topical aciclovir

E.Oral and topical aciclovir

Answer:Oral aciclovir

Explanation:

An outbreak of genital herpes should be treated with oral aciclovir

Important for meLess important

This patient has presented with their first episode of genital herpes. NICE guidelines recommend that oral antivirals are the most appropriate, such as aciclovir.

Topical aciclovir has not been demonstrated to be clinically beneficial for treating genital herpes, therefore it is not used as monotherapy or in conjunction with oral aciclovir.

Simple hygiene guidance, as well as other self-care measures, should always be offered in these patients, however this is not sufficient in treating the herpes without oral antivirals.

Doxycycline is an antibacterial which is used in the treatment of Chlamydia, not genital herpes.

Question:

A 71-year-old man with a history of chronic obstructive pulmonary disease (COPD) is investigated for back pain. Over the past 10 years he has had numerous admissions for infective exacerbations of COPD and currently uses long-term oxygen therapy. The pain came on suddenly whilst he was at his local supermarket.

A MRI scan is requested:

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What is the most likely underlying cause of the back pain?

A.Osteomyelitis

B.Multiple myeloma

C.Pott's disease

D.Metastatic lung cancer

E.Osteoporosis

Answer:Osteoporosis

Explanation:

The MRI shows osteoporotic fractures of the 8th and 10th thoracic vertebrae. This is likely to have been caused by repeated courses of steroids to treat exacerbations of COPD.

Question:

A 27-year-old woman is admitted to the Emergency Department following a road traffic accident. Primary survey reveals a right-sided haemothorax but she is haemodynamically stable. She is only responding to voice. A CT scan of her head (with contrast) is performed:

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What does the scan show:

A.Subdural haematoma

B.Subarachnoid haemorrhage

C.Extradural haematoma

D.Brain contusion

E.Meningioma

Answer:Extradural haematoma

Explanation:

The CT scan shows a extra-axial biconvex collection associated with fracture suggestive of extradural haematoma.

Question:

A 12-year-old boy is brought to the emergency department by his mother, after he caught his finger on a door frame while running through the house, causing it to be forcefully abducted. He has a slightly swollen fourth finger which is tender on palpation. There is no motor or sensory deficit, and no disruption to skin integrity. An x-ray is requested, which shows:

© Image used on license from Radiopaedia

What is the most appropriate management option for this injury?

A.Below elbow cast

B.Buddy strapping

C.Discharge with worsening advice

D.Manual closed reduction

E.Open reduction and internal fixation

Answer:Manual closed reduction

Explanation:

The correct answer is manual closed reduction. The x-ray shows a partially displaced fracture of the proximal phalanx which includes both the growth plate and metaphysis, which classifies it as a Salter-Harris Type II fracture. This is the most common type of fracture involving the growth plate. Proximal phalangeal growth plate injuries commonly occur in children when the finger is forcibly abducted beyond normal limits. As the fracture is partially displaced, it requires manual reduction and subsequent buddy-strapping, which can be done in the emergency department.

Below elbow cast is incorrect. A cast may not be required for a phalangeal fracture like this patient has, as strapping to the next finger may be enough for stability after reduction of the fracture.

Buddy strapping is incorrect. Manual reduction is required before this, so buddy strapping without intervening first would not be appropriate. Only after the fracture has been reduced, the finger can be buddy strapped to the fingers beside it for stability.

Discharge with worsening advice is incorrect. The displacement of the fracture means that it needs to be reduced to allow proper healing.

Open reduction and internal fixation is incorrect. While the fracture does require manipulation to move it back into place so that it can heal properly, this does not have to be an open surgical procedure, so it is known as closed manual reduction. Salter-Harris II fractures rarely require open surgical intervention. If the fracture is severely displaced, unstable, or open, then the child should be referred to surgical services.

Question:

A 76-year-old man with diverticular disease presents with crampy abdominal pain, nausea and vomiting. Six months ago, he underwent an emergency laparotomy for a perforated diverticulum, leaving him with an end colostomy. He has not passed stool or flatus through his stoma for the last 4 days.

A CT abdomen shows small bowel obstruction with 5cm dilated bowel loops. Treatment with analgesia, IV fluids and nasogastric decompression is commenced. If symptoms persist, surgery might be indicated.

Given the patient's history and presentation, what is an absolute contraindication to laparoscopic surgery?

A.Age of patient

B.Bowel loop dilatation

C.Diverticular disease

D.Presence of stoma

E.Recent laparotomy

Answer:Bowel loop dilatation

Explanation:

Acute intestinal obstruction with dilated bowel loops is a contraindication to laparoscopic surgery

Important for meLess important

Age of patient is incorrect. Frailty and complex co-morbidities can both be contraindications to most surgical interventions. However, the age of the patient here is not of outright concern regarding operability.

Bowel loop dilatation is correct. Acute intestinal obstruction with enormously dilated bowel loops (>4cm) is an absolute contraindication to laparoscopic surgery as it narrows the operative field too much.

Diverticular disease is incorrect. Some medical conditions are relative contraindications to laparoscopic surgery such as abdominal aortic aneurysm, respiratory and cardiovascular failure or extensive adhesions from previous bowel surgery. However, patients with diverticular disease who are not actively peritonitic are not at specifically increased risk from laparoscopic surgery.

Presence of stoma is incorrect. Multiple previous abdominal surgeries may be regarded as a relative contraindication for laparoscopy. However, having a stoma is not a contraindication in its own right.

Recent laparotomy is incorrect. This patient did have a laparotomy 6 months ago. However, laparotomy only contraindicates laparoscopic surgery when it has been performed within the preceding 4-6 weeks or more than twice previously.

Question:

Chantelle is a 14-year-old who presents to the emergency department with a chronic cough. Her mother explains that they are fed-up as the GP has not been able to successfully treat the cough and so they have attended the emergency department.

Chantelle reports that she has had a cough for as long as she can remember, however it has been getting progressively worse over the past year. The cough is productive of a clear sputum and very occasional small streaks of blood. Chantelle denies any purulent sputum and also denies any history of any fever symptoms.

Upon asking whether there is any similar family history, Chantelle's mother explains that Chantelle was adopted and limited information is known about her birth family.

On examination you find Chantelle's respiratory rate to be 14 breaths/min, oxygen saturations to be 96% on room air, heart rate 70 beats/min and blood pressure 118/70mmHg. There are no peripheral stigmata of respiratory disease and on auscultation of the chest you discover widespread coarse crackles and a biphasic wheeze.

You arrange a chest x-ray and FBC which return the following results:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 6.8\* 109/L (4.0 - 11.0)

Chest X-Ray: Widespread apparent thickening of bronchial walls. No signs of focal consolidation. Heart appears to lie on the right hand side, clinical correlation advised!

Given the combination of clinical history and examination findings, what is the most likely diagnosis?

A.Cystic fibrosis

B.Idiopathic pulmonary fibrosis

C.Isolated dextrocardia

D.Kartagener's syndrome

E.Patau syndrome

Answer:Kartagener's syndrome

Explanation:

The combination of bronchiectasis and dextrocardia is highly suggestive of Kartagener's syndrome

Important for meLess important

The correct answer here is Kartagener's syndrome due to the clinical history and signs of bronchiectasis as well as the patient having dextrocardia. It is common for this condition to only be diagnosed after multiple encounters with health professionals.

Whilst cystic fibrosis would be expected to cause bronchiectasis, it is not linked with dextrocardia.

Idiopathic pulmonary fibrosis is highly unlikely to occur in a patient of this age and would also not account for the dextrocardia.

Whilst the patient does have dextrocardia, in isolated dextrocardia, there are no other abnormalities and so it would not explain the other symptoms.

Patau syndrome can present with dextrocardia and some pulmonary signs, however, the median survival for this condition is only 3 days after birth and so is highly unlikely to be present in a patient of this age.

Question:

A patient with prostate cancer attends the GP practice complaining of two months of new back pain. He notes the pain is particularly bad when he is trying to sleep at night, and he finds it difficult to get comfortable in bed. He finished his last chemotherapy cycle of docetaxel two years ago.

Which first line investigation would confirm the likely diagnosis?

A.Full body PET scan

B.Digital rectal examination

C.Full blood count

D.PSA blood test

E.MRI spine

Answer:MRI spine

Explanation:

New back pain in a patient with a cancer history should be investigated with high suspicion of spinal metastasis

Important for meLess important

New onset nocturnal back pain in a cancer patient is highly suspicious of metastatic spinal cord compression (MSCC). First line investigation should be an MRI spine within 24 hours.

A PET scan is commonly used in cancer monitoring but is not a first line investigation. A digital rectal examination would be helpful here, but would not confirm the MSCC diagnosis. Blood tests are of no use in detecting cord compression.

NICE [CG75]

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:

A 42-year-old woman presents with a 5-day history of shoulder pain. The pain is localised to the left shoulder with no radiation.

She recalls hurting her shoulder following attempting shoulder exercises in the gym recently.

She has a past medical history of type 2 diabetes mellitus and hypercholesterolemia.

On examination, the shoulder feels normal temperature and colour. It does not appear swollen. External rotation is significantly limited by pain on both active and passive movements. Flexion, extension, abduction and adduction are also limited by pain, but less so.

What is the most likely diagnosis?

A.Adhesive capsulitis

B.Calcific tendonosis

C.Cervical nerve root entrapment

D.Supraspinatus tendonosis

E.Torn rotator cuff

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 correct. Adhesive capsulitis is more commonly seen in middle-aged females, diabetic patients and following trauma. External rotation is usually the most affected movement.

Calcific tendonosis is incorrect. This would present with bursitis: with pain and restriction in movement, and the shoulder would feel hot and swollen.

Cervical nerve root entrapment is incorrect. This would present with pain in the neck and/or shoulder. The patient would be likely to describe the pain radiating to the arm, or describe numbness/paraesthesia. Neck range of movement would likely be impaired.

Supraspinatus tendonosis and torn rotator cuff are incorrect. In these cases, the most prominent restriction in movement would be impaired abduction.

Question:

A 40-year-old man is admitted to the intensive care unit following a severe episode of acute pancreatitis. On the third day of his admission he becomes pyrexial. A septic screen is ordered including cultures taken from both peripheral blood and the internal jugular line. There is no signs of infection on the chest x-ray or urine sample. The microbiology laboratory phone to report signs of bacterial infection in the sample from the central line. What is the most likely organism to be isolated?

A.Pseudomonas aeruginosa

B.Escherichia coli

C.Staphylococcus epidermidis

D.Streptococcus pneumoniae

E.Staphylococcus aureus

Answer:Staphylococcus epidermidis

Explanation:

Most common organism found in central line infections - Staphylococcus epidermidis

Important for meLess important

Question:

A 23-year-old woman is undergoing surgery for appendicitis. She is generally fit and healthy, with the exception of having received treatment for asthma since she was 14. She takes a high dose inhaled corticosteroid regularly as well as theophylline for the last year, and finds she has to use her reliever several times a week as she regularly becomes breathless. She has had two asthma attacks that required treatment in A&E over the last year. Her last peak flow was 72%.

She has never smoked and does not drink alcohol.

The anaesthetist you are shadowing asks you to calculate her ASA grade:

A.2

B.3

C.4

D.5

E.6

Answer:3

Explanation:

Stable, well managed asthma will give you an ASA grade of 2

Important for meLess important

As ASA grade III is any patient with one or more moderate to severe diseases, this is the correct answer. This individual has moderate to severe asthma, as evidenced by the persistence of symptoms despite intensive medical therapy. This makes gives her a higher risk than someone with well controlled asthma.

II would only be correct if this patient's symptoms were stable and well managed. IV is incorrect as while she does have some significant symptoms, her condition wouldn't represent a constant threat to her life.

Question:

A 24-year-old woman presents to the antenatal clinic. Which of the following should be offered as part of routine infection screening?

A.Cytomegalovirus

B.Hepatitis C

C.Group B Streptococcus

D.Human Immunodeficiency Virus (HIV)

E.Toxoplasmosis

Answer:Human Immunodeficiency Virus (HIV)

Explanation:

HIV should be routinely offered as part of the antenatal screening process.

Source: NICE guidelines (https:www.nice.org.uk/guidance/CG62/chapter/1-Guidance#screening-for-fetal-anomalies).

Question:

A 28-year-old woman had attended for her routine cervical smear which is performed without any issues. The GP receives the result of smear that it was positive for high-risk HPV but there was no evidence of cytological abnormalities.

What is the most appropriate next step?

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 sample is hrHPV +ve + cytologically normal → repeat smear at 12 months

Important for meLess important

Repeating the cervical smear in 12 months is correct because her first smear under routine recall was positive for high-risk strains of human papillomavirus (hrHPV) but showed no cytological abnormalities. Therefore under current guidance she should have a repeat smear at 12 months.

Colposcopy is not correct as it is not indicated. It would be indicated if either she had a hrHPV positive smear with cytological evidence of dyskaryosis, she has 3 successive annual smears that are hrHPV positive but with no cytological evidence of dyskaryosis, or she has 2 smears that are inadequate 3 months apart.

Repeating a cervical smear after 3 months is not correct because it is indicated if the first smear is not adequate.

Repeating the cervical smear in 3 years is not correct because it would be in line with returning her to routine recall under the cervical screening programme. As hrHPV has been detected, routine recall is not appropriate.

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

Question:

A 34-year-old woman presents to her GP with a 4-month history of fatigue and generalised itch. On examination, she is pale with excoriation evident on her arms bilaterally. There are no other rashes or areas of dry skin. Her blood results show the following:

Hb 80 g/L Male: (135 - 180)

Female: (115 - 160)

MCV 70 fL (76 - 96)

Platelets 170 \* 109/L (150 - 400)

WBC 5 \* 109/L (4 - 11)

What is the most likely cause of her pruritis?

A.Eczema

B.Chronic kidney disease

C.Polycythaemia vera

D.Iron deficiency anaemia

E.Lymphoma

Answer:Iron deficiency anaemia

Explanation:

Iron deficiency anaemia is a cause of pruritis

Important for meLess important

The symptoms of lethargy, pallor and generalised pruritis all point toward a diagnosis of anaemia. In combination with her blood results, which show a microcytic hypochromic anaemia, iron deficiency anaemia is the most likely differential.

Chronic kidney disease may cause a similar clinical picture, with anaemia resulting from a lack of erythropoietin production by the kidneys, however, this would more likely be a normochromic, normocytic anaemia. Iron deficiency anaemia is also far more likely in a woman of reproductive age due to the effects of menstruation.

Eczema would likely present earlier in life in patients with a history of atopy, and more likely with a circumscribed rash than generalised pruritis.

Lymphoma would be likely to present with deranged WBC and low platelets as well as anaemia, in addition to other physical findings such as lymphadenopathy.

Although polycythaemia vera may also present with fatigue and itch, patients typically have a ruddy complexion in contrast to pallor, and blood results would show increased Hb, platelets and WBC.

Question:

An 11-year-old girl is brought by her mother for a generalised skin eruption. She began itching 2 days ago and has since developed fevers and a skin rash. On examination, there are various stages of lesions including macules, papules, crusted lesions, and vesicles which cover a majority of her body. Her mother has been giving her ibuprofen for the fever and discomfort.

Given the likely diagnosis, why would ibuprofen not be recommended in this scenario?

A.The increased risk of necrotising fasciitis

B.The patient's age

C.The risk of Reye's syndrome

D.The risk of gastrointestinal adverse effects

E.The risk of kidney damage

Answer:The increased risk of necrotising fasciitis

Explanation:

NSAIDs can increase the risk of necrotising fasciitis in patients with chicken pox

Important for meLess important

This patient has signs and symptoms which are most consistent with chickenpox. These include the lesions at different stages of healing, pruritus and fever. NSAID use increases the risk of necrotising fasciitis in these patients.

Ibuprofen is an NSAID that can be used at any age, and this patient is 11-years-old making this option incorrect.

There is a risk of Reye's syndrome in children with chickenpox who are treated with aspirin. In this scenario, ibuprofen is used which does not have this risk.

The risk of gastrointestinal adverse effects is minimal when this medication is used for short courses during acute febrile illnesses.

The risk of kidney damage is also minimal when this medication is used for short courses and this caution is mainly aimed at elderly patients who may be taking other medications that impact the kidney including diuretics and ACE inhibitors.

Question:

A 21-year-old woman at 34 weeks gestation telephones her GP for advice. Her pregnancy is progressing well but she is keen to explore which contraceptive options are available to her following childbirth. After an extended discussion, her preferred option would be the contraceptive implant. The patient has no underlying medical conditions and does not plan to breastfeed.

From what timepoint could this patient commence on this treatment?

A.Antenatally

B.Immediately following childbirth

C.4 weeks postpartum

D.6 months postpartum

E.6 weeks postpartum

Answer:Immediately following childbirth

Explanation:

A contraceptive implant can be safely inserted any time after childbirth

Important for meLess important

Contraceptive implants can be safely inserted immediately following childbirth. Although only minimal amounts of the progesterone released by a contraceptive implant will enter breastmilk, the manufacturer of the UK's most widely used implant Nexplanon® advises inserting after 4 weeks postpartum in a breastfeeding woman.

Although there is no evidence that a contraceptive implant can result in foetal or maternal harm, inserting an implant during pregnancy is inappropriate as the risk of a complication cannot be fully excluded.

Following pregnancy, fertility will likely not return until after 6 weeks postpartum. This gives women some time to consider their options if they remain undecided. The above patient however has decided upon the contraceptive implant and there would be no benefit to delaying insertion.

Although a woman who exclusively breastfeeds will likely be protected against pregnancy until 6 months postpartum, the above patient does not plan on doing so. Therefore inserting the implant at this timepoint would be inappropriate. As the lactational amenorrhea method is only around 80% effective, adding an additional contraceptive alongside breastfeeding should also be explored with exclusively breastfeeding patients.

Question:

A 63-year-old man presents to his GP with persistent back pain. His past medical history includes pneumonia, cellulitis, and pyelonephritis, all of which occurred over the past year. Upon performing a systemic inquiry, he mentions he has noticed that he bruises quite easily, and has experienced frequent fatigue, and increased thirst over the past few months. His blood test shows the following results:

Na+ 140 mmol/L (135 - 145)

K+ 5.7 mmol/L (3.5 - 5.0)

Bicarbonate 20 mmol/L (22 - 29)

Urea 12.0 mmol/L (2.0 - 7.0)

Creatinine 136 µmol/L (55 - 120)

Given the likely diagnosis, what are the blood test results of this patient likely to show?

A.Hypercalcaemia, low phosphate, normal ALP

B.Hypercalcaemia, normal / high phosphate, normal ALP

C.Hypocalcaemia, low phosphate, high ALP

D.Hypocalcaemia, normal / high phosphate, normal ALP

E.Normal calcium, normal / high phosphate, normal ALP

Answer:Hypercalcaemia, normal / high phosphate, normal ALP

Explanation:

Myeloma without metastasis is characterised by high calcium, normal/high phosphate and normal alkaline phosphate

Important for meLess important

This patient is presenting with the features of myeloma: bone pain (typically spinal), recurrent infections, thrombocytopaenia, anaemia and polydipsia indicating dehydration secondary to renal impairment/hypercalcaemia. His U&Es show raised potassium, urea and creatinine, as well as reduced bicarbonate, indicating renal impairment. An easy way to remember the main features of myeloma is 'CRABBI' - Calcium (high), Renal impairment, Anaemia, Bones (pain, osteoporosis, lytic lesions), Bleeding (thrombocytopaenia), and Infections (neutropaenia).

Hypercalcaemia, normal / high phosphate, normal ALP is correct. In cases of myeloma, there is hypercalcaemia secondary to increased osteoclast activity. Additionally, renal impairment causes hypercalcaemia and hyperphosphataemia. Finally, ALP enzyme levels remain normal with myeloma but may rise in other conditions such as solid tumours or bony metastases.

Hypercalcaemia, low phosphate, normal ALP is incorrect. Patients with renal impairment in myeloma have reduced phosphate excretion that causes hyperphosphataemia. Therefore, this option is incorrect.

Hypocalcaemia, low phosphate, high ALP is incorrect. Patients with myeloma typically have a normal/high phosphate level (due to reduced renal excretion), raised calcium and normal ALP level.

Hypocalcaemia, normal/high phosphate, normal ALP is incorrect. Myeloma typically causes a raised calcium level and normal/high phosphate.

Normal calcium, normal/high phosphate, normal ALP is incorrect. As this patient has evidence of renal impairment, it is unlikely that they will have a normal or raised phosphate level. Furthermore, myeloma causes hypercalcaemia making this answer incorrect.

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 6-year-old boy is at the park with his parents and is enjoying himself on the swings. He does not wish to leave so his parents pull him by his hand and this causes him to fall and be pulled along the floor a short distance. Later on he complains of pain in his shoulder and struggles to hold cutlery to eat dinner. He cannot adduct his thumb or abduct his fingers and the medial aspect of his elbow feels numb.

Which of the following nerve roots is most likely to be affected?

A.C5

B.C6

C.C7

D.C8

E.T1

Answer:T1

Explanation:

Lesions at T1 will cause finger abduction weakness

Important for meLess important

This child has experienced a traction injury causing the arm to be pulled vertically up and has resulted in him developing a weakness of his intrinsic hand muscles (affecting thumb adduction and finger abduction) and a loss of sensation over the medial epicondyle. The root which supplies these movements is T1 via the ulnar nerve and the medial epicondyle is the testing point for the T1 dermatome. T1 can be injured from vertical traction injuries such as this where the lower roots of the brachial plexus are stretched or avulsed. The other name for the syndrome this results in is Klumpke’s paralysis.

Question:

You are doing the six week check on a baby girl. Which one of the following best describes the Barlow test for developmental dysplasia of the hip?

A.Attempts to relocate a dislocated femoral head

B.Upward pressure on the femur with the hip flexed at 90 degrees

C.Observation of the relative height of the knees with the hips flexed at 90 degrees

D.Observation for buttock crease asymmetry with the hips flexed at 90 degrees

E.Attempts to dislocate an articulated femoral head

Answer:Attempts to dislocate an articulated femoral head

Explanation:

Barlow manoeuvre: attempted dislocation of a newborns femoral head

Important for meLess important

Question:

A 32-year-old woman is admitted with haematemesis. She has a one year history of recurrent peptic ulceration which has been unresponsive to ranitidine and omeprazole. She also complains of a milky white discharge from her breasts, and excessive thirst and urination. Endoscopy reveals a 3cm, actively bleeding ulcer in the duodenum. Blood tests reveal hypercalcaemia.

What is the most likely diagnosis?

A.Multiple endocrine neoplasia type 2

B.Zollinger-Ellison syndrome

C.Multiple endocrine neoplasia type 1

D.Autoimmune polyendocrine syndrome type 1

E.Autoimmune polyendocrine syndrome type 2

Answer:Multiple endocrine neoplasia type 1

Explanation:

Peptic ulceration, galactorrhoea, hypercalcaemia - multiple endocrine neoplasia type I

Important for meLess important

Multiple endocrine neoplasia type 1 is a genetic disorder that affects the endocrine system through development of neoplastic lesions in the pituitary gland, parathyroid gland and pancreas.

The milky white discharge is suggestive of hyperprolactinaemia which can occur to due a prolactinoma.

The excessive thirst and urination could be explained by hypercalcaemia which can occur due to primary hyperparathyroidism.

The chronic and unresponsive peptic ulceration is suggestive of Zollinger-Ellison syndrome. Zollinger-Ellison syndrome is a rare condition caused by a gastrin-secreting tumour found either in the islet cells of the pancreas or in the duodenal wall. The high levels of gastrin leads to stimulation of hydrochloric acid production in the gastric antrum resulting in predominantly duodenal ulceration.

Piecing all the information together allows one to deduce that multiple endocrine neoplasia type 1 is the most likely diagnosis.

Question:

A 61-year-old man complains of a four month history of neck and arm pain. The pain is described as being like 'electric shocks' and is worse when he turns his head. There is no history of trauma and no other obvious trigger. He is otherwise fit and well and takes no other medication. On examination he has decreased sensation on the dorsal aspect of the thumb and index finger. What is the most likely underlying diagnosis?

A.C4 radiculopathy

B.C5 radiculopathy

C.C6 radiculopathy

D.C7 radiculopathy

E.T1 radiculopathy

Answer:C6 radiculopathy

Explanation:

Question:

A 61-year-old woman attends the surgery as she reports being generally unwell with muscle twitching. Blood pressure is recorded at 114/78 mmHg, pulse 84/min and she is apyrexial. You arrange some blood tests which reveal the following:

Calcium 1.94 mmol/l

Albumin 38 g/l

Which one of the following tests is most useful in elucidating the cause of her symptoms?

A.Urea

B.Vitamin D

C.Phosphate

D.Parathyroid hormone

E.Magnesium

Answer:Parathyroid hormone

Explanation:

Parathyroid hormone is the single most useful test in determining the cause of hypocalcaemia

Question:

You review an 83-year-old woman on the admissions unit with increased confusion. She has a past history of dementia and is usually cared for by her husband, who has unfortunately been admitted to hospital himself due to a fall down a flight of stairs. She was admitted to hospital earlier that morning while respite care is sorted for her. On admission, examination was normal, and she appeared fit and well other than being disorientated to place and time. Admission bloods were unremarkable. Overnight she became increasingly disoriented and agitated and began wandering the ward and demanding to leave. There was no history of such behaviour in the collateral history taken on her admission.

What is the most likely cause of the increased confusion in this patient?

A.Change in environment

B.Constipation

C.Hospital-acquired pneumonia

D.Progression of dementia

E.Urinary tract infection

Answer:Change in environment

Explanation:

New surroundings can cause delirium in cognitively impaired patients

Important for meLess important

The correct answer is change in environment. In patients with cognitive impairment, a change in environment can be enough to precipitate a delirium.

There is no evidence from the history to suggest constipation as a cause, though it can also be a cause of delirium.

A hospital-acquired pneumonia could cause delirium, however the patient has no symptoms to suggest this is the case and she has not been an inpatient long enough to meet the criteria for a hospital-acquired pneumonia.

The acute worsening of symptoms with no history of similar episodes before is more in keeping with delirium than progression of dementia.

With normal bloods and examination, there is little to point to a urinary tract infection from the history, though infection should be screened for in patients with delirium.

Question:

A 25-year old male presents to the emergency department after being stabbed in the back with a kitchen knife. On completing a full neurological exam it is found that he cannot feel pain or temperature sensation on his right side. He has weakness and loss of light touch sensation on his left side.

What is the most likely diagnosis?

A.Central cord syndrome

B.Anterior cord syndrome

C.Posterior cord syndrome

D.Transection of spinal cord

E.Brown-Séquard syndrome

Answer:Brown-Séquard syndrome

Explanation:

Unilateral spastic paresis and loss of proprioception/vibration sensation with loss of pain and temperature sensation on the opposite side - Brown-Sequard syndrome

Important for meLess important

Brown-Séquard syndrome is a rare spinal disorder that results from an injury to one side of the spinal cord resulting in hemisection of the cord. The damage to the corticospinal tract, spinothalamic tract and dorsal columns, results in ipsilateral upper motor neurone signs, contralateral spinothalamic signs, and ipsilateral dorsal column signs respectively.

Question:

A 67-year-old patient presents to the general practitioner with a 3-month history of polyuria and polydipsia. She has a past medical history of hypertension, for which she takes verapamil. Abdominal examination is unremarkable, but hyperpigmentation and hyperkeratosis are noted in the skin around the axilla and groin regions.

What is the most likely diagnosis in this patient?

A.Cranial diabetes insipidus

B.Nephrogenic diabetes insipidus

C.Polycystic ovary syndrome

D.SIADH

E.Type 2 diabetes mellitus

Answer:Type 2 diabetes mellitus

Explanation:

Acanthosis nigricans is associated with type 2 diabetes mellitus

Important for meLess important

The correct answer is type 2 diabetes mellitus.

This patient is presenting with polyuria and polydipsia on a background of hypertension. The examination finding of hyperpigmentation and hyperkeratosis (skin thickening) in the groin and axilla suggest acanthosis nigricans, a condition that is associated with type 2 diabetes mellitus.

Cranial diabetes insipidus is incorrect. This condition is characterised by insufficient ADH release. This lack of anti-diuretic hormone (ADH) results in an inability to concentrate urine. So patients will often present with polyuria and polydipsia, which is triggered in an attempt to maintain circulating volume. However, the condition is not associated with hypertension or acanthosis nigricans and therefore is not the best option.

Nephrogenic diabetes insipidus is incorrect. This condition results from renal insensitivity to ADH, preventing the concentration of urine. Patients often present with polyuria and polydipsia, but the condition is not associated with hypertension or acanthosis nigricans. Please note, a urine osmolality test can be used to differentiate between cranial and nephrogenic diabetes insipidus.

Polycystic ovary syndrome (PCOS) is incorrect. PCOS is a complex disorder in which patients can present with subfertility, menstrual disturbance and acanthosis nigricans (caused by insulin resistance). However, PCOS is unlikely to present with polyuria and polydipsia and is also unlikely to present in a patient of this age group.

SIADH is incorrect. This syndrome of inappropriate ADH secretion is characterised by a euvolemic hyponatremia, which produces symptoms of anorexia, vomiting and headache. In severe cases, patients may suffer altered mental status and seizures.

Question:

A 28-year-old female is referred to the medical assessment unit by her general practitioner with reports of a three-week history of rash and joint pains. She has no past medical history and does not take any regular medications.

On examination, there is a butterfly-shaped rash over her cheeks and nose that spares the nasolabial folds. The small joints of her hands are swollen and tender.

Blood tests:

Hb 136 g/L Male: (135-180)

Female: (115 - 160)

Platelets 101 \* 109/L (150 - 400)

WBC 2.3 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 88 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

Antinuclear antibody positive (1:320) (negative)

Which of the following medications should all patients with this condition be taking long term?

A.Azathioprine

B.Belimumab

C.Hydroxychloroquine

D.Prednisolone

E.Rituximab

Answer:Hydroxychloroquine

Explanation:

Hydroxychloroquine is the treatment of choice for SLE

Important for meLess important

Hydroxychloroquine is the correct answer. The patient has systemic lupus erythematosus (SLE) on the basis of malar rash, arthritis, thrombocytopenia, leukopenia and a positive antinuclear antibody. Hydroxychloroquine is considered to be the 'anchor drug' for long term maintenance therapy of SLE and all patients should be commenced on this treatment at diagnosis. Depending on the severity of the disease, other medications can be added.

Azathioprine is incorrect. This can be used as a steroid-sparing agent in SLE. However, it is only indicated in diseases of at least moderate severity where initial measures have not been successful. Typical examples of disease features of moderate severity include fever, pleurisy, pericarditis or severe cutaneous vasculitis. Every patient with SLE will not need this medication.

Belimumab is incorrect. This is a fully-humanized IgG1γ monoclonal antibody directed against a soluble B lymphocyte stimulator (BLyS). It is principally used as an additional therapy in patients with the active autoantibody-positive disease who are already receiving therapy with conventional immunosuppression. It is typically used for skin and musculoskeletal manifestations of the disease. It will therefore not be indicated in all patients.

Prednisolone is incorrect. Patients with SLE may need prednisolone to induce remission and in some cases, may find it difficult to wean prednisolone and will need to be on a small maintenance dose. However, this is not an ideal situation and the aim is for steroid-free management of the disease.

Rituximab is incorrect. This is used for cases of SLE with life-threatening clinical manifestations e.g. renal/neuropsychiatric or those refractory to initial immunosuppression.

Question:

A 30-year-old woman who is 9 weeks pregnant presents to the GP with symptoms of dysuria and increased urinary frequency accompanied by nausea and fevers. She does not take any regular medication. The patient has a known allergy to tetracyclines.

Observations are taken; blood pressure 125/72mmHg, heart rate 75 beats per minute, temperature 37.5ºC. You send a urine culture.

What is the appropriate treatment at this stage?

A.Amoxicillin 7 days

B.Nitrofurantoin 3 days

C.Nitrofurantoin 7 days

D.Trimethoprim 3 days

E.Trimethoprim 7 days

Answer:Nitrofurantoin 7 days

Explanation:

Trimethoprim is teratogenic in the first trimester and should be avoided during pregnancy

Important for meLess important

Nitrofurantoin 7 days is the correct answer. Nitrofurantoin is safe to use in the first trimester and this is an appropriate course length for a pregnant woman.

Amoxicillin 7 days is an appropriate treatment for a urinary tract infection (UTI) in pregnancy and 7 days in an appropriate course. However, nitrofurantoin is first-line during the first trimester and there is no indication that it cannot be used in this patient.

Nitrofurantoin 3 days is an appropriate choice for this patient. However, a longer course is required for pregnant patients and NICE recommends 7 days of treatment instead of 3 days which is the normal prescription for a female who is not pregnant.

Trimethoprim 3 days is teratogenic in the first trimester of pregnancy and should not be used, especially when there is a suitable alternative available. 3 days is also an inappropriate length of the antibiotic course in pregnancy.

Trimethoprim 7 days is an appropriate choice for this patient. Although 7 days are the appropriate course for a woman during pregnancy, trimethoprim is teratogenic and should be avoided in the first trimester.

Question:

A patient has been diagnosed with HIV. He remembers a period of illness 3 years before his diagnosis when he had a rash and sore throat for several weeks.

How long after HIV infection were these symptoms likely to have occurred?

A.1-2 days post-infection

B.1-2 weeks post-infection

C.1-2 years post-infection

D.3-12 months post-infection

E.3-12 weeks post-infection

Answer:3-12 weeks post-infection

Explanation:

HIV seroconversion occurs from 3-12 weeks

Important for meLess important

This individual is describing seroconversion illness, part of the process of HIV infection. It is important to know when seroconversion occurs, as before this time an infected patient could have a falsely reassuring negative result on blood testing.

This illness can be nonspecific, but can often present with the triad described above (rash, pharyngitis, and fever). It commonly occurs between 3-12 weeks post-infection and symptoms are caused by the body's production of HIV antibodies.

By 1-2 days post-infection, HIV antibodies will not have been produced and seroconversion will not have occurred.

Seroconversion occurs 3-12 weeks post-infection, not 1-2 weeks.

By 3-12 months or 1-2 years post-infection the seroconversion stage of HIV infection would be complete. Depending on the patient's CD4 count, they may start presenting with other symptoms such as unexplained lymphadenopathy, recurrent HSV, or atypical infections.

Question:

An 83-year-old male is referred to the ophthalmology clinic by his general practitioner with a new-onset inability to see objects near to him, especially at night. On fundoscopy, the doctor notices well-demarcated red patches. He has a past medical history of hypertension and he is a life-long smoker.

Given the most likely diagnosis, which one of the following is the most appropriate treatment?

A.Anti-vascular endothelial growth factor (VEGF)

B.Aspirin

C.Cataract surgery

D.High-dose steroids

E.Laser photocoagulation

Answer:Anti-vascular endothelial growth factor (VEGF)

Explanation:

Definitive treatment for wet AMD is anti-VEGF

Important for meLess important

The correct answer is the anti-vascular endothelial growth factor (VEGF). The patient is suffering from wet age-related macula degeneration, also known as exudative or neovascular macular degeneration. It is due to choroidal neovascularisation which serous fluid and blood leakage can subsequently result in a rapid loss of vision. This patient has the characteristic signs and symptoms: a reduction in visual acuity, particularly for near field objects, worse at night and red patches representing intra-retinal or sub-retinal fluid leakage or haemorrhage visible on fundoscopy. VEGF is a potent mitogen and drives increased vascular permeability in patients with wet ARMD, decreasing the leakage. This treatment should start as soon as possible.

Aspirin is the first-line treatment for amaurosis fugax, a wide differential including large artery disease (thrombosis, embolus, dissection), small artery occlusive disease (anterior ischemic optic neuropathy, vasculitis e.g. temporal arteritis), venous disease and hypoperfusion. It usually presents as a 'curtain coming down' type of blindness.

Cataract surgery is indicated in cases of cataracts. It would present with reduced vision, faded colour vision, glare and halos around light. On fundoscopy, a defect in the red reflex would be observed.

High-dose steroids are used in cases of optic neuritis. This would present with a unilateral decrease in visual acuity over hours or days, red desaturation, pain and scotoma.

Laser photocoagulation is a treatment option for wet age-related macular degeneration but there is a risk of acute visual loss after treatment, which may be increased in patients with sub-foveal ARMD. For this reason, anti-VEGF therapies are usually preferred.

Question:

A 17-year-old man undergoes an elective right hemicolectomy. Post operatively he receives a total of 6 litres of 0.9% sodium chloride solution, over 24 hours. Which of the following complications may ensue?

A.Hyperchloraemiac acidosis.

B.Hypochloraemic alkalosis

C.Hyperchloraemic alkalosis

D.Acute renal failure

E.None of the above

Answer:Hyperchloraemiac acidosis.

Explanation:

Excessive infusions of any intravenous fluid carry the risk of development of tissue oedema and potentially cardiac failure. Excessive administration of sodium chloride is a recognised cause of hyperchloraemic acidosis and therefore Hartmans solution may be preferred where large volumes of fluid are to be administered.

Question:

A 50-year-old male presents to the GP surgery for a routine review of his diabetes medication. He has a past medical history of type 2 diabetes, migraines, depression and eczema. He is currently taking metformin, atorvastatin, citalopram and propranolol. Blood tests show:

HbA1c 43 mmol/mol (6.1%)

Hb 15 g/dl

MCV 85 fl

Platelets 250 \* 109/l

WBC 5 \* 109/l

Na+ 125 mmol/l

K+ 4.1 mmol/l

Urea 5.5 mmol/l

Creatinine 125 µmol/l

What is the most likely cause of the abnormal blood test result?

A.Type 2 diabetes

B.Atorvastatin

C.Upper gastrointestinal bleed

D.Metformin

E.Citalopram

Answer:Citalopram

Explanation:

SSRIs are a cause of SIADH

Important for meLess important

Citalopram is an selective serotonin reuptake inhibitor (SSRI) antidepressant which are known to be a potential cause of the syndrome of inappropriate antidiuretic hormone secretion (SIADH). Raised levels of ADH causes increased reabsorption of water from the collection ducts in the nephrons leading to a dilutional hyponatraemia.

The other options are not causes of hyponatraemia.

Question:

In general practice, you review a 35-year-old woman who has recently started working in a bakery. She reports she has developed new symptoms of cough and wheeze despite being a non-smoker with no respiratory history. She mentions that she is on annual leave at the moment and has actually felt much better during her time off.

You examine her and find the following:

Saturations 98% on air.

Heart rate 75 beats per minute.

Blood pressure 118/75 mmHg.

Chest clear on auscultation.

Peak flow appropriate for age, height and sex.

Which of the below would be the most appropriate next step?

A.Advise the patient to keep a diary of peak flow readings both in and out of work

B.Give the patient a salbutamol inhaler to use at work

C.Prescribe a regular steroid inhaler, salbutamol to use at work and arrange a follow up in one month

D.Reassure the patient that her examination is normal so there is unlikely to be a serious cause for her symptoms

E.The GP should arrange IgE skin prick testing

Answer:Advise the patient to keep a diary of peak flow readings both in and out of work

Explanation:

Serial peak flow measurements at work and at home are used to detect occupational asthma

Important for meLess important

The onset of cough and wheeze after starting a new job coupled with the improvement of symptoms whilst on holiday suggests a diagnosis of occupational asthma. A baker is a high-risk profession for occupational asthma.

Due to the potential implications on employment, the diagnosis should be confirmed with subjective testing. The 'British Thoracic Guidelines for the management of asthma' (2019) advise that those with suspected occupational asthma should undergo serial peak flow measurements both in and away from the workplace to look for reduced lung function specific to the workplace. The patient should also be referred to respiratory medicine.

Once the diagnosis has been confirmed, it may. then be appropriate to refer the patient for IgE testing to identify their trigger(s). However, the 2019 guidelines recommend confirming the diagnosis first with serial peak flows. Furthermore, IgE testing would usually be done by a specialist in respiratory medicine.

Giving the patient an inhaler alone is inappropriate. As above, given the potential implications on employment, the patient needs diagnosis confirmation and secondary care referral. Once occupational asthma is confirmed, the most important management is removing the trigger rather than managing symptoms alone. For this reason, a trial of montelukast would also be incorrect.

Although a steroid inhaler and salbutamol inhaler is a typical asthma treatment plan and following up the patient is appropriate, this answer is incorrect as above, as the diagnosis needs to be confirmed formally given the implications on employment. Furthermore, treatment will revolve around identifying and removing triggers.

Reassuring the patient is incorrect. Although she is currently asymptomatic with a normal examination, this does not exclude an underlying cause of symptoms. Physical examination in asthma is often normal, particularly in a patient who is currently asymptomatic.

Question:

A 55-year-old man has had routine blood tests which have shown the following:

Bilirubin 13 µmol/L (3 - 17)

ALP 93 u/L (30 - 100)

ALT 140 u/L (3 - 40)

AST 50 u/L (3-30)

γGT 75 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

Ferritin 140 μg/L (20 - 230)

Total iron-binding capacity 65 μmol/L (45-80)

CRP 12 mg/L (<10)

He has a past medical history of obstructive sleep apnoea and has a BMI of 36 kg/m² and drinks 13 units of alcohol per week.

What is the most likely diagnosis?

A.Alcoholic steatohepatitis

B.Haemochromatosis

C.Hepatitis A

D.Non-alcoholic fatty liver disease

E.Wilson's disease

Answer:Non-alcoholic fatty liver disease

Explanation:

Obesity with abnormal LFTs - ? non-alcoholic fatty liver disease

Important for meLess important

Non-alcoholic fatty liver disease is correct. This patient has an increased ALT and AST, which suggests hepatocyte damage. The next step to determining the cause is interpreting these in light of the presentation. In general, if the AST:ALT ratio is greater than 2, this suggests alcoholic hepatitis. In this patient, the AST:ALT ratio is less than 1, and this suggests non-alcoholic fatty liver disease. In patients that have liver test dysfunction without a background of a clear cause (e.g. excessive alcohol consumption), a diagnosis of non-alcoholic fatty liver disease (NAFLD) should be suspected. In many patients with NAFLD, the ferritin may be raised, as it is an acute phase reactant and is a result of hepatocyte damage rather than an iron overload. This patient's ferritin is only slightly raised and they do not have any other features that would suggest haemochromatosis. The increased CRP is likely to be due to his obesity, as they are associated.

Alcoholic steatohepatitis is incorrect. This patient is drinking within the recommended limits for alcohol (14 units). Assessing the AST:ALT ratio can help identify possible alcoholic hepatitis. Ratio values higher than 2 suggest alcohol as a cause. In this patient, the AST:ALT ratio is less than 1, and this suggests non-alcoholic fatty liver disease. In patients that have liver test dysfunction without a background of a clear cause (e.g. excessive alcohol consumption), a diagnosis of NAFLD should be suspected.

Haemochromatosis is incorrect. Although haemochromatosis can manifest as liver test dysfunction and a raised ferritin, the ferritin is only slightly raised, and the total iron-binding capacity is normal. Many patients with NAFLD have an associated increase in ferritin as it is an acute phase reactant and is a result of hepatocyte damage rather than an iron overload. This patient does not have any symptoms associated with haemochromatosis either (such as darkening of the skin, fatigue, erectile dysfunction or arthralgia), making this diagnosis unlikely.

Hepatitis A is incorrect. Although foreign travel is a risk factor for the transmission of hepatitis A, there is nothing in the history to suggest that this patient has engaged in any activity that is a risk factor for it (e.g. eating food that may be contaminated with it). Furthermore, there are no features suggestive of hepatitis A, such as a flu-like prodrome of fever and malaise, right upper quadrant pain, or tender hepatomegaly. In viral hepatitis, the liver test derangement is usually more severe, and AST may be as high as 1000.

Wilson's disease is incorrect. This typically presents with psychiatric problems and liver dysfunction due to problems with copper deposition. There are no features suggestive of psychiatric problems (such as depression or psychosis), nor are there any signs of Wilson's disease, such as Kayser-Fleischer rings in the eyes.

Question:

You are asked to perform a cardiovascular examination on a 67-year-old woman who presents with shortness of breath and orthopnoea. By the bedside, she has flushed cheeks and neck vein distension. On auscultation, you hear a rumbling mid-diastolic murmur heard loudest over the apex. The murmur was louder during expiration. Her ECG shows normal sinus rhythm. Her heart rate is 90 bpm, respiratory rate 18 breaths per minute, blood pressure is 145/84 mmHg, oxygen saturation is 97% on room air and she is apyrexial.

Given the likely cause of her condition, what other sign or symptom could she potentially have?

A.A difference in blood pressure between the two arms

B.Fine tremor in her hands

C.Haemoptysis

D.Involuntary head nodding

E.Janeway lesions

Answer:Haemoptysis

Explanation:

Haemoptysis can be a symptom of mitral stenosis

Important for meLess important

Haemoptysis - haemoptysis is a potential sign of mitral stenosis despite being uncommon. More common symptoms seen in mitral stenosis are dyspnoea and orthopnoea.

A difference in blood pressure between the two arms - this is typically caused by aortic dissection. A difference in blood pressure between the two arms is not caused by mitral stenosis.

Fine tremor in her hands - mitral stenosis is not associated with fine tremors. A common cause of fine tremor is excessive salbutamol.

Involuntary head nodding - patients rhythmically nodding their head in synchrony to their heartbeat is known as de Musset's sign which can be caused by aortic regurgitation. This phenomenon is not seen with mitral stenosis.

Janeway lesions - these painless lesions appear on the palm of the hand and are pathognomonic for infective endocarditis. Vegetations from endocarditis can cause mitral stenosis. However, it is unlikely to be active endocarditis in this case as the patient is apyrexial.

Question:

A 23-year-old student is brought into the emergency department by paramedics. He is unconscious.

Bilirubin 164 µmol/l

ALP 213 u/l

ALT 11641 u/l

AST 9465 u/l

Albumin 27 g/l

Please interpret his liver function tests and select the most appropriate investigation which would confirm the most likely diagnosis:

A.Hepatitis A serology

B.Hepatitis B serology/antigen

C.Abdominal ultrasound

D.Blood alcohol level

E.Paracetamol level

Answer:Paracetamol level

Explanation:

A transaminitis (elevated ALT and AST) in the 10,000s is most commonly caused by paracetamol overdose.

Other important points:

Hepatitis A and B would both usually cause elevations in AST and ALT, especially in the acute phase, but not as high as the levels in this patient.

Alcoholism usually causes a greater elevation in AST than ALT. Chronic alcoholism is also usually associated with reduced albumin and protein levels due to reduced hepatic synthetic function.

Abdominal ultrasound is especially useful for imaging the biliary tract for gallstones, signs of obstruction and cholecystitis. In this patient these diagnoses are much less likely than paracetamol overdose given how high the transaminitis is.

Question:

A 75-year-old female was admitted to the geriatric ward 1 week ago after developing a community acquired pneumonia. She was treated with co-amoxiclav and clarithromycin as per local guidelines. She also takes regular omeprazole and movicol. Yesterday, she complained of her stool being a bit softer than usual, and a nurse recorded '1x type 5 ; 2x type 4' motions over the last 24 hours on the stool chart.

A faecal stool sample was sent, and the results this morning are as follows:

C. difficile toxin -ve

C. difficile antigen +ve

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

A.Reassure and continue monitoring bowel motions

B.Commence oral metronidazole

C.Commence IV metronidazole

D.Commence oral vancomycin

E.Commence IV vancomycin

Answer:Reassure and continue monitoring bowel motions

Explanation:

C. difficile antigen positivity only shows exposure to the bacteria, rather than current infection

Important for meLess important

This patient has risk factors for developing Clostridium difficile diarrhoea, including recent use of broad-spectrum antibiotics, and a proton pump inhibitor.

Two tests are frequently used to test for the bacteria: the antigen, and the toxin.

If the toxin is positive, it means the bacteria is actively replicating and is likely the cause of the diarrhoea.

If the antigen is positive in isolation, it merely means the bowel is colonised with C. difficile, and not necessarily causing diarrhoea. In this case, treatment should be guided by clinical symptoms. With our patient, her stool is not especially soft nor frequent, and may be explained by the regular movicol instead. As such, monitoring her bowel motions is a better idea rather than commencing more antibiotics.

If the toxin returned as positive, or the antigen returned as positive with more convincing symptoms of diarrhoea, then oral metronidazole would be the first-line therapy indicated.

Question:

A 66-year-old man suffers an ST-elevation myocardial infarction and is admitted to the coronary care unit. Shortly afterward, he worsens and then goes into cardiac arrest. The doctor on the ward puts out a cardiac arrest call and begins cardiopulmonary resuscitation. The defibrillator recognises a shockable rhythm and so the team follows the appropriate ALS guidelines. After the third shock, the patient remains in ventricular fibrillation and the team is now looking to administer some medication.

What is the next appropriate treatment plan?

A.Intravenous adrenaline 1 mg

B.Intravenous adrenaline 1 mg; intravenous amiodarone 150 mg

C.Intravenous adrenaline 1 mg; intravenous amiodarone 300 mg

D.Intravenous adrenaline 10 mg; intravenous amiodarone 150 mg

E.Intravenous adrenaline 10 mg; intravenous amiodarone 300 mg

Answer:Intravenous adrenaline 1 mg; intravenous amiodarone 300 mg

Explanation:

In ALS, amiodarone 300 mg should be given to patients who are in VF/pulseless VT after 3 shocks have been administered.

Important for meLess important

Intravenous adrenaline 1 mg; intravenous amiodarone 300 mg is the correct answer. The ALS guidelines suggest administering 1 mg of adrenaline and 300 mg of amiodarone after the third shock. Adrenaline 1 mg should then be repeated every 3-5 minutes, whereas amiodarone should only be given again after the 5th shock this time at a half dose of 150 mg.

Intravenous adrenaline 1 mg is incorrect. ALS guidelines recommend giving both adrenaline and amiodarone after the third shock. The correct doses are adrenaline 1 mg and amiodarone 300mg.

Intravenous adrenaline 1 mg; intravenous amiodarone 150 mg is incorrect. The adrenaline dose is correct. However, the amiodarone is a half dose and should be 300 mg. Only after the 5th shock should a half dose be used. The correct doses are adrenaline 1 mg and amiodarone 300mg.

Intravenous adrenaline 10 mg; intravenous amiodarone 150 mg is incorrect. The adrenaline dose is far too high and the amiodarone is a half dose. The correct doses are adrenaline 1 mg and amiodarone 300mg.

Intravenous adrenaline 10 mg; intravenous amiodarone 300 mg is incorrect. The adrenaline dose recommended by the resuscitation council in the UK is 1mg. The correct doses are adrenaline 1 mg and amiodarone 300mg.

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 57-year-old gentleman presents to the general practitioner. His wife has noticed that his voice has become increasingly hoarse over the last 4 weeks. He has not had a sore throat or any coryzal or chest symptoms which he thinks could account for this, however, he has noticed some discomfort in his neck on swallowing. He has an 80-pack-year history of smoking and admits to drinking roughly 20 units of alcohol per week for most of his life. How should this patient be immediately managed?

A.Request a chest x-ray and refer urgently to ENT

B.Request an ultrasound neck and refer routinely to ENT

C.Request a chest x-ray and refer routinely to ENT

D.Request an ultrasound neck and refer urgently to ENT

E.Request a chest x-ray and an ultrasound of neck

Answer:Request a chest x-ray and refer urgently to ENT

Explanation:

Persistent unexplained hoarseness in a patient aged >45 years old: consider urgent referral to ENT

Important for meLess important

This patient is over 45 years old and has presented with over 3 weeks (persistent) of hoarseness, with no obvious explanation for this. Hence he meets the criteria for referring patients down the suspected cancer pathway to investigate for laryngeal cancer. He has several risk factors for lung and laryngeal cancer (smoking and alcohol).

Any patient presenting with hoarseness who are being referred down the suspected cancer pathway should have a chest x-ray to exclude an apical lung lesion.

An ultrasound is not a suitable method of imaging to investigate for laryngeal cancer of the neck. Further imaging to exclude laryngeal cancer will be performed after referral to ENT and includes a neck and chest CT with contrast, flexible fibre-optic laryngoscopy and fine needle aspiration if there is a neck mass.

(NICE guideline [NG12] 1.8)

Question:

A 23-year-old G2P1 woman is seen by her midwife at 12 weeks gestation. Her urine dipstick is normal and her blood pressure is 124/68 mmHg. She had no issues during her first pregnancy. Her only medical history is type 1 diabetes mellitus, which is well controlled, and there is a family history of pre-eclampsia.

What is the correct advice regarding her risk of pre-eclampsia?

A.She should take aspirin from 12 weeks gestation until 20 weeks gestation

B.She should take aspirin from 12 weeks gestation until delivery

C.She should take aspirin from 20 weeks gestation until delivery

D.She will not need to take aspirin during pregnancy

E.She will only need to take aspirin if she becomes hypertensive during pregnancy

Answer:She should take aspirin from 12 weeks gestation until delivery

Explanation:

A woman at moderate or high risk of pre-eclampsia should take aspirin 75-150mg daily from 12 weeks gestation until the birth

Important for meLess important

This patient has 1 moderate risk factor (family history of pre-eclampsia) and 1 high risk factor (type 1 diabetes mellitus) for pre-eclampsia. As such she will need to take aspirin from 12 weeks gestation until delivery to reduce the risk of developing pre-eclampsia.

Taking aspirin from 12 weeks gestation until 20 weeks gestation is incorrect. The dose is correct and she should start at 12 weeks gestation, but it needs to be taken until delivery, not 20 weeks.

Taking aspirin from 20 weeks gestation until delivery is incorrect. The dose is correct and she needs to take it until delivery, however, it should start at 12 weeks gestation as she is at moderate to high risk of developing pre-eclampsia.

She will not need to take aspirin during pregnancy is incorrect. This patient has multiple risk factors for developing pre-eclampsia and so needs to take aspirin during her pregnancy to reduce the risk of developing pre-eclampsia.

She will only need to take aspirin if she becomes hypertensive during pregnancy is incorrect for the same reasons as above - she is already at an increased risk of developing pre-eclampsia so should begin taking aspirin now to reduce the risk.

Question:

A 45-year-old man is admitted to the hospital with severe knee pain, swelling and stiffness which began last night. He is unable to weight bear and is systemically unwell with a temperature of 39.4ºC. He undergoes joint aspiration to confirm the diagnosis.

Given the most likely diagnosis, for how long should this patient receive antibiotics?

A.Antibiotics not indicated

B.7 days

C.2 weeks

D.4-6 weeks

E.Lifelong

Answer:4-6 weeks

Explanation:

Septic arthritis requires prolonged antibiotic therapy of at least 4-6 weeks

Important for meLess important

The most likely diagnosis, in this case, is septic arthritis as the patient has presented with an acutely swollen, painful joint with systemic upset and a high fever. Joint aspiration is an important diagnostic tool and is likely to show purulent synovial fluid. A culture of this fluid may be positive for the causative organism.

Patients with septic arthritis should be prescribed a 4-6 week long course of antibiotics. Guidelines recommend that patients with septic arthritis receive joint aspiration alongside an initial 2 weeks of IV antibiotics. After 2 weeks, some patients may be able to switch to oral antibiotics for the remaining 2-4 weeks of their course.

Antibiotics not indicated is incorrect. Septic arthritis is a serious infection that requires both joint aspiration and antibiotics to adequately treat. Joint aspiration alone is unlikely to completely clear the infection and may lead to joint destruction and sepsis.

Antibiotic courses of 7 days and 2 weeks are also inadequate according to current British Society of Rheumatology guidelines (2006). However, some evidence indicates that 1 week of IV antibiotics followed by oral antibiotics may be equivalent to longer IV courses in some patients.

A lifelong course of antibiotics is not indicated in this case. These may be used in patients with recurrent septic arthritis under expert supervision, however.

Question:

A 19-year-old student presents describing obsessive thoughts that she will hurt someone. These concerns began when she moved out of her family home to university. She has particular worries about using the communal kitchen in her flat due to concerns that she will harm her flatmates, so she tends to prepare and eat all her meals during the night when they are in bed. She is asked to complete a Yale-Brown Obsessive Compulsive Scale (Y-BOCS) - her results suggest 'mild' symptoms of OCD.

Given the likely diagnosis, what is the most appropriate treatment option?

A.Clomipramine

B.Cognitive behavioural therapy

C.Dialectical behaviour therapy

D.Fluoxetine

E.Venlafaxine

Answer:Cognitive behavioural therapy

Explanation:

OCD with mild impairment: low-intensity psychological treatments: cognitive behavioural therapy (CBT) including exposure and response prevention (ERP) is first-line

Important for meLess important

The likely diagnosis here is obsessive-compulsive disorder (OCD). The first-line treatment for patients with mild symptoms of OCD is cognitive behavioural therapy (CBT), which usually involves some exposure and response prevention (ERP).

Clomipramine is a tricyclic antidepressant (TCA) that is sometimes used in the treatment of OCD but it is not first-line in mild cases. It is licenced for use in depression and phobias when other antidepressants haven't been effective.

Dialectical behaviour therapy is generally used in the management of personality disorders, not in OCD. Therapies generally used in OCD include CBT and/or exposure and response prevention.

Fluoxetine is an SSRI antidepressant that can sometimes be used in the treatment of OCD but it is not first-line in mild cases. Fluoxetine is most commonly prescribed for depression but is also licenced for use in bulimia nervosa, OCD, and menopausal symptoms.

Venlafaxine is an SNRI antidepressant that is occasionally used in the treatment of OCD but it is not first-line in mild cases. It is most commonly used to treat depression and anxiety when SSRIs have not been effective.

Question:

A 19-year-old patient who started desogestrel 48 hours ago contacts you to inform you she has taken her second dose of medication 13 hours late yesterday and had unprotected intercourse on the same day.

What is the appropriate management?

A.Organise for emergency contraception immediately

B.Take a pregnancy test before the next dose is due

C.Take the next pill at the normal time with no additional precautions

D.Take two pills instead of one at the normal time of the next dose

E.Avoid sexual intercourse or use barrier method for 48 hours and take the next pill at the normal time

Answer:Organise for emergency contraception immediately

Explanation:

If unprotected sex occurred after a missed POP and within 48 hours of restarting the POP emergency contraception is needed

Important for meLess important

As this patient is within 48 hours of starting a progesterone-only pill and has missed her second pill by taking over 12 hours late she requires emergency contraception.

A pregnancy test would not be positive the day after intercourse and cannot be used for reassurance.

Additional precautions are necessary after a missed progesterone-only pill for 48 hours for a patient established on the medication. It is also advised to take the next pill at the normal time after taking the missed pill late, which may mean taking two pills at once if the missed pill is forgotten for 24 hours.

The answer suggesting taking two pills at the next dose is incorrect in this instance as the missed pill has already been taken.

Question:

Which one of the following is most likely to be found in a patient with Hashimoto's thyroiditis?

A.Raised ESR

B.Anti-TSH receptor stimulating antibodies

C.Anti-thyroid peroxidase antibodies

D.Decreased TSH

E.Co-existing type 2 diabetes mellitus

Answer:Anti-thyroid peroxidase antibodies

Explanation:

Hashimoto's thyroiditis = hypothyroidism + goitre + anti-TPO

Important for meLess important

Question:

A 51-year-old Caucasian woman presents to the GP for a review of her health. On examination, her blood pressure is 150/90 mmHg.

She subsequently completes a week of twice-daily home blood pressure readings, with an average reading of 132/83 mmHg.

What is the most appropriate step in management?

A.Diagnose stage 1 hypertension and advise lifestyle measures only

B.Diagnose stage 1 hypertension and start amlodipine

C.Diagnose stage 1 hypertension and start ramipril

D.Diagnose stage 2 hypertension and start lisinopril

E.Reassure she does not meet hypertension criteria but arrange regular review

Answer:Reassure she does not meet hypertension criteria but arrange regular review

Explanation:

Definition of stage 1 hypertension (ABPM/HBPM) - 135/85 mmHg

Important for meLess important

Reassure she does not meet hypertension criteria but arrange regular review is correct. Stage 1 hypertension is diagnosed when ambulatory or home blood pressure monitoring readings average at 135/85mmHg or above. The diagnosis is not made on the clinic readings alone due to the possibility of white coat hypertension. This patient's home readings are under the threshold for stage 1 hypertension. If hypertension is not diagnosed on home readings, NICE recommend reviewing blood pressure every 5 years, or more frequently if the blood pressure is close to the threshold as it is in this patient.

Diagnose stage 1 hypertension and advise lifestyle measures only is incorrect. The patient does not meet the criteria for stage 1 hypertension. If she did, the decision to manage with lifestyle alone or to initiate antihypertensives would depend on individual patient factors such as the presence of target organ damage, existing cardiovascular or renal disease and the 10-year cardiovascular risk, which would require further investigations.

Diagnose stage 1 hypertension and start amlodipine is incorrect. This patient does not meet the criteria for stage 1 hypertension, as above. If she did and was to be started on an antihypertensive, NICE would recommend that she is started on an ACE inhibitor such as ramipril, as she is caucasian and under 55 years old.

Diagnose stage 1 hypertension and start ramipril is incorrect. This patient does not meet the criteria for stage 1 hypertension. If she did, however, and was going to start an antihypertensive, ramipril would be an appropriate choice.

Diagnose stage 2 hypertension and start lisinopril is incorrect. Although an ACE inhibitor such as lisinopril is an appropriate antihypertensive in a caucasian woman under 55, this patient does not meet the criteria for stage 2 hypertension, which is where the ambulatory/home readings average are above 150/95mmHg.

Question:

A 43-year-old man presents to the emergency department after he began experiencing palpitations 3-hours ago. He denies pain. However, he appears extremely anxious and sweaty. The patient tells you he has never experienced anything like this before.

Routine observations reveal a heart rate of 150 bpm, a respiratory rate of 22 bpm, a blood pressure of 140/95 mmHg and a temperature of 37.0ºC. The patient has tried vagal manoeuvres. You perform a repeat ECG which is shown below.

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

Given the likely diagnosis, which treatment option is most appropriate?

A.Amiodarone - through a central line

B.DC cardioversion

C.Intravenous adenosine

D.Intravenous atropine

E.Vagal manoeuvres

Answer:Intravenous adenosine

Explanation:

The image used in this question is the tracing of a 12-lead ECG. This ECG shows evidence of supraventricular tachycardia. We can work out the heart rate by counting the number of big squares across an R-R interval. In this ECG there are about 2 big squares for every R-R interval. Now, we take the number 2 and use it to divide 300 by - 300 represents one minute. 300/2 = 150. Therefore, the approximate heart rate is 150bpm. We can then deduce that this is supraventricular tachycardia by the narrow QRS complex (<0.1s). The QRS in this case is about 1-2 little squares and this equates to 0.04-0.08s, which is narrow.

This patient is presenting with palpitations and an extremely raised heart rate of 150 bpm. His ECG revealed supraventricular tachycardia (SVT). Therefore, this patient requires treatment to terminate the SVT. The question tells you that the patient has already attempted vagal manoeuvres. As the SVT is still present after attempting vagal manoeuvres, it is important to move on to the second-line treatment option - adenosine.

Intravenous adenosine is correct. This patient is experiencing an SVT that failed to resolve with vagal manoeuvres. Therefore, an IV bolus of 6mg of adenosine should be given immediately. If this is unsuccessful, a further 12mg rapid bolus should be given. If this again is unsuccessful, you should give an 18mg rapid bolus of adenosine. Adenosine is an antiarrhythmic drug that works on cardiac receptors in the AV node to slow conduction time.

Amiodarone - through a central line is incorrect. Amiodarone through a central line is used to terminate ventricular tachycardia. This patient is experiencing an SVT - occurring above the ventricles; therefore, amiodarone should not be given, especially through a central line.

DC cardioversion is incorrect. Although DC cardioversion can be used to terminate SVT, it is not the second-line option. Adenosine should be trialled before DC cardioversion.

Intravenous atropine is incorrect. Intravenous atropine is commonly used to terminate bradycardia. Atropine works to increase the heart rate and so would be inappropriate for this patient.

Vagal manoeuvres is incorrect. Vagal manoeuvres should be trialled the first line for patients experiencing an SVT. However, this patient has already tried vagal manoeuvres and they have proven to be unsuccessful. Therefore, further treatment options are required.

Question:

A 42-year-old woman visits her GP to discuss contraception. Her past medical includes hypertension, type 1 diabetes mellitus and current breast cancer (for which she is receiving treatment). She was also diagnosed with deep vein thrombosis of the left leg, last week, for which she is being treated. She smokes 30 cigarettes per day and her BMI is 38 kg/m2.

She is keen on an injectable progesterone contraceptive.

Which element of her history is an absolute contraindication to the GP prescribing this?

A.Current breast cancer

B.Current deep vein thrombosis

C.Multiple cardiovascular risk factors

D.Smoking 30 cigarettes per day

E.BMI of 38 kg/m2

Answer:Current breast cancer

Explanation:

Current breast cancer is a contraindication for injectable progesterone contraceptives

Important for meLess important

The correct answer is current breast cancer. This is an absolute contraindication (UKMEC 4) to prescribing the injectable progesterone contraceptive. Indeed, it is an absolute contraindication to almost all forms of contraception, except notably the copper intrauterine device, which is non-hormonal.

'Current deep vein thrombosis' is UKMEC 2 with regards to injectable progesterone. It is UKMEC 4 for the combined oral contraceptive pill.

'Multiple cardiovascular risk factors' is UKMEC 3, rather than 4, and so not absolute - although the risks are generally considered to outweigh the benefits.

'Smoking 30 cigarettes per day' is only UKMEC 1 with regards to injectable progesterone contraception. Factoring in her age too, it would be UKMEC 4 for the combined oral contraceptive pill.

Her high BMI is UKMEC 1 for this and most other forms of contraception. It would be UKMEC 4 for the combined pill.

Question:

A 45-year-old man presents to the GP with a 4-day history of burning pain when passing urine. During the day, he finds that he has to pass urine every 30 minutes. He has no past medical history except for an allergy to penicillin and is not sexually active.

His temperature is 37.1ºC, his heart rate is 75 bpm, and his blood pressure is 126/75 mmHg. An abdominal examination is unremarkable and there is no renal angle tenderness. A dipstick is positive for leukocytes and nitrites.

What is the most appropriate next step for the GP to take?

A.Prescribe nitrofurantoin for 3 days

B.Prescribe nitrofurantoin for 3 days and send a urine culture

C.Prescribe nitrofurantoin for 7 days

D.Prescribe nitrofurantoin for 7 days and send a urine culture

E.Refer to urology for further assessment

Answer:Prescribe nitrofurantoin for 7 days and send a urine culture

Explanation:

All men with a suspected UTI should have a urine culture sent before starting antibiotics

Important for meLess important

The presence of dysuria and increased frequency along with a dipstick positive for leukocytes and nitrites 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 7 days and send a urine culture is correct. Nitrofurantoin for 7 days is the first-line option for an uncomplicated UTI in men, however, a urine culture should also be arranged. NICE recommends that all men with a suspected UTI should have a urine culture prior to starting antibiotics as this confirms the diagnosis and can guide antibiotic choice. The reason for this is that men have an increased risk of infection with non-traditional organisms, and urine dipsticks are not very reliable for diagnosis.

Prescribe nitrofurantoin for 3 days is incorrect. This would be appropriate if this was a woman aged <65 years old with an uncomplicated UTI and no visible or non-visible haematuria.

Prescribe nitrofurantoin for 3 days and send a urine culture is incorrect. This would be appropriate if this was a woman with an uncomplicated UTI that was >65 years old or had visible or non-visible haematuria.

Prescribe nitrofurantoin for 7 days is incorrect. Although this is the correct first-line treatment, all men with a suspected UTI should have a urine culture sent prior to starting antibiotics. As mentioned above, men have an increased risk of infection with non-traditional organisms, hence why the culture is done to confirm the diagnosis.

Refer to urology for further assessment is incorrect. NICE does not recommend routine referrals for men who have had a single episode of uncomplicated UTI. If this patient were to have recurrent episodes or problems with passing urine such as urinary hesitancy or straining, then this would be appropriate.

Question:

A 42-year-old woman with a history of alcoholic cirrhosis presents to the emergency department after 2 episodes of vomiting blood. On examination, she is noted to have spider naevi and jaundiced sclera. Her abdomen is distended and dull to percussion. Observations show a temperature of 36.5ºC, heart rate of 105 bpm, blood pressure of 95/60 mmHg, and oxygen saturation of 96% in room air.

Alongside a blood sample being taken and intravenous fluids being started, she is added to the emergency list for an endoscopy.

What medication needs to be commenced?

A.Pantoprazole infusion

B.Prophylactic antibiotics

C.Prothrombin complex

D.Terlipressin

E.Terlipressin and prophylactic antibiotics

Answer:Terlipressin and prophylactic antibiotics

Explanation:

Both terlipressin and antibiotics should be given before endoscopy in patients with suspected variceal haemorrhage

Important for meLess important

Terlipressin and prophylactic antibiotics is correct. This woman has a history of alcoholic liver cirrhosis, making variceal bleeding the most likely cause of the haematemesis. NICE recommends giving both terlipressin and prophylactic antibiotics before endoscopy. Bacterial infections occur in about 20% of patients with cirrhosis with upper gastrointestinal bleeding within 48 hours of admission which increases the mortality rate. Thus, it is important to prescribe prophylactic antibiotics. Terlipressin reduces portal blood flow, portal systemic collateral blood flow, and variceal pressure which reduces the risk of rebleeding.

Pantoprazole infusion is incorrect. PPI should be offered to patients with non-variceal bleeding following endoscopy. This woman has likely developed variceal bleeding for which PPI is not indicated.

Prophylactic antibiotics is incorrect. As with terlipressin, prophylactic antibiotics are indicated for this woman as variceal bleeding is the likely cause of the haematemesis. However, it should be used in addition to terlipressin.

Prothrombin complex concentrate is incorrect. It should be offered to patients who are taking warfarin and actively bleeding.

Terlipressin is incorrect. Terlipressin is a vasoactive-like agent that has a vaso-constrictive effect on the dilated splanchnic blood vessels, reducing blood flow into the portal vein and the portal venous pressure. Although terlipressin is indicated for patients presenting with variceal bleeding, prophylactic antibiotics must also be given before attempting endoscopy.

Question:

A 74-year-old female presents to the GP with a history of episodic dizziness, feeling light headed and feeling faint. She has had two falls in past three weeks. On examination she has a heart rate of 64 beats/minute. She is known to have a first degree heart block. You order an ECG.

In addition to first degree heart block, there is left axis deviation and right bundle branch block?

What is the most likely diagnosis?

A.Wolf-Parkinson-White syndrome

B.Second degree heart block, Mobitz type 2

C.Brugada syndrome

D.Trifascicular block

E.Second degree heart block, Mobitz type 1

Answer:Trifascicular block

Explanation:

RBBB +left anterior or posterior hemiblock + 1st-degree heart block = trifasicular block

Important for meLess important

RBBB, first degree heart block and left ventricular strain are classically found in trifascicular block. Trifascicular is a important cause of falls in the elderly.

In Wolf-Parkinson-White syndrome there is a short PR interval, a delta wave and QRS prolongation.

In second degree heart block Mobitz type 1 would show continually increasing PR intervals until there is a P wave without a QRS complex.

In second degree heart block Mobitz type 2 there is there is P wave to QRS ratio of 2:1 or 3:1.

In Brugada syndrome there is ST segment elevation in leads V1 to V3.

Question:

A 55-year-old smoker presents with weight loss, haemoptysis and confusion. Laboratory results demonstrate:

Plasma osmolarity 243 mmol/l

Urine osmolality 540 mmol/l

Na+ 112 mmol/l

K+ 3.8 mmol/l

Urea 3.2 mmol/l

Blood glucose 5.2 mmol/l

What is the most likely cause of the hyponatraemia?

A.Diabetes insipidus

B.Dehydration

C.Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

D.Pseudohyponatraemia

E.Cerebral Salt-Wasting Syndrome

Answer:Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

Explanation:

A serum sodium of 112 mmol/l is alarming. When faced with a laboratory value with this much derangement, it would be prudent to obtain a further sample to ensure there was no errors with the laboratory analysis.

It is essential to assess if it is a true hyponatraemia or a pseudohyponatraemia. The osmolar gap is very useful for this purpose. The calculated osmolarity = 2\*Na + 2\*K + urea + blood glucose. In this example, the calculated osmolarity = 240 mmol/l. The measured plasma osmolarity = 243 mmol/l. The osmolar gap = measured serum osmolality - calculated osmolality = 243 - 240 = 3 mmol/l. A normal osmolar gap is < 10 mmol/l. Therefore a normal osmolar gap rules out pseudohyponatraemia.

The next step would be to assess the fluid status of the patient clinically (e.g. assess if the patient is hypervolaemic, hypovolaemic or euvolaemic). This is essential information for forming a differential diagnosis and providing the correct treatment. This information is not available in the question, so the next step would be to analyse the serum and urine osmolarity.

The serum osmolarity is very low. In normal physiology we would expect a low serum osmolarity to trigger a decrease of ADH production thereby resulting in an increased urinary output of low osmolarity urine. In this example the urine osmolarity is inappropriately concentrated suggesting that ADH levels are inappropriately high. This is highly suggestive of SIADH. We would also expect the patient to be euvolaemic which is a defining feature of SIADH.

SIADH is associated with malignancy (especially small cell carcinoma of the lung), pulmonary disorders, CNS disorders and drugs (e.g. carbamazepine, chlorpropamide and cyclophosphamide). To make the diagnosis patients must be clinically euvolaemic with normal thyroid and adrenal function, a low plasma osmolarity and inappropriately high urine osmolarity.

Question:

An 82-year-old man presents to the acute oncology service with poorly controlled pain. He has metastatic prostate cancer and is supported by the community palliative care team. Despite increasing his oral modified-release oxycodone to 20mg twice per day, he has needed to access four breakthrough doses in the last 24 hours. Each breakthrough dose is 5mg of immediate-release oxycodone. You are considering some changes to his analgesia.

What is the most appropriate course of action?

A.Increase his modified-release oxycodone to 25mg twice per day and breakthrough dose to 7.5mg

B.Increase his modified-release oxycodone to 30mg twice per day and breakthrough dose to 7.5mg

C.Increase his modified-release oxycodone to 40mg twice per day and breakthrough dose to 10mg

D.Increase the breakthrough dose to 7.5mg only

E.No change

Answer:Increase his modified-release oxycodone to 30mg twice per day and breakthrough dose to 7.5mg

Explanation:

In palliative patients increase morphine doses by 30-50% if pain not controlled

Important for meLess important

Increase his modified-release oxycodone to 30mg twice per day and breakthrough dose to 7.5mg is the correct answer. When increasing the dose of maintenance opioids, it is important to consider how much breakthrough analgesia a patient is using. In this scenario, he has required an additional 20mg of immediate-release (IR) oxycodone per day. It is not generally advised to increase opioid doses by more than 30 - 50% in one go due to the risk of toxicity or troublesome side effects. In this scenario, it would be reasonable to increase his modified-release (MR) oxycodone to incorporate the additional four breakthrough doses. Since breakthrough opioids should be dosed between one-sixth and one-tenth of the total daily dose of maintenance opioids, it would be acceptable to dose his breakthrough oxycodone between 6mg and 10mg.

Increase his modified-release oxycodone to 25mg twice per day and breakthrough dose to 7.5mg is not correct. Increasing the total maintenance dose of oxycodone from 40mg to 50mg is an overly-cautious titration. It would likely mean further changes are required since he has needed 20g of IR oxycodone in the preceding 24 hours.

Increase his modified-release oxycodone to 40mg twice per day and breakthrough dose to 10mg is incorrect. Increasing the total maintenance dose of oxycodone from 40mg to 80mg represents a 100% increase and leaves this patient at risk of toxicity.

Increase the breakthrough dose to 7.5mg only. By increasing the breakthrough dose of oxycodone only, this patient will likely become increasingly dependent on the IR preparation. Given its short effect interval, it would risk periods of the day where analgesic control is insufficient. A better approach would be to increase the longer-acting MR oxycodone for effective background control and then use breakthrough doses for episodes of acute pain or before activities known to precipitate pain.

No change is not correct. The patient in this scenario does not have well-controlled pain, despite opioid analgesia. The proper course of action would be to increase his maintenance dose of oxycodone (by no more than 50%) and to ensure his breakthrough dose is between one-sixth and one-tenth of his total daily dose of oxycodone.

Question:

A 56-year-old presents to the emergency department with a 1-month history of worsening exertional breathlessness, orthopnoea, and ankle swelling. He has an extensive past medical history including a previous myocardial infarction and type 2 diabetes mellitus.

On examination, he has pitting oedema in his lower limbs. His JVP is raised and there is a wheeze on chest auscultation.

Blood results:

Na+ 130mmol/L (135 - 145)

K+ 4.0mmol/L (3.5 - 5.0)

Ca2+ (adjusted) 2.2mmol/L (2.1 - 2.6)

Mg2+ 0.8mmol/L (0.7 - 1.0)

Chloride 98mmol/L (95 - 105)

Urea 7.5mmol/L (2.5 - 7.8)

Creatinine 100mmol/L (men: 59 - 104; women: 45 - 84)

Serum osmolality 270mOsm/kg (285 - 295)

Urine:

Urinary sodium 15mmol/L (>25)

Urine osmolality 200mOsmol/kg (500 - 850)

What is the most likely cause of this patient's hyponatraemia?

A.Chronic kidney disease

B.Heart failure

C.Liver disease

D.Nephrotic syndrome

E.Syndrome of inappropriate antidiuretic hormone (SIADH)

Answer:Heart failure

Explanation:

Heart failure may cause hyponatraemia

Important for meLess important

This is a challenging question, primarily because it introduces relatively novel concepts such as serum and urinary sodium and osmolality. In simple terms, one can approach these questions by creating a framework of renal vs. extrarenal losses in the first instance i.e. are the kidneys reacting physiologically or not. For example, in a hypovolaemic hyponatraemic patient i.e. a patient that has lost total body water as well as sodium, but with sodium losses surpassing water losses, one would expect sodium and water reabsorption in the nephron. Therefore, if urinary sodium is higher than the reference range one can conclude that the typical physiological response is not occurring and there is a 'renal problem'.

Similarly, one can approach serum and urine osmolality in the same way. If a patient has high serum osmolality, then the typical physiological renal response would be to increase water reabsorption relative to sodium, which along with several other key solutes, drives serum osmolality. Therefore one would expect concentrated urine as ADH acts at the collecting duct. Thus, if urine osmolality is low there is clearly a breakdown in this mechanism.

Unfortunately, to add to the complexity, one must also consider abnormal physiological responses due to the breakdown of the renin-angiotensin-aldosterone system secondary to poor renal perfusion e.g. in cases such as heart failure where total body water and sodium is high, however, renal perfusion is poor thus activating the renin-angiotensin-aldosterone system and leading to both water and sodium reabsorption within the nephron, as discussed below.

This question presents a patient with a known cardiac past medical history presenting with clinical features of fluid overload as well as a wheeze which may be cardiac in nature. Heart failure can cause an increase in total body sodium but results in dilutional hyponatraemia. This is due to failure to adequately perfuse the kidneys resulting in activation of the renin-angiotensin-aldosterone system and a relative increase in water reabsorption relative to sodium. Therefore, there will be signs of fluid overload due to excessive water and sodium reabsorption in the renal tubules, and reduced urinary sodium excretion.

Chronic kidney disease, in this case, is incorrect as due to a reduced ability of the renal tubules to reabsorb sodium one may expect to see increased renal excretion of sodium, and thus increased urinary sodium.

Nephrotic syndrome could present with a similar reduction in urinary sodium, however, there are no features in the history suggestive of this, and the supporting evidence is far greater to suggest a cardiac cause.

Cirrhosis can also cause a similar picture, due to hepatorenal syndrome causing a similar activation of the renin-angiotensin-aldosterone system however there are no clinical indicators of liver disease in the question stem, making this diagnosis less likely.

SIADH typically presents in a euvolaemic individual and due to excessive production of anti-diuretic hormone, leads to increased water reabsorption in the collecting duct. Thus, one would expect increased urinary sodium concentration.

Question:

A 75-year-old man attends an on-the-day appointment booked by the duty doctor. The patient complains of right-sided severe chest pain, fever, and malaise which started 3 days ago. You note nothing of concern in his respiratory, cardiovascular and neurological examinations. There are closely grouped red papules and vesicles on the right side of his chest. The patient reports this as the site of the pain.

What is the most appropriate management of this patient?

A.Advise the patient that he is infectious until the vesicles have crusted over and prescribe a course of antivirals

B.Prescribe a course of antibiotics and advise the patient he will likely be infections for 14 days

C.Prescribe emollients and advise the patient that he is not infectious

D.Prescribe a course of antiviral medications and advise the patient that he is infectious until there are no more skin changes present at the site

E.Advise the patient that he is not infectious and prescribe a course of antiviral medications

Answer:Advise the patient that he is infectious until the vesicles have crusted over and prescribe a course of antivirals

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

Advise the patient that he is infectious until the vesicles have crusted over and prescribe a course of antivirals is the correct answer. This patient has shingles and requires a course of antiviral therapy. He is over 50 years old, in severe pain, and has presented within 72hours of the onset of the rash therefore aciclovir, valaciclovir, or famciclovir should be prescribed. The patient should also be informed that he is infectious until all the vesicles have crusted over, which usually takes 5 - 7 days. He should also be given analgesia.

Prescribe a course of antibiotics and advise the patient that he will likely be infections for 14 days is incorrect. Antibiotics would not be useful to this patient because shingles is caused by the herpes zoster virus and should be treated with antivirals. He should also be informed that he is infectious until all the vesicles have crusted over, which usually takes 5 - 7 days and not 14 days.

Prescribe emollients and advise the patient that he is not infectious is incorrect. This 75-year-old patient requires antiviral therapy to reduce the risk of postherpetic neuralgia. He is however infectious until the vesicles have crusted over, usually 5-7 days following onset.

Prescribe a course of antiviral medications and advise the patient that he is infectious until there are no more skin changes present at the site is incorrect. The patient has shingles and should be treated with antivirals but he is only infectious until the vesicles have crusted over, usually 5-7 days following onset. The skin changes would likely take longer to heal but the patient will not be infectious after the vesicles have crusted over.

Advise the patient that he is not infectious and prescribe a course of antiviral medications is incorrect. This 75-year-old patient requires antiviral therapy to reduce the risk of postherpetic neuralgia. He is however infectious until the vesicles have crusted over, usually 5-7 days following onset.

Question:

A 50-year-old presents with abdominal cramps and loose stools 8 weeks after being discharged from hospital following a chest infection.

His recent admission had been complicated as he developed diarrhoea as an inpatient with a stool sample testing positive for Clostridium difficile. He was managed successfully with first-line treatment and his symptoms resolved.

Today the patient appears clinically stable with all observations within in normal range. A stool sample is taken and again tests positive for C. difficile toxins.

What treatment course should the patient now be commenced on?

A.No treatment is required

B.Oral fidaxomicin

C.Oral metronidazole

D.Oral vancomycin

E.Oral vancomycin and IV metronidazole

Answer: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

Recurrent episodes of C. difficile are common affecting approximately 20% of patients after initial infection. The first-line treatment is oral vancomycin for 10 days. If recurrency occurs within 12 weeks of symptom resolution oral fidaxomicin should be commenced. Fidaxomicin is from the class of narrow-spectrum macrocyclic antibiotic drugs called tiacumicins and currently is only used in the management of C. difficile. If recurrence occurs beyond 12 weeks either oral vancomycin or fidaxomicin can be used for treatment.

This patient had a recent confirmed case of C. difficile which responded to management. Recurrent episodes are common and as the patient has re-developed symptoms he is at risk of complications (i.e. ileus or toxic megacolon). No treatment is therefore not an appropriate course of action.

IV metronidazole is used in combination with oral vancomycin for third-line or or life-threatening cases of C. difficile with oral metronidazole playing no role in treatment.

A oral vancomycin course can be trialled if a patient presents with a recurrent case of C. difficile over 12weeks after symptoms resolution only. As this patient has represented within 12 weeks oral fidaxomicin should be started.

Vancomycin and IV metronidazole is normal reserved for third-line or life-threatening cases of C. difficile. This treatment regime should therefore only be used if oral fidaxomicin fails or if the patient has developed features of significant infection such as hypotension, ileus or toxic megacolon.

Question:

You review a 1-hour old neonate who has just been born via caesarean section. His mother had an elective caesarean section at 38-weeks due to an active herpes infection.

The child has a respiratory rate of 62 breaths per minute on examination. A chest x-ray shows hyperinflation and fluid in the horizontal fissure.

Given the likely diagnosis, how would you manage this patient?

A.IV ceftriaxone

B.IV steroids

C.Observation and supportive care

D.Urgent blood transfusion

E.Urgent surgical referral

Answer:Observation and supportive care

Explanation:

Chest x-ray in transient tachypnoea of the newborn may show hyperinflation and fluid in the horizontal fissure

Important for meLess important

Observation and supportive care is correct. This patient is presenting with signs and symptoms of transient tachypnoea of the newborn. Increased respiratory rate and the chest x-ray findings of hyperinflation and fluid in the horizontal fissure are key findings in transient tachypnoea of the newborn. This patient should be managed with supportive care and supplemental oxygen if required. Symptoms usually resolve spontaneously within a couple of days.

IV ceftriaxone and IV steroids are incorrect. Antibiotics and steroids are not indicated in transient tachypnoea of the newborn as only supportive management and supplemental oxygen are required. Therefore, both of these options are incorrect.

Urgent blood transfusion is incorrect. There is no indication for a blood transfusion in this patient as there is no sign of haemorrhage or hypotension. This patient has transient tachypnoea of the newborn, a condition that resolves with just supportive care and supplemental oxygen.

Urgent surgical referral is incorrect. There is no need for surgical referral for patients with transient tachypnoea of the newborn. This condition will resolve spontaneously without the need for surgery.

Question:

A 65-year-old lady with long-term type II diabetes mellitus had been suffering from recurrent falls due to orthostatic hypotension. During the table tilt test, it was noted that her systolic blood pressure reduced by 30mmHg. Her heart rate remained unchanged despite the drop in the blood pressure. She drinks a glass of wine on rare occasions.

Which of the following contributes to the lack of heart-rate response to standing in this patient?

A.Alcohol

B.Postural orthostatic tachycardia syndrome

C.Dehydration

D.Diabetes

E.Anaemia

Answer:Diabetes

Explanation:

Orthostatic hypotension (A fall in SBP of >20mmHg on standing) accompanied by an exaggerated increase in HR is indicative of orthostatic hypotension due to anaemia or hypovolemia

Important for meLess important

Orthostatic hypotension: ↓in SBP by ≥20 mmHg or DBP ≥10 mmHg or a ↓ in SBP <90mmHg. This BP drop is normally accompanied by a compensatory increase in the heart rate. Therefore, the heart-rate response to standing is a measure of autonomic function.

In neurogenic orthostatic hypotension, heart rate does not respond well i.e. usually not more than 10bpm. In a diabetic patient with autonomic neuropathy, the heart-rate response may be minimal or even flat.

In anaemia or hypovolemia, the increase in the heart rate may be exaggerated. Postural orthostatic tachycardia syndrome (POTS) is characterised by an exaggerated heart rate increase of >30bpm or to >120bpm.

Isolated BP drop is very rare.

Heavy intake of alcohol can contribute to orthostatic hypotension by causing peripheral neuropathy. However, this woman only drinks alcohol on rare occasions.

Question:

A 28-year-old man presents to his GP complaining of a painless lump in his right testicle. The lump has been there for 3 months and has gotten slightly bigger over this time. He has a past medical history of type one diabetes mellitus, coeliac disease, and infertility. He is a smoker with a 20 pack-year history and admits to drinking 30 units of alcohol per week. The GP refers the patient via the two-week-wait pathway as they suspect testicular cancer.

What feature in this history is the biggest risk factor for this condition?

A.Coeliac disease

B.Excessive alcohol consumption

C.Infertility

D.Smoking

E.Type 1 diabetes mellitus

Answer:Infertility

Explanation:

Infertile men are 3 times more likely to develop testicular cancer

Important for meLess important

Testicular cancer most commonly occurs in males aged between 20 and 30, therefore is a vital differential to bear in mind for patients of this age group. Risk factors for testicular cancer include undescended testes, a positive family history of testicular cancer, infertility, Klinefelter's syndrome, and mumps orchitis. Therefore, infertility is the correct answer.

Coeliac disease is an autoimmune condition where the ingestion of gluten causes an inflammatory response. Coeliac disease is a risk factor for developing osteoporosis, pancreatitis, lymphoma, and upper GI cancer. It is not associated with testicular cancer.

Excessive alcohol consumption is a risk factor for several types of malignancy including breast, upper, and lower gastrointestinal cancer. It is not associated with testicular cancer.

Smoking is a strong risk factor for developing several types of cancer - most notably lung cancer. It is in fact the most preventable cause of cancer in the UK. However, it is not associated with testicular cancer.

Diabetes mellitus is also a risk factor for several types of cancer, such as liver, endometrial, and pancreatic. However, it is not associated with testicular cancer.

Question:

A 24-year-old woman presents with dysuria, dyspareunia and unusual vaginal discharge. She is worried about this as she is 18 weeks into her first pregnancy. On further questioning, she has been having unprotected sex with multiple partners. She has no past medical history except for a penicillin allergy.

Nucleic acid amplification tests (NAAT) shows an infection with Chlamydia.

What is the most appropriate treatment to prescribe?

A.Amoxicillin

B.Azithromycin

C.Ceftriaxone

D.Doxycycline

E.Metronidazole

Answer:Azithromycin

Explanation:

Azithromycin, erythromycin or amoxicillin may be used to treat Chlamydia in pregnancy

Important for meLess important

Azithromycin is correct. This patient has changes in her vaginal discharge along with dysuria on a background of having unprotected sexual intercourse with multiple partners, which should raise suspicion of a sexually-transmitted infection (STI). This is confirmed with her NAAT testing demonstrating the presence of Chlamydia. Although doxycycline is the first-line measure in its management, this patient is pregnant, making tetracyclines (including doxycycline) contraindicated as they are teratogens and can affect tooth and bone development in babies. Given that she is also allergic to penicillin, the most appropriate option would be azithromycin or clarithromycin. The BNF states 'With systemic use: manufacturers advise use only if adequate alternatives not available'. Since amoxicillin is not an option due to her allergy to penicillin, azithromycin is the correct option.

Amoxicillin is incorrect. Although this is an option for the management of a Chlamydia infection in pregnancy, this patient is allergic to penicillin, making this option a contraindication.

Ceftriaxone is incorrect. This does not play a role in the management of infections with Chlamydia and is instead used in the management of gonorrhoea and pelvic inflammatory disease.

Doxycycline is incorrect. This is first-line in non-pregnant patients, however, this patient is pregnant, making tetracyclines (including doxycycline) contraindicated as they are teratogens and can affect tooth and bone development in babies.

Metronidazole is incorrect. This does not play a role in the management of infections with Chlamydia and is instead used in the management of bacterial vaginosis, trichomoniasis, and pelvic inflammatory disease.

Question:

You are asked to interpret the post-bronchodilator spirometry results of a 56-year-old woman who has been complaining of progressive shortness-of-breath.

FEV1/FVC 0.60

FEV1% predicted 60%

Using the most recent NICE guidelines, what is the most appropriate interpretation of these results?

A.Poor technique - repeat spirometry

B.Asthma

C.COPD (stage 3 - severe)

D.COPD (stage 2 - moderate)

E.Pulmonary fibrosis

Answer:COPD (stage 2 - moderate)

Explanation:

Question:

A 55-year-old woman attends the breast cancer clinic.

She has undergone wide local excision of a right-sided grade 2 HER2 positive breast tumour. The decision is made to commence adjuvant trastuzumab (Herceptin).

What investigation is required before commencing this drug?

A.Bone marrow density scan

B.CT chest

C.Echocardiogram

D.Liver ultrasound scan

E.Oral glucose tolerance test

Answer:Echocardiogram

Explanation:

Trastuzumab (Herceptin) - cardiac toxicity is common

Important for meLess important

Echocardiogram is correct. An important major side effect of trastuzumab (Herceptin) is cardiomyopathy. Therefore patients prescribed trastuzumab require monitoring of left ventricular ejection fraction through serial echocardiograms before and during treatment.

Bone marrow density scan is incorrect. This would be required if the drug was likely to increase the risk of osteoporosis. However, this is not a side effect of trastuzumab (Herceptin). Osteoporosis is a side effect of letrozole which is a therapy for ER-positive breast cancer in postmenopausal women.

CT chest is incorrect. It is not a recommended investigation prior to commencing trastuzumab (Herceptin). This would also expose the patient to unnecessary radiation.

Liver ultrasound scan is incorrect. Liver dysfunction is rare with trastuzumab (Herceptin). Patients would likely undergo live function tests before commencing trastuzumab but there is no need to conduct a liver ultrasound.

Oral glucose tolerance test is incorrect. Trastuzumab is not known to cause abnormalities in glucose metabolism. If this patient was being commenced on steroids it would be important to consider monitoring their blood sugar levels.

Question:

A 15-year-old male presents to secondary care with jaundice, fatigue and dark urine. Blood tests reveal the following:

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

Female: (115 - 160)

Platelets 290 \* 109/L (150 - 400)

WBC 7.3 \* 109/L (4.0 - 11.0)

You also perform a blood film and your consultant notes the presence of bite cells and blister cells.

What is the most likely diagnosis?

A.Pyruvate kinase deficiency

B.Hereditary spherocytosis

C.Pyrimidine 5’ nucleotidase deficiency

D.Autoimmune haemolytic anaemia

E.G6PD deficiency

Answer:G6PD deficiency

Explanation:

Bite and blister cells are typical of the blood film in G6PD deficiency

Important for meLess important

Presence of bite and blister cells on the blood film in a patient with jaundice, dark urine (indicated haemoglobinuria) and anaemia is typical of G6PD deficiency. Other characteristics on the blood film in this disease include triangle fragments and keratocytes.

Pyruvate kinase deficiency causes mainly extravascular haemolysis and thus would not cause dark urine (haemoglobinuria). The blood film would reveal echinocytes rather than bite or blister cells.

Hereditary spherocytosis would not cause dark urine and would exhibit spherocytes on the blood film.

Pyrimidine 5' nucleotidase deficiency is a rare autosomal dominant enzyme disorder leading to basophilic stippling on the blood film.

Question:

Venlafaxine is an antidepressant used in the treatment of major depression, anxiety and panic disorder.

Which description is the most accurate for the mechanism of this drug?

A.Blockage of presynaptic alpha 1 adrenoreceptors

B.Selective noradrenaline reuptake inhibitors

C.Selective serotonin reuptake inhibitor

D.Serotonin and noradrenaline reuptake inhibitor

E.Blockage of presynaptic alpha 2 adrenoreceptors

Answer:Serotonin and noradrenaline reuptake inhibitor

Explanation:

Venlafaxine mechanism of action = serotonin and noradrenaline reuptake inhibitor

Important for meLess important

Venlafaxine is a serotonin and noradrenaline reuptake inhibitor (SNRI). This increases the synaptic concentrations of these neurotransmitters giving its effects. Alpha 2 receptors, noradrenaline and serotonin are all utilised to treat depression.

Question:

A 65-year-old male who has been brought in by ambulance after calling the emergency services complaining of severe crushing chest pain. The ambulance carried out observations which showed tachycardia, hypertension, tachypnoea and normal oxygen saturations. They also did an electrocardiogram (ECG) which showed tall R waves in leads V1 and V2. On arrival the patient is sweaty and in obvious pain. A serial ECG shows tall R waves now in V3 also. Blood results show elevated cardiac enzymes. The patient's past medical history includes hyperthyroidism, polymyalgia rheumatica and hypercholesterolaemia.

What is the most likely diagnosis?

A.Anterior myocardial infarction

B.Lateral myocardial infarction

C.Posterior myocardial infarction

D.Pulmonary embolism (PE)

E.Septal 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 because the patient's ECG shows tall R waves in leads V1-3, a classic finding of posterior myocardial infarctions. As the infarct is posterior the lead findings are reversed, meaning pathological Q waves become tall R waves. A non-posterior infarction would give the classic findings of pathological Q waves, ST-elevation and T-wave inversion.

An anterior MI would cause changes suggestive of MI in leads V3 and V4.

A lateral MI would cause changes in leads I, aVL, V5 and V6.

Septal MI relates to leads V1 and V2.

A pulmonary embolism could manifest in many ways on an ECG, especially if there is right heart strain. This includes the S1Q3T3 sign (prominent S wave in lead I, Q wave and inverted T wave in lead III), right bundle branch block ('M' sign of QRS complex), sinus tachycardia or T-wave inversion of V1 and aVR. The patient's normal oxygen saturations should lower suspicion of PE.

Question:

A 31-year-old woman presents to the emergency department with a 5 hour history of left-sided chest pain, relieved by sitting forward and shortness of breath.

She has no medical history of note. Examination reveals a temperature of 38.2ºC, heart rate of 113/min and respiratory rate of 24/min.

An electrocardiogram (ECG) is performed and shows widespread ST elevation. A troponin blood test is sent and is not raised.

Given the most likely diagnosis, what is the most appropriate first line management?

A.Antibiotics

B.Aspirin

C.Ibuprofen and colchicine

D.Percutaneous coronary intervention (PCI)

E.Urgent pericardiocentesis

Answer:Ibuprofen and colchicine

Explanation:

First line management of acute pericarditis involves combination of NSAID and colchicine

Important for meLess important

The clinical scenario describes a case of acute pericarditis. The pleuritic left sided chest pain, relieved by sitting forward is classic of pericarditis. Widespread ST elevation is also a key feature. The ST elevation is often described as 'saddle-shaped'. First line management should be a combination of non-steroidal anti-inflammatory drugs (such as ibuprofen) and colchicine.

Aspirin would be given prior to PCI for a ST-elevated myocardial infarction (STEMI). Although this patient's ECG shows ST elevation, it does not correspond to any particular coronary territory. Furthermore, the pleuritic nature of the chest pain and fever make a diagnosis of pericarditis more likely. The troponin may have been performed to rule out an acute coronary event, such as a STEMI.

Idiopathic and viral causes make up the majority of cases of acute pericarditis. Therefore, antibiotics are not used first line. They may have a role where bacterial infection is suspected or proven.

Percutaneous coronary intervention is the ideal treatment for a STEMI presenting within 2 hours with no contraindications. However, again, this clinical scenario is more in keeping with a diagnosis of acute pericarditis.

Urgent pericardiocentesis is required for cardiac tamponade. This may be suggested in a question by the features of Beck's triad: raised jugular venous pressure, hypotension and muffled heart sounds. The ECG in this case would show electrical alternans. This is QRS morphologies which alternate from tall to short.

Question:

A 25-year old with recently diagnosed ulcerative colitis is started on mesalazine after a recent tapering of high dose steroids. Two weeks later, he develops severe pain in his epigastrium which radiates through to his back. What is the most likely diagnosis?

A.Hepatitis

B.Acute pancreatitis

C.Duodenal ulceration

D.Acute coronary syndrome

E.Primary sclerosing cholangitis

Answer:Acute pancreatitis

Explanation:

Mesalazine > sulfasalazine in terms of pancreatitis risk

Important for meLess important

Gastric side-effects are not uncommon with oral aminosalyclates, including diarrhoea, nausea, vomiting and exacerbation of colitis. In occasional cases, it can cause acute pancreatitis. Pancreatitis is significantly more common as a side-effect with mesalazine than sulfasalazine.

Question:

A 35-year-old female is diagnosed with breast cancer. Prior to her diagnosis, she was taking the combined pill as contraception. Prior to starting chemotherapy, she opts for a different method of contraception. What is the most appropriate option?

A.Mirena (levonorgestrel releasing) Intrauterine System

B.Copper Intrauterine Device

C.Depo-Provera (injectable progestogen)

D.Progesterone only pill

E.Implantable progestogen

Answer:Copper Intrauterine Device

Explanation:

The answer here is the copper intrauterine device. According to the Faculty of Reproductive and Sexual health guidelines, breast cancer is a contraindication to all hormonal forms of contraception, rated as a Category 4- an unacceptable health risk to the patient.

Question:

A 65-year-old man presents to the emergency department with central crushing chest pain 2 hours ago. His ECG on admission showed ST elevation in leads II, III and aVF. Suddenly, the patient develops worsening breathlessness. Upon cardiac auscultation, a new pan-systolic murmur is heard.

What complication is the most likely cause of this patient's breathlessness?

A.Acute aortic valve regurgitation

B.Acute mitral valve regurgitation

C.Dressler's syndrome

D.Left ventricular aneurysm

E.Septum perforation

Answer:Acute mitral valve regurgitation

Explanation:

Flash pulmonary oedema can occur after acute mitral valve regurgitation due to myocardial infarction

Important for meLess important

The correct answer is acute mitral valve regurgitation. Flash pulmonary oedema can occur after acute mitral valve regurgitation due to myocardial infarction. This is a less common complication, usually associated with inferior-posterior infarction, and may be due to ischaemia or rupture of the papillary muscle. Acute hypotension and pulmonary oedema may occur. The murmur heard is characteristic of mitral regurgitation.

Acute aortic valve regurgitation is incorrect. This would not fit with a complication from inferior MI (MI in leads II, III and aVF indicates inferior MI), and would not cause a pan-systolic murmur. Aortic regurgitation causes a diastolic murmur.

Dressler's syndrome is incorrect as this would not cause a murmur. This is pericarditis post-MI which can cause saddle-shaped ST elevation, but this is global across all ECG leads. Furthermore, pericarditis-related complications of MI usually happen in the sub-acute phase (i.e. around 48 hours following a transmural MI), so a presentation 2 hours following acute MI would be unusual.

Left ventricular aneurysm is incorrect. A left ventricular aneurysm is a swelling of a weakened area in the muscular wall of the left ventricle. The most common symptoms are extreme tiredness and breathlessness, however, this usually develops sub-acutely rather than immediately.

Septum perforation is incorrect. This may cause a systolic murmur, however, it is usually associated with myocardial infarctions affecting the left anterior descending (LAD) coronary artery, and the anterior/septal area of the heart (as opposed to the inferior MI seen in this patient). Furthermore, this usually develops 1-3 days post-MI.

Question:

A mother presents with her baby to the GP for review. She asks for advice regarding her milestones and explains that her son was born was born prematurely at 32 weeks gestation.

With the premature age in mind, when should this baby begin to show a responsive social smile?

A.5 to 7 weeks

B.8 to 10 weeks

C.11 to 13 weeks

D.14 to 16 weeks

E.17 to 19 weeks

Answer:14 to 16 weeks

Explanation:

The corrected age of a premature baby is the age minus the number of weeks he/she was born early from 40 weeks

Important for meLess important

6 to 8 weeks is the normal age when a child should show a responsive smile. The reference range of the corrected age is 40 weeks. In this case, the baby was born at 32 weeks gestation which means 8 weeks have to be backdated. So 14 to 16 weeks is the answer.

The corrected age is taken into consideration when looking at milestones until the age of 2.

Question:

A 37-year-old woman who is 15 weeks pregnant presents with abdominal pain. The pain came on gradually and has been getting progressively worse for 3 days. She is nauseated and has vomited twice this morning. She has a temperature of 38.4ºC, blood pressure is 116/82 mmHg and heart rate is 104 beats per minute. The uterus is palpable just above the umbilicus and a fetal heart beat is heard via hand-held Doppler. On speculum examination the cervix is closed and there is no blood. She has a history of menorrhagia due to uterine fibroids. This is her first pregnancy. What is the most likely diagnosis?

A.Multiple pregnancy

B.Fibroid degeneration

C.Inevitable miscarriage

D.Nausea and vomiting of pregnancy

E.Heterotropic pregnancy

Answer:Fibroid degeneration

Explanation:

Uterine fibroids are sensitive to oestrogen and can therefore grow during pregnancy. If growth outstrips their blood supply, they can undergo red or 'carneous' degeneration. This usually presents with low-grade fever, pain and vomiting. The condition is usually managed conservatively with rest and analgesia and should resolve within 4-7 days.

A multiple pregnancy is possible but should have been detected by this stage and would not explain the raised temperature or abdominal pain. A closed cervical os means this is not an inevitable miscarriage. Heterotropic pregnancy describes a very rare situation in which there are simultaneous ectopic and uterine pregnancies. It is usually treated by surgical removal of the ectopic pregnancy.

Question:

A 29-year-old woman who is 14 weeks pregnant presents to the Emergency Department with an exacerbation of asthma. She quickly settles with nebulised salbutamol and you are asked to review her prior to discharge. She currently only uses a salbutamol inhaler (100mcg) as required and thinks that the most common trigger is grass pollen. Her peak flow is now 380 l/min (predicted 440 l/min) and inhaler technique is good. What is the most appropriate course of action?

A.Add inhaled ipratropium bromide 500mcg qds

B.Suggest she uses the salbutamol 100mcq qds

C.Arrange a course of pollen desensitisation injections

D.Add inhaled salmeterol 50mcg bd

E.Add inhaled beclomethasone 200mcg bd

Answer:Add inhaled beclomethasone 200mcg bd

Explanation:

Adult with asthma not controlled by a SABA - add a low-dose ICS

Important for meLess important

The British Thoracic Society (BTS) guidelines make it clear that short-acting /long-acting beta 2-agonists, inhaled and oral corticosteroids should all be used as normal during pregnancy.

Question:

A 20-year-old student calls the GP telephone clinic for advice. One of her housemates has been diagnosed with meningococcal meningitis and she has been given ciprofloxacin as contact prophylaxis. However, she has not taken this yet as she is worried that it will reduce the effectiveness of her contraceptive pill.

Her only medical history is migraine with aura. She isn't sure what kind of contraceptive pill she takes, but she uses it every day with no break and has no allergies.

What should the patient do with regards to contraceptive precautions while taking ciprofloxacin?

A.No change

B.Take a double dose during the course

C.Take a half dose during the course

D.Use barrier contraception during the course

E.Use barrier contraception during the course for four weeks afterwards

Answer:No change

Explanation:

Progestogen only pill + antibiotics - no need for extra precautions

Important for meLess important

With this patient's history of migraine with aura and history of taking the contraceptive pill every day, she is likely to be taking the progesterone-only contraceptive pill. The BNF states that: 'effectiveness of oral progestogen-only preparations is not affected by antibacterials that do not induce liver enzymes'. Ciprofloxacin is a cytochrome P450 (CYP450) inhibitor, not an inducer. This means that the efficacy of this patient's contraception is not affected and she does not need to use additional barrier contraception.

If she were taking rifampicin, an alternative choice for meningococcal contact prophylaxis, she should also use barrier contraception during and for four weeks after cessation of treatment as this drug is a potent enzyme inducer and therefore can decrease the plasma concentration and efficacy of contraceptive pills.

Question:

An 11-year-old boy presents with a one-day history of pain in his left hip. He has 'niggling' pains on that side for a number of weeks. An x-ray is taken:

© Image used on license from Radiopaedia

What is the diagnosis?

A.Slipped upper femoral epiphysis

B.Juvenile idiopathic arthritis

C.Perthes disease

D.Development dysplasia of the hip

E.Transient synovitis

Answer:Slipped upper femoral epiphysis

Explanation:

The x-ray shows a left-sided slipped upper femoral epiphysis (SUFE). A large amount of adipose tissue can also be seen. Obesity is a known risk factor for SUFE.

Question:

An 82-year-old man is referred to cardiology by his GP with increasing dyspnoea on exertion and a systolic murmur. Examination demonstrates a blood pressure of 100/80 mmHg and a slow rising pulse. What is the most likely cause of his underlying condition?

A.Bicuspid aortic valve

B.Ventricular septal defect

C.Post rheumatic fever

D.Calcification of the aortic valve

E.Hypertrophic obstructive cardiomyopathy

Answer:Calcification of the aortic valve

Explanation:

Aortic stenosis - most common cause:

younger patients < 65 years: bicuspid aortic valve

older patients > 65 years: calcification

Important for meLess important

This patient has aortic stenosis.

Question:

A 37-year-old man attends the emergency department after multiple episodes of aggressive retching causing him to vomit around 3 tablespoons of blood. On further questioning, he states he has been drinking around 24 units of alcohol each day for the past week as a result of losing his job. His Glasgow coma score is 15 but he feels dizzy.

His blood pressure is 105/68mmHg, his pulse rate is 105 bpm, his oxygen saturations are 98%, his respiratory rate is 20 breaths per minute and he is pyrexial.

Blood tests and results are currently pending.

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

A.CT thorax, abdomen and pelvis

B.Clinical diagnosis - no further investigations needed

C.Erect chest x-ray

D.Upper gastrointestinal tract endoscopy within 24 hours

E.Upper gastrointestinal tract endoscopy within one week

Answer:Upper gastrointestinal tract endoscopy within 24 hours

Explanation:

All patients with suspected upper GI bleed require an endoscopy within 24 hours of admission

Important for meLess important

Upper gastrointestinal tract endoscopy within 24 hours is correct. This patient has features suggestive of an upper gastrointestinal bleed, which may be a Mallory-Weiss tear (due to the severe retching and vomiting leading to haematemesis). Any patient with a suspected upper gastrointestinal bleed requires endoscopy within 24 hours of admission unless they score less than 1 on the Glasgow-Blatchford score. Although blood test results are not currently available, this patient is also tachycardic, automatically giving them a score of 1 on the Glasgow-Blatchford scale.

Upper gastrointestinal tract endoscopy within one week is incorrect. Although this is the correct investigation, this must be done within 24 hours rather than a week, as during this time period, the bleeding may continue, leading to the patient developing complications such as anaemia and in serious cases, haemodynamic instability and shock.

CT thorax, abdomen and pelvis is incorrect. This could be considered later on, but the most critical investigation is an upper gastrointestinal tract endoscopy within 24 hours. An endoscopy can directly visualise the bleeding tissue and is of more use initially.

Clinical diagnosis - no further investigations needed is incorrect. An upper gastrointestinal bleed cannot be diagnosed based on clinical findings alone. Further investigations are necessary for identifying the source of bleeding and the cause and allow for appropriate treatment.

Erect chest x-ray is incorrect. This may be considered if a ruptured peptic ulcer is suspected, however, this is less likely as there is nothing in the question to suggest there is a history of peptic ulcers, nor are there any examination findings suggestive of them (e.g. diffuse abdominal tenderness, haemodynamic instability).

Question:

You examine a patient in the Emergency Department who was admitted following an accident on his motorbike. He is a known diabetic, with several recent admissions due to poor compliance to insulin treatment. His pupils are bilaterally small, accommodate, but do not constrict to light.

Which of the following most accurately describes this condition?

A.Adie pupil

B.Marcus-Gunn pupil

C.Horner's syndrome

D.Hutchinson's pupil

E.Argyll-Robertson pupil

Answer:Argyll-Robertson pupil

Explanation:

Disorder Notes

Adie pupil Tonically dilated pupil, slowly reactive to light with more definite accommodation response. Caused by damage to parasympathetic innervation of the eye due to viral or bacterial infection. Commonly seen in females, accompanied by absent knee or ankle jerks.

Marcus-Gunn pupil Relative afferent pupillary defect, seen during the swinging light examination of pupil response. The pupils constrict less and therefore appear to dilate when a light is swung from unaffected to affected eye. Most commonly caused by damage to the optic nerve or severe retinal disease.

Horner's syndrome Miosis (pupillary constriction), ptosis (droopy eyelid), apparent enophthalmos (inset eyeball), with or without anhidrosis (decreased sweating) occurring on one side. Caused by damage to the sympathetic trunk on the same side as the symptoms, due to trauma, compression, infection, ischaemia or many others.

Hutchinson's Unilaterally dilated pupil which is unresponsive to light. A result of compression of the occulomotor nerve of the same side, by an intracranial mass (e.g. tumour, haematoma)

Argyll-Robertson pupil Bilaterally small pupils that accommodate but don't react to bright light. Causes include neurosyphilis and diabetes mellitus

Question:

An 18 year-old with no significant medical history registers at a new GP practice when he moves to University. The practice reviews his immunisation history and sends him an invitation to have a vaccination. Which of the following vaccinations should he receive if he has not had it previously?

A.Varicella

B.BCG

C.Influenza

D.Men ACWY

E.Men B

Answer:Men ACWY

Explanation:

The Meningitis ACWY vaccine is being rolled out over several years. All children should receive the vaccination in school year 9 or 10 (in place of the Men C booster). The catch-up program is currently being aimed at students starting University for the first time (aged 25 and under only) and should ideally be given a few weeks before they begin.

Question:

A 4-year-old boy is seen in the emergency department with a red and oedematous wrist and forearm. His mother said he fell from his bike and put his arm out to break the fall.

An x-ray is ordered and can be seen below.

© Image used on license from Radiopaedia

What best describes the type of fracture on the x-ray?

A.Buckle fracture

B.Complete transverse fracture

C.Green-stick fracture

D.Salter Harris fracture

E.Toddler's fracture

Answer:Green-stick fracture

Explanation:

The image shows an x-ray of the forearm of a child that has suffered a green-stick fracture (so named for its similarity to bending and breaking a green branch of a tree). The development of the carpal bones give away the age of the child (here the triquetrum and lunate have started developing which happens in 3- to 4-year-olds). Management involves appropriate consideration of safeguarding and usually immobilisation with a cast as green-stick tend to be quite stable as fractures.

Green-stick fracture is the correct answer. It is strongly recommended to research the above types of fractures for a better understanding of their x-ray presentation. A green-stick fracture involves an incomplete fracture usually at the shaft of a long bone (as seen here in the radius and ulna). It is caused by a bending-type mechanism of injury. As with all fractures in children, it is important to consider safeguarding issues, especially with mechanisms of injury as such.

Buckle fracture is incorrect. This type of fracture is usually caused by a compression force. This would create a 'buckle' as if the bone was 'shortened'. This is can be very commonly missed due to the subtle deformity it causes. It usually causes buckling of one side but if the compression is strong enough it can cause more severe deformity.

Complete transverse fracture is incorrect. As the name suggests this type of fracture would involve a 'transverse', almost like a horizontal line cutting through the shaft, and 'complete', meaning that the fracture line went through the shaft from one side to the other. This is commonly seen in direct-impact trauma (e.g. playing sports in children).

Salter Harris fracture is incorrect. This is a type of fracture that involves the epiphyseal plate in children. This child still has its radius and ulna epiphyseal plates growing so it would be a candidate for it. However, the abnormality is found in the shaft of the bones and not in the epiphyseal plates. There are classically 5 types that can be remembered with the mnemonic SALTER with each letter corresponding to a type:

S: straight across the epiphyseal plate (type I).

A: above the plate (type II).

L: lower than the plate (type III).

T: transversing the plate (type IV).

ER: erasing the plate (type V).

Toddler's fracture is incorrect. This is a common fracture in the children population and it involves the tibia. It is a spiral fracture of the shaft of the tibia with an intact fibula. This is unlikely in this case the forearm is being shown on the x-ray. This type of fracture is notorious for raising safeguarding issues due to the nature of its mechanism of injury, meaning that it can potentially be caused by forceful twisting of the leg by someone. However, this is not always the case.

Question:

A 59-year-old man with a background of COPD attends the emergency department with a 2-day history of fever and a productive cough of green sputum. He has become increasingly breathless and experiencing mild chest tightness.

On examination, he is tachycardic with a heart rate of 110bpm and blood pressure of 123/65mmHg. He is tachypnoeic with a respiratory rate of 25 breaths per minute and saturations of 86% on air. On auscultation of his chest he has minimal wheeze bilaterally and audible coarse crackles at the left base.

Arterial blood gas:

pH 7.36 (7.35 - 7.45)

pO2 7.9 kPa (10 - 13 kPa)

pCO2 4.9 kPa (4.7 - 6.0 kPa)

Bicarbonate 23 mmol/L (22 - 29)

Lactate 1.9 mmol/L (1 - 2 mmol/L)

What are the target oxygen saturations for this patient?

A.88-92%

B.92-94%

C.> 92%

D.94-98%

E.96-100%

Answer:94-98%

Explanation:

Target saturations in COPD are 94-98% if CO2 is normal on ABG

Important for meLess important

This patient has a type 1 respiratory failure likely secondary to community-acquired pneumonia. With oxygen saturations of 86%, he requires oxygen therapy. Frequently, patients with COPD retain carbon dioxide and rely on their hypoxic drive to breathe. Therefore, lower oxygen saturation targets of 88-92% are given. However, this is not true for all patients. In patients with COPD, it is important to see whether or not they are retaining carbon dioxide on an arterial blood gas. This patient has a normal pCO2 of 4.2 suggesting that he does not usually retain carbon dioxide. In this instance, his target saturations should be 94-98%.

Question:

A 24-year-old female with hypothyroidism attends your GP clinic to inform you that she is pregnant. She is 8 weeks pregnant by dates and would like to know if she should continue taking levothyroxine. She is currently taking 75mcg levothyroxine a day.

Her last thyroid function tests were taken 2 weeks ago before she knew she was pregnant, the result is as shown.

TSH 2.9mU/L

What is appropriate advice regarding her levothyroxine?

A.Continue on the same dose

B.Stop the levothyroxine

C.Reduce the dose to 50mcg levothyroxine daily

D.Increase the dose to 100mcg levothyroxine daily

E.Double the dose to 150mcg levothyroxine daily

Answer:Increase the dose to 100mcg levothyroxine daily

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

Hypothyroidism is a common endocrine disorder affecting women of reproductive age. In pregnancy, the thyroxine replacement requirement increases and women should increase their levothyroxine dose by up to 50%. They should be referred to an endocrinologist.

A British Journal of General Practice review suggests ‘women with hypothyroidism who are planning pregnancy should have their levothyroxine dose adjusted to maintain a preconception TSH concentration <2.5 mu/L. On conception, the daily dose of levothyroxine should be increased by 25–50 mcg and thyroid function should be monitored to ensure TSH remains <2.5 mU/L.’ BJGP 2019; 69 (683): 282-283.

Therefore the correct answer is to increase the dose to 100mcg levothyroxine daily. Doubling the dose may be too large an increase.

The medication should not be reduced, stopped or kept the same as requirements for thyroxine increase during pregnancy so this would be inappropriate.

Question:

You have been working in a local General Practice (GP) for 4 months. A patient, who you know well, and have seen regularly for his chronic asthma, states he would like to thank you for your hard work and kindness. He reaches into his pocket and pulls out £50 in cash. He says he would like you to take it as a Christmas gift, and that he looks forward to having frequent consultations with you the new year. What do you do?

A.Politely decline and state you are unable to receive gifts

B.Refuse to see the patient again, the doctor-patient relationship is becoming to close

C.Take the money and say thank you

D.State you cant take it directly, but if you 'found it' in your coat pocket you could not refuse

E.State you can not receive money, but can receive gifts, such as bottles of wine

Answer:Politely decline and state you are unable to receive gifts

Explanation:

The GMC have written guidance on receiving gifts. They clearly state:

77. You must be honest in financial and commercial dealings with patients, employers, insurers and other organisations or individuals.

78. You must not allow any interests you have to affect the way you prescribe for, treat, refer or commission services for patients.

79. If you are faced with a conflict of interest, you must be open about the conflict, declaring your interest formally, and you should be prepared to exclude yourself from decision making.

80. You must not ask for or accept from patients, colleagues or others any inducement, gift or hospitality that may affect or be seen to affect the way you prescribe for, treat or refer patients or commission services for patients. You must not offer these inducements.

Guidance available from: http://www.gmc-uk.org/guidance/ethicalguidance/30191.asp

Question:

A 18-year-old sprinter who is currently preparing for a national athletics meeting asks to see the team doctor due to an unusual sensation in his legs. He describes a numb sensation below his knee. On examination the patient there is apparent sensory loss below the right knee in a non-dermatomal distribution. The team doctor suspects a non-organic cause of his symptoms. This is an example of a:

A.Conversion disorder

B.Hypochondrial disorder

C.Somatisation disorder

D.Malingering

E.Munchausen's syndrome

Answer:Conversion disorder

Explanation:

Conversion disorder - typically involves loss of motor or sensory function. May be caused by stress

Important for meLess important

Question:

A 26-year-old man presents to his GP complaining of fatigue and breathlessness. He also states that he has lost a significant amount of weight in the past year and has noticed swelling in his ankles and hands.

He has no past medical history. His mother died at 52 as a result of complications from Alport syndrome.

Blood tests reveal:

Hb 120 g/L Male: (135-180)

MCV 98 fl (80-100)

Platelets 157 \* 109/L (150 - 400)

WBC 6.2 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 9.6 mmol/L (2.0 - 7.0)

Creatinine 326 µmol/L (55 - 120)

eGFR 32 ml/min/1.73 m2 (>90)

What is the most likely cause of this patient's presenting symptoms?

A.B12 deficiency

B.Heart failure

C.Impaired iron absorption

D.Reduced erythropoietin production

E.Underlying malignancy

Answer:Reduced erythropoietin production

Explanation:

Chronic Kidney Disease often leads to anaemia due to reduced levels of erythropoietin

Important for meLess important

Reduced erythropoietin production is correct. This patient has presented with symptoms and blood results consistent with normocytic anaemia - fatigue, shortness of breath, and reduced haemoglobin with normal MCV. Further, he has a history of weight loss and peripheral oedema alongside severely deranged renal function with moderately impaired eGFR and a family history of Alport syndrome, a known cause of renal failure. This picture is consistent with chronic kidney disease which commonly results in anaemia due to reduced levels of erythropoietin and subsequent reduced red blood cell production.

B12 deficiency is incorrect. B12 deficiency is a common cause of anaemia but would result in macrocytic anaemia, characterised by raised MCV. This patient's MCV is normal and thus B12 deficiency can be effectively ruled out. Further, given the history of weight loss and oedema alongside deranged renal function, this patient's presentation is consistent with chronic kidney disease as the cause of his anaemia.

Heart failure is incorrect. This patient's presentation is more in keeping with chronic kidney disease than heart failure, given the family history of renal disease and severely impaired renal function. Renal disease is a common cause of normocytic anaemia through reduced erythropoietin production.

Impaired iron absorption is incorrect. Low iron levels are a common cause of anaemia, especially in women of childbearing age as a result of losses during menstruation. However, iron-deficiency anaemia most commonly causes a low MCV. As this patient's MCV is normal, iron deficiency is an unlikely cause.

Underlying malignancy is incorrect. Malignancy commonly causes anaemia, often normocytic. However, this patient's presentation is not convincing of underlying malignancy given his age and lack of red flags, aside from weight loss. Further, his renal dysfunction and family history of kidney disease make anaemia secondary to chronic kidney disease far more likely.

Question:

A 67-year-old woman who is taking long-term prednisolone for polymyalgia rheumatica presents with progressive pain in her right hip joint. On examination movement is painful in all directions but there is no evidence of limb shortening or external rotation.

An x-ray of the hip shows osteopenia and microfractures.

What is the most likely diagnosis?

A.Rheumatoid arthritis

B.Avascular necrosis of the femoral head

C.Osteoarthritis

D.Femoral neck fracture

E.Trochanteric bursitis

Answer:Avascular necrosis of the femoral head

Explanation:

Long-term steroid use (such as in this patient taking prednisolone for polymyalgia rheumatica) is a key risk factor for the development of avascular necrosis of the femoral head.

Question:

A 35-year-old woman has been advised to come and see you by her dentist. Ten days ago she had a tooth extraction but unfortunately bled profusely post-procedure, necessitating transfer to the local maxillofacial unit for suturing. She reports no history of bleeding previously and is otherwise well. What is the most likely diagnosis?

A.Von Willebrand's disease

B.Factor V Leiden

C.Factor IX deficiency

D.Haemophilia

E.Antiphospholipid syndrome

Answer:Von Willebrand's disease

Explanation:

Von Willebrand's disease is the most common inherited clotting disorder

Important for meLess important

Not much is given away by this history but it is important to pick up on prolonged bleeding following dental extraction.

The most likely diagnosis when considering this patient is von Willebrand's disease which is an autosomal dominant condition and is one of the commonest bleeding disorders. Most cases are mild, with bleeding after only mild injury, particularly mucosal membrane injuries.

The condition is due to a reduction or structural abnormality of von Willebrand's factor, which has the dual role of promoting normal platelet function and stabilising coagulation factor VIII.

von Willebrand's disease can give normal results on screening tests, and diagnosis may require specialist investigation and assay of von Willebrand Factor . Most patients with mild disease respond to desmopressin (DDAVP), but clotting factor concentrates are needed for a minority.

Question:

You are working in general practice and see a 68-year-old female who has recently been diagnosed with endometrial hyperplasia. She asks you what could have cause this. Which of the following is associated with endometrial hyperplasia?

A.Tamoxifen

B.Aged 30 years or over

C.Alcohol intake

D.Combined oral contraceptive pill

E.Late menarche

Answer:Tamoxifen

Explanation:

Endometrial hyperplasia is caused by oestrogen which is unopposed by progesterone

Important for meLess important

Endometrial hyperplasia is associated with;

Taking oestrogen unopposed by progesterone

Obesity

Late menopause

Early menarche

Aged over 35-years-old

Being a current smoker

Nulliparity

Tamoxifen

Tamoxifen is a risk factor due to its pro-oestrogen effect on the uterus and bones. It does also have an anti-oestrogen effect on the breast.

Question:

A 29-year-old woman visits her GP. She is currently 10 weeks pregnant. After discussion with her partner, she has decided to have the pregnancy terminated. The GP makes the appropriate referral and the termination is conducted.

Two weeks later, she phones the GP, sounding concerned. She has performed a urine pregnancy test and it is still showing as positive.

For what maximum period following termination is this considered normal?

A.1 week

B.2 weeks

C.3 weeks

D.4 weeks

E.6 weeks

Answer:4 weeks

Explanation:

Termination of pregnancy: Urine pregnancy test often remains positive for up to 4 weeks following termination. A positive test beyond 4 weeks indicates incomplete abortion or persistent trophoblast

Important for meLess important

The correct answer is 4 weeks. Urine pregnancy tests often remain positive for up to 4 weeks following termination of the pregnancy. If the test remains positive beyond this time period, it may indicate incomplete abortion or a persistent trophoblast and warrants further investigation.

The other options are therefore incorrect.

Question:

A 58-year-old woman with a previous history of tuberculosis in her youth, presents with small volume haemoptysis. She has no other symptoms currently. Her rheumatoid arthritis is well controlled on methotrexate. She is a non-smoker. Her father died of mesothelioma. Examination identifies dullness to percussion at the right upper zone. Observations are within normal limits. Chest X-ray shows a partially-filled cavity with a crescent of air.

What is the most likely diagnosis?

A.Aspergilloma

B.Granulomatous with polyangiitis

C.Pulmonary metastasis

D.Reactivation of tuberculosis

E.Rheumatoid nodule

Answer:Aspergilloma

Explanation:

An aspergilloma may arise in a lung cavity that developed secondary to previous tuberculosis

Important for meLess important

The correct answer is aspergilloma which classically forms in a cavitating lung lesion from previous tuberculosis.

The other answers are all causes of haemoptysis.

Reactivation of tuberculosis is offered as an option. We are not given any systemic symptoms such as weight loss, anorexia or night sweats, and the X-ray points towards aspergilloma. It will be important to culture and analyse the sputum.

An isolated pulmonary metastasis is unlikely as a diagnosed malignancy has been given in the stem. A primary lung cancer would be better differential. The family history of mesothelioma is not likely to be relevant.

Granulomatosis with polyangiitis causes cavitating lesions and haemoptysis. The patient is younger than average and there are no specific features in the stem to support this being the correct answer.

Rheumatoid nodules are usually asymptomatic and are a rare pulmonary manifestation.

Question:

A 45-year-old woman presents for review. She has noticed a number of patches of 'pale skin' on her hands over the past few weeks. The patient has tried using an emollient and topical hydrocortisone with no result. On examination, you note a number of depigmented patches on the dorsum of both hands. Her past medical history includes thyrotoxicosis for which she takes carbimazole and thyroxine.

What is the most likely cause of her symptoms?

A.Vitiligo

B.Carbimazole-induced hypopigmentation

C.Leukopaenia-induced fungal infection

D.Idiopathic guttate hypomelanosis

E.Addison disease

Answer:Vitiligo

Explanation:

Vitiligo is more common in patients with known autoimmune conditions such as thyrotoxicosis. There is nothing else in the history to suggest Addison's disease.

Question:

A 2-year-old child with a history of atopic eczema is brought to the local GP surgery. Her eczema is usually well controlled with emollients but her parents are concerned as the facial eczema has got significantly worse overnight. She now has painful clustered blisters on both cheeks, around her mouth on her neck. Her temperature is 37.9ºC. What is the most appropriate management?

A.Advise paracetamol + emollients and reassure

B.Admit to hospital

C.Add hydrocortisone 1%

D.Oral flucloxacillin

E.Topical fusidic acid

Answer:Admit to hospital

Explanation:

Eczema herpeticum is a serious condition that requires IV antivirals

Important for meLess important

Question:

A 90-year-old woman previously known to have dry macular degeneration presents to the ophthalmology clinic following a two-week history of increasingly blurred vision with reduced central vision.

She is feeling otherwise well. She has no other past medical history and does not take any medications.

Neurological examination is otherwise normal. She undergoes retinal photography.

Blood pressure 130/95mmHg

Random blood glucose 6.2mmol/L

What is the most likely new finding on retinal photography compared to previous imaging?

A.Arteriovenous nipping

B.Cherry red spot

C.Choroidal neovascularisation

D.Cotton-wool spots

E.Optic disc swelling

Answer:Choroidal neovascularisation

Explanation:

Wet macular degeneration is characterised by choroidal neovascularisation

Important for meLess important

This woman has previously been diagnosed with dry age-related macular degeneration (AMD), but her presentation suggests that this has now progressed to wet AMD.

Dry AMD can affect one or both eyes and is more common in individuals with a family history, or who are overweight or have hypertension. Straight lines appear wavy and colours may appear less strong.

Central vision loss in individuals with pre-existing dry AMD is a sign of progression to wet age-related macular degeneration, and fundoscopy would show choroidal neovascularisation , which is the correct answer. There are no treatments for dry AMD but wet AMD can be managed with regular injections of anti-VEGF, which prevents the growth of new blood vessels.

Arteriovenous nipping is incorrect. This is associated with hypertensive retinopathy. This woman's blood pressure is normal.

Cherry red spot is incorrect. This is associated with central retinal artery occlusion. This woman's age is a risk factor, but she does not have other risk factors which include diabetes and hypertension.

Cotton wool spots is incorrect. These are associated with diabetic retinopathy. This woman does not have diabetes and has a normal random blood glucose level.

Optic disc swelling is incorrect. This is associated with raised intracranial pressure, which would usually present with headache, nausea and reduced consciousness level.

Question:

A 44-year-old male presents to primary care with intractable tiredness. As part of his work-up you perform blood tests which reveal:

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

Female: (115 - 160)

MCV 90 fl (82 - 100)

Platelets 450 \* 109/L (150 - 400)

WBC 6.0 \* 109/L (4.0 - 11.0)

Iron 5.0 μmol/L (5.8 – 34.5)

TIBC 37 μmol/L (45 – 81)

Ferritin 290 ng/ml (20 - 230)

What is the most likely cause of these results?

A.Iron deficiency anaemia

B.Hereditary haemochromatosis

C.Anaemia of chronic disease

D.Sideroblastic anaemia

E.Haemolytic anaemia

Answer:Anaemia of chronic disease

Explanation:

A normocytic anaemia with low serum iron, low TIBC but raised ferritin in a patient with a chronic illness is typical of anaemia of chronic disease

Important for meLess important

The iron profile is typical of anaemia of chronic disease, which is the result of three distinct pathophysiological processes: reduced iron release from marrow, inadequate secretion of EPO for erythropoiesis and reduced red cell survival. Ferritin is an acute phase reactant and therefore raised in states of chronic inflammation, as is likely to be the case in this patient. The platelets are raised due to a reactive thrombocytosis in the presence of inflammation.

Iron deficiency anaemia causes a microcytic anaemia, low ferritin and a raised TIBC, not the current clinical picture.

Hereditary haemochromatosis can cause a raised ferritin and low TIBC however iron levels are unlikely to be normal and ferritin would usually be much higher than in this case.

Sideroblastic anaemia usually causes a microcytic anaemia with raised serum iron levels.

Haemolytic anaemias can cause a normocytic anaemia but would not normally be associated with a raised ferritin or low TIBC.

Question:

A 68-year-old man is seen in the outpatients department after presenting with bradykinesia, rigidity and a unilateral tremor. He is subsequently diagnosed with Parkinson's disease

Which of the following is the most important aspect of his long-term management?

A.Completing a DNACPR form

B.Vitamin A supplementation

C.Notification that he will no longer be able to drive

D.Referral to a tertiary hospital for discussion of neurosurgical options

E.Regular medication review

Answer:Regular medication review

Explanation:

Patients with Parkinson's disease should have frequent medication reviews throughout their life to check for interactions and reduce polypharmacy

Important for meLess important

DNACPR may be appropriate, but should only be completed after thorough assesment and discussion with the patient and should not be assumed.

Vitamin D, not vitamin A, supplementation is indicated in Parkinson's disease.

Patients should be notified that it is their responsibility to inform the DVLA of this diagnosis, and that the DVLA will make an assessment as to whether they can be allowed to continue driving. It is not automatic that a diagnosis of Parkinson's disease prohibits driving.

Referral for neurosurgery may be warranted in particular cases, but this is usually late in the management pathway.

Regular medication review should be performed to anticipate any difficulties, non-concordance, or polypharmacy.

Question:

Joanna is a 24-year-old female who presents to the emergency department with an abrupt 2-hour onset of a painful and red skin rash extending across her trunk, face, and limbs. She has never had this skin rash before and has not recently used any new skin products. Her past medical history includes epilepsy, and a viral upper respiratory infection a couple of weeks ago. Her medications include lamotrigine which was started 3 weeks ago.

On examination, Joanna's blood pressure is 120/80mmHg, pulse 90/min, respiratory rate 18/min, and she is afebrile. There is diffuse skin erythema, macules, and flaccid blisters across the majority of her body (except the palms and soles of the feet). There are also notable ulcers on her lips and genitalia.

What is the most important immediate step in management?

A.Adrenaline IM 1:1000 immediately

B.Cease all medications, obtain IV access and begin fluid hydration

C.Intravenous prednisolone

D.Oral acyclovir

E.Topical betamethasone cream

Answer:Cease all medications, obtain IV access and begin fluid hydration

Explanation:

A rare but recognised adverse effect of lamotrigine therapy is Stevens-Johnson syndrome

Important for meLess important

This is a case of Stevens-Johnson syndrome (SJS), a rare but recognised adverse effect of lamotrigine. SJS usually develops up to two months after starting an anti-convulsant. Usually there is a prodromal illness which resembles a viral upper respiratory tract infection or 'flu-like illness'. After this, there is a rapid onset of a painful red skin rash which starts on the trunks and extends abruptly onto the face and limbs. Interestingly, this rash rarely affects the scalp, palms or soles.

The immediate management of SJS includes ceasing the culprit drug, in this case lamotrigine. Hospital admission is required, ideally to an intensive care unit or burns unit. Fluid replacement via intravenous and nasogastric access is required, as there is significant fluid loss from the blisters and red, oozing dermis.

Adrenaline would be the management for an anaphylactic reaction. This is unlikely given the skin blisters and lack of cardiorespiratory compromise.

Intravenous prednisolone is not indicated in the immediate management for SJS. The use of corticosteroids remains contentious for SJS, as there are concerns that they may increase the risk of infection, and impair the wound healing.

Oral acyclovir is the treatment for herpes simplex virus, which similarly presents with a painful and blistering rash, however it does not fit in this scenario as it is widespread across the body.

Topical betamethasone cream, or another topical corticosteroid, may be used for a mild drug hypersensitivity reaction or drug eruption rash.

Question:

A 40-year-old man complains of widespread pruritus for the past two weeks. The itching is particularly bad at night. He has no history of note and works in the local car factory. On examination he has noted to have a number of linear erythematous lesions in between his fingers. What is the most likely diagnosis?

A.Polyurethane dermatitis

B.Fibreglass exposure

C.Cimex lectularius infestation (Bed-bugs)

D.Scabies

E.Langerhans cell histiocytosis

Answer:Scabies

Explanation:

Question:

A 70-year-old homeless woman is admitted to the Emergency Department after being found unconscious by staff at a local homeless shelter. She has a history of alcohol excess according to staff. On arrival in the department she appears to be intoxicated and confused. On examination you noticed heavy tar staining of the fingers and a pulse of 110/min which is irregularly irregular. Her respiratory rate is 16/min with oxygen saturations of 92% on room air. Breath sounds are reduced on the left side of the chest. A chest x-ray shows the following:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Pleural effusion

B.Pneumonia

C.Pneumonectomy

D.Diaphragmatic hernia

E.Mesothelioma

Answer:Pneumonectomy

Explanation:

The x-ray shows an opacified left hemithorax with mediastinal and tracheal shift towards the affected side. Crowding of the ribs over the affected side with compensatory overinflation of normal lung is also seen.

Question:

A 74-year-old woman presents to the emergency department with sudden onset vertigo and vomiting. She has a past medical history of hypertension and takes ramipril.

On examination, she has an ataxic gait and left-sided facial pain. She also has right-sided loss of temperature sensation.

Given this presentation what is the most likely diagnosis?

A.Anterior cerebral artery stroke

B.Anterior inferior cerebellar artery stroke

C.Basilar artery stroke

D.Lateral medullary syndrome

E.Midbrain stroke

Answer:Lateral medullary syndrome

Explanation:

Lateral medullary syndrome can be caused by PICA strokes

Important for meLess important

The patient has symptoms indicating the spinothalamic tracts are affected causing pain and temperature loss, however, she also has symptoms of ataxia and facial pain. Ataxia and facial pain can be caused by damage to the medulla where the vestibular and facial nerve nuclei are located and the spinothalamic tracts also pass through the medulla. Therefore the correct answer is lateral medullary syndrome. Lateral medullary syndrome is caused by posterior inferior cerebellar artery strokes (PICA). This type of stroke affects the lateral of the medulla where the spinothalamic tracts descend causing contralateral pain and temperature loss. The lateral medulla also contains the vestibular nuclei which cause the ataxia and nystagmus.

Anterior inferior cerebellar artery (AICA) strokes are similar to posterior inferior cerebellar artery strokes. Both of them cause ataxia, nystagmus and contralateral pain and temperature loss. AICA strokes can be differentiated from PICA strokes as AICA causes ipsilateral facial paralysis and deafness.

Anterior cerebral artery (ACA) strokes are a type of anterior circulation stroke. The ACA mostly supplies the anterior portion of the frontal lobe of the brain. Due to the arrangement of the homunculi in the brain the anterior frontal lobe supplies the lower limb whereas the areas that supply the face and upper limb and perfused by the middle cerebral artery. Therefore an ACA stroke causes contralateral lower limb weakness that is worse than the upper limb.

Basilar artery is one of the few types of strokes that cause bilateral symptoms. Other examples are venous and watershed infarcts. The basilar artery supplies the pons and medulla. An infarction in the basilar artery causes the death of all the cranial nerve nuclei below the level of the infarction. It causes bilateral paralysis due to the inability of motor tracts to descend. Therefore patients develop locked-in syndrome where they are only able to move their eyes.

A midbrain stroke is also known as Weber’s syndrome. This type of stroke affects the branches of the posterior cerebral artery that supply the midbrain. The midbrain contains the ocular motor nucleus so a stroke here causes ipsilateral CN III palsy but also because the cortical spinal tracts run through the midbrain before they cross over a midbrain stroke causes contralateral weakness of the upper and lower limb.

Question:

A 24-year-old woman with persistent migraines presents to the GP asking about better ways to reduce the number of migraines she is experiencing each month.

Which of the following may be precipitating her attacks?

A.Paracetamol

B.Beta blockers

C.High protein meals

D.High carbohydrate meals

E.The oral contraceptive pill

Answer:The oral contraceptive pill

Explanation:

Migraine triggers include the mnemonic CHOCOLATE: chocolate, hangovers, orgasms, cheese/caffeine, oral contraceptives, lie-ins, alcohol, travel, exercise

Important for meLess important

This question is asking about the precipitating factors for migraines. The mnemonic CHOCOLATE is useful for remembering the common precipitants.

Chocolate

Hangovers

Orgasms

Cheese

Caffeine

The oral contraceptive pill

Lie-ins

Alcohol

Travel

Exercise

Therefore the correct answer is the oral contraceptive pill

Question:

A 15-year-old female presents to ambulatory care with a painful pruritic rash that has rapidly worsened over the last 10 hours. Her past medical history includes atopic dermatitis treated with emollients and hayfever.

On examination, she has a monomorphic rash with punched out erosions over her cheeks and bilateral dorsal wrists. She is admitted for IV antivirals and observation.

Which of the following is the most likely implicated pathogen?

A.Herpes simplex 1

B.Coxsackie virus A

C.Herpes zoster

D.Poxvirus

E.Human herpes virus 6

Answer:Herpes simplex 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 caused by herpes simplex virus type 1. Uncommonly eczema herpeticum can be caused by Coxsackie A16.

Herpes zoster causes chickenpox, HHV6 causes roseola, poxvirus is responsible for molluscum contagiosum.

Question:

A 34-year-old old woman who is 34 weeks pregnant is investigated following vaginal blood loss. She is found to have placenta accreta. Which one of the following is the most important risk factor for this condition?

A.Smoking

B.Obesity

C.Previous caesarean sections

D.Twin pregnancies

E.Endometriosis

Answer:Previous caesarean sections

Explanation:

Question:

A 62-year-old man is reviewed. His blood pressure is poorly controlled at 152/90 mmHg despite treatment with ramipril 10mg od, bendroflumethiazide 2.5mg od and amlodipine 10mg od. In addition to the antihypertensives he also takes aspirin and simvastatin. His most recent blood tests show the following:

Na+ 139 mmol/l

K+ 4.2 mmol/l

Urea 5.5 mmol/l

Creatinine 98 µmol/l

What is the most appropriate change to his medication?

A.Add frusemide

B.Increase ramipril to 20mg od

C.Add spironolactone

D.Add candesartan

E.Add atenolol

Answer:Add spironolactone

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor, calcium channel blocker and a thiazide diuretic. K+ < 4.5mmol/l - add spironolactone

Important for meLess important

This patient has reached step 4 in the NICE hypertension guidelines. As their potassium is less than 4.5 mmol/l spironolactone 25mg od should be started.

Question:

A 49-year-old male presents to his general practitioner because he has noticed an increase in his blood pressure. He routinely measures it as he is known to have bilateral renal artery stenosis. The doctor measures his blood pressure in the clinic, the result is 160/101 mmHg. He is otherwise feeling well in himself, and he is not taking any drugs routinely.

Which one of the following antihypertensive drugs is contraindicated for this patient?

A.Amlodipine

B.Bendroflumethiazide

C.Indapamide

D.Enalapril

E.Verapamil

Answer:Enalapril

Explanation:

ACE inhibitors - contraindicated in patients with renovascular disease

Important for meLess important

The correct answer is enalapril. Enalapril is an ACE-inhibitor drug, that acts by stopping the version between angiotensin I to angiotensin II. The initiation of an ACE inhibitor in a patient with bilateral renal artery stenosis causes the creatinine to increase dramatically as a result of angiotensin II constricting the efferent arteriole, subsequently leading to dilatation of the efferent arteriole and reduced filtration. Counterintuitively, sometimes ACE inhibitors can be used to treat hypertension due to renal artery stenosis, but they need to be closely monitored as this could precipitate severe renal impairment.

Amlodipine is a calcium channel blocker used to treat hypertension. It is appropriate to prescribe for this patient as it has no contraindications for renovascular disease.

Bendroflumethiazide is a thiazides diuretic. It works by acting on the nephron mainly at the proximal part of the distal tubule. Sodium excretion and urine volume are increased by interference with transfer across cell membranes, reducing blood volume.

Indapamide is a thiazade-like diuretic. It can be used in this type of patient, even if usually it is not the first-line management.

Verapamil is a calcium channel blocker. It can be used in patients with renovascular disease. It should not be given with beta-blockers as may cause heart block.

Question:

A 31-year-old woman presents for review. For the past few months she has been feeling generally tired and has not had a normal period for around 4 months. Prior to this she had a regular 30 day cycle. A pregnancy test is negative, pelvic examination is normal and routine bloods are ordered:

FBC Normal

U&E Normal

TFT Normal

Follicle-stimulating hormone 41 iu/l ( < 35 iu/l)

Luteinizing hormone 33 mIU/l (< 20 mIU/l)

Oestradiol 70 pmol/l ( > 100 pmol/l)

What is the most likely diagnosis?

A.Ovarian cancer

B.Gonadotropin-producing pituitary adenoma

C.Turner syndrome

D.Premature ovarian failure

E.Aromatase enzyme deficiency

Answer:Premature ovarian failure

Explanation:

Question:

A 72-year-old woman presents with a vesicular rash around her left eye. The left eye is red and there is a degree of photophobia. A presumptive diagnosis of herpes zoster ophthalmicus is made and an urgent referral to ophthalmology is made.

What treatment is she most likely to be given?

A.Topical aciclovir + topical chloramphenicol

B.Topical aciclovir + topical corticosteroids

C.Oral prednisolone + topical aciclovir

D.Topical aciclovir

E.Oral aciclovir

Answer:Oral aciclovir

Explanation:

There is no role for topical antivirals if systemic therapy is given. Topical corticosteroids are sometimes given to treat secondary inflammation.

Question:

A 26-year-old man presents to the sexual health clinic with a painless penile ulcer after having unprotected sexual intercourse. An examination reveals non-tender inguinal lymphadenopathy.

Investigations confirm the presence of the likely underlying cause and he is given the first-line choice for antibiotics. 6 hours after starting treatment, he re-presents with fever, shivers, headaches, and myalgia.

His pulse is 108 bpm, his blood pressure is 127/75 mmHg, and a rash is seen on the trunk and arms, and his chest sounds are normal.

What is the most appropriate step?

A.Antipyretics and supportive treatment

B.IM adrenaline (0.5 ml 1 in 1000)

C.IM adrenaline (1 ml 1 in 1000)

D.IM benzathine benzylpenicillin

E.IM methylprednisolone

Answer:Antipyretics and supportive treatment

Explanation:

Jarisch-Herxheimer reaction: Fever, rash, chills and headache occurs following antibiotic administration for syphilis

Important for meLess important

A painless penile ulcer and non-tender inguinal lymphadenopathy after having unprotected sexual intercourse should raise suspicion of syphilis. The first-line antibiotic for treating syphilis is a single dose of IM benzathine benzylpenicillin. Many patients may develop the Jarisch-Herxheimer reaction (JHR) within 24 hours of starting treatment, characterised by fever, rash, headaches, tachycardia, and myalgia. This is due to the rapid killing of Treponema pallidum (the causative agent of syphilis) and the release of its endotoxins. JHR generally requires supportive management with antipyretics and resolves within 24 hours.

Antipyretics and supportive treatment is correct as this is the only treatment required in most patients with the JHR. The JHR resolves within 24 hours. An example and very effective antipyretic is paracetamol.

IM adrenaline (0.5 ml 1 in 1000) is incorrect. This would be appropriate if the patient was experiencing anaphylaxis. Although anaphylaxis can occur in response to drugs, it is characterised by airway problems (e.g. stridor and swelling of the throat and tongue), breathing problems (e.g. shortness of breath and wheezing), and circulatory problems (e.g. hypotension and tachycardia). The only feature this patient has is tachycardia, therefore it is unlikely this patient is experiencing anaphylaxis.

IM adrenaline (1 ml 1 in 1000) is incorrect as this is the dose of adrenaline used in cardiac arrest, and this patient only has tachycardia and none of the other features seen in anaphylaxis (airway problems such as angioedema, breathing problems such as wheezing and shortness of breath, and circulatory problems such as hypotension).

IM benzathine benzylpenicillin is incorrect as this is the treatment this patient was given, as it is the first-line antibiotic in managing syphilis and is given intramuscularly as a single dose. Giving this antibiotic again is unnecessary and would not alleviate this patient's symptoms.

IM methylprednisolone is incorrect as this is not routinely given to patients with the JHR. It may be considered in patients with severe reactions, characterised by haemodynamic instability (e.g. hypotension) and shock, which is not present in this case.

Question:

A nine-month-old infant is brought to the GP. His mother reports that he has had a runny nose and mild fever for around two weeks. For the past week, he has experienced severe bouts of coughing which often cause him to vomit; these bouts typically occur after feeding and at night. A review of his GP records and further discussions with his mother confirm that he has not yet received any of his routine childhood vaccinations.

Given the likely diagnosis, what is the most appropriate management?

A.Bed rest, fluids and ibuprofen

B.Intravenous ceftriaxone

C.Oral azithromycin

D.Oral phenoxymethylpenicillin

E.Single dose of dexamethasone

Answer:Oral azithromycin

Explanation:

Child with a persistent cough, worse at night, possibly associated with vomiting → ?whooping cough

Important for meLess important

Oral azithromycin is correct. This child's post-tussive vomiting and vaccination status mean that pertussis, or whooping cough, is the most likely diagnosis. As this child has presented within three weeks of symptomatic onset, treatment with a macrolide antibiotic such as azithromycin is indicated in this age group.

Bed rest, fluids and ibuprofen is incorrect. Supportive care will form a part of treatment in most infectious illnesses and may be the mainstay of management when a patient with pertussis presents more than three weeks after symptomatic onset. However, this patient has presented within a fortnight of developing symptoms, so a macrolide antibiotic is indicated.

Intravenous ceftriaxone is incorrect. This is a treatment option for meningococcal meningitis, which may present with irritability, poor feeding, and a non-blanching rash in infants. The duration and nature of this patient's symptoms mean that meningitis is unlikely here.

Oral phenoxymethylpenicillin is incorrect. This may be used in the management of tonsillitis and scarlet fever when Centor criteria are met, but is not indicated here.

A single dose of dexamethasone is incorrect. This is the recommended management of croup. Croup is characterised by a sudden-onset barking cough with stridor and respiratory distress. The duration and insidious onset of symptoms means that croup is less likely to be the cause of illness in this case.

Question:

A 2-week-old infant is brought to the emergency department with abdominal distension and tenderness. The parents describe that there has been a small amount of blood in her nappy and some bilious vomit. Over the last couple of days the parents have noticed decreased movement and that she is struggling to feed.

Relevant history is that she was born at 28 weeks following premature rupture of membranes.

Which of the following investigations is most likely to give the diagnosis?

A.Abdominal ultrasound scan

B.Abdominal x-ray

C.Laparotomy

D.Digital rectal exam

E.Stool sample

Answer:Abdominal x-ray

Explanation:

The diagnostic investigation for necrotising enterocolitis is an abdominal x-ray

Important for meLess important

This infant has necrotising enterocolitis (NEC) and the abdominal x-ray would have the pathognomonic pneumatosis intestinalis (gas in gut wall). Management is to stop oral feeds, barrier nurse and give antibiotics (cefotaxime and vancomycin), in severe cases a laparotomy may be needed but this is indicative of a poor prognosis and would not be done to diagnose NEC.

A stool culture is a reasonable investigation and is often done in cases of NEC but this is not the investigation that is diagnostic.

Don’t get confused with intussusception , which has a distended abdomen and the passage of red current jelly stool – this is older children (5m-12m), where the initial investigation is likely to be an ultrasound scan (showing a target sign).

A digital rectal exam would not be a diagnostic investigation, it would only tell you if there was faeces in the rectum.

Question:

An asthmatic woman recently gave birth to her first child. She subsequently had an acute exacerbation of her asthma and was prescribed oral 30mg prednisolone. She asks whether it is safe for her to take the prednisolone and breastfeed or if she should switch to another medication?

A.Switch to 2000 micrograms beclomethasone

B.It is safe to continue 30mg prednisolone and breastfeed

C.Halve the dose to 15 mg prednisolone

D.Switch to montelukast

E.It is not safe for asthmatics to breastfeed

Answer:It is safe to continue 30mg prednisolone and breastfeed

Explanation:

If a breastfeeding mother takes prednisolone, only a small amount would be present in the breast milk. This is not believed to cause an adverse effect on the baby.

Question:

A 26-year-old primip school teacher has come to see you 4 days after contact with a child who had a vesicular rash on his head and trunk. She is currently 16 weeks pregnant and apart from some morning sickness, has felt completely well in herself. Blood tests reveal she is non immune to varicella zoster virus. What would be the next step in your management plan?

A.Repeat the blood test

B.Oral Aciclovir

C.IV Aciclovir

D.A single dose of varicella-zoster immunoglobulin (VZI)

E.2 doses of VZI- the first now and the second at 28 weeks

Answer:A single dose of varicella-zoster immunoglobulin (VZI)

Explanation:

If the pregnant woman is not immune to varicella zoster virus and she has had a significant exposure, she should be offered varicella-zoster immunoglobulin (VZIG) as soon as possible. VZIG is effective when given up to 10 days after contact (in the case of continuous exposures, this is defined as 10 days from the appearance of the rash in the index case).

Non-immune pregnant women who have been exposed to chickenpox should be managed as

potentially infectious from 8-28 days after exposure if they receive VZIG and from 8-21 days after

exposure if they do not receive VZIG.

Source: RCOG

Question:

An 8-year-old boy comes to see you with his parents. He has a three year history of nocturnal enuresis. Toileting, reducing fluid intake before bed and a reward system for agreed behaviour have had little effect, the introduction of an enuresis alarm six months ago has also proved unsuccessful. He is still having four to five wet nights a week. Both you and his parents feel a pharmacological intervention is appropriate now and will be used in conjunction with the other measures. Which is the most appropriate first line treatment from the list below?

A.Imipramine

B.Fluvoxamine

C.Tolterodine

D.Oxybutynin

E.Desmopressin

Answer:Desmopressin

Explanation:

This question provides an example of a child who has a need for Desmopressin to attempt to control their Bedwetting. NICE guidance suggests that changes in routine and a reward system should be tried first. If this is ineffective then an enuresis alarm should be tried. Alarms also have a lower relapse rate than drug treatment when they are discontinued.

Desmopressin is a synthetic replacement for vasopressin or antidiuretic hormone (ADH). Treatment can be considered in children over 5 years, though this has to be considered in line with the child's maturity, motivation, frequency of bedwetting.

The BNF for children state's - 'Treatment should be assessed after 4 weeks and continued for 3 months if there are signs of response. Desmopressin should be withdrawn at regular intervals (for 1 week every three months) for full assessment. Particular care is needed to avoid fluid overload by restricting fluid intake from 1 hour before taking desmopressin until 8 hours after. When stopping treatment with desmopressin, gradual withdrawal should be considered.'

Imipramine - This is a tricyclic antidepressant. It can be used in nocturnal enuresis in children who have failed to respond to all other treatments and have undergone specialist assessment.

Oxybutynin - This is an anticholinergic medication that is used for nocturnal enuresis associated with overactive bladder. It is also used for urinary frequency, incontinence and neurogenic bladder instability.

Fluvoxamine - This is selective serotonin re-uptake inhibitor (SSRI) which is used in paediatric obsessive compulsive disorder.

Tolterodine - This is an antimuscarinic drug that is used for symptomatic treatment of overactive bladder associated nocturnal enuresis. Though is not licensed for use in children.

Question:

A 45-year-old man presents to the emergency department with excruciating chest pain. It came on suddenly 1 hour ago and he describes it as constricting, with maximum severity, and has an associated cough. He had not felt unwell recently until the pain started. His past medical history is significant for sickle cell anaemia.

His observations show a heart rate of 110 beats per minute, a respiratory rate of 26 breaths per minute, oxygen saturations of 89% on 2 litres via nasal cannula, a blood pressure of 118/76 mmHg and a temperature of 38.2ºC.

A chest x-ray shows bilateral patchy opacification.

What is the most likely diagnosis?

A.Acute chest syndrome

B.Aplastic crisis

C.Haemolytic crisis

D.Pulmonary embolism

E.Sequestration crisis

Answer:Acute chest syndrome

Explanation:

Acute chest syndrome is a complication of sickle-cell disease and presents with dyspnoea, chest pain, cough, hypoxia and new pulmonary infiltrates seen on chest x-ray

Important for meLess important

The clinical picture points towards a complication of sickle-cell disease, known as acute chest syndrome. It presents with a picture of a congested chest, with shortness of breath, pain, cough, low oxygen saturation and pulmonary infiltrates seen on chest X-ray. It is due to a vaso-occlusive episode in the pulmonary vasculature.

An aplastic crisis is a potential complication of sickle cell disease, which happens after parvovirus infection, causing the bone marrow to stop producing new red cells. It would not present with chest pain, cough or pulmonary infiltrates, and instead would present with the symptoms of anaemia only.

A haemolytic crisis is a potential complication of sickle cell disease, where there is a rapid drop in red cell numbers. Similarly to aplastic crisis it will present with symptoms of anaemia only, and would not explain the other symptoms in this case.

Pulmonary embolism may present with acute chest pain and dyspnoea, but there would unlikely be any signs visible on a chest X-ray. Equally, a pulmonary embolism would be unlikely in a man of this age, and given his history of sickle cell disease, alternative diagnoses are more likely.

Sequestration crisis is a complication of sickle cell disease, in which a large volume of blood pools within the spleen, causing a picture of hypovolaemic shock.

Question:

A 45-year-old woman presents to the Emergency Department having had several episodes of vomiting with bright red blood but she is not currently bleeding. She has had some epigastric pain for several weeks but has not had haematemesis in the past. She denies melaena, dysphagia, syncope, and shortness of breath.

Her only past medical history is asthma, for which she has a salbutamol inhaler. However, she has not used this for many months. She also takes regular aspirin as she read in the paper that they are good for the heart.

On examination, her heart rate is 70/minute, respiratory rate 16/minute, blood pressure 138/90mmHg, saturation 98%.

Initial blood results demonstrate the following:

Hb 140 g/l

Platelets 200 \* 109/l

WBC 4 \* 109/l

Na+ 137 mmol/l

K+ 3.8 mmol/l

Urea 2.5 mmol/l

Creatinine 85 µmol/l

Her calculated Blatchford score is 0.

Of the following options, which action is most appropriate?

Discharge from the Emergency Department with advice and outpatient follow-up

60%

Send for emergency endoscopy

27%

Begin immediate fluid resuscitation, send crossmatch and request two units of blood

3%

Measure INR and begin vitamin K with possible fresh frozen plasma

4%

Begin Helicobacter pylori eradication therapy

6%

In an acute upper GI bleed, the Blatchford score can identify low risk patients who may be discharged

Important for meLess important

This lady has an acute upper gastrointestinal (GI) bleed and so could be very unwell. However, all her parameters are within normal range and she is not showing any signs of shock.

An acute upper GI bleed can be screened with the Blatchford (also known as the Glasgow-Blatchford) score. The features that are considered as part of this score are signs of shock, haemoglobin, urea, sex, and the presence of melaena, syncope, hepatic disease, or heart failure.

This patient would score zero on the Blatchford score and so would be suitable for discharge without needing further workup. However, many of these patients would go on to have an outpatient endoscopy to determine the underlying cause.

The other options:

1) Emergency endoscopy: this would be useful with a higher Blatchford score and to treat a significant upper GI bleed. Endoscopy is required to calculate the Rockall score which predicts mortality after an acute upper GI bleed.

2) Fluid resuscitation: haemodynamic instability would be the most pressing concern for any patient presenting with blood loss. However, this patient is showing no signs of requiring resuscitation or blood transfusion

3) INR, vitamin K, fresh frozen plasma: this might be a required for a warfarinised patient. However, this patient only takes aspirin which would not be reversed by vitamin K and would affect the INR

4) H pylori eradication therapy: whilst the history of epigastric discomfort might suggest that the cause of the bleed is an ulcer, starting eradication therapy would be premature at this point

Question:

A 34-year-old man presents with visual problems. Since yesterday he has developed a 'blind spot' in the visual field of his right eye. This seemed to develop overnight and has got slightly worse since. He has also noticed a slight pain 'behind' his right eye which is worse on moving the eye. Colours, especially red, seem 'washed-out'. When he covers his right eye the vision in the left seems normal. He has feeling generally lethargic for the past few days but is otherwise fit and well. What is the most likely diagnosis?

A.Temporal arteritis

B.Optic neuritis

C.Pituitary tumour

D.Acute angle-closure glaucoma

E.Retinal detachment

Answer:Optic neuritis

Explanation:

Visual loss, eye pain and red desaturation are all classical symptoms of optic neuritis, which is often the presenting symptom of multiple sclerosis (MS). Lethargy is a common non-specific symptom of early MS.

Temporal arteritis would be extremely unusual in a 34-year-old.

Question:

A 26-year-old lady presents to the early pregnancy assessment clinic for a scan. Two years previously, she was treated for an ectopic pregnancy by salpingotomy. A pregnancy test is positive and an ultrasound scan reveals an empty uterine cavity and adnexal fluid with a yolk sac formulating a diagnosis of ectopic pregnancy. She tells you that she would like the least invasive form of management available. Which one of the following would contraindicate the use of expectant management?

A.An ectopic pregnancy of < 30mm in size

B.The absence of a fetal heartbeat

C.A serum B-hCG level of 150IU/L and declining

D.Abdominal pain

E.An unruptured tubal pregnancy

Answer:Abdominal pain

Explanation:

Expectant management of an ectopic pregnancy can only be performed for

1) An unruptured embryo

2) <35mm in size

3) Have no heartbeat

4) Be asymptomatic

5) Have a B-hCG level of <1,000IU/L and declining

Important for meLess important

Expectant management (watchful waiting) is very rarely a suitable management option for ectopic pregnancies. There are very strict criteria which include the absence of symptoms , which is the main reason that most patients will present.

Question:

An infant is brought to the emergency department by a concerned mother. She reports that the child was shaken violently by the father. The admitting paediatricians identify retinal haemorrhages and suspect encephalopathy. A CT head confirms the third classical finding of Shaken Baby Syndrome.

What was found on the CT head to complete the triad of features?

A.Subarachnoid haemorrhage

B.Intraventricular haemorrhage

C.Extradural haematoma

D.Subdural haematoma

E.Subgaleal haematoma

Answer:Subdural haematoma

Explanation:

Retinal haemorrhages, subdural haematoma and encephalopathy is the triad of the shaken baby syndrome

Important for meLess important

Subdural haematomas are the most common and classical intracranial feature of Shaken Baby Syndrome. The bridging cerebral veins are fragile in infants and the theory is that these vessels are torn when a child is shaken, leading to subdural haematomas.

Question:

You are the medical doctor on call. A 24-year-old woman presents to the emergency department with a 3-day history of loose stools, abdominal pain and fatigue. She tells you that she has been opening her bowels on average 7 times a day, and that in the last 24 hours she has noticed blood mixed in with the stools. The patient has a past medical history of ulcerative colitis, which is usually well controlled with rectal mesalazine. She has no other medical history and no allergies.

On examination, the blood pressure is 100/60 mmHg, heart rate 95 beats per minute, respiratory rate 16/min , oxygen saturation 96% and temperature 37.9 ºC. Heart sounds are normal, chest is clear. Abdomen is soft, with localised tenderness in the left iliac fossa. There is no guarding or peritonism and bowel sounds are heard.

Hb 102 g/L Male: (135-180)

Female: (115 - 160)

Platelets 398 \* 109/L (150 - 400)

WBC 13.2 \* 109/L (4.0 - 11.0)

Na 140 mmol/L (135 - 145)

K 3.8 mmol/L (3.5 - 5.0)

Urea 4.6 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

CRP 35 mg/L (< 5)

You suspect a flare of ulcerative colitis.

How should this patient be managed?

A.Admit + IV ciclosporin

B.Admit + IV mesalazine

C.Admit + IV hydrocortisone

D.Admit + PO prednisolone

E.Admit + IV infliximab

Answer:Admit + IV hydrocortisone

Explanation:

A severe flare of ulcerative colitis should be treated in hospital with IV corticosteroids

Important for meLess important

This question tests the ability to recognise an acute flare of ulcerative colitis, and categorise its severity into mild, moderate or severe using the Truelove-Witt index (see below).

This patient has a severe flare, as she is opening her bowels >6 times per day with blood, she is tachycardic (HR >90) and febrile (temperature >37.5ºC). She is also anaemic (Hb <105) with raised inflammatory markers (CRP >30).

Treatment of acute severe ulcerative colitis can be life-threatening, and requires immediate hospital admission. All patients should be treated with IV corticosteroids (hydrocortisone or methylprednisolone) in order to induce remission.

If intravenous corticosteroids are contra-indicated, declined or cannot be tolerated, then intravenous ciclosporin may be considered as 2nd line.

Patients should be assessed daily following admission. For patients who have no improvement within 72 hours of starting IV corticosteroids or whose symptoms worsen despite treatment, consider adding ciclosporin and consider surgical management.

Infliximab may be used to treat acute severe ulcerative colitis if ciclosporin is contraindicated.

Question:

An 18-year-old man presents to the Nephrology clinic for review, after describing ongoing frothy urine. He has no significant past medical history and is otherwise well in himself.

In the clinic, his observations are as follows: blood pressure 118/68 mmHg, heart rate 80/min, respiratory rate 14/min, oxygen saturation 97% on air, temperature 36.7ºC.

The results of recent investigations are shown below:

24h urinary protein collection 4.2g <150mg

Renal biopsy: Podocyte fusion and effacement of foot processes on electron microscopy

What is the most appropriate management option for this patient?

A.Cyclophosphamide

B.Cyclophosphamide + methylprednisolone

C.Methylprednisolone

D.Observation only

E.Prednisolone

Answer:Prednisolone

Explanation:

Minimal change glomerulonephritis - prednisolone

Important for meLess important

The correct answer is prednisolone. This patient has nephrotic range proteinuria, i.e. > 3.5g/24h. As he is a young adult with no obvious regular medications or medical comorbidities to provoke nephrotic syndrome, the most likely diagnosis is minimal change glomerulonephritis. This diagnosis is clinched by the classic findings of podocyte fusion and effacement of the podocyte foot processes on renal biopsy. As around 80% of cases of minimal change disease are steroid responsive, he should be given a corticosteroid. Of these, the preferred initial option for minimal change disease is prednisolone.

Cyclophosphamide is incorrect. This would be an appropriate agent for patients with minimal change disease who have not responded to an initial trial of prednisolone.

Cyclophosphamide + methylprednisolone is incorrect. This is an intense immunosuppressive regime sometimes given to control membranous glomerulonephritis. It is not the first-line treatment for steroid-naïve patients with minimal change disease.

Methylprednisolone is incorrect. Pulsed methylprednisolone may be given to achieve disease control in more rapidly progressive glomerulonephritides. In minimal change disease, less intensive treatment with oral prednisolone is preferred initially, due to the high likelihood of clinical response.

Observation only is incorrect. Due to the high steroid-responsiveness of minimal change disease in most patients, it would be inappropriate to deny this patient treatment with steroids, and risk progression to more enduring renal failure.

Question:

A 79-year-old man is admitted to the orthogeriatric ward after a fall that resulted in a femoral fracture. He has a history of diabetes mellitus type 2, benign prostate hyperplasia, and severe hay fever.

After a couple of days, the patient complaints of suprapubic discomfort and he is unable to pass urine.

Which one of the following medications is most likely to have caused his symptoms?

A.Codeine

B.Doxazosin

C.Duloxetine

D.Finasteride

E.Loratadine

Answer:Codeine

Explanation:

Opioid analgesia is a common cause of urinary retention

Important for meLess important

Codeine is an opioid, and a common side effect of this class of medication is urinary retention. Other drugs that can cause this are tricyclic antidepressants, anticholinergics, and NSAIDs.

Doxazosin is an alpha-blocker and is used as a first-line treatment for improving the symptoms of benign prostatic hyperplasia. It works by reducing the resistance to bladder outflow, hence is used to treat retention.

Duloxetine is an SSRI used to treat diabetic neuropathy and does not include urinary retention in its side effect profile.

Finasteride is a 5-alpha reductase inhibitor, used as a second-line treatment for improving the symptoms of benign prostatic hyperplasia where alpha-blockers are not effective. It works by reducing prostatic bulk.

Loratadine is a non-sedating antihistamine used for symptomatic relief of allergy. It does not cause urinary retention, but keep in mind that some older antihistamines can.

Question:

A 40-year-old woman is diagnosed as having Addison's disease. What combination of medications is she most likely to be prescribed?

A.Prednisolone + fludrocortisone

B.Hydrocortisone + fludrocortisone

C.Hydrocortisone + dehydroepiandrosterone (DHEA)

D.Prednisolone + spironolactone

E.Hydrocortisone + oestrogen/progesterone

Answer:Hydrocortisone + fludrocortisone

Explanation:

Addison's disease management - hydrocortisone + fludrocortisone

Important for meLess important

Question:

Mr Jones is a 74-year-old man with recently diagnosed but fairly advanced dementia and he has not informed the DVLA of his diagnosis. He doesn't drive anymore, he says, but still has a car insured and taxed. After thorough investigation, you find that because of his dementia he cannot retain information long enough to remember that he needs to inform them, nor really can he understand why this needs to happen. How should the DVLA be informed?

A.They don't need to be informed because he doesn't drive anymore.

B.Give the patient a month to inform the DVLA, then if not done, do it yourself ASAP.

C.Arrange to see the patient with a relative, and ensure the relative informs the DVLA ASAP

D.You inform the DVLA ASAP

E.Your practice manager informs the DVLA ASAP

Answer:You inform the DVLA ASAP

Explanation:

Reference:

http:www.gmc-uk.org/guidance/ethicalguidance/28432.asp - paragraph 4a.

As long as he is registered with the DVLA they need to be informed of his condition, so 1 is incorrect. It would be unsafe to give him any more time to inform the DVLA, especially given the fact that he is unlikely to be able to understand why or remember to do so, ruling out number 2. You cannot be sure that a relative would do what you asked, and considering it's something which could harm the patient if not done, it is necessary not to take that risk, ruling out number 3. In a GP practice it is the treating GP who is responsible for informing the DVLA for their own patients, so rules out number 5.

Generic Notes:

Dementia and driving

You are legally obliged to tell DVLA if you are diagnosed with dementia.

If a road accident occurs and they are not informed, you risk prosecution.

Additionally, a fine of up to £1000 can be enforced.

The form that needs to be sent is CG1, and the postal address is on the form.

If your patient has dementia and is unable to do this for reasons such as those detailed in the question, it is your responsibility as their doctor to tell the DVLA.

Question:

A 65-year-old man comes to see you in general practice with a 4-month history of mild right iliac fossa discomfort. He denies any change in bowels, has not passed any blood in his stools and has not lost weight. On examination, there is mild tenderness in the right iliac fossa, but there are no masses and his abdomen is soft otherwise.

You request some blood tests which return as below:

Hb 140 g/L Male: (135-180) Female: (115 - 160)

Platelets 250 \* 109/L (150 - 400)

WBC 6.0 \* 109/L (4.0 - 11.0)

Ferritin 15 ng/mL (20 - 230)

What is the most appropriate action to take?

A.Arrange an urgent referral to gastroenterology

B.Give safety-netting advice

C.Organise a faecal immunochemical test (FIT) stool sample

D.Prescribe a course of antibiotics for suspected diverticulitis

E.Prescribe iron supplementation

Answer:Organise a faecal immunochemical test (FIT) stool sample

Explanation:

The FIT test is recommended for patients with new symptoms of possible colorectal cancer who do not meet the 2-week criteria

Important for meLess important

Though this patient does not have any red flag symptoms of bowel cancer that would prompt a 2-week wait referral, his abdominal pain and iron deficiency need further investigation. A FIT test can be requested in those:

>= 50 years with unexplained abdominal pain OR weight loss

< 60 years with changes in their bowel habit OR iron deficiency anaemia

>= 60 years who have anaemia even in the absence of iron deficiency

If the FIT were positive, then this patient should be referred on the 2-week wait pathway for suspected lower GI cancer.

This patient does not have any of the red flag features that would necessitate an urgent or 2-week wait referral. He has no:

Weight loss

Persistent change in bowel habits

Unexplained rectal bleeding

Iron deficiency anaemia (though he is iron deficient)

Abdominal mass on examination

Safety-netting advice is important, but without investigating the iron deficiency and abdominal pain further, one risks missing a significant diagnosis.

The history does not fit with diverticulitis, which tends to present with left iliac fossa pain over a few days with diarrhoea and fever. A 4-month history of right iliac fossa pain is unlikely to be diverticulitis and antibiotics are unlikely to make a difference, and may make things worse.

Iron supplementation could be prescribed, but to do without investigating the cause of the iron deficiency may mean a missed cancer diagnosis.

Question:

A 45-year-old man presents to his GP with difficult to control hypertension. Over the past 3 months, he has been started on ramipril, amlodipine, and a thiazide-like diuretic. His blood pressure prior to starting medication was 180/105 mmHg. Today in the clinic, his blood pressure is 155/100 mmHg. On examination, the GP notices that the patient has a coarse facial appearance, excessively oily skin, and very large hands.

Which investigation is the first-line test for the suspected underlying condition?

A.Oral glucose tolerance test

B.Pituitary MRI

C.Random growth hormone

D.Screening for fibrillin-1 gene mutation

E.Serum IGF-1

Answer:Serum IGF-1

Explanation:

Serum IGF-1 levels are now the first-line test for acromegaly

Important for meLess important

Acromegaly is a chronic condition caused most commonly by a pituitary adenoma that secretes human growth hormone. Serum insulin-like growth factor is the first-line investigation for acromegaly. Other investigations that can be performed following measuring insulin-like growth factor include the oral glucose tolerance test, serum growth hormone levels, and imaging to assess the pituitary adenoma. Features of acromegaly include coarse facial features (frontal bossing, large jaw, large tongue), enlarged hands and feet, excessively oily skin, and symptoms due to the mass of the adenoma (headaches and bitemporal hemianopia). There is a wide variety of complications associated with acromegaly, including hypertension.

The oral glucose tolerance test is second-line for investigating acromegaly. In a patient who doesn't have acromegaly, a large dose of glucose will suppress growth hormone. Therefore, lack of suppression indicated acromegaly.

A pituitary MRI is used to visualise the pituitary gland. This is an important investigation to do as it can indicate if surgery is an option to remove the adenoma.

Random growth hormone is not the first-line investigation as it is not as accurate as serum IGF-1. It can be used if the diagnosis is uncertain.

Screening for fibrillin-1 gene mutation is the definitive investigation for Marfan's syndrome, a connective tissue disorder.

Question:

A 23-year-old Afro-Caribbean woman is being seen by her GP for heavy menstrual bleeding. She decides that the hormonal coil is most suitable for her. In order to screen for anaemia, she had a routine full blood count done. The results are as follows:

Hb 140 g/L Male: (135-180)

Female: (115 - 160)

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

WBC 4.2 \* 109/L (4.0 - 11.0)

Neuts 1.2 \* 109/L (2.0 - 7.0)

Lymphs 2.3 \* 109/L (1.0 - 3.5)

Mono 0.5 \* 109/L (0.2 - 0.8)

Eosin 0.2 \* 109/L (0.0 - 0.4)

CRP 2.0 mg/L (< 5)

She has no significant past medical history of note and no regular medications. An examination of her abdomen reveals no abnormalities.

What is the most likely cause of her neutropaenia?

A.Autoimmune neutropaenia

B.Benign ethnic neutropaenia

C.Cyclical neutropaenia

D.Drug-induced neutropaenia

E.Inflammation-related neutropaenia

Answer:Benign ethnic neutropaenia

Explanation:

Benign ethnic neutropaenia is common in people of black African and Afro-Caribbean ethnicity

Important for meLess important

Isolated neutropaenia can be due to a hereditary, toxic, or immune cause. This patient has a mild isolated neutropaenia, with no other symptoms or medical conditions that could explain the result. Neutropenia is usually only considered significant if it is below 0.5 \* 109/L.

Benign ethnic neutropaenia is a common condition seen in black African, Afro-Caribbean, Middle Eastern Arab and West Indian individuals. It is a harmless mild neutropaenia, which does not predispose the individual to an increased risk of infection, or other complications. It is recommended that a mild neutropaenia found in an individual of one of the aforementioned ethnicities does not need to be investigated any further, or given any treatment.

Autoimmune neutropaenia is incorrect. It is unlikely here due to the absence of a history of other autoimmune disorders. It can be commonly seen in Felty's syndrome, which is the triad of rheumatoid arthritis splenomegaly and autoimmune neutropaenia). Whilst an isolated, idiopathic autoimmune neutropaenia is possible, it is much rarer than benign ethnic neutropaenia, and is therefore not the most suitable answer here.

Cyclical neutropaenia is incorrect. It is a rare congenital disorder in which the neutrophil count can be seen to drop every 14-35 days, and is associated with recurrent infections. The absence of a history of infections makes this diagnosis less likely.

Drug-induced neutropaenia is incorrect. It may be found in a wide variety of drugs, including cytotoxic drugs, carbimazole and clozapine. However, this patient is not taking any regular medications, and therefore this cannot be the case.

Inflammation-related neutropaenia is incorrect. Whilst it can be seen in the context of chronic inflammatory disease, the lack of any evidence of this in the patient's medical history makes this diagnosis much less likely.

Question:

A 29-year-old woman presents with dysuria and frequency four weeks after giving birth. The antenatal period and delivery were unremarkable. She is exclusively breastfeeding her child at the current time. Abdominal examination is unremarkable and she is apyrexial. A urine dipstick shows blood +, protein +, leucocytes +++ and nitrites positive. What is the most appropriate management?

A.Ciprofloxacin

B.Co-amoxiclav

C.Trimethoprim

D.Amoxicillin

E.Co-amoxiclav + metronidazole

Answer:Trimethoprim

Explanation:

Trimethoprim in breastfeeding is considered safe to use

Important for meLess important

Trimethoprim is considered safe to use in breastfeeding women.

Question:

A 55-year-old gentleman was brought into the emergency department with a 4-day history worsening right-sided abdominal pain, vomiting, fever and chills. He had vomited twice this morning with reduced eating and drinking. His background involves poorly controlled type-2 diabetes controlled by multiple medications, high blood pressure and alcoholism. His observations were a respiratory rate of 24 breaths per minute, blood pressure of 109/76 mmHg, heart rate of 101 beats per minute and temperature of 38.4ºC degrees. A subsequent liver ultrasound scan showed the presence of a deep-walled abscess within the liver.

What is the definitive management of this liver abscess?

A.Admit and monitor

B.Emergency laparotomy

C.Drainage and antibiotics

D.Antibiotics and CT liver triple phase

E.Discharge home with antibiotics

Answer:Drainage and antibiotics

Explanation:

Liver abscesses are generally managed with a combination of antibiotics & drainage

Important for meLess important

Liver abscesses can be a potentially life-threatening condition especially if left untreated as can develop into sepsis and result in end-organ damage. In this scenario, the patient is already showing early signs of haemodynamic instability with some abnormality in his vital signs. Therefore, he will require immediate intervention and treatment with close monitoring.

Computed tomography (CT) liver triple phase is scan used to evaluate liver lesion. Whilst it may be of benefit in this situation by giving further information about the actual abscess, it could delay the actual management.

Drainage with either a percutaneous or laparoscopic approach is the optimal management of the abscess with subsequent treatment with intravenous/oral antibiotics for 4-6 weeks. This would be guided by the sensitivities obtained from the fluid culture obtained from the drained abscess.

An emergency laparotomy would be too invasive and is not the best approach for abscess particularly when deeper within the liver.

Admit and monitor or discharging home with antibiotics would not be safe approaches and puts the patient at harm. More importantly, increases the risk of the patient developing sepsis from the underlying liver abscess if left untreated.

Question:

A 64-year-old woman is admitted to the respiratory ward with shortness of breath on a background of a saddle pulmonary embolus. During her admission, she becomes unresponsive and stops breathing. Cardiopulmonary resuscitation is started.

At the first rhythm check, the defibrillator shows pulseless ventricular tachycardia. A shock is administered but the patient remains in pulseless ventricular tachycardia. An alteplase infusion is started.

Given the above, how long must cardiopulmonary resuscitation continue?

A.15 - 30 minutes

B.30 - 60 minutes

C.60 - 90 minutes

D.90 - 120 minutes

E.> 120 minutes

Answer:60 - 90 minutes

Explanation:

If thrombolytic drugs are given during ALS then a prolonged period of CPR (e.g. 60-90 mins) should be considered

Important for meLess important

This patient has been admitted with a new diagnosis of a pulmonary embolus prior to having a cardiac arrest. As part of the ALS algorithm, the reversible causes (4H's and 4T's) should be explored to look for a reversible cause of the arrest. It seems likely that the pulmonary embolus is the cause of the cardiac arrest in this patient, making thrombolysis with alteplase the most appropriate option at this stage. Whilst alteplase is being given, cardiopulmonary resuscitation should continue for further 60-90 minutes to allow for the drug to take effect. In most resuscitation departments, this is achieved by automated chest compression devices such as the LUCAS.

Question:

Michael is a 36-year-old man who comes to see you with a 1 week history of fever, right sided abdominal pain and general malaise. He has no significant past medical history and has recently travelled to South America, returning 4 weeks ago. On examination, Michael is pyrexial. He has pain in the right upper quadrant of his abdomen and there is hepatomegaly.

On further questioning, Michael states he is not sexually active and he denies any history of intravenous drug use. Liver function tests show a significantly raised alanine aminotransferase (ALT) and alkaline phosphatase (ALP). A full liver screen confirms the diagnosis.

Michael is prescribed medication for symptomatic management and he makes a full recovery within 3 months.

Which of the following is the most likely diagnosis?

A.Autoimmune hepatitis

B.Cytomegalovirus infection

C.Hepatitis A

D.Hepatitis C

E.Hepatitis D

Answer:Hepatitis A

Explanation:

Hepatitis A presents with flu-like symptoms, RUQ pain, tender hepatomegaly and deranged LFTs

Important for meLess important

The clinical features of acute hepatitis A are common to all forms of acute viral hepatitis, and it cannot easily be distinguished by history, examination, or by routine biochemistry tests. Suspicion may be increased, however, by a history of a specific exposure or risk factor, such as travel to areas of high prevalence which includes South America.

Transmission of hepatitis A is by the faecal-oral route. The hepatitis C and D viruses are both blood-borne. Hepatitis D only occurs in people who are also infected with the hepatitis B virus.

Around 85% of people with hepatitis A infection make a complete recovery within three months. Almost all people with hepatitis A recover fully within six months. Hepatitis A does not cause chronic liver disease, has no chronic carrier state, and results in lifelong immunity.

The clinical features of the prodromal phase of hepatitis (usually lasts 3—10 days) include flu-like symptoms, gastrointestinal symptoms. There may be accompanying headache, cough, sore throat, constipation, diarrhoea, itch, or urticaria and 85% of patients will have hepatomegaly.

Question:

A 4-year-old boy is brought to his general practitioner by his parents with a very itchy rash.

On examination, there are erythematous papules in the web spaces between the fingers, on the wrist and in the armpits. There are also visible burrows. The general practitioner suspects scabies and prescribes topical permethrin.

The boy lives with his mother, his father, his grandmother and his grandfather. None of these other household members has any symptoms of scabies infestation.

His mother is 38 years old and is taking an immunosuppressant medication, azathioprine, for Crohn’s disease. His father is 40 years old and has no significant past medical history.

Both of his grandparents are 75 and neither has any significant past medical history.

The patient’s parents ask whether other members of the household need to receive treatment for scabies.

What advice should be given to the family?

A.Everyone in the household should receive a single application of permethrin

B.Everyone in the household should receive two applications of permethrin

C.Only family members who develop symptoms should receive treatment

D.Only the boy’s mother should receive treatment

E.Only the boy’s grandparents should receive treatment

Answer:Everyone in the household should receive two applications of permethrin

Explanation:

In scabies, advise all close contacts to be treated as well as the patient twice, with applications one week apart

Important for meLess important

This patient presents with scabies and NICE guidelines are that all close contacts of patients with scabies should be treated, regardless of whether they are symptomatic. 'Close contacts’ are defined as household members or other people with whom the person has had close physical, or sexual, contact.

Both the patient and the patient’s close contacts should be treated with 2 doses of topical permethrin 5% cream a week apart. It is usually also recommended that all clothing, bedding and other linen is laundered at the highest temperature possible on the first day of treatment.

Question:

A 40-year-old man presents to the hospital with his wife. He is restless, agitated, sweaty, and tremulous.

His wife provides a collateral history, explaining that the patient has been drinking at least half a bottle of vodka per day for many months. However, he has cut his drinking down significantly over the past few days as he has run out of money with which to buy alcohol. His last alcoholic drink was around ten hours ago.

What drug would be most appropriate to manage this man's condition?

A.Carbamazepine

B.Chlordiazepoxide

C.Haloperidol

D.Lorazepam

E.Pregabalin

Answer:Chlordiazepoxide

Explanation:

Decreasing doses of long-acting benzodiazepines are used in the management of alcohol withdrawal

Important for meLess important

This man is presenting with acute alcohol withdrawal. Long-term use of alcohol leads to upregulation of excitatory glutamate receptors and downregulation of GABA receptors. If the patient stops drinking alcohol suddenly, there is an excess of excitatory action, and the patient will present with symptoms of an overactive sympathetic nervous system. This is the case in this patient, who is restless, sweaty, tremulous, and agitated. Symptoms of withdrawal can develop as soon as 6-12 hours after the last drink. Patients in alcohol withdrawal are at risk of seizures and delirium tremens. Long-acting benzodiazepines (which potentiate the action of GABA) are given to mitigate this risk, either in a fixed-dose decreasing regimen as required per the patient's symptoms. Examples of long-acting benzodiazepines include chlordiazepoxide or diazepam.

Carbamazepine is an anticonvulsant that may also be used in acute alcohol withdrawal. However, it is rarely used in practice and is usually used as a second-line medication if benzodiazepines are inappropriate - for example if the patient is intolerant of benzodiazepines.

Haloperidol is a typical antipsychotic that can be used for the management of agitation in delirious patients. However, it is not a medication that is used in alcohol withdrawal as it does not reduce the risk of seizures. It may be used as an adjuvant medication in the management of delirium tremens but that is not relevant to this question.

Lorazepam is incorrect as it is a short-acting benzodiazepine. Long-acting benzodiazepines are used in the management of acute alcohol withdrawal as they have a longer half-life and so are more likely to prevent seizures.

Pregabalin is incorrect. Pregabalin is a medication that increases the action of the inhibitory neurotransmitter GABA in the brain. It can have similar effects to benzodiazepines and is used as an anti-epileptic and anxiolytic. However, there is limited evidence for its role in acute alcohol withdrawal and currently, it is not recommended by NICE in the management of alcohol withdrawal.

Question:

A 67-year-old woman is brought to the Emergency Department with severe abdominal pain which has been worsening the past two days. It began in the lower left side of her abdomen and she has had diarrhoea with it. She has a past medical history of hypertension, chronic kidney disease and diverticular disease.

Her heart rate is 121 bpm, blood pressure is 132/81 mmHg, temperature is 38.2ºC and her oxygen saturation is 97% on air. Her abdomen is tender throughout and exhibits involuntary guarding throughout. Her bowel sounds are inaudible and she has rebound tenderness present throughout her abdomen. A blood test on admission shows the following:

Hb 139 g/l Na+ 139 mmol/l Bilirubin 8 µmol/l

Platelets 732 \* 109/l K+ 4.1 mmol/l ALP 68 u/l

WBC 19.1 \* 109/l Urea 6.1 mmol/l ALT 34 u/l

Neuts 16.3 \* 109/l Creatinine 112 µmol/l γGT 55 u/l

Lymphs 1.9 \* 109/l Amylase 7 u/l Albumin 34 g/l

Which of the following investigations would be best to confirm your diagnosis?

A.Abdominal x-ray

B.Intravenous urogram

C.Erect chest x-ray

D.Supine chest x-ray

E.Abdominal ultrasound scan

Answer:Erect chest x-ray

Explanation:

An erect chest x-ray is used to identify bowel perforation

Important for meLess important

The suspected diagnosis is perforated diverticulitis. An erect chest x-ray will demonstrate pneumoperitoneum as air under the diaphragm. A supine chest x-ray will be unable to do this.

While there are signs that can be seen on abdominal x-ray suggestive of pneumoperitoneum, it is less sensitive than an erect chest x-ray. An intravenous urogram is unnecessary as the patient does not have signs consistent with ureteric colic as the most likely diagnosis. An ultrasound may also show air within the abdominal cavity but the sensitivity and clarity of images are far more variable and so this is a worse choice.

Question:

A 23-year-old patient attends the antenatal clinic following her 20-week scan. She is found to have a low-lying placenta and wants to ask you more about what this means and if anything needs to be done.

This is the patient's first pregnancy and she has had no issues so far. She has no diagnosed medical conditions and takes no regular medications. She tells you her mother had a 'problem with the placenta' that caused lots of bleeding and she is worried this may happen to her.

What would you arrange for this patient?

A.Book an elective caesarean section at 38-weeks

B.Book for an elective caesarean section at 37-weeks

C.Book for induction of labour on the consultant led unit at 38-weeks

D.Rescan at 28 weeks

E.Rescan at 32 weeks

Answer:Rescan at 32 weeks

Explanation:

If low-lying placenta is found at the 20-week scan then rescan at 32 weeks to assess

Important for meLess important

Rescan at 32 weeks is correct. This patient is presenting with a low-lying placenta which should make you think of placenta previa. A patient presenting at 20 weeks gestation with a low-lying placenta is required to have another scan at 32 weeks before any decisions are made regarding further management.

Book an elective caesarean section is incorrect. As mentioned above, this patient requires further scans at 32 weeks and then 36-37 weeks to determine whether or not a caesarean section is required. A caesarean section is only recommended for patients who have grade III/IV placenta previa at their 32 and 36-37 week scan. Further information on grading is found in the notes below. Therefore, these options are currently incorrect.

Book for induction of labour on the consultant-led unit at 38 weeks is incorrect. Induction of labour is not usually required for placenta previa. As mentioned above further scans are required at 32 and then 36-37 weeks to determine whether or not a caesarean section is required. The other option for less severe cases is to trial vaginal delivery - this does not necessarily mean induction of labour is required. Therefore, this option is incorrect.

Rescan at 28 weeks is incorrect. The rescan for a low-lying placenta is at 32 weeks, not 28 weeks. Therefore, this option is incorrect.

Question:

A 54-year-old man attends for a GP appointment. He tells you that he is extremely concerned about developing an abdominal aortic aneurysm (AAA) as his colleague, who appeared fit and well, sadly died two weeks ago following a ruptured AAA. The patient explains that he is keen to be referred for a scan as he is worried that he too may develop this condition.

On examination, the patient's observations are all within normal ranges and his body mass index is 24 kg/m². You are able to feel the patient's abdominal pulse, but you are confident that it is not expansile. You, therefore, decide to explain the abdominal aortic aneurysm screening programme to the patient.

Which of the following would you include in your explanation?

A.Abdominal ultrasound every 3 years between 60 and 75-years-old

B.Abdominal ultrasound every 5 years between 60 and 75-years-old

C.A single abdominal ultrasound for those aged 55-years-old

D.A single abdominal ultrasound for those aged 60-years-old

E.A single abdominal ultrasound for those aged 65-years-old

Answer:A single abdominal ultrasound for those aged 65-years-old

Explanation:

Screening for an abdominal aortic aneurysm consists of a single abdominal ultrasound for males aged 65

Important for meLess important

In England, a single screen for an abdominal aortic aneurysm (AAA) is offered to all men aged 65-years-old. Therefore 'a single abdominal ultrasound for those aged 65-years-old' is correct. Screening is not routinely offered to women, men under 65-years-old, or people who have already been treated for an AAA; this is because the risk of getting an AAA is much smaller in these groups.

AAA screening is performed as an individual scan initially; therefore the options 'abdominal ultrasound every 3 years between 60 and 75-years-old' and 'abdominal ultrasound every 5 years between 60 and 75-years-old' are incorrect. Of course, if the initial scan is found to be abnormal, then the patient may require subsequent scans to monitor this (the time-frame depends on the size of the AAA as described below).

AAA screening is performed for those aged 65-years-old; therefore 'a single abdominal ultrasound for those aged 55-years-old' and 'a single abdominal ultrasound for those aged 60-years-old' are both incorrect.

Question:

A 54-year-old male presents to the general practitioner with a 3-day history of a painless red left eye associated with lacrimation. His vision is unaffected. He has a past medical history of rheumatoid arthritis. Examination reveals a red left eye but is otherwise unremarkable.

Which of the following is the most likely diagnosis?

A.Anterior uveitis

B.Bacterial conjunctivitis

C.Episcleritis

D.Scleritis

E.Viral conjunctivitis

Answer:Episcleritis

Explanation:

The presence of pain distinguishes scleritis from episcleritis

Important for meLess important

The correct answer is episcleritis. This patient is presenting with a painless red left eye of acute onset and associated with lacrimation. This presentation, associated with a lack of pain, visual impairment or significant examination findings all make a diagnosis of episcleritis most likely. The condition describes inflammation of the episclera and is differentiated from scleritis by the absence of pain. For reference, most cases of episcleritis typically resolve within 2-3 weeks.

Anterior uveitis is incorrect. This condition classically presents with an acutely painful red eye associated with photophobia and reduced visual acuity. Examination findings often include a small, irregularly-shaped pupil and a milky white fluid level in the inferior aspect of the anterior chamber of the eye (a hypopyon). Please note, anterior uveitis is a medical emergency that requires urgent referral to ophthalmology.

Bacterial conjunctivitis is incorrect. This condition is characterised by a sore, red-eye associated with a purulent discharge. As this patient is not presenting with either a painful eye or purulent discharge, this condition is unlikely.

Scleritis is incorrect. This condition describes transmural inflammation of the sclera, which presents with a subacute onset of red-eye associated with pain that is exacerbated by eye movement. Unlike in episcleritis, there may also be scleral thinning, which presents as violet or blue discolouration of the eye.

Viral conjunctivitis is incorrect. This condition is characterised by a sore, red-eye associated with a serous discharge. It is unlikely in this patient due to the absence of pain or discharge.

Question:

Valerie, a 63-year-old female with a long history of hepatitis B and alcohol abuse, presents to the emergency department complaining of fever, a distended and painful abdomen, and vomiting.

The nurse takes a set of vital parameters, which shows a blood pressure 145/95mmHg, pulse 100/min, respiratory rate 25/min, and temperature 38ºC. Valerie is noted to be haemodynamically stable. The nurse also finds that Valerie is disoriented to time and place, and is generally confused.

What is the most likely cause of Valerie's symptoms?

A.Malignant ascites

B.Bowel perforation

C.Spontaneous bacterial peritonitis

D.Haemoperitoneum

E.Secondary peritonitis

Answer:Spontaneous bacterial peritonitis

Explanation:

Spontaneous bacterial peritonitis is a key differential for abdominal pain and fever in patients with cirrhosis and portal hypertension

Important for meLess important

Spontaneous bacterial peritonitis (SBP) is an ascitic fluid infection without an evident treatable intra-abdominal source. SBP occurs almost always in patients with known cirrhosis and ascites, commonly as a result of alcoholic liver disease, hepatitis B, hepatitis C, and non-alcoholic fatty liver disease. SBP should be suspected in a patient with known liver disease who present with fever, abdominal tenderness, abdominal distention, vomiting and altered mental state.

Malignant ascites is found in patients with malignancies in the peritoneum which lead to ascites, via increased production of peritoneal fluid and concurrent decreased resorption.

Bowel perforation would be more likely in a patient with a known gastrointestinal disease such as Crohn's disease or ulcerative colitis, or as a complication of bowel surgery.

Haemoperitoneum would be more likely following blunt or penetrating trauma, or from a ruptured blood vessel, and would unlikely be associated with a fever. Furthermore, the patient would be expected to be haemodynamically unstable.

Secondary peritonitis is a condition which occurs when a patient develops an peritoneal infection secondary to another infection, such as diverticulitis or appendicitis. This is less frequently associated with ascites and a more obvious focus of infection would be noted.

Question:

Albert is a 66-year-old man who comes to see you with a 1 month history of difficulty swallowing both liquids and solids. He also described pain on swallowing. Albert otherwise feels well in himself. He has a past medical history of hypertension and is a smoker with a 40-pack-year history.

You examine Albert's throat which appears normal. There are no other abnormalities detected on neurological and abdominal examination.

Which of the following is the most appropriate management plan?

A.Arrange blood tests including FBC and CRP

B.Referral to speech and language therapy

C.Request a barium swallow

D.Prescribe analgesia and review in 2 weeks

E.Urgent direct access upper gastrointestinal endoscopy within 2 weeks

Answer:Urgent direct access upper gastrointestinal endoscopy within 2 weeks

Explanation:

Odynophagia is a concerning symptom that may be present in patients with oesophageal cancer

Important for meLess important

NICE guidelines state:

'Offer urgent direct access upper gastrointestinal endoscopy (to be performed within 2 weeks) to assess for oesophageal cancer in people with dysphagia, or aged 55 and over with weight loss and any of the following:

Upper abdominal pain

Reflux

Dyspepsia (new NICE recommendation for 2015).'

Albert is presenting with dysphagia, therefore the correct option is urgent upper GI endoscopy within 2 weeks. Dysphagia presenting with odynophagia is a common presentation in oesophageal cancer.

Blood tests such as FBC and CRP may aid in pointing towards a diagnosis of cancer, for example if they revealed anaemia, thrombocytosis or raised CRP. However the most important part of management is urgent referral for upper GI endoscopy within 2 weeks. Therefore arranging blood tests is an incorrect answer.

Referral to speech and language therapy would be inappropriate as in the first instance a diagnosis of malignancy needs to be excluded.

Prescribing analgesia may help to ease odynophagia but it would not help Albert's dysphagia and would not address the main issue here which is ruling out upper GI malignancy.

Barium swallow is a dedicated test of the pharynx, oesophagus, and proximal stomach, and may be performed as a single or double contrast study. Although it can be indicated in investigating conditions causing dysphagia and odynophagia, urgent upper GI endoscopy is the most appropriate investigation to investigate for malignancy.

Question:

A 6-month infant girl is brought to the Emergency Department with fever and irritability 1 day after she received some of her childhood vaccinations. Her parents were both born in India and she was therefore given an additional vaccine.

What disease presentation does this vaccine provide the most protection against?

A.Primary TB infection

B.Pulmonary TB in adults

C.Reactivation of TB

D.TB lymphadenitis

E.TB meningitis in children

Answer:TB meningitis in children

Explanation:

The BCG vaccine is unreliable in protecting against pulmonary tuberculosis

Important for meLess important

This child has received the BCG vaccine. This is the only UK vaccination that is based on the risk factors of the individual child. All infants aged 0-12 months who have a parent or grandparent born in a country with an incidence of TB greater than 40 per 100,000 people should receive the BCG. All infants living in areas of the UK with incidence > 40/100,000 are also offered the BCG.

The BCG vaccine does not prevent primary infection with tuberculosis or prevent the reactivation of latent TB. It does not provide reliable protection against any forms of TB in adults. It is still used because it is protective against severe diseases in children, particularly TB meningitis and disseminated TB in children. It is thought to prevent 60 - 80% of cases of TB meningitis in children who received BCG as neonates.

Pulmonary TB is incorrect. The protection against pulmonary TB in adults is variable. BCG provides better protection against pulmonary TB in children, but this is less than the degree of protection provided against TB meningitis in children.

TB lymphadenitis is not correct. This is a type of extra-pulmonary TB.

Primary TB infection is incorrect. BCG does not prevent primary infection with TB.

Reactivation of TB is incorrect. BCG does not prevent the reactivation of TB, and people with latent TB are still at risk of reactivation even if they have had the BCG vaccine.

Question:

A young woman with emotionally unstable personality disorder attempts suicide following a breakup with her boyfriend. She had taken a staggered overdose of paracetamol which she soon regrets and she presents to the emergency department seeking treatment. She is commenced on N-acetylcysteine but quickly develops a reaction to the drug transfusion.

What is the most likely underlying cause of her reaction?

A.IgA deficiency

B.IgE mediated mast cell release

C.IgG immune complex formation

D.IgM immune complex formation

E.Non-IgE mediated mast cell release

Answer:Non-IgE mediated mast cell release

Explanation:

N-Acetylcysteine commonly causes an anaphylactoid reaction (non-IgE mediated mast cell release)

Important for meLess important

N-acetylcysteine commonly causes an anaphylactoid reaction (non-IgE mediated mast cell release).

Anaphylactoid reactions are defined as reactions that produce the same clinical picture with anaphylaxis but are not IgE mediated. Symptoms, therefore, include airway involvement and sometimes may be severe, leading to cardiovascular collapse and death. Anaphylactoid reactions are derived from the activation of the complement and/or bradykinin cascade and the direct activation of mast cells and/or basophils.

IgE mediated mast cell release describes anaphylaxis which is less common than an anaphylactoid reaction.

IgA deficiency makes individuals more prone to anaphylaxis but alone should not cause a drug reaction.

IgM and IgG immune complex formation describe type III hypersensitivity disorders and not acute drug reactions.

Question:

A 19-year-old man is admitted to the hospital following a generalised seizure. He reports feeling unwell with fever and headache for the past 2 days, and his mother describes his recent behaviour as unusually irritable. He has no past medical history.

On examination, there is mild nuchal rigidity and hyperreflexia in the lower limbs. A CT head shows bilateral hypodensities in the temporal lobes.

What is the most likely diagnosis?

A.Autoimmune encephalitis

B.Bacterial meningitis

C.Cryptococcal meningoencephalitis

D.Cytomegalovirus encephalitis

E.Herpes simplex encephalitis

Answer:Herpes simplex encephalitis

Explanation:

CT head showing temporal lobe changes - think herpes simplex encephalitis

Important for meLess important

Herpes simplex encephalitis (HSE) is the commonest cause of sporadic encephalitis and most commonly affects those <20 and >50. In contrast to other forms of encephalitis (e.g. CMV, cryptococcal), it often affects immunocompetent individuals (as well as the immunocompromised). HSE often has a prodrome of fever, headache and malaise followed by acute encephalopathy: focal neurological deficits, seizures, confusion and behavioural changes and potentially meningeal signs. Classically, HSE causes temporal lobe changes (hypodensities on CT, or hyperintensities on MRI) and bilateral temporal lobe changes are pathognomonic of HSE. (Note: although not required in this question, do be aware of the clinical features of temporal lobe changes e.g. aphasia, hemiparesis, memory loss etc since some questions may require you to infer temporal lobe involvement without imaging results).

Autoimmune encephalitis is typically the result of a paraneoplastic syndrome (usually secondary to small cell lung cancer or ovarian teratoma). The absence of evidence of malignancy makes this diagnosis unlikely.

Bacterial meningitis is more common than HSE but is less likely to cause seizures, behavioural changes and confusion (unless there is simultaneous encephalitis i.e. meningoencephalitis). CT or MRI head in meningitis typically shows meningeal enhancement as opposed to temporal lobe changes.

Cryptococcal meningoencephalitis is caused by the yeast Cryptococcus neoformans and typically only affects those with severe immunodeficiency (especially AIDS). It has a subacute presentation, with symptoms progressing over several weeks (as opposed to a few days).

Cytomegalovirus encephalitis almost always occurs in patients with severe immunodeficiency. In those with HIV, it typically occurs once the CD4 count is <50. It may cause symptoms similar to those in the question stem (i.e. those of encephalopathy) but is unlikely given the temporal lobe changes and lack of evidence of immunodeficiency.

Question:

A 35-year-old man presents to the GP with episodes of dizziness which started 2 weeks ago. These episodes come about at random, however, they are exacerbated when he changes the position of his head. His last episode of dizziness was particularly uncomfortable as it lasted longer than a day. He also reports nausea and vomiting. Following a cranial nerve examination, the GP notes horizontal nystagmus. The patient denies any aural symptoms such as tinnitus. When asked about his general health, the patient reports that he had a viral upper respiratory tract infection last week.

What is the diagnosis?

A.Acoustic neuroma

B.Meniere's disease

C.Posterior circulation stroke

D.Vestibular neuronitis

E.Viral labyrinthitis

Answer:Vestibular neuronitis

Explanation:

Horizontal nystagmus is a feature of vestibular neuronitis

Important for meLess important

Vestibular neuronitis is caused due to inflammation of the vestibular nerve. As a result, it will present with symptoms such as vertigo, but not hearing loss as the cochlear nerve is not affected. Other symptoms may include nausea, vomiting and balance problems. Additionally, a finding of horizontal nystagmus makes the diagnosis of a central cause of vertigo (i.e. stroke) less likely.

The four classic features of an acoustic neuroma are vertigo, hearing loss, tinnitus, and an absent corneal reflex. These symptoms (vertigo, hearing loss and tinnitus) are caused by a tumour compressing CN VIII. As this tumour gets bigger it compresses other nerves such as CN V, which causes an absent corneal reflex. Symptoms tend to get worse with each episode. The patient in the vignette is only experiencing vertigo, making a diagnosis of acoustic neuroma unlikely.

Meniere's disease is characterised by sudden episodes of vertigo, hearing loss and tinnitus. The cause is unknown in most cases. Patients may also report a sensation of fullness in their ears due to an abnormal amount of endolymph in the inner ear. However, as the patient denies tinnitus, it is not likely to be Meniere's disease. Episodes of vertigo usually last 2-3 hours but can be longer, however, they won't last longer than a day. In this vignette, the patient was experiencing vertigo for more than a day, making a diagnosis of Meniere's disease less likely.

In a posterior circulation stroke, the patient would also present with symptoms of nystagmus, vertigo, and nausea, which would come on suddenly. However, in this vignette, the patient's symptoms have been occurring for 2 weeks. Additional symptoms include ataxia, unilateral limb weakness, and an altered mental state, which the patient in this vignette did not present with. A posterior circulation stroke is a central cause of vertigo, which would result in vertical nystagmus instead of horizontal nystagmus. The patient in this vignette had horizontal nystagmus.

The presentation of viral labyrinthitis is similar to that of vestibular neuronitis; however, hearing loss and tinnitus are more likely to be present in viral labyrinthitis. In vestibular neuronitis only the vestibular nerve is involved; thus hearing is spared.

Question:

A 30-year-old woman presents to her GP with a fever. She has felt unwell for just over a week. She describes feeling tired and nauseous and has lost her appetite. She has had mild watery diarrhoea and a cough over a similar time period.

She returned from travelling around Pakistan and India a week ago. She had no travel vaccinations before she went and did not take any malaria prophylaxis.

On examination, her heart rate is 70/minute, respiratory rate is 16/minute, blood pressure is 124/83mmHg, temperature 39.4ºC. The only finding is the presence of a number of blanching erythematous maculopapular lesions on the chest and abdomen.

What is the likely causative agent?

A.Hepatitis B virus

B.Hepatitis A virus

C.Mycobacterium tuberculosis

D.Salmonella typhi

E.Plasmodium falciparum

Answer:Salmonella typhi

Explanation:

Salmonella typhi infection can cause rose spots on the abdomen

Important for meLess important

This is a patient with a fever and diarrhoea with a suspicious travel history. The blanching erythematous lesions are rose spots which are pathognomonic of Salmonella typhi. This patient has typhoid fever. A cough is a frequent symptom in typhoid fever.

The other options:

1) Hepatitis B virus (HBV): this virus can cause an acute illness. However, it is transmitted sexually or by contact with bodily fluid. This would be mentioned in an exam question. It would also typically cause jaundice or hepatomegaly

2) Hepatitis A virus: this virus is transmitted by the faecal-oral route and so is more likely than HBV. However, it would also produce liver symptoms.

3) Mycobacterium tuberculosis: TB would typically present with chest symptoms and would not present this soon after foreign travel.

4) Plasmodium falciparum: India and Pakistan are high-risk areas for malaria infection and the patient has not received appropriate prophylaxis. Malaria should be considered as a differential as it generally presents within a month of exposure and it has non-specific symptoms of fever, malaise, myalgia. However, malaria would not cause rose spots.

Question:

A 36-year-old woman presents to clinic with a 4 month history of intermittent bloating and loose stools. She has never passed any blood but has lost a few kilograms in weight.

Over the past week, she has noticed some itchy, vesicular rashes on her elbows that won't seem to go away. You send off some routine blood tests which come back as normal except for one positive result.

Anti-TTG Positive

What is the dermatological condition that she describes?

A.Systemic lupus erythematosus

B.Bullous pemphigoid

C.Psoriasis

D.Scabies

E.Dermatitis herpetiformis

Answer:Dermatitis herpetiformis

Explanation:

Dermatitis herpetiformis has a recognised association with coeliac disease

Important for meLess important

Given the concurrent diagnosis of coeliac disease, the high likelihood is that the rash is dermatitis herpetiformis.

Systemic lupus erythematosus (SLE) tends to present with a butterfly rash and other systemic features.

Bullous pemphigoid presents with tense blisters rather than vesicles and is more common in the elderly.

Psoriasis does present on the extensor surfaces, but presents with dry, scaly patches rather than vesicles. This is also an unlikely age for an initial presentation.

Scabies is a mite infestation, and is more likely to present with a papular rash in the webbed areas of the hands and feet, causing itching.

Question:

A 44-year-old man with known alcohol-related cirrhosis presents to the emergency department vomiting significant amounts of blood. Intravenous terlipressin infusion is given and he is stabilised prior to emergency endoscopy. During endoscopy, multiple oesophageal varices oozing blood are identified and treated with endoscopic variceal ligation. However, this proves unsuccessful as evidenced by ongoing haemoglobin drop and ongoing difficulty maintaining the patient's haemodynamic status.

A decision is made to proceed to Transjugular Intrahepatic Portosystemic Shunt (TIPS) placement, and several hours later he is normotensive with a heart rate of 76/min and stable urine output. However, you notice he is now very confused, thinking he is at his place of work, and his Abbreviated Mental Test Score is 1/10. Pupils are 4 mm in diameter, equal and reactive to light.

What is the most likely cause of his change in cognitive status?

A.Acute bleeding into the peritoneal cavity

B.Build up of urea secondary to acute kidney injury

C.Haemorrhagic stroke secondary to impaired liver synthesis of clotting factors

D.Inadequate metabolism of nitrogenous waste products by the liver

E.Opioid overdose following TIPS placement

Answer:Inadequate metabolism of nitrogenous waste products by the liver

Explanation:

Transjugular Intrahepatic Portosystemic Shunt commonly causes an exacerbation of hepatic encephalopathy

Important for meLess important

Transjugular Intrahepatic Portosystemic Shunt causes blood from the portal system to bypass the liver and enter the systemic circulation without the metabolism of nitrogenous waste products such as ammonia. As these build up in the systemic circulation, increased ammonia is able to cross the blood brain barrier resulting in hepatic encephalopathy. Hence, Transjugular Intrahepatic Portosystemic Shunt can precipitate hepatic encephalopathy due to inadequate metabolism of nitrogenous waste products by the liver.

Acute bleeding into the peritoneal cavity would cause signs of peritonism such as rebound tenderness and guarding.

This man has a stable urine output and is therefore unlikely to be in acute kidney injury. causing build up of urea

Liver cirrhosis can lead to an increased risk of both bleeding and thrombosis due to a reduction in synthesis of both pro- and anti-coagulant factors in the blood. While haemorrhagic stroke is more common in patients with cirrhosis, hepatic encephalopathy is a classic complication of Transjugular Intrahepatic Portosystemic Shunt placement.

While opioid overdose is an important consideration in the confused patient who may have received opioids while in hospital, this man's normal sized pupils make the diagnosis of opioid intoxication unlikely.

Question:

An elderly man develops a generalised pruritic rash:

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

Which one of the following is the mainstay of treatment?

A.Gluten free diet

B.Phototherapy

C.Oral corticosteroids

D.Long-term oral antibiotics

E.Potent topical corticosteroids

Answer:Oral corticosteroids

Explanation:

Question:

A 19-year-old woman presents requesting emergency contraception. Last night the condom split. She does not use regular contraception and is on day 20 of a 28 day cycle. You discuss the intrauterine device but she declines. Of the available options, what is the most appropriate action?

A.Stat dose of levonorgestrel 750mg + repeat dose levonorgestrel 750mg 12 hours later

B.Stat dose of levonorgestrel 1.5mg + repeat dose levonorgestrel 1.5mg 12 hours later

C.Explain she is outside the emergency contraception window and advise her take a pregnancy test if her period is late

D.Reassure her she does not require emergency contraception at this point in her cycle

E.Stat dose of levonorgestrel 1.5mg

Answer:Stat dose of levonorgestrel 1.5mg

Explanation:

Levonorgestrel must be taken within 72 hours of UPSI

Important for meLess important

It should be noted that this is a far from an ideal management scenario.

Firstly, the copper IUD is the most effective measure, but the patient has declined this.

Secondly, ovulation is likely to have already occurred. As levonorgestrel works partly by inhibiting ovulation, it means the efficacy is likely to be reduced compared to if the event had occurred in the first half of the cycle.

However, if we follow the algorithm suggested by the Faculty of Sexual and Reproductive Healthcare (FSRH), giving either levonorgestrel or ulipristal is the suggested management, if a woman has declined the IUD. Women should, of course, be counselled regarding the above.

Question:

You review a 70-year-old man who complains of hearing loss which has developed gradually over the last few months. The patient denies any other symptoms such as ear pain, ear discharge, or dizziness. He is otherwise healthy and enjoys listening to music and playing the drums. He has no medical history and no regular medication, although he did take a course of flucloxacillin for an infected insect bite 2-months ago.

Before performing otoscopy, you decide to perform Rinne's and Weber's test with the following results:

Rinne's test (right ear): bone conduction > air conduction.

Rinne's test (left ear): air conduction > bone conduction.

Weber's test: lateralises to the right ear.

Which of the following could be responsible for these results?

A.Acoustic neuroma

B.Age-related hearing loss

C.Ear wax

D.Noise-related hearing loss

E.Ototoxic effect of flucloxacillin

Answer:Ear wax

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 man has a normal Rinne's result in the left ear, with air conduction being better than bone conduction. However, the opposite is true in the right ear, suggesting conductive hearing loss in the right ear. This is also confirmed by the Weber test lateralising to the right ear.

Conductive hearing loss occurs when there is difficulty transmitting sound waves to the inner ear. Ear wax is the only listed cause of conductive hearing loss.

Conversely, sensorineural hearing loss occurs when there is damage to the cochlea or cochlear nerve. Age-related hearing loss and noise-related hearing loss are both types of sensorineural hearing loss. In sensorineural hearing loss, Weber's test localises to the non-affected ear.

An acoustic neuroma would also cause a sensorineural pattern of hearing loss as it causes hearing loss due to pressure on the cochlear nerve.

The patient enjoys listening to music and playing drums and therefore could be at risk of noise-related hearing loss if not wearing adequate ear protection. However, as above, this would cause a sensorineural pattern of hearing loss. The question asks what could be responsible for the pattern of hearing loss seen, which is conductive. Noise-related hearing loss is therefore incorrect.

Ototoxic drugs can also cause sensorineural hearing loss. Whilst some antibiotics, such as those in the aminoglycoside class, are ototoxic, flucloxacillin is not an ototoxic drug.

Question:

A 50-year-old man has an arterial blood gas sample taken and the following results are obtained, he is breathing room air.

pH 7.20

pCO2 8.1 kPa

pO2 7.5 kPa

HCO3 22 mmol/l

Which of the conditions listed below is most likely to account for these findings?

A.Type 1 respiratory failure

B.Metabolic alkalosis

C.Metabolic acidosis with normal anion gap

D.Metabolic acidosis with increased anion gap

E.Type 2 respiratory failure

Answer:Type 2 respiratory failure

Explanation:

This is a sign of acute type 2 respiratory failure (non compensated). This is the result of carbon dioxide retention.

Question:

A 25-year-old woman presents to the emergency department after ingesting 30 500 mg paracetamol tablets 28 hours ago.

She is awake and alert and has a GCS of 15. Her heart rate is 88 bpm, her blood pressure is 130/85 mmHg, she has right upper quadrant tenderness, and there are no signs of scleral icterus or jaundice. She regrets her decision and has no other past medical history.

Blood tests, including liver function tests (LFTs), have been sent for and the results are awaited.

What is the most appropriate next step in her management?

A.Measure weight and start acetylcysteine if ingestion is more than 150 mg/kg

B.Plot paracetamol level on a concentration curve and start acetylcysteine if it is increased

C.Start acetylcysteine if LFTs show ALT >3 times the upper limit of normal

D.Start acetylcysteine if LFTs show any derangements

E.Start acetylcysteine now

Answer:Start acetylcysteine now

Explanation:

Paracetamol overdose: if presentation > 24 hours after an overdose start acetylcysteine if the patient is jaundiced, has hepatic tenderness or an elevated ALT

Important for meLess important

Start acetylcysteine now is the correct answer. The patient in the vignette has presented more than 24 hours following an intentional paracetamol overdose. She has no abnormal symptoms or findings except for hepatic tenderness (described as right upper quadrant pain), indicating that acute hepatitis is imminent. Any patient that presents >24 hours following a paracetamol overdose with jaundice, hepatic tenderness, or an elevated ALT should have immediate treatment with N-acetylcysteine (the treatment of choice for paracetamol overdose).

Measure weight and start acetylcysteine if ingestion is more than 150 mg/kg is incorrect. This action would be appropriate if the patient presented 8-24 hours after ingesting paracetamol and the plasma-paracetamol concentration was unavailable. This patient has presented outside of this window and has hepatic tenderness; therefore, she meets the criteria for immediate treatment with N-acetylcysteine. Measuring her weight and calculating her ingestion in mg/kg is unnecessary and would unnecessarily delay treatment.

Start acetylcysteine if LFTs show ALT >3 times the upper limit of normal and Start acetylcysteine if LFTs show any derangements are incorrect. In patients that present >24 hours following a paracetamol overdose, any value above the normal upper limit for ALT warrants treatment with N-acetylcysteine, not only results that are >3 times the upper limit. Although the blood tests for the patient in the vignette have not yet returned, as she has hepatic tenderness, this warrants immediate treatment with N-acetylcysteine. Waiting for blood results would unnecessarily delay treatment.

Plot paracetamol level on a concentration curve and start acetylcysteine if it is increased is incorrect. This action would be appropriate if the patient presented within 24 hours of a paracetamol overdose. The patient in the vignette has presented outside of this window and has hepatic tenderness. Therefore she meets the criteria for immediate treatment with N-acetylcysteine. Waiting for blood tests to return to confirm the paracetamol level delays treatment unnecessarily.

Question:

A 52-year-old female presents to primary care complaining of a three-week history of reduced libido and vasomotor symptoms. She has suffered with vaginal dryness for the past 12 months and currently uses topical oestrogen to control this symptom. After discussion with the general practitioner, the decision is made to stop her topical oestrogen and commence an oral preparation of oestrogen-progestogen hormone replacement therapy (HRT).

What is the patient at increased risk of due to the addition of progestogen?

A.Breast cancer

B.Cervical cancer

C.Endometrial cancer

D.Hyponatraemia

E.Postural hypotension

Answer:Breast cancer

Explanation:

HRT: adding a progestogen increases the risk of breast cancer

Important for meLess important

Adding a progestogen to HRT increases the risk of breast cancer, making this the correct answer.

Cervical cancer is incorrect, this is most commonly associated with HPV serotypes 16, 18 and 33 and the combined oral contraceptive pill.

Endometrial cancer is incorrect as this is caused by unopposed oestrogen, so would be a risk associated with oestrogen only HRT.

Hyponatraemia is wrong as this is a side-effect of paroxetine, which is an SSRI used for vasomotor symptoms.

Postural hypotension is incorrect as this is a side-effect of clonidine, which is an α2 agonist, also used in the treatment of vasomotor symptoms.

Question:

A 72-year-old man attends to discuss laboratory results for nail clippings taken 6 weeks ago. He initially presented with extensive thickening and discolouration of all the nails on his left foot. His past medical history includes type 2 diabetes and hypertension. He is currently well and his repeat medications include metformin, simvastatin and ramipril. The laboratory report confirms onychomycosis. What treatment should you offer him?

A.Oral terbinafine

B.Topical itraconazole

C.Oral fluconazole

D.Topical amorolfine

E.Foot care advice

Answer:Oral terbinafine

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Question:

A baby is born at full term following a vaginal delivery complicated by a shoulder dystocia. The baby is born in very poor condition and accordingly, the neonatal team resuscitate and intubate the baby. The baby is profoundly acidotic and demonstrates global hypotonia with abnormal neonatal reflexes; the neonatal team decide on the most appropriate step in management as they are concerned about hypoxic brain injury.

Which intervention is most important for this baby?

A.A sodium bicarbonate correction

B.Blood transfusion

C.Skin to skin contact with mum

D.Therapeutic cooling

E.Vitamin K administration

Answer:Therapeutic cooling

Explanation:

Therapeutic cooling at 33-35 degrees attempts to reduce the chances of severe brain damage in neonates with hypoxic injury

Important for meLess important

Therapeutic cooling is the correct answer. This case describes a baby with poor apgar scores following a traumatic delivery; with acidosis and persisting poor neurological status the baby is likely to meet the TOBY criteria for therapeutic cooling and is the most important intervention in term babies for reducing the likelihood of significant hypoxic-ischaemic brain injury.

A sodium bicarbonate correction is incorrect. Although its use may be considered in severe acidosis, administration is not essential and would not be protective against hypoxic-ischaemic brain injury.

Blood transfusion is incorrect. There is no suggestion of blood loss from either baby or mother.

Skin to skin contact with mum is incorrect. It is important for both maternal and neonatal wellbeing, however not essential. The priority is stabilisation and management of the baby's hypoxic injury.

Vitamin K is incorrect. Although all babies should receive vitamin K at birth to prevent haemorrhagic disease of the newborn, it will not reduce brain damage from hypoxic injury.

Question:

A 45-year-old man presents to the Emergency Department with a 3 week history of increasing abdominal pain and diarrhoea. The pain is described as diffuse and is 6/10 in severity. He is now passing around 5 loose, non-bloody stools per day.

His past medical history includes lower back pain for which he takes regular ibuprofen.

Bloods show the following:

Hb 13.9 g/l

Platelets 423 \* 109/l

WBC 13.5 \* 109/l

CRP 85 mg/l

An abdominal film is requested:

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What is the most likely diagnosis?

A.Sigmoid volvulus

B.Perforated duodenal ulcer

C.Ulcerative colitis

D.Infective gastroenteritis

E.Crohn's disease

Answer:Ulcerative colitis

Explanation:

The abdominal x-ray is consistent a diagnosis of ulcerative colitis showing lead pipe appearance of the colon (red arrows). Ankylosis of the left sacroiliac joint and partial ankylosis on the right (yellow arrow), reinforcing the link with sacroilitis.

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Question:

A 35-year-old man with a background of alcohol-use disorder presents with a 2-day history of nausea, vomiting and jaundice.

Blood results include:

Bilirubin 53 µmol/L (3 - 17)

ALP 322 u/L (30 - 100)

ALT 498 u/L (3 - 40)

γGT 487 u/L (8 - 60)

Albumin 30 g/L (35 - 50)

AST 1013 u/L (1-45)

Prothrombin time 22 seconds (10-14)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 85 µmol/L (55 - 120)

Alcohol-induced hepatitis is suspected, and an acute hepatitis screen fails to provide an alternate diagnosis. The Maddrey discriminant function is calculated with a result of 40, consistent with severe alcoholic hepatitis.

What treatment is most likely to benefit this patient?

A.Etanercept

B.Pentoxifylline

C.Prednisolone

D.Propranolol

E.Terlipressin

Answer:Prednisolone

Explanation:

Corticosteroids are used in the management of severe alcoholic hepatitis

Important for meLess important

Corticosteroids such as prednisolone are currently used in the management of severe alcoholic hepatitis as recommended by current NICE guidelines. They have previously been shown to confer reduced mortality in the short term, though their long-term survival benefits are less clear. NICE currently recommends initiation of corticosteroids in patients with a Maddrey discriminant function >32 and recommends consideration of liver biopsy where there is uncertainty around diagnosis.

Etanercept is not currently used in the management of alcoholic hepatitis. A previous randomised control trial showed a significant increase in mortality associated with its use in alcoholic hepatitis.

Pentoxifylline is a medication that had been previously theorised to improve outcomes in alcoholic hepatitis. The STOPAH trial, a large multi-centre randomized control trial upon which many of the guidelines around the management of alcoholic hepatitis are based, found no benefit to its use in alcoholic hepatitis and it is not currently recommended for routine use.

Propranolol may be used for prophylaxis of variceal bleeding. There is no evidence of varices in the above vignette though they are a consideration in patients presenting with symptomatic liver disease. There is evidence that non-selective beta-blockers such as propranolol should be avoided in patients with severe alcoholic hepatitis due to a risk of acute kidney injury found to be associated.

Terlipressin is used in the management of oesophageal varices and hepatorenal syndrome. These may develop secondary to severe alcoholic liver disease but are not present in the above vignette.

Question:

You diagnose an older man with a left-sided sudden-onset sensorineural hearing loss that started 12 hours ago during your joint clinic with a medical student and refer directly to ENT who diagnose an idiopathic sudden-onset sensorineural hearing loss and begin treatment. Your medical student asks what will happen next for the patient.

What is the most appropriate drug treatment?

A.Oral prednisolone for 7 days

B.Single dose of intramuscular dexamethasone

C.Intravenous dexamethasone for 7 days

D.Intravenous immunoglobulin (IVIG)

E.Oral acyclovir

Answer:Oral prednisolone for 7 days

Explanation:

Following referral to ENT, patients with sudden-onset sensorineural hearing loss are treated with high-dose oral corticosteroids

Important for meLess important

Idiopathic sudden-onset sensorineural hearing loss is treated with high-dose oral corticosteroids; ENT UK's guideline recommends: oral prednisolone 1mg/kg/day (maximum 60mg/day) for 7 days and then tapered over the next week.

Dexamethasone is a corticosteroid but intravenous or intramuscular administration is not required.

Intravenous immunoglobulin is not used for treating idiopathic sudden-onset sensorineural hearing loss.

Antiviral medication such as oral acyclovir has previously been considered for the treatment of Bell's palsy but the evidence for this is poor.

Question:

A 62-year-old woman presents to her GP with 4kg of unintentional weight loss over the past month. She also reports feeling more anxious during this time.

On examination, the patient appears sweaty, anxious, and underweight. She has marked exophthalmos.

Her blood results are as follows:

Thyroid stimulating hormone (TSH) 0.1 mU/L (0.5-5.5)

Free thyroxine (T4) 38 pmol/L (9.0 - 18)

Given the likely diagnosis, how will the patient be managed?

A.Carbimazole for 12-18 months

B.Carbimazole lifelong

C.Propylthiouracil for 12-18 months

D.Propylthiouracil lifelong

E.Radioiodine treatment

Answer:Carbimazole for 12-18 months

Explanation:

Carbimazole is now usually used first-line for Graves' disease, particularly if there is marked thyrotoxicosis and the patient is elderly/has underlying CVD

Important for meLess important

This question is asking about the management of Graves' disease in an elderly female. Graves' disease is treated with either carbimazole, propylthiouracil, or, radioiodine treatment. In an elderly patient, carbimazole is used first line.

Carbimazole for 12-18 months is correct. This patient is presenting with symptoms that are indicative of hyperthyroidism (weight loss, anxiety, heat intolerance). The patient also presents with exophthalmos which is indicative of Grave's disease when seen in combination with the other symptoms of hyperthyroidism mentioned above. The first line treatment of Graves' disease is carbimazole. Carbimazole is an anti-thyroid drug that is initially given at high doses and then reduced over time to maintain euthyroidism. Carbimazole induces remission of Graves' disease and therefore is only needed for a period of 12-18 months usually. Therefore, this option is the correct answer.

The BNF has written guidance stating that carbimazole increases the risk of congenital malformations. Therefore, in a patient of childbearing age, propylthiouracil should be used in preference to minimise the risk of congenital malformations.

Carbimazole lifelong is incorrect. As mentioned above, carbimazole is the correct treatment option for this patient. However, she is unlikely to require treatment lifelong, therefore this answer is incorrect.

Propylthiouracil for 12-18 months and propylthiouracil lifelong are incorrect. Propylthiouracil was the previously favoured antithyroid drug. However, new evidence has shown that it increases the risk of severe hepatic injury. Propylthiouracil is usually only used if patients have had reactions to carbimazole, are pregnant or trying to become pregnant, or have a history of pancreatitis.

Radioiodine treatment is incorrect. This is incorrect for several reasons. Firstly, radioiodine treatment is only used in patients who have relapsed following treatment with an antithyroid drug or are resistant to this antithyroid drug. Secondly, it should not be used in patients with thyroid eye disease as it may worsen ocular symptoms. Therefore, this option is incorrect as the patient has not yet trialled a treatment and has thyroid eye disease.

Question:

A 65-year-old man has an ST-elevation myocardial infarction and is admitted to the coronary care unit. He goes into cardiac arrest and cardiopulmonary resuscitation is initiated. A defibrillator is attached and shows ventricular tachycardia however no pulse can be palpated. Three shocks have been administered with chest compressions in between, however, the patient remains in ventricular tachycardia. Therefore, 1mg of adrenaline is administered. However, the nurses report that the other drug needed is not in the crash trolley.

Which drug could be used in its place?

A.Adenosine

B.Atropine

C.Lidocaine

D.Magnesium sulfate

E.Verapamil

Answer:Lidocaine

Explanation:

In ALS, lidocaine may be used instead of amiodarone if it is not available

Important for meLess important

Lidocaine is correct. Pulseless ventricular tachycardia is one of the 'shockable' rhythms, and since this patient's cardiac arrest was witnessed (it occurred in a monitored patient, as this patient is in a coronary care unit), three shocks have been given. The Resuscitation Council guidelines state to give adrenaline 1 mg once the chest compressions have restarted after the third shock, along with amiodarone 300 mg. In this scenario, the unavailable drug is amiodarone, and the guidelines recommend that lidocaine can be used in its place.

Adenosine is incorrect. This does not play a role in the management of shockable rhythms such as ventricular fibrillation and pulseless ventricular tachycardia. Adenosine is used in the termination of supraventricular tachycardia instead.

Atropine is incorrect. Atropine does not play a role in the management of ventricular tachycardia and is no longer recommended for routine use in asystole or pulseless electrical activity. Atropine is the first-line management for patients with bradycardia, which is not what this patient is experiencing.

Magnesium sulfate is incorrect. This does not play a role in the management of ventricular tachycardia and is instead used in torsades de pointes, which is a polymorphic ventricular tachycardia associated with a long QT interval, which is not what this patient is experiencing.

Verapamil is incorrect. This is contraindicated in ventricular tachycardia as it can precipitate cardiac arrest and ventricular fibrillation.

Question:

You are asked to review a 28-year-old woman who has just presented to the Emergency Department. She has been in a road traffic accident and has sustained significant blunt trauma to her chest wall. Despite aggressive fluid resuscitation, her blood pressure remains 70/30 mmHg and her heart rate remains 125 bpm. You note that her JVP is elevated at 5 cm. Her peripheries are cool and clammy and she is deteriorating rapidly. Portable chest X-ray demonstrates left pleural effusion with no cardiomegaly. What is the most likely cause of her symptoms?

A.Oesophageal rupture

B.Tension pneumothorax

C.Flail chest

D.Pulmonary contusion

E.Cardiac tamponade

Answer:Cardiac tamponade

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

It is uncommon to have oesophageal rupture following blunt trauma; it is far more likely to occur iatrogenically i.e. during scope procedures. Oesophageal rupture generally presents with retrosternal pain and is responsive to fluid resuscitation.

Tension pneumothorax can also present with hypotension, tachycardia and elevated JVP. However, classical appearances of tension pneumothorax, i.e. collapsed lung and deviated trachea, are not seen in this chest X-ray.

Flail chest refers to detachment of the ribcage from the chest wall due to trauma. There are usually apparent rib fractures on chest X-ray. It usually occurs alongside pulmonary contusion.

Pulmonary contusion would not cause elevated JVP, though may cause haemothorax which presents as fluid in lung field on chest X-ray.

Question:

A 56-year-old woman attends with 6 months of worsening eyesight. She finds it difficult to differentiate between colours and has poor central vision, 'floaters', and tension-like headaches.

On examination visual acuity is 20/50 on the right and 20/70 on the left. On ophthalmoscopy, there is a red spot on the macula surrounded by a ring of retinal epithelial pigment loss with the appearance of a 'bull's eye'.

She is obese and has poorly controlled type 2 diabetes mellitus and rheumatoid arthritis. She takes metformin, methotrexate and hydroxychloroquine.

What is the most likely cause of her visual disturbance?

A.Central retinal artery occlusion

B.Diabetic retinopathy

C.Hydroxychloroquine

D.Idiopathic intracranial hypertension

E.Methotrexate

Answer:Hydroxychloroquine

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

The classic presentation of retinopathy is with reduced colour differentiation, reduced central visual acuity, and floaters, as in the stem. The ophthalmoscopy findings also describe the typical appearance of 'bull's eye maculopathy', most commonly seen in patients taking hydroxychloroquine.

Hydroxychloroquine is the correct answer. Hydroxychloroquine is known to cause retinopathy and the likelihood of developing it increases with increased duration of treatment and with higher dosage regimens. The bull's eye maculopathy described in the stem cinches the diagnosis.

Diabetic retinopathy is incorrect. It would be unusual for a diabetic patient to present in this way due to the diabetic eye screening programme. Usually, eye changes are picked up early as a result of this. Diabetic retinopathy presents in a similar way to drug-induced retinopathy with floaters and blurred vision. Reduced central vision can occur if the macula is affected. The bull's eye maculopathy described in this case is not typical of diabetic maculopathy, hydroxychloroquine is, therefore, the better answer.

Central retinal artery occlusion is caused by a disruption of retinal blood supply. The vision loss is usually sudden and on ophthalmoscopy, there would typically be a cherry-red fovea with retinal whitening. It would be unusual to have bilateral involvement.

Idiopathic intracranial hypertension (IIH) is incorrect. IIH usually presents with headaches often associated with vomiting and retro-orbital pain, pulsatile tinnitus, and visual disturbance (most commonly peripheral visual fields). On ophthalmoscopy, you would expect to see papilloedema which is not described in the stem here.

Methotrexate is associated with hepatotoxicity rather than retinopathy.

Question:

A 22-year-old lady presents to the general practitioner for advice about her current contraception, microgynon 30. She went away for a few days this week and forgot to bring her pill packet resulting in her missing pills. The last pill she took was 76 hours ago, and she is unsure what to do now. The missed pills were from week 3 of her pack and she has not missed any other pills this month. She has had intercourse in the last week for which she did not use barrier contraception. What advice should you give her?

A.Take 2 pills today, then finish the current pack, omit the pill-free interval and start the new pack immediately

B.Take emergency contraception, discard the remaining pack and use barrier contraception until restarting the pill as a new user

C.Take emergency contraception, take 3 pills today, finish the pack and have the usual 7 day break

D.Take 2 pills today and then finish the pack and have the usual 7 day break

E.Take 3 pills today, then finish the current pack, omit the pill-free interval and start the new pack immediately

Answer:Take 2 pills today, then finish the current pack, omit the pill-free interval and start the new pack immediately

Explanation:

COCP: If 2 pills missed in week 3, finish the pills in the current pack and start new pack immediately, omitting pill-free interval

Important for meLess important

A pill is considered to be missed once it is 24 hours after it should have been taken. Hence, once 72 hours have passed since the last pill taken, 2 pills have been missed. This woman has hence missed 2 pills and is 4 hours late for the next pill. The rules for the COCP have recently changed depending on which week 2 pills were missed, and these can be quite confusing. For this lady it is week 3 of the pill, and she has not missed any previous pill. The chances of her getting pregnant are low given that she has taken 7 pills consecutively the prior week, and the COCP would theoretically be effective if given 7 days on 7 days off. Hence she does not require emergency contraception.

The standard rule for 2 missed pills is to take 2 pills on the same day, and then continue the pack taking one pill each day as previously until she reaches the end of the pack. Under no circumstances is it advised to take more than 2 pills in one day regardless of the number of pills missed. Only if more than 7 consecutive pills are missed, women are advised to take emergency contraception and restart the pill as a new user.

To be protected against pregnancy during the pill-free interval (next week) a woman must have taken 7 consecutive pills on the week prior to the interval. As it is week 3 of the pill, missing 2 pills means that this lady has not taken the required 7 consecutive pills to enable her to be protected without the pill for the next week. Hence she should be advised to omit the pill-free interval and start the new pack immediately.

Question:

A 45-year-old woman attends the ear, nose and throat clinic with a 3-month history of left-sided hearing loss. She describes an occasional ringing in her left ear and feels off-balance. Her past medical history includes type 1 diabetes which is well-controlled and she denies any recent infective symptoms.

On examination, Rinne's test is positive in both ears with Weber's test lateralising to her right ear. There is no evidence of nystagmus and her coordination remains intact. Aside from an absent left-sided corneal reflex, the remainder of her cranial nerve examination is unremarkable.

What is the most likely diagnosis?

A.Acoustic neuroma

B.Cholesteatoma

C.Labyrinthitis

D.Meniere's disease

E.Otosclerosis

Answer:Acoustic neuroma

Explanation:

Loss of corneal reflex - think acoustic neuroma

Important for meLess important

An acoustic neuroma (or vestibular schwannoma) is a benign tumour of the vestibulocochlear nerve. Symptoms include vertigo, tinnitus and unilateral sensorineural hearing loss. This patient's hearing tests demonstrate a left-sided sensorineural hearing loss. Through invasion of the trigeminal nerve, patients may also present with an absent corneal reflex, as seen here.

A cholesteatoma is a growth of keratinised epithelium in the middle ear. It commonly presents with conductive hearing loss in the affected ear. In later stages of the disease, a disturbance in balance and vertigo can present. However, this patient has a sensorineural hearing loss, making a cholesteatoma unlikely.

Labyrinthitis is a viral inner ear infection that causes sensorineural hearing loss and vertigo. 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. It would not be the cause of the loss of the corneal reflex.

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.

Otosclerosis is a common cause of hearing loss, most frequently in younger women. The disease presents as a progressive, bilateral conductive hearing loss. Vertigo and the loss of the corneal reflex are not symptoms of otosclerosis and given the unilateral presentation of this patient's symptoms, otosclerosis is unlikely.

Question:

A 41-year-old woman presents with acute onset of abdominal pain and swelling. Her past medical history includes polycythaemia rubra vera and asthma.

On examination, there is generalised abdominal tenderness and clear tender hepatomegaly. The abdomen is distended and shifting dullness is present. Blood tests are taken and the results are awaited.

Given the likely diagnosis, which of the following should be the initial choice of imaging?

A.Computed tomography

B.Hepatic venography

C.Liver biopsy

D.Magnetic resonance imaging

E.Ultrasound

Answer:Ultrasound

Explanation:

Budd–Chiari syndrome - ultrasound with Doppler flow studies is very sensitive and should be the initial radiological investigation

Important for meLess important

The scenario here is strongly suggestive of Budd-Chiari syndrome, or hepatic vein thrombosis. This is usually seen in the context of an underlying haematological disease or procoagulant condition, such as polycythaemia rubra vera here. The classic triad of abdominal pain, ascites and tender hepatomegaly are present. The initial choice of imaging should be an ultrasound scan (with Doppler flow) - this is very sensitive and relatively quick to arrange.

Computed tomography (CT) scanning may be used to visualise the hepatic veins and demonstrate occlusion of the veins, or the inferior vena cava, or both. It may also be used to detect tumours, abscesses and so on if an underlying cause is suspected. However, in the first instance, an ultrasound scan should be conducted.

Hepatic venography is considered the definitive tool in Budd-Chiari syndrome diagnosis. However, the question asks specifically about the initial choice, for which ultrasound is the correct answer.

A liver biopsy is not required to confirm the diagnosis; the disease is heterogeneous, giving rise to sampling error. It is useful in the small subset of patients in whom the condition is limited to small hepatic veins (and so major veins would appear patent on imaging).

Magnetic resonance imaging is more accurate than computed tomography and may be used to aid diagnosis. Initially, however, ultrasound should be used.

Question:

A 65-year-old man with a history of primary open-angle glaucoma presents with sudden painless loss of vision in his right eye. On examination of the right eye the optic disc is swollen with multiple flame-shaped and blot haemorrhages. What is the most likely diagnosis?

A.Diabetic retinopathy

B.Vitreous haemorrhage

C.Ischaemic optic neuropathy

D.Occlusion of central retinal vein

E.Occlusion of central retinal artery

Answer:Occlusion of central retinal vein

Explanation:

Central retinal vein occlusion - sudden painless loss of vision, severe retinal haemorrhages on fundoscopy

Important for meLess important

Question:

A 28-year-old man is brought to the emergency department with generalised abdominal pain, nausea, drowsiness, and confusion over the last 5 hours. In the last few weeks, he has had weight loss and has felt dizzy when standing up suddenly.

His pulse rate is 115 bpm, his blood pressure is 85/60 mmHg, and he is afebrile. Blood tests show:

Hb 118 g/L (115 - 160)

Platelets 170 \* 109/L (150 - 400)

WBC 6.3 \* 109/L (4.0 - 11.0)

Na+ 130 mmol/L (135 - 145)

K+ 5.4 mmol/L (3.5 - 5.0)

Urea 2.7 mmol/L (2.0 - 7.0)

Creatinine 97 µmol/L (55 - 120)

Glucose 4.2 mmol/L (4.0 - 7.8)

IV 0.9% sodium chloride has been initiated.

Given the likely diagnosis, what is the most appropriate step in his management?

A.IV fludrocortisone

B.IV hydrocortisone

C.IV hydrocortisone and fludrocortisone

D.IV insulin at 0.05 unit/kg/hour

E.IV insulin at 0.1 unit/kg/hour

Answer:IV hydrocortisone

Explanation:

Hyponatraemia, hyperkalaemia and weight loss can indicate Addison's disease. Presentation of adrenal insufficiency can be very non-specific.

Important for meLess important

A combination of hyponatraemia, hypokalaemia, weight loss, and orthostatic hypotension suggests a diagnosis of adrenal insufficiency. These features along with acute abdominal pain, nausea, and drowsiness suggest this patient is experiencing an adrenal crisis (Addisonian crisis).

IV hydrocortisone is correct. An acute adrenal crisis is a medical emergency requiring resuscitation with IV saline and hydrocortisone. No fludrocortisone is generally required as high cortisol exerts weak mineralocorticoid action. Since high doses of hydrocortisone are used, enough mineralocorticoid activity is exerted, therefore giving extra mineralocorticoid would be unnecessary.

IV fludrocortisone is incorrect. Although adrenal insufficiency can lead to a deficiency of mineralocorticoids (such as aldosterone) and fludrocortisone has mineralocorticoid activity, this is not indicated at this point in time. This is because the main underlying pathological problem in an adrenal crisis is a cortisol deficiency, which urgently needs correcting. Fludrocortisone is given later once the patient is stabilised. As mentioned above, in an acute adrenal crisis, no fludrocortisone is generally required as high cortisol exerts weak mineralocorticoid action. Furthermore, fludrocortisone is only available as oral tablets on the BNF.

IV insulin at 0.05 unit/kg/hour is incorrect as this would be appropriate if the patient was experiencing a hyperosmolar hyperglycaemic state (HHS), which is a medical emergency seen in patients with type 2 diabetes mellitus. This is characterised by marked hyperglycaemia (>30 mmol/L), which is not seen here. As well as this, IV insulin is only given in HHS if blood glucose stops falling while giving IV saline.

IV insulin at 0.1 unit/kg/hour is incorrect as this would be appropriate if this patient was experiencing diabetic ketoacidosis (DKA), which may present similarly. However, this is characterised by hyperglycaemia, which is not seen here, making this diagnosis less likely.

IV hydrocortisone and fludrocortisone is incorrect. Although IV saline and hydrocortisone are given in adrenal crises, no fludrocortisone is generally required. This is because high cortisol exerts weak mineralocorticoid action. Since high doses of hydrocortisone are used, enough mineralocorticoid activity is exerted, therefore giving extra mineralocorticoid would be unnecessary.

Question:

A 47-year-old male is being managed on the gastroenterology ward for metastatic bowel cancer. He is currently receiving his second course of chemotherapy but has reported feeling nauseous, shivery, and has muscle aches since last night. He has also noticed some redness around his central line site which is tender on palpation. His observations from 10:00 today show 96bpm heart rate, 114/89mmHg blood pressure, 99% oxygen saturation in room air, 38.4ºC temperature. He has a full blood count, c-reactive protein, blood cultures, and the tip of the central line sent for culture. His bloods show:

Hb 138 g/L Male: (135-180)

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

WBC 15.2 \* 109/L (4.0 - 11.0)

CRP 120 mg/L (< 5)

What is the most likely organism that will be found in the culture?

A.Enterococcus faecium

B.Klebsiella pneumoniae

C.Staphylococcus aureus

D.Staphylococcus epidermidis

E.Streptococcus epidermidis

Answer: Staphylococcus epidermidis

Explanation:

Most common organism found in central line infections - Staphylococcus epidermidis

Important for meLess important

This patient is likely to have a central line-associated bloodstream infection (CLABSI) as he appears to be septic, is reporting infective symptoms, and is tender around his central line site. Gram-positive bacteria account for just over 50% of nosocomial bacterial infections of central lines. Staphylococcus epidermidis is believed to be the most common organism with around 30% isolates being this bacteria.

Enterococcus faecium is an organism that can cause bacteraemia and line infections, presenting with similar symptoms to the vignette alongside clinical evidence of sepsis. This bacteria is particularly prevalent in surgical and burns patients.

Klebsiella pneumoniae and other Klebsiella spp. are some of the gram-negative causes of line infections. Generally, gram-negative CLABSI are less common but would present in a similar manner to the patient in the vignette.

Staphylococcus aureus is another common bacterial cause of central line and bloodstream infections. It is not the most common cause, however, so is not the correct answer despite the presentation of the patient being the same/similar.

Streptococcus epidermidis is not a known bacteria - it is Staphylococcus epidermidis and this is the most common cause of CLABSI found on culture.

Question:

A 56-year-old man has been on the intensive care unit under sedation for the past 7 days due to a stroke. He had remained stable since he was admitted, but the nurse today calls you asking to measure the patient's troponin and investigate for acute coronary syndrome, as she's noticed an abnormality on the ECG.

Which finding is most likely to prompt investigation for an acute coronary syndrome?

A.ECG shows new widening QRS complexes and a notched morphology of the QRS complexes in the lateral leads

B.ECG shows delta waves and a short PR-interval

C.ECG shows new widening QRS complexes and an RSR' pattern in lead V1

D.ECG shows an irregularly irregular rhythm

E.ECG shows T-wave flattening and the appearance of U-waves

Answer:ECG shows new widening QRS complexes and a notched morphology of the QRS complexes in the lateral leads

Explanation:

A new left bundle branch block should prompt investigation for an acute coronary syndrome

Important for meLess important

A new left bundle branch block, in addition to ST-segment elevation or depression and T-wave inversion, should prompt investigation for an acute coronary syndrome. Here, widened QRS complexes and a notched morphology of the QRS complexes in the lateral leads suggests a left bundle branch block and so would be the correct answer.

Delta waves and a short PR-interval is suggestive of Wolff-Parkinson-White syndrome and arises because of an accessory pathway.

New widening QRS complexes and an RSR' pattern in V1 suggests right bundle branch block.

An irregularly irregular rhythm suggests atrial fibrillation.

T-wave flattening and the appearance of U-waves suggests hypokalaemia.

Question:

A 17-year-old woman presents to the clinic with fatigue. She has recently moved to the UK from Greece. She states that she has a 'blood disorder' which runs in her family however she can not remember the specifics of it. She has never had a blood transfusion. An examination is unremarkable and in particular, there is no evidence of hepatosplenomegaly.

Blood results are as follows:

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

Female: (115 - 160)

MCV 55 fL (80 - 100 fL)

Ferritin 80 fL (> 15 micrograms/L)

Platelets 162 \* 109/L (150 - 400)

WBC 6.8 \* 109/L (4.0 - 11.0)

Hb electrophoresis Raised HbA2

What is the most likely diagnosis?

A.Alpha thalassaemia trait

B.Beta thalassaemia major

C.Beta thalassaemia trait

D.HbH disease

E.Sickle cell disease

Answer:Beta thalassaemia trait

Explanation:

Disproportionate microcytic anaemia - think beta-thalassaemia trait

Important for meLess important

Microcytic anaemia has a variety of causes including iron deficiency anaemia, thalassaemia, and rarely sideroblastic anaemia. A normal ferritin level as in this case makes iron deficiency unlikely. It is important to remember that a low ferritin confirms iron deficiency, however, a normal or raised ferritin does not exclude iron deficiency since it is an acute phase protein.

Disproportionate microcytic anaemia is suggestive of beta thalassaemia. In iron deficiency, the MCV and Hb are usually proportionally decreased. The patient's ethnic origins and mild disproportionate microcytic anaemia make beta thalassaemia trait the most likely diagnosis. This can be confirmed with high-performance liquid chromatography (HPLC) or Hb electrophoresis confirming a raised HbA2.

Beta thalassaemia major can also present with disproportionate microcytic anaemia however the anaemia would be marked, and the patient would be transfusion dependent.

Alpha thalassaemia trait can also present with a mild disproportionate microcytic anaemia however the raised HbA2 on electrophoresis is more suggestive of beta thalassemia trait. Electrophoresis is normal in alpha thalassemia trait.

HbH disease is a type of alpha thalassaemia which occurs due to a deletion of three out of four of the alpha globulin alleles. This would present with a more severe anaemia and evidence of HbH on electrophoresis.

Sickle cell disease would present with a history of vaso-occlusive crisis and Hb electrophoresis would show evidence of HbS.

Question:

A 50-year-old man presents to his GP complaining of daytime somnolence. He reports that yesterday he fell asleep while stopped at a red light. His wife adds that he is a habitual snorer, and sometimes seems to stop breathing for seconds at a time while sleeping. His past medical history is significant for hypertension, a 25 pack-year smoking history, and a two beer per day drinking habit.

Physical examination reveals an obese, middle-aged man in no apparent distress. His pulse is 88/min, blood pressure is 160/100 mmHg, and respirations are 14/min. The remainder of the physical examination, including chest auscultation, is within normal limits.

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

A.Prescribe methylphenidate

B.Pulmonary function testing

C.MRI of the upper airways

D.Nocturnal polysomnography

E.Dexamethasone suppression test

Answer:Nocturnal polysomnography

Explanation:

The history is typical for obstructive sleep apnoea (OSA). When OSA is suspected, nocturnal polysomnography is the gold standard for diagnosis.

Choice 1: CNS stimulants such as methylphenidate are used to treat narcolepsy. Methylphenidate would improve the patients daytime sleepiness, but would not address the underlying OSA.

Choice 2: Pulmonary function testing is not used in the diagnosis of OSA, as affected patients tend to breathe normally while awake.

Choice 3: MRI of the upper airways may be appropriate in preparation for uvulopalatopharyngoplasty (surgery for OSA). However MRI cannot diagnose OSA, as not all patients with OSA have hypertrophy of the upper airway structures nor do all patients with hypertrophy of the upper airway structures have OSA. Surgery for OSA should only be considered when weight loss, CPAP and oral appliances have proven ineffective.

Choice 5: The dexamethasone suppression test can diagnose Cushing's syndrome. Affected patients classically exhibit central obesity, hypertension, a 'buffalo hump', muscle wasting and thin skin. There is no indication that this patient's obesity is due to Cushing's.

Reference: http://cks.nice.org.uk/obstructive-sleep-apnoea-syndrome#!topicsummary

Question:

A 83-year-old lady comes to see you with her daughter, who's wondering if her mum needs to be on something to protect her bones. Her past medical history includes a fracture neck of femur ten months ago, chronic kidney disease stage IV, hypertension and ischaemic heart disease.

After her fractured neck of femur, she was discharged from hospital on alendronic acid. This was stopped by a colleague six months ago due to distressing reflux, which resolved once the tablet was stopped. She was also unable to tolerate risedronate for the same reason. Her DEXA scan after her fractured neck of femur showed a T score of -4.2.

What is the most appropriate action?

A.Treat with calcium and vitamin D supplement alone

B.Repeat DEXA scan

C.Re-introduce trial of alendronate

D.Refer for consideration of denosumab

E.Refer for consideration of IV zoledronate infusion

Answer:Refer for consideration of denosumab

Explanation:

This is a tricky situation. This lady needs bone protection - her T score is well below the cut off and she has already broken her hip.

Irrespective of her problems taking alendronate, bisphosphonates are not the most appropriate choice as the BNF states them to be contraindicated if the eGFR is less than 35 mL/minute/1.73m(2). The fact she has chronic kidney disease stage IV therefore contraindicates this and so the option of re-introducing a trial of alendronate is not appropriate, and neither is an IV zoledronate infusion.

There is nothing to be added by repeating her DEXA scan this early so this is not the correct answer. Although calcium and vitamin D supplementation should be continued, she really needs additional bone protection if possible therefore the option of continuing this alone is not the best option.

This leaves denosumab as the best option. This would need to be given in secondary care and her calcium would need to be closely monitored due to her renal disease.

Question:

You are working in general practice, a 5-year-old boy is brought in by his mum due to a 3-day history of ear pain. On examination, you suspect a diagnosis of otitis media. Which of the following are a common cause of bacterial otitis media?

A.Haemophilus influenzae

B.Staphylococcus aureus

C.Mycoplasma pneumoniae

D.Pseudomonas aeruginosa

E.Klebsiella pneumoniae

Answer:Haemophilus influenzae

Explanation:

Haemophilus influenzae is a common cause of bacterial otitis media

Important for meLess important

Otitis media is a common presentation you will see in general practice. It is more common in children and often only requires analgesia. The most common bacterial causes of otitis media are Haemophilus influenzae, Streptococcus pneumoniae and Moraxella catarrhalis.

Klebsiella pneumoniae, Pseudomonas aeruginosa, Staphylococcus aureus and Mycoplasma pneumoniae are not common bacterial causes of otitis media.

Question:

A 79-year-old man presents to the emergency department with acute decompensation of his congestive heart failure. He is very breathless with an oxygen saturation of 80% and crackles at the lung bases. His pulse rate is 55bpm, and his blood pressure is 95/65mmHg. His regular medications include bisoprolol, ramipril and furosemide.

A chest x-ray reveals significant pulmonary oedema, and an ECG demonstrates a regularly irregular rhythm with the dropping of QRS complexes every second P wave.

What aspect of this patient's presentation is a contraindication for beta-blocker therapy?

A.Blood pressure

B.Heart rate

C.Pulmonary oedema

D.Second degree heart block

E.Third degree heart block

Answer:Second degree heart block

Explanation:

Beta-blockers should only be stopped in acute heart failure if the patient has heart rate < 50/min, second or third degree AV block, or shock

Important for meLess important

Second degree heart block is correct. This patient's ECG demonstrates the dropping of QRS complexes with a regularly irregular rhythm. This indicates Mobitz type 2 heart block with a 2:1 conduction pattern. NICE recommends stopping beta-blockers in patients with acute heart failure and high-degree heart block because they can cause severe bradycardia and hypotension in these patients, leading to haemodynamic instability and increasing mortality rates.

Blood pressure is incorrect. Patients with shock in acute heart failure should have their beta-blockers stopped, but this blood pressure is not low enough for cessation of beta-blocker therapy to be considered. A blood pressure of <90/60mmHg would be an indication for stopping beta-blockers.

Heart rate is incorrect. A heart rate <50bpm necessitates stopping beta-blocker treatment, but this patient's heart rate is 55bpm. Beta-blockers slow down the heart rate and if a patient's pulse is already <50bpm then continuing beta-blocker treatment can result in significantly reduced cardiac output which increases mortality rates.

Pulmonary oedema is incorrect. This is not an indication for stopping beta-blocker treatment in acute heart failure. Beta-blockers reduce heart rate and heart contractility. They also dilate blood vessels so can cause bradycardia and hypotension. They have no adverse effects on pulmonary oedema and so should be continued if there is no other indication for stopping.

Third degree heart block is incorrect. Whilst this necessitates stopping beta-blocker treatment in acute heart failure, this patient's ECG demonstrated a regularly irregular rhythm and did not show third-degree AV block, which has an irregularly irregular rhythm.

Question:

A 60-year-old man is referred to the cardiology clinic with recurrent exertional chest pain associated with dyspnoea. It improves with rest. He has a history of ischaemic heart disease and underwent PCI to the right coronary artery five years ago. A coronary angiogram six weeks ago showed widely patent stents. His current medications include aspirin, ramipril, bisoprolol, eplerenone, and atorvastatin. Recently, his GP started him on sildenafil for erectile dysfunction. On assessment, his BP is 142/88 mmHg, and his heart rate is 70 bpm.

What medication should be added to improve his symptoms?

A.Atenolol

B.Isosorbide mononitrate

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

Important for meLess important

Modified-release nifedipine is a long-acting dihydropyridine calcium channel blocker (CCB) that can be used in combination with beta-blockers for the management of angina. If symptoms persist following the addition of a CCB, then a third agent can be added. Options include isosorbide mononitrate, ivabradine, nicorandil, or ranolazine.

Verapamil is a rate-limiting calcium channel blocker that may be used as first-line monotherapy for angina when beta blockers are not tolerated or contraindicated. However, when the patient is already receiving beta blockers, the addition of verapamil is not recommended as it can cause dangerous bradyarrhythmias, including complete heart block.

Atenolol is a beta blocker that may be considered in the treatment of angina. However, bisoprolol is more cardio-selective and is currently the first choice beta blocker for the management of angina and heart failure. Moreover, adding a second beta-blocker is not recommended as it can cause severe hypotension/bradycardia.

Isosorbide mononitrate is a long-acting nitrate that relieves angina by causing coronary vasodilation. It may be considered in the management of angina pectoris after the addition of a calcium channel blocker; however, concomitant use of nitrates and PDE5 inhibitors like sildenafil is contraindicated as it can cause severe refractory hypotension.

Nicorandil is a nitrous oxide donor and potassium channel opener that causes coronary vasodilation. Hence it may be considered in the management of angina but only after the addition of a calcium channel blocker. Also, the concurrent use of nicorandil and PDE5 inhibitors is contraindicated as it can cause severe refractory hypotension.

Question:

A 23-year-old woman presents to the emergency department with heart palpitations. She is not experiencing chest pain. On examination there is no signs of shock, heart failure or syncope. A 12 lead ECG demonstrates a regular narrow complex tachycardia with a rate of 168 bpm. There are no obvious P waves visible. Vagal manoeuvres fail to terminate the arrhythmia.

What should be the next step in management?

A.Administration of bisoprolol

B.Defibrillation

C.Administration of diltiazem

D.Administration of 6mg of intravenous adenosine

E.Administration of digoxin

Answer:Administration of 6mg of 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

The regular narrow complex tachycardia with absence of P waves is suggestive of a supraventricular tachycardia. Since vagal manoeuvres have failed to terminate the rhythm it would be appropriate to administer 6mg of intravenous adenosine.

Question:

A 44-year-old woman attends the clinic for review. She was started on sertraline 12 months ago for severe depression. She informs you that the symptoms of depression have now resolved.

For how long should she continue with treatment?

A.1 month

B.12 months

C.3 months

D.6 months

E.Indefinitely

Answer:6 months

Explanation:

Antidepressants should be continued for at least 6 months after remission of symptoms to decrease risk of relapse

Important for meLess important

6 months is correct. Antidepressants should be continued for at least 6 months after remission of symptoms to decrease the risk of relapse.

Question:

A 28-year-old man who is normally fit and well presents with palpitations. He has no chest pain. Apart from tachycardia his examination is unremarkable. His blood pressure is 105/70mmHg and his heart rate is 170 beats/min and regular.

An electrocardiogram (ECG) is completed:

ECG Rate 170 beats/min, regular, QRS 140ms with uniform appearance, right bundle branch pattern.

There is no previous ECG to compare to.

Which drug, if given, is most likely to precipitate severe hypotension, ventricular fibrillation or cardiac arrest in this patient and should therefore be avoided?

A.Adenosine

B.Amiodarone

C.Lidocaine

D.Procainamide

E.Verapamil

Answer:Verapamil

Explanation:

Ventricular tachycardia - verapamil is contraindicated

Important for meLess important

The answer is verapamil.

In broad complex tachycardia with adverse features (shock with SBP <90, syncope, ischaemia/chest pain, heart failure), synchronised DC cardioversion should be performed. If there are no adverse features, pharmacological options can be considered.

Some patients (particularly younger patients with no history of heart disease) may have a broad complex tachycardia due to supraventricular tachycardia with aberrant conduction. However, clinical features alone do not rule out VT and a broad complex tachycardia should generally be assumed to be ventricular in origin.

Although not advised by Resuscitation Council guidelines, adenosine is felt to be safe to give in broad complex tachycardia and some guidelines advise it can help diagnosis if it corrects the rhythm, although this is controversial as some ventricular tachycardias will respond to adenosine. (Adenosine should however definitely be avoided in irregular broad complex tachycardia as it can precipitate ventricular fibrillation).

Amiodarone, lidocaine and procainamide are all potential therapeutic options for ventricular tachycardia in this patient without structural heart disease.

Verapamil is an option for termination of supraventricular tachycardia (SVT). However, it should be avoided here as we do not know for certain whether this is SVT or VT. If it is VT, verapamil may precipitate cardiac arrest.

Question:

You are a member of the cardiac arrest team and have been called to an arrest on the acute medical ward where a 75-year-old man has been found unresponsive and not breathing. The nursing team has started chest compressions.

His first rhythm check shows asystole and 1mg adrenaline is given. After a further 5 minutes of cardiopulmonary resuscitation, the defibrillator shows sinus rhythm. However, there is no palpable central pulse.

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

A.Adrenaline

B.Adrenaline + amiodarone

C.Amiodarone

D.Noradrenaline infusion

E.Unsynchronised DC shock

Answer:Adrenaline

Explanation:

In ALS, once adrenaline has been initially given it should be repeated every 3-5 minutes whilst ALS continues

Important for meLess important

The resuscitation guidelines have created algorithms on the management of pulseless ventricular tachycardia and ventricular fibrillation as well as asystole and pulseless electrical activity. This patient's rhythm demonstrates pulseless electrical activity where 1mg adrenaline is to be given immediately followed by a further 2 minutes of chest compressions. In the ALS algorithm, once adrenaline has been given, it should be repeated every other cycle (or every 3-5 minutes).

Adrenaline and amiodarone would be given together after the 3rd cycle if the patient was in ventricular fibrillation or pulseless ventricular tachycardia and had received 3 shocks.

Amiodarone 300mg is given after 3 shocks and, therefore, in patients with ventricular fibrillation or pulseless ventricular tachycardia. This patient's rhythm is pulseless electrical activity and has received no shocks, making amiodarone incorrect.

Noradrenaline is a vasopressor agent used as means of increasing blood pressure. It is not part of the ALS algorithm in a cardiac arrest.

Although there is electrical activity on the defibrillator, the rhythm is consistent with sinus rhythm and the absence of a pulse makes the rhythm, pulseless electrical activity (PEA). The ALS algorithm does not recommend an unsynchronised DC shock in patients with PEA.

Question:

A 65-year-old woman has recently had a dual-energy x-ray absorptiometry (DEXA) scan after sustaining a wrist fracture following a minor fall.

The results are as follows:

Site T score

Lumbar spine -2.0

Femoral neck -2.5

In terms of her femoral neck bone density, what is the meaning of this score?

A.Her bone density is 2.5 standard deviations below that of an average 65-year-old woman

B.Her bone density is 2.5 standard deviations below that of an average healthy young adult

C.Her bone density is 2.5 standard deviations below that of an average premenopausal woman

D.Her bone density is 2.5% below that of an average 65-year-old woman

E.Her trabecular bone score is 2.5 standard deviations below that of an average healthy young adult

Answer:Her bone density is 2.5 standard deviations below that of an average healthy young adult

Explanation:

DEXA scans: the T score is based on bone mass of young reference population

Important for meLess important

T scores describe one's bone density as a standard deviation (SD) score in comparison to the mean value derived from a reference population of young healthy adults - usually 30 years old (i.e. the age of peak bone mass attainment). The units are therefore expressed as SDs above or below the mean of this young reference population. This patient's femoral neck bone density is there 2.5 SDs below that of an average healthy young adult.

Bone density 2.5 SDs below that of an average 65-year-old woman is incorrect. This would refer to the Z score, which measures bone density relative to age, sex and ethnicity-matched population. The Z score is more commonly used to identify osteoporosis in children and younger adults who have yet to attain peak bone mass.

Bone density 2.5 SDs below that of an average premenopausal woman is incorrect as this does not correspond to any authorised measurement unit and would encompass too broad an age range.

Bone density 2.5% below that of an average 65-year-old woman is incorrect as T scores are measured in SDs above or below the mean of a young reference population, rather than as a percentage relative to the mean.

The trabecular bone score is incorrect as this is a completely different method used to determine bone density. It is a newer system based on assessing skeletal texture from DEXA images and may provide additional information on a patient's fracture risk.

Question:

A 29-year-old woman who is 10 weeks pregnant presents to her GP with a rash over her right thigh. Her observations are normal and she appears well in herself otherwise. It appears to be cellulitic and the GP decides to prescribe her some antibiotics to target the cellulitis. She is penicillin allergic.

Which antibiotic is appropriate to cover for this infection?

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

Erythromycin is a macrolide which studies have shown to be safe during pregnancy and is the preferred option in pregnancy for cellulitis.

Clarithromycin is not recommended and according to the BNF, manufacturers advise to avoid use in pregnancy.

Co-amoxiclav has amoxicillin in it and this patient is penicillin allergic and so is incorrect. This is the same for flucloxacillin.

Doxycycline can be used in penicillin allergies for cellulitis but not in pregnancy. Effects on skeletal development have been documented in the first trimester leading to birth defects. Administration during the second or third trimester may cause discolouration of the child’s teeth, and maternal hepatotoxicity has been reported with large parenteral doses.

Question:

A 65-year-old man with a background of hypertension is brought in by ambulance to the emergency department with sudden-onset ripping chest pain and associated diaphoresis and arm weakness. On examination he appears apprehensive and distressed with pain not managed even by IV morphine. The blood pressure in his left arm is 184/102 mmHg, whilst in his right arm it is 147/97 mmHg.

Which of the following examination findings would you possibly expect to find based on your differential diagnosis?

A.Absent femoral pulse

B.Pan-systolic murmur

C.Right ventricular heave

D.Slow-rising radial pulse

E.Splinter haemorrhages

Answer:Absent femoral 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

In aortic dissection, a pulse deficit may be seen - such as a weak/absent carotid, brachial, or femoral pulse or variation in arm BP. In addition, the patient may also have aortic regurgitation (early diastolic murmur), hypertension or hypotension with features of tamponade or neurological signs with associated pain due to spinal/carotid artery involvement.

The presence of a pan-systolic murmur is more likely mitral regurgitation.

A slow-rising pulse is associated with aortic stenosis.

Splinter haemorrhages are peripheral stigmata of infective endocarditis.

A right ventricular heave would be a sign of right ventricular hypertrophy, such as in cor pulmonale.

Question:

A 82-year-old woman presents to the general practitioner with a 2-week history of a labial lump. She denies pain but says that it is very itchy and rubs on her underwear. Her past medical history includes hypertension and type 2 diabetes mellitus for which she takes amlodipine, metformin and sitagliptin daily.

On examination, there is a 2cm x 3cm firm lump on her left labia majora. The surrounding skin appears normal with no erythema or induration. There is palpable inguinal lymphadenopathy.

What is the most likely diagnosis?

A.Bartholin's cyst

B.Labial abscess

C.Lichen sclerosus

D.Nabothian cyst

E.Vulval carcinoma

Answer:Vulval carcinoma

Explanation:

Older woman with labial lump and inguinal lymphadenopathy → ?vulval carcinoma

Important for meLess important

This patient's symptoms of a labial lump associated with pruritis and inguinal lymphadenopathy are concerning for vulval carcinoma. Whilst labial lumps are not too uncommon, a new lump in an older woman should always raise suspicion of vulval carcinoma. Vulval carcinoma presents most commonly as a labial lump associated with pruritis and bleeding secondary to ulceration. In some cases, a vulval carcinoma may be picked up incidentally during an examination or procedure. Lymphatic spread is typical to the inguinal and femoral lymph nodes.

A Bartholin's cyst occurs when there is an occlusion to the Bartholin's gland causing a unilateral labial swelling. Additional symptoms include pain whilst walking and dyspareunia, particularly for larger cysts. They are most commonly seen in women of childbearing age. This patient is post-menopausal and complains of additional symptoms include vulval itching which makes the diagnosis of a Bartholin's cyst less likely.

An infected Bartholin's cyst is capable of causing a Bartholin's or labial abscess. They present as an acutely painful labial swelling with overlying erythema and systemic symptoms including fever. Inguinal lymphadenopathy can be seen as part of the acute inflammatory process. However, the absence of fever, pain and erythema make the diagnosis of an abscess unlikely.

Lichen sclerosus is an inflammatory skin condition that usually affects the genitalia causing atrophy of the epidermis with white plaques forming. It is more common in elderly females and the predominant symptom is pruritis. Lichen sclerosus is a risk factor for vulval carcinoma. However, lichen sclerosus itself does not cause labial lumps and inguinal lymphadenopathy and is therefore the incorrect answer.

A Nabothian cyst is a mucous-filled cyst on the cervical surface. They present as a firm lump on the cervix and are often picked up incidentally as part of a pelvic examination or on imaging studies. They usually self-resolve and do not require further intervention.

Question:

A 54-year-old man of Afro-Caribbean descent presents for a general check-up. A full skin examination is performed as part of the consultation and a darkly pigmented macule is noted on the palmar side of the right index finger. It is about 3mm in size and has poorly defined irregular borders with an irregular pigment network on dermoscopy. You do not notice any other pigmented lesions on the patient. He has never noticed it before and is not sure if it is changing.

What is the most likely diagnosis in this case?

A.Acquired naevus

B.Acral lentiginous melanoma

C.Congenital naevus

D.Nodular melanoma

E.Superficial spreading melanoma

Answer:Acral lentiginous melanoma

Explanation:

Acral lentiginous melanoma can arise in areas not associated with sun exposure e.g. soles of feet and palms

Important for meLess important

This patient presents with a clinically atypical lesion which is defined by having three of the five following characteristics: size > 5mm, irregular border, poorly defined borders, irregular pigment network and background erythema. Therefore the most likely diagnosis, in this case, is melanoma and the most common subtype in this patient population is an acral lentiginous melanoma. This occurs in areas not exposed to the sun such as soles of feet and palms.

This is unlikely to be an acquired naevus and in a patient older than 50, new-onset pigmented lesions should never be assumed to be naevi. These should be further investigated with a referral to a dermatologist for assessment.

This is also unlikely to be a congenital naevus. The patient has never noticed it before and it has signs of atypia clinically as mentioned in the first paragraph. Congenital naevi are present on patients at birth and sometimes known as birthmarks. The patient will have a long history of the lesion and should be familiar with it.

Although melanoma is the likely cause of this lesion, nodular melanoma is less likely in this case. These lesions generally present as dark papules on sun-exposed areas of skin and the Caucasian population is more likely to get them.

This could indeed be a superficial spreading melanoma and the characteristics of the lesion are consistent. However, a dark-skinned patient with a lesion on the palmar hand or soles of the feet is more likely to have an acral lentiginous melanoma.

Question:

A 62-year-old patient with type 2 diabetes mellitus presents with a 'rash' on his left shin. This has grown in size over the past two days and is now a painful, hot, erythematous area on his anterior left shin spreading around to the back of the leg. He is systemically well and a decision is made to give oral treatment. He has a past history of penicillin allergy. What is the most appropriate antibiotic to give?

A.Ciprofloxacin

B.Cefaclor

C.Flucloxacillin

D.Vancomycin

E.Clarithromycin

Answer:Clarithromycin

Explanation:

Question:

A 28-year-old woman telephones the practice. She is well but has been advised by secondary care to contact her general practitioner for prophylactic antibiotics. Her brother, who she lives with, has been admitted to the hospital with a fever, headache, and confusion. Lumbar puncture confirmed meningococcal meningitis.

What antibiotic would be the single best choice in this scenario?

A.Amoxicillin

B.Benzylpenicillin

C.Cefotaxime

D.Ciprofloxacin

E.Vancomycin

Answer:Ciprofloxacin

Explanation:

Oral ciprofloxacin or rifampicin is used as prophylaxis for contacts of patients with meningococcal meningitis

Important for meLess important

Ciprofloxacin or rifampicin are used as prophylaxis for close contacts of meningococcal meningitis, in this case, the same household. Antibiotic prophylaxis should be given as soon as possible (ideally within 24 hours).

Amoxicillin is not used as a prophylactic antibiotic to close contacts. It may be used with cefotaxime or ceftriaxone to treat bacterial meningitis in hospital inpatients over 50-years.

Benzylpenicillin is not correct. Benzylpenicillin is used to treat patients with suspected meningococcal meningitis, but it is not used as a prophylactic treatment for close contracts.

Cefotaxime is not correct. Cefotaxime is used to treat patients with suspected meningococcal meningitis, but it is not used as a prophylactic treatment for close contracts.

Vancomycin may be used as an adjunct to cefotaxime or benzylpenicillin in inpatient treatment if a micro-organism is highly resistant. It is not used as a prophylactic antibiotic.

Question:

You see a 62-year-old gentleman for his annual health review. He has hypertension, a previous myocardial infarction 12 months ago and depression. He takes amlodipine, ramipril, sertraline, atorvastatin and aspirin.

He says he feels very well but his only issue is erectile dysfunction which he has had since his heart attack when he started all of his medications.

Which medication that this man is taking is most likely to be causing this symptom?

A.Amlodipine

B.Ramipril

C.Sertraline

D.Atorvastatin

E.Aspirin

Answer:Sertraline

Explanation:

SSRIs are a common drug cause of ED

Important for meLess important

Whilst amlodipine and ramipril may cause erectile dysfunction this is listed in the BNF as an 'uncommon' side-effect. Sexual dysfunction is common with SSRIs, making it the most likely culprit.

Question:

A 48-year-old female with a history of hypothyroidism presents to the emergency department with gradual onset confusion and fatigue. Her general practice records state that she has poor compliance with levothyroxine. Her heart rate is 42/min.

Thyroid function tests are as follows.

Thyroid stimulating hormone (TSH) 9.7 mU/L (0.5-5.5)

Free thyroxine (T4) 0.2 pmol/L (9.0 - 18)

She is admitted to the high dependency unit.

Which of the following features would also be expected?

A.Loss of consciousness

B.Hyperventilation

C.Hypothermia

D.Pretibial myxoedema

E.Weight loss

Answer:Hypothermia

Explanation:

Myxoedema coma typically presents with confusion and hypothermia.

Important for meLess important

Hypothermia and confusion are the most common presenting features of myxoedema crisis, also known as myxoedema coma. The name is a misnomer as it very rarely causes coma or pre-tibial myxoedema (an uncommon manifestation of Graves disease).

Other features include bradycardia, hypotension and hypoventilation.

Patients with hypothyroidism typically present with weight gain, fatigue, constipation and cold intolerance.

Question:

A 47-year-old-female presents to her normal diabetic outpatient appointment as part of her regular check up. She is a type two diabetic with a body mass index of 36kg/m². She is currently on full dose metformin monotherapy. Her HbA1c is 59mmol/mol. She reports that she is compliant with her medications. After discussion the patient feels there is not much more she can do with lifestyle modification or diet and is willing to add extra therapeutics to her management as needed. The patient reports she would be keen to avoid any medications that could cause weight gain if more medications are to be added.

With this in mind which of the following would be the most appropriate management options?

A.Add a DPP-4 inhibitor

B.Add a sulphonylurea

C.Add pioglitazone (a thiazolidinedione)

D.Continue with metformin monotherapy

E.Start insulin therapy

Answer:Add a DPP-4 inhibitor

Explanation:

DPP-4 inhibitors are useful in T2DM patients who are obese

Important for meLess important

A DPP-4 inhibitor could be added at this stage as they are weight neutral. The other medical options suggested would cause weight gain.

While a sulphonylurea would reasonable if it was just an elevated HbA1c, with her BMI there are better therapeutic options available. Sulphonylureas may also cause weight gain.

Pioglitazone causes weight gain.

With her HbA1c of 58mmol/mol and the patient reporting they feel they cannot modify their lifestyle more, continuing monotherapy is not advisable.

Insulin therapy is not appropriate at this stage as there are more medical options available. Insulin also has a side effect of weight gain.

Question:

A 48-year-old man presents to his GP with a 3-year history of hypertension that has been difficult to bring under control. No medication has been successful in reducing his blood pressure significantly. Accompanying the high blood pressure are muscle weakness and nocturia.

On examination, his blood pressure is 164/82 mmHg. Blood tests demonstrate low potassium and high aldosterone-to-renin ratio.

Given the likely diagnosis, which of the following is the most likely cause of this patient's presentation?

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 examination findings indicate primary hyperaldosteronism, which is the most common cause of primary hypertension. The most common cause of primary hyperaldosteronism is bilateral idiopathic adrenal hyperplasia - approximately two-thirds of cases. Classically, the presentation includes hypokalaemia, but in reality, most patients have normal potassium levels.

An adrenal adenoma is incorrect - this was previously thought to be the most common cause. However, bilateral idiopathic adrenal hyperplasia is actually far more common, with adrenal adenomas counting towards just 33% of cases.

Adrenocortical carcinoma is a rare cause of primary hyperaldosteronism - <1% of all cases.

Ectopic aldosterone-producing adenomas are another rare cause - <0.1% of all cases.

Unilateral adrenal hyperplasia is also less common than bilateral idiopathic adrenal hyperplasia - only accounting for approximately 2% of all cases.

Question:

A 62-year-old man is a hospital inpatient undergoing treatment for pneumonia.

He has just completed a course of co-amoxiclav and is recovering well. However, the ward doctor notices that he has developed scleral icterus and assesses his liver function:

Bilirubin 64 µmol/L (3 - 17)

ALP 346 umol/L (30 - 100)

ALT 48 iu/L (3 - 40)

AST 43 iu/L (3-30)

γGT 84 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

Liver function on admission was normal. He has a past medical history of osteoarthritis for which he takes regular ibuprofen, and hypertension treated with ramipril. He denies alcohol misuse.

What is the most likely underlying cause of his presentation?

A.Alcohol misuse

B.Cholestasis

C.Gilbert’s syndrome

D.Liver cirrhosis

E.Liver ischaemia

Answer:Cholestasis

Explanation:

Co-amoxiclav is a well recognised cause of cholestasis

Important for meLess important

Cholestasis is correct. This patient's liver function tests (LFTs) point towards a cholestatic picture - he has a less than 10-fold increase in ALT and a more than 3-fold increase in ALP, with a raised bilirubin and γGT. This is typical of cholestasis. Further, he has received co-amoxiclav for his pneumonia while in hospital, which is a well-recognised cause of cholestasis.

Alcohol misuse is incorrect. This patient's LFTs are more in keeping with a cholestatic picture, with a markedly raised ALT and ALP, and a raised bilirubin and γGT. Further, acute alcoholic liver would likely show AST>ALT. Finally, this patient denies alcohol misuse which makes this diagnosis less likely.

Gilbert’s syndrome is incorrect. Gilbert's syndrome is a hereditary condition in which patients will experience transient rises in bilirubin levels. This is often secondary to physical stress such as illness. However, you would not expect to see deranged LFTs outside of isolated increases in bilirubin levels.

Liver cirrhosis is incorrect. Cirrhosis results from chronic liver disease, in which you would expect reduced albumin and a history of liver disease or symptoms. This patient does not report any history of liver disease making this diagnosis less likely. Further, one would expect to see AST>ALT in cirrhotic patients.

Liver ischaemia is incorrect. In acute liver injuries such as those that result from ischaemia, one would expect to see a markedly increased ALT with normal or mildly raised AST and γGT. Further, normal albumin levels go against a diagnosis of acute liver injury.

Question:

A 16-year-old girl presents to her GP with low mood. She has been feeling low for 6 weeks now and this is accompanied by fatigue, anhedonia, and excessive sleeping. Her GP organises a series of blood tests. Her PHQ-9 scores moderate depression. All other investigations are normal and she has no past medical history. She is not keen on cognitive behavioural therapy and would like to start some medication.

What is the most appropriate medication for her to be started on?

A.Amitriptyline

B.Citalopram

C.Clozapine

D.Fluoxetine

E.Sertraline

Answer:Fluoxetine

Explanation:

Fluoxetine is the SSRI of choice in children and adolescents

Important for meLess important

Fluoxetine - this is the correct answer. In children and adolescents, fluoxetine is the selective serotonin reuptake inhibitor (SSRI) of choice.

Amitriptyline - this is incorrect. Tricyclic antidepressants are not the first-line treatment for depression. These may only be recommended once 2 different SSRIs have been tried with no improvement in symptoms. There is nothing in the history to indicate the patient has previously tried any other antidepressant medication, making amitriptyline the incorrect answer.

Citalopram - this is incorrect. Although it is an SSRI it is not the first-line treatment option in the class. Citalopram may also widen the QT interval in patients which is a further reason for citalopram not being first-line.

Clozapine - this is incorrect. Clozapine is used in treatment-resistant schizophrenia and is not recommended routinely for depression.

Sertraline - this is incorrect. Although sertraline is a first-line SSRI for depression, it is usually first-line in adults. Fluoxetine is the SSRI of choice in children and adolescents. Since this patient is only 16, fluoxetine is the better choice of drug.

Question:

A 35-year-old woman reports heavy periods.

She has always had this problem, since menarche aged 12. Although she has never spoken to a doctor about this, she finally feels 'enough is enough' and wants to address it.

She has regular periods with a 28-day cycle. She typically bleeds for 7 days, and for 4 of those she experiences blood clots and 'flooding'.

The patient is nulliparous, and does not want children. Currently, she is in a sexual relationship, reliant on condoms.

Her past medical history and family history are unremarkable.

You arrange blood tests and a pelvic ultrasound scan which are unremarkable.

What is the most appropriate management option?

A.Combined oral contraceptive pill

B.Insertion of copper coil

C.Insertion of intra-uterine system (IUS)

D.Progesterone-only pill

E.Referral to gynaecology for hysterectomy

Answer:Insertion of intra-uterine system (IUS)

Explanation:

Menorrhagia - intrauterine system (Mirena) is first-line

Important for meLess important

The intra-uterine system (IUS) should be offered as the first-line treatment for menorrhagia. It is highly-effective at stopping bleeding altogether, requires once-only intervention to establish (i.e. insertion) and offers a very reliable form of contraception.

On the other hand, the copper coil would most probably make her menorrhagia even worse.

Tablet medications, such as the progesterone-only pill or combined oral contraceptive pill can be used to treat menorrhagia, but they are not first-line.

Although this woman says she does not want children, referral for hysterectomy in a woman of child-bearing age would still be an extremely drastic step to take, especially when there are much less invasive, effective and reversible options available to treat her menorrhagia.

Question:

A 35-year-old woman is due to be discharged from the postnatal ward 12 hours after delivering her son via normal vaginal delivery. She enquires about contraceptive options as she feels her family is now complete.

She has no past medical history and there were no complications during her pregnancy or labour. In the past, she has used the intrauterine system (IUS) and would ideally like to go back to this.

What advice should she be given?

A.She may have the IUS inserted anytime after birth depending on her level of comfort

B.She may have the IUS inserted up to 48 hours after delivery if she wishes

C.She should wait a minimum of 6 weeks after delivery to have the IUS inserted. In the meantime she may use progesterone only oral contraception

D.She should wait until at least 48 hours after delivery for the IUS to be inserted

E.The IUS cannot be inserted until at least 2 months after delivery. In the meantime she may use progesterone only oral contraception

Answer:She may have the IUS inserted up to 48 hours after delivery if she wishes

Explanation:

The intrauterine device or intrauterine system can be inserted within 48 hours of childbirth or after 4 weeks

Important for meLess important

It is correct that she may have the intrauterine system (IUS) inserted up to 48 hours after delivery if she wishes. The IUS may be inserted up to 48 hours after delivery otherwise insertion should be delayed for 4 weeks. This is due both to the significantly increased risk of expulsion between these times and also the lack of data surrounding uterine perforation with newer models (there was an increased risk of uterine perforation in the 4 weeks following delivery in older models).

As well as the general contraindications to IUS insertions (e.g. gynaecological cancers, active pelvic infections, large distorting fibroids, etc.), contraindications to postpartum insertion within 48 hours include peripartum chorioamnionitis, endometritis, puerperal sepsis, or post-partum haemorrhage.

She may not have the IUS inserted anytime after birth depending on her level of comfort as it should not be inserted in the period between 48 hours and 4 weeks post-delivery due to the factors stated above.

The option that she should wait until at least 48 hours after delivery for the IUS to be inserted is incorrect due to the increased risk of expulsion and lacking data surrounding uterine perforation if it is inserted in the period between 48 hours and 4 weeks after delivery (as detailed above).

She does not need to wait a minimum of 6 weeks after delivery to have the IUS inserted. 4 weeks would be the correct minimum time (if not inserted within the first 48 hours after delivery).

She does not need to wait 2 months after delivery to have the IUS inserted. As before, 4 weeks would be the correct minimum time (if not inserted within the first 48 hours after delivery).

To note, if waiting the advised minimum of 4 weeks, the progesterone-only pill may be a suitable interim measure to reduce the risk of pregnancy.

Question:

You are asked to attend an elective Caesarean section for macrosomia and maternal diabetes. At what times should you assess the APGAR scores?

A.1, 2 minutes

B.2, 5 minutes

C.0, 5 minutes

D.1, 5 minutes

E.2, 4 minutes

Answer:1, 5 minutes

Explanation:

NICE recommend that APGAR scores are routinely assessed at 1 and 5 minutes of age

Important for meLess important

APGAR scores should improve as they are measured at 1 and 5 minutes.

If the score remains low, it should be remeasured.

APGAR is an mnemonic for the assessment of:

Appearance (colour)

Pulse (heart rate)

Grimace (reflex irritability)

Activity (muscle tone)

Respiratory effort

Question:

A 54-year-old woman presents to the emergency department with a mixed drug overdose. She reports taking all of her medications at once following a family bereavement. During her admission, she complains of palpitations and shortness of breath before losing consciousness.

ECG: Polymorphic ventricular tachycardia, QTc > 550ms.

What prescribed medication is most likely responsible for the above presentation?

A.Azithromycin

B.Clonazepam

C.Montelukast

D.Sodium valproate

E.Tramadol

Answer:Azithromycin

Explanation:

Macrolides can cause torsades de pointes

Important for meLess important

This patient's ECG demonstrates torsades de pointes which is characteristically described as a broad complex, polymorphic ventricular tachycardia, associated with a markedly prolonged QTc interval (>500ms). Of the medications listed, macrolide antibiotics such as azithromycin are capable of prolonging the QTc interval and, therefore, predisposing this patient to torsades de pointes.

Clonazepam is a benzodiazepine used in the treatment of anxiety, myoclonus and epilepsy. In overdose, it causes respiratory and central nervous system depression. It does not cause QTc interval prolongation.

Montelukast is a leukotriene receptor antagonist used in the treatment of asthma. Common side effects include gastrointestinal symptoms such as diarrhoea and abdominal discomfort. It does not prolong the QTc interval.

Sodium valproate is an anti-epileptic drug with a large number of side effects including alopecia, pancreatitis, anaemia, thrombocytopenia and tremor. However, it would not be responsible for the cardiac arrhythmia seen in this patient.

Tramadol is a worrying drug to take in an overdose as it causes respiratory and central nervous system depression. However, it does not predispose patients to a prolonged QTc interval and ventricular arrhythmias such as torsades de pointes.

Question:

An 82-year-old female with a background of COPD presents to the emergency department with increasing shortness of breath, productive cough and wheeze. The symptoms began to develop 3 days ago and have markedly worsened over the last several hours.

She is short of breath at rest and looks in distress. She is promptly started on 4L O2 via venturi mask, and given nebulised salbutamol and ipratropium bromide. IV hydrocortisone and broad-spectrum antibiotics are also commenced.

In spite of this, there is minimal improvement in her clinical status and arterial blood gas is performed which shows:

pH 7.31 (7.35-7.45)

PaO2 8.1 kPa (>10.6)

PaCO2 6.7 kPa (4.6-6.0)

HCO3 31 mmol/L (22-28)

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

A.IV aminophylline

B.IV magnesium sulphate

C.IV salbutamol

D.Non-invasive ventilation (NIV)

E.Increase supplementary oxygen to 15 litres via a non-rebreather mask

Answer:Non-invasive ventilation (NIV)

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's arterial blood gas shows a type II respiratory failure pattern and respiratory acidosis with incomplete/partial metabolic compensation. She requires urgent non-invasive ventilation.

IV aminophylline - incorrect. Trials evaluating the effect of IV aminophylline in exacerbations of COPD have failed to show benefits beyond those induced by inhaled bronchodilator and glucocorticoid therapy.

IV magnesium sulphate - incorrect. While IV magnesium sulphate has a bronchodilator effect in severe asthma exacerbations, its effect in COPD is less evident.

IV salbutamol - incorrect. IV salbutamol is not recommended in the treatment of acute exacerbations of COPD. Common side effects include; tachycardia, palpitations and hypokalemia.

Non-invasive ventilation (NIV) - correct. NIV is required in COPD patients who develop acute respiratory acidosis despite maximum standard medical treatment. NIV increases tidal volume, decreases the respiratory rate and reduces work of breathing. This results in improved oxygenation and decreased hypercapnia.

Increase supplementary oxygen - incorrect. While this patient may well require increased FiO2, simply giving oxygen via a non-rebreather mask will not help manage her carbon dioxide retention or resultant respiratory acidosis. This patient requires NIV.

Question:

A 17-year-old female presents to the emergency department feeling generally unwell. The team decides to perform an arterial blood gas (ABG) that shows the following results:

pH 7.31 7.35-7.45

pCO2 4.0 kPa 4.5 - 6.0 kPa

pO2 12.1 kPa 10 - 14 kPa

Bicarbonate 16 mmol/L 22-28 mmol/L

Sodium 133 mmol/L 135-145 mmol/L

Potassium 3.2 mmol/L 3.5 - 5.0 mmol/L

Chloride 107 mmol/L 95-105 mmol/L

Which of the following could be a cause of the patient's arterial blood gas results?

A.Diabetic ketoacidosis

B.Diarrhoea

C.Primary hyperaldosteronism

D.Salicylates poisoning

E.Vomiting

Answer:Diarrhoea

Explanation:

Diarrhoea can cause a normal anion gap acidosis whereas vomiting causes alkalosis

Important for meLess important

The correct answer is diarrhoea. This patient is presenting with a normal anion gap acidosis and the only causes of it from the options is diarrhoea.

The anion gap is calculated by: (sodium + potassium) - (bicarbonate + chloride). A normal anion gap is 10-18 mmol/L. In this case, the anion gap is 13 mmol/L.

Diabetic ketoacidosis and salicylates poisoning cause raised anion gap metabolic acidosis. This happens because there is gaining of strong acid.

Primary hyperaldosteronism causes metabolic alkalosis, by retaining more sodium and excreting more potassium. As a consequence, more hydrogen ions will be expelled, causing alkalosis.

Vomiting causes metabolic alkalosis via the loss of hydrogen ions from the stomach contents.

Question:

A 28-year-old gravida 1 para 0 lady has been in labour for eleven hours; she progressed through the first stage without any issues. However, the midwife has noted CTG abnormalities, and was able to palpate the umbilical cord. She immediately calls the obstetric registrar who checks the cardiotocograph (CTG), which shows variable decelerations. What is the initial definitive management for the cause of these decelerations?

A.IV oxytocin

B.O'Sullivan's manoeuvre

C.SC terbutaline

D.Woods' screw manoeuvre

E.Place hand into vagina to elevate presenting part

Answer:Place hand into vagina to elevate presenting part

Explanation:

This scenario describes cord prolapse, which is causing cord compression and hence showing variable decelerations on the CTG.

The RCOG has provided guidance for management of cord prolapse (Green-top Guidelines No.50). It states that: 'To prevent cord compression, it is recommended that the presenting part be elevated either manually or by filling the urinary bladder.'

According to the guidelines, tocolysis (i.e. terbutaline) can be considered while preparing for caesarean section if persistent fetal heart rate anomalies are detected after using mechanical methods of preventing compression.

Question:

A 64-year-old man presents with a headache. He describes the headache as a constant throbbing pain that is worse in the mornings and improves on standing. It is associated with occasional visual loss lasting for a few seconds at a time.

He has a history of metastatic melanoma but has been managing well since starting on Pembrolizumab.

On examination, there is no focal neurology. Fundoscopy shows obscuration of the optic disc and peri-papillary halo.

What would you recommend to treat his headache?

A.Acetazolamide

B.Dexamethasone

C.Oxycodone

D.Prednisolone

E.Sumatriptan

Answer:Dexamethasone

Explanation:

Headache caused by raised intracranial pressure due to brain cancer (or metastases) can be palliated with dexamethasone

Important for meLess important

This patient describes a headache secondary to raised intracranial pressure - worse in the mornings, improves on standing, occasional visual changes. The fundoscopy findings describe papilloedema and further cement the diagnosis.

In this case, the raised intracranial pressure is likely due to metastatic deposits in his brain, melanoma commonly metastasizes to this area.

Dexamethasone is the treatment of choice for headaches caused by metastatic disease. It works by reducing surrounding oedema and thus reducing the pressure burden.

Acetazolamide is usually used for the treatment of glaucoma and idiopathic intracranial hypertension. These are not the most likely diagnoses here.

Prednisolone is incorrect. It is less efficacious at reducing cerebral oedema as compared to dexamethasone and so in this circumstance dexamethasone would be the preferred option.

Oxycodone is a good analgesic, but opiate analgesia is associated with medication overuse headache. There is also better evidence for dexamethasone use in high-pressure headaches secondary to metastatic disease in the brain. Oxycodone is therefore not the correct answer.

Sumatriptan is a good medication for migraine but would not be appropriate here. The history is not typical of migraine and given the fundoscopy findings, we know there is an element of raised intracranial pressure.

Question:

A 2-year-old boy is taken to his GP with a 1 day history of right-sided limp. His parents report him being otherwise fit and well apart from a recent cold and his nursery deny observing any physical trauma. On examination, he is afebrile and evidently in pain however has a normal range of movement in the right hip. What would be the most appropriate management at this stage?

A.Watch and wait with strict safety-netting

B.Urgent hospital assessment

C.Routine hospital referral

D.Advise that this is a self-limiting condition and provide simple analgesia

E.Provide simple analgesia and request bloods and a hip X-ray

Answer:Urgent hospital assessment

Explanation:

Urgent assessment should be arranged for a child < 3 years presenting with an acute limp

Important for meLess important

Nice Clinical Knowledge Summaries advise that all children with an acute limp < 3 years of age should be urgently assessed in secondary care because they are at higher risk of septic arthritis and child maltreatment. They also add that: 'transient synovitis is rare in this age-group and the diagnosis should be made with extreme caution after excluding serious causes of limp. Urgent referral for assessment is advised because examination may be difficult and clinical signs subtle.'

Question:

A 30-year-old woman presents to the emergency department with a 2-month history of diplopia. She has been experiencing increasing fatigue and weakness, especially at the end of the day. She is found to have anti-acetylcholine receptor antibodies in her blood.

As part of her workup, a CT chest is performed which reveals an anterior mediastinal mass.

What is this anterior mediastinal mass most likely to be?

A.Benign lung nodule

B.Lung tumour

C.Sarcoidosis

D.Thymoma

E.Tuberculosis

Answer:Thymoma

Explanation:

The commonest causes of an anterior mediastinum mass can be remembered by the 4 T's: teratoma, terrible lymphadenopathy, thymic mass and thyroid mass

Important for meLess important

The woman's most likely diagnosis is myasthenia gravis, given her symptoms and positive anti-AChR.

In cases of myasthenia gravis, it is important to perform a CT chest in order to look for a thymoma. Removal of a thymoma may improve the condition in certain patients and prevents malignant transformation.

Benign lung nodules, lung tumours, sarcoidosis and tuberculosis are all conditions that will show up on a CT chest, however given this woman's presentation of myasthenia gravis, it is unlikely that she has these concomitant conditions in light of thymoma being an answer option.

Note that the mediastinum is the region between the pulmonary cavities and does not contain the lungs (see notes below). This is a common misconception. As such, all other answer options cannot be correct as the question asks for an anterior mediastinal mass.

Question:

Which anaesthetic agent has inherent anti-emetic properties?

A.Ketamine

B.Propofol

C.Atracurium

D.Sevoflurane

E.Suxamethonium

Answer:Propofol

Explanation:

The precise mechanism behind the anti-emetic effects of propofol is unclear, but may involve direct suppression of the chemoreceptor trigger zone (CTZ), which is involved in initiating vomiting.

Question:

A 68-year-old man is brought into the emergency department reporting abdominal pain after having vomited repeatedly. Some streaks of blood were visible in the vomit bowl after the last episode. He admits to having vomited multiple times before the episode of haematemesis. The pain is located in the epigastrium and not alleviated with any movement.

His heart rate is 88/min, respiratory rate 17/min, blood pressure 112/68 mmHg, and temperature 36.3 ºC. On examination, he looks alert but in pain. He has a longstanding history of alcoholism and he is drinking forty units per week.

Given the most likely diagnosis, what investigation should be performed to confirm it?

A.Abdominal x-ray

B.CT contrast swallow

C.Endoscopy

D.Erect chest x-ray

E.Magnetic resonance cholangiopancreatography

Answer:Endoscopy

Explanation:

Severe vomiting → haematemesis - Mallory-Weiss syndrome

Important for meLess important

The correct answer is endoscopy. This patient is presenting with the classical features of Mallory-Weiss syndrome, an acute upper gastrointestinal bleeding caused by mucous membrane lacerations at the gastroesophageal junction. It usually occurs after repeated vomiting and presents with haematemesis and epigastric pain. It rarely causes systemic upset, in fact, the vital signs of this patient are in a normal range considering his pain. It is diagnosed with endoscopy and usually treated with ablation.

Abdominal x-ray can be used as first-line investigations to visualise large bowel obstructions and generally speaking, dilation of the bowel loops. In this case, the symptoms of the patient point towards an oesophageal pathology, making an abdominal x-ray inappropriate.

A CT contrast swallow can be used to diagnose Boerhaave syndrome, a good differential in this case. This syndrome is defined as a transmural rupture of the oesophagus, causing severe chest pain, haematemesis and shock. But in this case, the patient's vital signs are normal, making the diagnosis unlikely.

An erect chest x-ray can be used to diagnose viscus perforation, including a perforating peptic ulcer. A perforated peptic ulcer can cause haematemesis, but in this case, the episode is described as following repeated vomiting, making a diagnosis of Mallory-Weiss syndrome more likely.

Magnetic resonance cholangiopancreatography is used to diagnose primary sclerosing cholangitis and primary biliary cholangitis and to prepare biliary surgery. Classically, biliary pathologies would present with upper quadrant pain, jaundice, and raised ALP on blood tests. The patient does have any of these features.

Question:

A 67-year-old man with chronic obstructive pulmonary disease (COPD) attends his GP. Despite being started on a salbutamol inhaler, he still complains of breathlessness. The patient is having to use his inhaler daily and is struggling with certain activities, such as walking up the stairs. He has no other past medical history. His FEV1 (forced expiratory volume in 1 second) is 55% and his blood eosinophil count is within the normal range. He stopped smoking 6 months ago and wonders whether you can give him another medication to help manage his symptoms.

What is the next most appropriate step in management?

A.Leukotriene receptor antagonist (LTRA)

B.Theophylline

C.Long-acting beta-2 agonist (LABA) + inhaled corticosteroid (ICS)

D.Long-acting beta-2 agonist (LABA) + long-acting muscarinic antagonist (LAMA)

E.Long-acting beta-2 agonist (LABA) + long-acting muscarinic antagonist (LAMA) + inhaled corticosteroid (ICS)

Answer:Long-acting beta-2 agonist (LABA) + long-acting muscarinic antagonist (LAMA)

Explanation:

COPD - still breathless despite using SABA/SAMA and no asthma/steroid responsive features → add a LABA + LAMA

Important for meLess important

A long-acting beta-2 agonist (LABA) + long-acting muscarinic antagonist (LAMA) is the correct answer. This patient has no history of asthma or atopy and his blood eosinophil count is normal. He has no features suggesting steroid responsiveness. Therefore, the next step in management is to start him on a LABA + LAMA combination.

Leukotriene receptor antagonist (LTRA) is incorrect. This is used for the management of asthma, not COPD.

Theophylline is incorrect. It is too early to start this. Theophylline should only be started after trials of short- and long-acting bronchodilators, or to those who cannot tolerate inhaled therapy.

Long-acting beta-2 agonist (LABA) + inhaled corticosteroid (ICS) is incorrect. LABA + ICS would be the right answer if the patient had features of asthma/steroid responsiveness.

Long-acting beta-2 agonist (LABA) + long-acting muscarinic antagonist (LAMA) + inhaled corticosteroid (ICS) is incorrect. This would be the next step in management after a LABA + LAMA combination if the patient remained breathless.

Question:

A 58 year old gentleman presents with left sided paraesthesias affecting his thumb and first finger. He complains of grip weakness and dropping objects unintentionally. On examination, there is wasting over the thenar eminence. Which of the following signs would suggest a diagnosis other than carpal tunnel syndrome?

A.Positive Hoffmans sign

B.Thenar muscle wasting

C.Unilateral weakness of pincer grip

D.Positive Phalens test

E.Positive Tinnels test

Answer:Positive Hoffmans sign

Explanation:

A positive Hoffmans sign is a sign of upper motor neuron dysfunction and points to a disease of the central nervous system - in this case from the history degenerative cervical myelopathy [DCM] affecting the cervical spinal cord is most likely. To elicit it, the examiner should flick the patients distal phalanx (usually of the middle finger) to cause momentary flexion. A positive sign is exaggerated flexion of the thumb.

DCM is often missed initially and there is a delay in the diagnosis of this condition by >2 years in some studies [1]. This is a problem as delayed treatment limits recovery. It is most commonly misdiagnosed as carpal tunnel syndrome and in one study, 43% of patients who underwent surgery for degenerative cervical myelopathy, had been initially diagnosed with carpal tunnel syndrome [1]. DCM is therefore an important differential in patients suspected to have Carpal Tunnel Syndrome [CTS].

CTS is a disease of the peripheral nervous system, resulting from median nerve compression at the wrist inside the carpal tunnel. It therefore affects only the aspects of the hand innervated by the median nerve:

Sensation; Thumb / Index / Middle Finger. This typically manifests as intermittent pain or parasthesiae.

Motor; LOAF Muscles(lateral lumbricals, opponens pollicis, abductor pollicis brevis and flexor policis brevis). Motor signs are less commonly seen with presentations of CTS, but wasting of the thenar eminence may be present.

Tinels test and Phalens test can be positive, but not always. Both tests aim to increase the pressure within the carpal tunnel, to try to exacerbate symptoms; Tinels test via tapping on it and Phalens test by sustained full flexion of the wrist.

In focal central nervous system disorders, like DCM, examination features are known to have low sensitivity but high specificity [2]. As a disease of the cervical spinal cord, DCM can affect the sensory, motor and autonomic nervous systems from the neck downwards. Motor signs will be upper motor neuron signs such as increased toned, hyper-reflexia and pyramidal weakness. Note that the neurological signs of DCM are often subtle initially and easily missed, but as a progressive condition they are likely to get worse [3]. Therefore detecting early DCM can be challenging. A high index of suspicion, alongside a comprehensive neurological examination and monitoring for progression is required.

References:

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2. Nicholl DJ, Appleton JP. Clinical neurology: why this still matters in the 21st century. Journal of Neurology, Neurosurgery & Psychiatry 2015;86:229-33.

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Question:

A 50-year-old woman presents to her GP with a vulval itch. On reviewing the notes you see this has been present for several months. On examination, you notice a raised skin lesion. This has not grown for several months and is not painful or bleeding.

What is the management plan?

A.2-week wait referral

B.Emollients

C.Routine dermatology referral

D.Swabs

E.Topical corticosteroids

Answer:2-week wait referral

Explanation:

Persistent unexplained vulval skin lesion should prompt a 2ww referral

Important for meLess important

2-week wait referral is the correct answer. A persistent unexplained vulval skin lesion should prompt this. An unexplained vaginal lump, ulceration, or bleeding should prompt a 2-week wait referral to investigate possible cancer.

Emollients may be appropriate once a sinister cause is excluded, but a 2-week wait referral is needed first to exclude a malignant cause. It may be appropriate for a trial of emollient at the same time, but a 2-week wait referral should be made immediately.

Routine dermatology referral is not indicated as this would take too long. This woman needs investigating on the 2-week wait pathway for her vulval lesion. If there was a generalised vulval rash rather than a lump, ulceration, or bleeding it may be appropriate to refer routinely if first-line treatments had not been effective.

Swabs are not indicated. These may be appropriate if the patient was complaining of unusual vaginal discharge or pain.

Topical corticosteroids would be indicated in lichen sclerosus. This causes itching and irritation. Initially, lichen sclerosus may look like small pink or white bumps but over time these evolve into white, wrinkly patches.

Question:

A 70-year-old man with an existing diagnosis of 5.0 cm abdominal aortic aneurysm and atrial fibrillation presents with acute onset abdominal pain radiating to his back. His medications include warfarin and bisoprolol. The last INR was taken 2 weeks ago and was 2.5.

His observations show the following:

Blood pressure 90/40 mmHg

Heart rate 140 beats per minute

The decision is made to proceed with emergency surgery within the next thirty minutes

Which of the following is the most appropriate management of warfarin therapy?

A.Give 5 mg vitamin K intravenously

B.Stop warfarin and commence treatment dose enoxaparin only

C.Continue warfarin but bridge with enoxaparin immediately after surgery

D.Give four-factor prothrombin complex concentrate 25-50 units/kg

E.Begin dual therapy with warfarin and enoxaparin until INR is in range

Answer:Give four-factor prothrombin complex concentrate 25-50 units/kg

Explanation:

Patients on warfarin undergoing emergency surgery - give four-factor prothrombin complex concentrate

Important for meLess important

British Journal of Haematology Guidelines in patients on warfarin having emergency surgery:

If surgery can wait for 6-8 hours - give 5 mg vitamin K IV

If surgery can't wait - 25-50 units/kg four-factor prothrombin complex

The guidance is to stop warfarin before elective or emergency surgery, so options 3 and 5 are incorrect

Because this is emergency surgery, reversal of anticoagulation is necessary so option 2 is incorrect

Question:

A 58-year-old gentleman presents to the emergency department with abrasions to his face and both hands following a fall. He is slurring his words and smells strongly of alcohol. On questioning he admits to drinking 1 litre of vodka a day for the past seven years.

Which of the following electrolyte abnormalities is most likely to be found in this patient?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypomagnesaemia

D.Hypernatraemia

E.Hypermagnesaemia

Answer:Hypomagnesaemia

Explanation:

Chronic alcoholism is a cause of hypomagnesaemia

Important for meLess important

Hypomagnesaemia is associated with hypokalaemia, hypocalcaemia, hypophosphataemia and a metabolic acidosis.

The most common causes of low serum magnesium are excessive losses from diarrhoea, stomas or fistulas as magnesium is secreted in large amounts in the gastro-intestinal fluids. However, it is also seen in chronic alcoholism due to a number of pathophysiologic mechanisms.

Only a small amount of the total magnesium in the body is extracellular, so magnesium levels can be normal in an early mild deficiency.

Question:

A baby boy is delivered by emergency caesarean section at 42 weeks and 6 days because of fetal tachycardia and thick meconium-stained amniotic fluid. Intrapartum antibiotics were given as the mother was known to be colonised with group B streptococcus. The baby is cyanosed and tachypnoeic with chest wall retraction. Chest X-ray shows patchy infiltrations and atelectasis. What is the likely diagnosis?

A.Meconium aspiration syndrome

B.Transient tachypnoea of the newborn

C.Surfactant deficiency

D.Cyanotic congenital heart disease

E.Sepsis

Answer:Meconium aspiration syndrome

Explanation:

Cyanosis and chest X-ray changes would not be seen in transient tachypnoea of the newborn. Surfactant deficiency is typically a feature of preterm deliveries. Sepsis and cyanotic congenital heart disease may form part of the differential diagnosis but the X-ray findings and clinical presentation are most consistent with meconium aspiration syndrome.

Question:

A 35-year-old male presents his general practice with pain in his foot and lower limb which is worse at night. He describes that the pain improves when he hangs his leg over the edge of the bed. On further questioning, he also notes that he has been getting 'pins and needles' in his fingers and they feel very cold. He has no past medical history but smokes 25 cigarettes per day.

Based on the history, what is the most likely underlying diagnosis?

A.Buerger's disease

B.Granulomatosis with polyangiitis

C.Peripheral vascular disease

D.Sickle cell anaemia

E.Vitamin B12 deficiency

Answer:Buerger's disease

Explanation:

Young male smoker with symptoms similar to limb ischaemia - think Buerger's disease

Important for meLess important

The likely diagnosis in this case is Buerger's disease (thromboangiitis obliterans). Buerger's disease is a non-atherosclerotic vasculitis affecting predominantly medium-sized arteries. It most commonly affects young males who smoke. Common symptoms include paraesthesia/cold sensation in the fingers or limbs, rest pain and ulceration/gangrene may occur.

Granulomatosis with polyangiitis (previously known as Wegener's granulomatosis) is another type of vasculitis which typically presents with upper and lower respiratory tract symptoms and glomerulonephritis.

Peripheral vascular disease is an important differential to consider, as it can cause claudication symptoms as described in this case. However, this patient is young and therefore it is very unlikely that peripheral vascular disease is the cause of his symptoms.

Sickle cell anaemia does not present in this way. Typically, sickle cell anaemia presents with skeletal, chest or abdominal pain, usually in childhood.

Vitamin B12 is an important differential to consider in a patient presenting with finger paraesthesia, however, it would not explain the lower limb pain therefore this diagnosis is less likely.

Question:

A 47-year-old man attends the emergency department with severe lower back pain which has been progressively worsening over the last 6 days. On examination, the patient is exquisitely tender over the lumbar region of the back, and observation charts show persistent pyrexia.

An MRI of the lumbar region is performed, showing evidence of discitis between in the region of L4.

Past medical history includes beta-thalassaemia trait and type 2 diabetes mellitus.

What is the most likely causative organism?

A.Haemophilus influenzae

B.Mycobacterium tuberculosis

C.Salmonella typhi

D.Staphylococcus aureus

E.Staphylococcus epidermidis

Answer:Staphylococcus aureus

Explanation:

Staphylococcus aureus is the most common cause of discitis

Important for meLess important

This scenario describes a 47-year-old man presenting pyrexia and worsening back pain, confirmed to be discitis using MRI. The most common causative organism for discitis is Staphylococcus aureus and therefore it should be considered when a diagnosis of discitis is made.

Haemophilus influenzae is not correct. Haemophilus influenzae is not typically associated with discitis but should be considered for other clinical conditions, including upper respiratory tract infections, epiglottitis, and meningitis.

Mycobacterium tuberculosis is not the single best answer. Whilst Mycobacterium tuberculosis can be a potential cause of discitis, it is not as commonly reported as Staphylococcus aureus.

Salmonella typhi is incorrect. Salmonella typhi as the causative organism for discitis is not typically seen. It is the causative organism of typhoid fever, and Salmonella species can be associated with osteomyelitis (note that some sources suggest this as the most common causative organism of osteomyelitis in patients with sickle cell disease).

Staphylococcus epidermidis is not the single best answer. Staphylococcus epidermidis can be a causative organism of discitis, however, the most commonly reported organism is Staphylococcus aureus.

Question:

A 29-year-old woman is admitted with to the Emergency Department. She has a one week history of cough and has become increasingly short of breath over the past two days. This has been accompanied by fever, headache, anorexia and 'cold chills'. On examination she is slightly pale and slightly confused. Her pulse is 134/min, blood pressure 94/62 mmHg, respiratory rate 30/min and oxygen saturations are 90% on room air. There are reduced breath sounds in the right lower lung was some coarse crackles. You cannulate her and take blood cultures. A nurse has applied high flow oxygen and is setting up the fluid challenge you have prescribed. What is the most appropriate next step?

A.Prescribe oseltamivir

B.Prescribe broad spectrum intravenous antibiotics

C.Prescribe broad spectrum intravenous antibiotics + steroids

D.Perform a lumbar puncture

E.Refer for an ITU opinion

Answer:Prescribe broad spectrum intravenous antibiotics

Explanation:

This patient is likely to have pneumonia and has become septic as a consequence. She has a number of signs of 'red flag' sepsis including her heart rate, confusion and respiratory rate. She should therefore have the 'sepsis six', including intravenous antibiotics, as soon as possible.

For every hour that intravenous antibiotics are delayed there is an 8% increase in mortality.

ITU may be involved if she deteriorates but one of the first things they would wish to establish when you referred the patient is whether she has had basic sepsis care already.

Whilst trials have previously looked at the use of steroids in sepsis they are not currently recommended.

Question:

You are a F1 on a surgical rotation. Which one of the following procedures require prophylactic antibiotics?

A.Tonsillectomy

B.Diagnostic colonoscopy

C.Appendicectomy

D.Inguinal hernia repair

E.Intravascular catheter insertion (tunnelled)

Answer:Appendicectomy

Explanation:

Question:

A 66-year-old man attends surgery for review of his atrial fibrillation. He underwent a successful catheter ablation for atrial fibrillation 1 month ago.

He has a past medical history of type 2 diabetes and hypertension. His last recorded blood pressure was 145/90 mmHg.

What is the most appropriate management in terms of his anticoagulation?

A.Continue anticoagulation long-term

B.Stop anticoagulation as he has had a successful catheter ablation

C.Repeat an ECG in 3 months, and if the patient remains in sinus rhythm stop anticoagulation

D.Repeat an ECG in 12 months, and if the patient remains in sinus rhythm stop anticoagulation

E.Stop anticoagulation owing to his uncontrolled high blood pressure

Answer:Continue anticoagulation long-term

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

Based on the american college of cardiology guidelines the decision to discontinue anticoagulation beyond 2 months post-catheter ablation should be based upon the patient's stroke risk profile, not on the clinical outcome of the procedure. There is no prospective evidence published that it is safe to stop anticoagulation after an ablation if the CHA2DS2-Vasc score is greater than or equal to 1. In the above scenario, the stroke risk based on the CHA2DS2-VASc score remains high (3 points indicating moderate to high risk) and therefore anticoagulation should be continued.

Although monitoring of heart rhythm is important owing to risk of recurrence, anticoagulation should still be continued even if the patient remains in sinus rhythm.

There is no indication to stop anticoagulation based on his blood pressure readings.

Question:

A 48-year-old male presents to his GP with bone pain for the past few weeks. He has also had a reduction in his hearing recently. His blood results show an isolated rise in alkaline phosphate.

Given the likely diagnosis, which bone is most likely to be in pain?

A.Rib bones

B.Pelvis

C.Carpal bones

D.Radius

E.Humerus

Answer:Pelvis

Explanation:

Paget's disease of the bone generally affects the skull, spine/pelvis, and long bones of the lower extremities

Important for meLess important

This patient most likely has Paget's disease of the bone.

It is easy to remember which bones are most commonly affected by Paget's disease by drawing an imaginary line down the centre of a patient. The bones covered are the skull, vertebral bones and pelvis. Along with the femur and tibia, these are the most commonly affected bones by Paget's disease.

The radius, humerus, carpal bones and rib bones are not as commonly affected as the aforementioned bones.

Question:

A 35-year-old woman presents to her GP with discomfort in her right lower leg. This started a few days ago and she feels generally unwell. She has not experienced this before. There is no shortness of breath or palpitations. She has no history of cancer and her last long-haul flight was 8 months ago. She is allergic to latex and penicillin. There is no family history of note.

Her observations are:

Temperature: 38.1ºC

Heart rate: 72bpm

Respiratory rate: 13/min

Blood pressure: 125/82mmHg

Oxygen saturations: 98% (room air)

On examination, the following is seen:

© Image used on license from DermNet NZ

What is the most appropriate treatment option?

A.Oral clarithromycin

B.Oral flucloxacillin

C.Oral prednisolone

D.Oral rivaroxaban for 3 months

E.Oral rivaroxaban for 6 months

Answer:Oral clarithromycin

Explanation:

This image demonstrates an erythematous, swollen and inflamed right leg. The patient has presented with a few days' history of unilateral lower leg discomfort. This is unlikely to be a deep vein thrombosis as she has no identifiable risk factors such as immobilisation, recent surgery, cancer or recent long-haul flights. Her last long-haul plane flight was 8 months ago and it is unlikely that she would present with a deep vein thrombosis at this point afterwards. Furthermore, she has no symptoms of pulmonary embolism such as palpitations, shortness of breath or chest pain. On examination, the right leg is visibly erythematous, swollen and inflamed, which coupled with her temperature of 38ºC, suggests an infective aetiology. The diagnosis is therefore cellulitis. The underlying infection is likely bacterial (probably either Streptococcus pyogenes or Staphylococcus aureus).

Oral clarithromycin is correct. Although the first-line management for cellulitis is flucloxacillin, this patient is allergic to penicillin. The second-line treatment (which is used for penicillin-allergic patients) would be a macrolide such as clarithromycin or erythromycin or another medication such as doxycycline.

Oral flucloxacillin is incorrect as this patient is penicillin-allergic and so this drug is contraindicated.

Oral prednisolone is incorrect steroids are not indicated for the treatment of this infective condition. If the patient were on long-term steroids then their steroids would likely need to be doubled during periods of illness (to simulate the normal systemic response to recovery that occurs physiologically), however, there is no mention of this in the text and this would not be the definitive management of a bacterial skin infection.

Oral rivaroxaban for 3 months is incorrect. This would be used as anticoagulation for a provoked deep vein thrombosis which is where a clear, underlying precipitant such as cancer, immobility or surgery is thought to be implicated. A longer duration of 6 months would be given for an unprovoked deep vein thrombosis, where no clear cause is found. This patient does not have a deep vein thrombosis as mentioned above.

Oral rivaroxaban for 6 months is incorrect. The patient does not have a deep vein thrombosis as mentioned above, and therefore does not need anticoagulation. 6 months would be the duration of use for an unprovoked deep vein thrombosis, where there was no clear underlying precipitant such as cancer or surgery.

Question:

Which one of the following statements regarding varicoceles is correct?

A.Over 80% occur on the left side

B.All patients should be offered surgery to prevent infertility

C.Around 5% of patients have an underlying testicular cancer

D.They are more common in pre-pubertal males

E.Having a varicocele is a risk factor for deep vein thrombosis

Answer:Over 80% occur on the left side

Explanation:

Question:

A 32-year-old woman presents to the ophthalmology clinic with anisocoria. The patient had been referred by her GP after attending an appointment for a chest infection 3 weeks ago.

On examination, the left pupil is larger than the right and fails to constrict when testing the light reflex. Accommodation reflex is slow but intact. Eye movement testing reveals no obvious abnormalities and there is no change in vision. The doctor applies 0.125% pilocarpine drops to both eyes, which causes the left pupil to constrict but the right pupil remains the same.

What is the most likely cause of this presentation?

A.Argyll Robertson pupil

B.Holmes-Adie pupil

C.Horner's syndrome

D.Physiological

E.Third nerve palsy

Answer:Holmes-Adie pupil

Explanation:

Anisocoria worse in bright light implies a problem with the dilated pupil

Important for meLess important

This patient has presented with anisocoria so it is important to establish whether there is a problem with a mydriatic (dilated) or miotic (constricted) pupil. When testing the light reflex using a bright light, the right pupil constricted normally, but the left pupil failed to constrict. This indicates that the anisocoria is a result of a mydriatic left pupil (ie the left pupil is abnormally dilated). When this presents in combination with a slow accommodation reflex it is referred to as 'light-near association' which indicates a problem with the parasympathetic pathway, most likely as a result of a Holmes-Adie pupil. This was confirmed by applying low dose 0.125% pilocarpine drops, which caused the affected left pupil to constrict, but not the unaffected right pupil. Holmes-Adie pupil is a benign condition which typically affects young women and may be secondary to viral or bacterial infection affecting the ciliary ganglion.

Third nerve palsy can also cause result in a mydriatic pupil but would also cause ptosis and a 'down and out' pupil gaze on the affected side, due to unopposed action of the superior oblique and lateral rectus muscles. Also, the application of 1% pilocarpine drops rather than 0.125% pilocarpine drops would have caused the pupil to constrict. At the low dose, there would have been no change.

Horner's syndrome presents with a miotic (poor dilation) affected pupil not mydriatic (poor constriction), so the anisocoria would appear worse in dark conditions rather than in bright light.

Argyll Robertson pupil usually presents with bilaterally miotic pupils which react poorly to light but briskly to accommodation and is associated with midbrain injury, which could be caused by a syphilis infection.

Physiological anisocoria is present in up to 20% of the population but remains the same in both dark and light conditions.

Question:

A 45-year-old woman has chest pain and breathlessness. Over the last 3 weeks, she has had fevers and malaise.

There is peripheral oedema, a raised jugular venous pressure, hepatomegaly, and a new murmur. Her heart rate is 120 bpm, her blood pressure is 94/63 mmHg, and her respiratory rate is 27 /min. Her temperature is 39.4ºC.

She is currently receiving support for her intravenous drug use and has no other past medical history.

Echocardiography shows the presence of vegetations.

Where is the most likely site of pathology?

A.Aortic valve

B.Mitral valve

C.Papillary muscle

D.Pulmonary valve

E.Tricuspid valve

Answer:Tricuspid valve

Explanation:

Infective endocarditis in intravenous drug users most commonly affects the tricuspid valve

Important for meLess important

Tricuspid valve is correct. This patient has signs and symptoms consistent with right-sided heart failure (shortness of breath, peripheral oedema, raised jugular venous pressure, and hepatomegaly). The fevers, malaise, and new heart murmur suggest that the underlying cause may be infective endocarditis. Vegetations on echocardiography support the diagnosis of infective endocarditis. Different patient demographics have different valves affected. In patients who regularly use intravenous drugs, the tricuspid valve is most commonly affected and they are at an increased risk of right-sided infective endocarditis. This is thought to be due to introducing infection into the bloodstream which travels to the right side of the heart.

Aortic valve is incorrect. This is not the most commonly affected valve in patients who regularly inject intravenous drugs. The most commonly affected valve overall is the mitral valve, and the most commonly affected valve in patients who inject drugs intravenously is the tricuspid valve.

Mitral valve is incorrect. Although the most commonly affected valve overall is the mitral valve, different patient demographics have different valves affected.

Papillary muscle is incorrect. This is not a commonly affected site in infective endocarditis. Infective endocarditis affecting the papillary muscles is very rare.

Pulmonary valve is incorrect. The pulmonary valve is very rarely affected in infective endocarditis. In decreasing order of frequency, the valves affected by infective endocarditis are the mitral valve, aortic valve, tricuspid valve (although this is most common in patients who inject intravenous drugs regularly), and pulmonary valve.

Question:

A 75-year-old female presents with acute-onset pain in her left leg. The leg is pale and cold, with diminished sensation and muscle power. Before today, she has not had any leg pain.

This patient has a history of COPD and atrial fibrillation. She takes ramipril and bisoprolol long-term, and recently finished a short course of prednisolone and clarithromycin for a respiratory tract infection 2 months ago. She is an ex-smoker, with a 30-year pack history

A diagnosis of acute limb ischaemia is made, and she receives an emergency operation 3 hours after admission.

Which one element from the patient's background and history is most likely to contribute to her presentation?

A.Female sex

B.Atrial fibrillation

C.Ramipril

D.Recent respiratory tract infection

E.Cigarette smoking

Answer:Atrial fibrillation

Explanation:

Atrial fibrillation is a risk factor for embolic acute limb ischaemia

Important for meLess important

Male, not female sex is a risk factor for cardiovascular disease

Ramipril or a recent respiratory tract infection would not make the patient hypercoagulable, though they may affect the cardiovascular risk profile in other ways.

Smoking tobacco is a risk factor for atherosclerosis. This would contribute to progressive limb ischaemia. However, since the patient did not have any previous claudication, an embolism is the more likely cause, and this would be due to the atrial fibrillation.

Question:

A 22-year-old medical student is complaining of severe right eye pain after recently returning from an elective placement in the US. On further questioning, he revealed that he went swimming in fresh water with his contact lens on. On examination, his right eye seemed slightly red but no other major clinical findings were noted.

What is the most likely causative organism of his presentation?

A.Acanthamoeba

B.Bartonella henselae

C.Borrelia burgdorferi

D.HSV

E.VZV

Answer:Acanthamoeba

Explanation:

Pain out of proportion of clinical presentation, contact lens and recent freshwater swimming is classical of acanthamoebic keratitis

Important for meLess important

Acanthamoeba - the correct answer as has severe pain out of proportion of the clinical findings associated with a high risk history of swimming in fresh water with contact lens on in an endemic country. Other findings you may see are pseudodendritic ulcers (dendritic ulcers without a terminal bulb, epithelial defect, anterior uveitis and perforation if advanced.

Bartonella henselae - Cat scratch disease - usually causes a neuroretinitis with a classical macular star. May have systemic symptoms and lymphadenopathy.

Borrelia burgdorferi - Lyme disease - More usually causes a follicular conjunctivitis but may result in a panuveitis. May expect a mention of a target rash (erythema migrans) and systemic symptoms.

HSV - may cause a keratitis but would expect a dendritic ulcer.

VZV (HZO) - should expect a vesicular rash.

Question:

A 23-year-old male presents to his GP two weeks after a road traffic accident concerned about increased anxiety levels, lethargy and headache. At the time he had a CT brain after banging his head on the steering wheel, which revealed no abnormality. Six months following this episode his symptoms have resolved. What did his original symptoms likely represent?

A.Conversion disorder

B.Post-traumatic stress disorder

C.Somatisation disorder

D.Generalised anxiety disorder

E.Post-concussion syndrome

Answer:Post-concussion syndrome

Explanation:

In post-traumatic stress disorder the onset of symptoms is usually delayed and it tends to run a prolonged course

Question:

Each of the following drugs are known to inhibit cytochrome P450, except:

A.Ketoconazole

B.Ciprofloxacin

C.Erythromycin

D.Clopidogrel

E.Amiodarone

Answer:Clopidogrel

Explanation:

Question:

A 39-year-old male presents to the renal clinic with worsening haematuria, recurrent urinary tract infections and abdominal pain. He reports a family history of renal failure. His children are concerned they may experience similar problems in the future.

He had a distended abdomen with fullness in the flanks and diffuse generalised tenderness on palpation on examination. His urine dipstick result is included below.

Blood +++

Protein +

Ketones Negative

Leukocytes +

Nitrites Negative

What is the most appropriate screening test for this condition?

A.Computed tomography (CT)

B.Direct DNA sequencing

C.Gene linkage testing

D.Magnetic resonance imaging (MRI)

E.Ultrasound

Answer:Ultrasound

Explanation:

Ultrasound is the screening test for adult polycystic kidney disease

Important for meLess important

Ultrasound is the most common and least costly screening method for adult polycystic kidney disease.

Computed tomography (CT) is more sensitive, however, involve radiation or may also require iodinated contrast dye which, can be toxic to the kidney and therefore best avoided initially.

Magnetic resonance imaging (MRI) may be used to look at complications like bleeding into a cyst or a suspected kidney stone. They may also be used to detect small cysts as needed. However, this form of investigation is not considered first-line in screening for adult polycystic kidney disease.

Gene linkage can determine if you have PKD with a 99% probability in those with a family history. However, blood samples must be obtained from the person being tested as well as several (typically three or more) family members including those affected and unaffected by PKD. Detailed family history is also required.

Direct DNA sequencing requires only a single sample from you (the person being tested). This method is a direct analysis of the DNA sequences of the PKD1 and PKD2 gene.

Question:

A 29-year-old female presents with a lump in her left breast. She is very worried as it appeared suddenly over a month ago describes it as being located below the nipple. As well as this she has noted there is mild tenderness to the lump. She is not aware of any triggers or trauma. On examination, a well-defined, 2cm mobile mass is felt in the left breast. There is no skin discolouration or discharge.

What is the most likely diagnosis?

A.Fibroadenosis

B.Ductal carcinoma

C.Fibroadenoma

D.Fat necrosis

E.Breast abscess

Answer:Fibroadenoma

Explanation:

Females < 30 years with a non-tender, discrete and mobile lump = fibroadenoma

Important for meLess important

This is most likely a fibroadenoma considering her age and how the mass was described. It can also present with tenderness.

Fibroadenosis tends to present in older women described as painful and lumpy, often worse around menstruation.

Ductal carcinoma is also more likely to occur in older women. It can present with a painless lump or with nipple change, nipple discharge and skin contour changes.

The lump in fat necrosis tends to be hard and irregular.

An abscess would have changes associated with inflammation such as redness, fever and pain.

Question:

A 45-year-old man with type 2 diabetes is reviewed. He feels well and is up to date with his foot check and optometrist review. He enjoys alcohol and limits his intake to the weekends with 4-5 standard drinks each Saturday. His HbA1c is stable at 48mmol/L while on metformin and his liver function tests show the following:

Bilirubin 18 µmol/L (3 - 17)

ALP 95 u/L (30 - 100)

ALT 157 u/L (3 - 40)

γGT 40 u/L (8 - 60)

AST 74 u/L (3 - 40)

Albumin 37 g/L (35 - 50)

What is the most likely cause of this result?

A.Alcoholic fatty liver disease

B.Drug induced liver injury

C.Gallstone disease

D.Non-alcoholic fatty liver disease

E.Viral hepatitis

Answer:Non-alcoholic fatty liver disease

Explanation:

T2DM with abnormal LFTs - ? non-alcoholic fatty liver disease

Important for meLess important

In patients with type 2 diabetes and abnormal liver function tests (LFT), the most common cause is non-alcoholic fatty liver disease. This is actually the most common cause of liver disease in the developed world. The patient's liver function tests should be reassessed to assess for improvements and if they remain elevated he should be sent for an ultrasound.

Although the patient has 5 standard drinks each weekend, this is not enough to suggest that his liver function derangement would be due to alcoholic liver disease. One would expect much more regular and heavier drinking in this case.

Drug-induced liver injuries (DILI) can occur after a variety of medications are taken and are not always predictable. There is no indication in this case that the patient has started a new medication or is taking any hepatotoxic medications. There are a variety of LFT changes with DILI and these are not always restricted to a hepatocellular pattern of damage that is seen in this case. They can also present with cholestatic patterns and mixed patterns.

Gallstone disease would present with a more cholestatic pattern of LFT derangement and would be more common in fertile overweight females. Such a pattern would involve a raised ALP and GGT and possibly raised bilirubin depending on the severity of the disease.

It is entirely possible that this LFT derangement is due to viral hepatitis and, in fact, this would be the preferred answer if the setting was in South East Asia. This would need to be assessed with a liver screen if the patient has ongoing LFT derangement that is not explained by an ultrasound. In this case, it is not the most likely answer at this stage and therefore is incorrect.

Question:

A 67-year-old female presents after falling while doing her laundry. The patient fell forward but was able to break her fall with her hands. She did not hit her head or lose consciousness.

On review, she has ongoing pain in her right hand, and the pain is reproduced when axial load is applied through thumb metacarpal.

X-ray reveals an unstable fracture of the proximal pole of a carpal bone.

Which of the following options would be the most appropriate next steps in management?

A.Advise rest, ice, compression, and elevation

B.Place in a long-arm thumb spica cast for 6 weeks

C.Refer to orthopaedic surgery

D.Repeat wrist X-ray in 10 days time

E.Attempt to manually reduce the fracture

Answer:Refer to orthopaedic surgery

Explanation:

All proximal scaphoid pole fractures require surgical fixation

Important for meLess important

This patient has a an unstable proximal scaphoid fracture; evidenced by a positive scaphoid compression test (pain reproduced on axial load through thumb). Due to the high risk of avascular necrosis related to the retrograde blood supply, they require surgical fixation.

Rest, ice, compression and elevation are not appropriate as the patient is at risk of avascular necrosis and therefore requires surgical fixation.

A long-arm thumb spica cast is useful for immobilisation in patients with waist scaphoid fractures, but are less successful in unstable scaphoid pole fractures.

Repeating a wrist x-ray in 10 days time is useful in patients that show no radiological signs of scaphoid fracture, but clinical suspicion is still high (e.g. fall with an outstretched hand, anatomical snuffbox tenderness).

Attempting to manually reduce a scaphoid fracture is not an appropriate management step in scaphoid fractures. They require fixation surgically to ensure good healing.

Question:

A 12-year-old boy is seen in a gastroenterology clinic. He has been experiencing diarrhoea for 6 months, along with bloating and severe abdominal pain. The results of the patients full blood count are below:

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 8 \* 109/L (4.0 - 11.0)

What would be the most appropriate next investigation?

A.Duodenal biopsy

B.Faecal calprotectin

C.Faecal immunochemical testing (FIT test)

D.Serum IgA endomysial antibody (EMA) and total IgA

E.Serum immunoglobulin IgA tissue transglutaminase antibody (tTGA) and total IgA

Answer:Serum immunoglobulin IgA tissue transglutaminase antibody (tTGA) and total IgA

Explanation:

You cannot interpret TTG level in coeliac disease without looking at the IgA level

Important for meLess important

The likely diagnosis in this scenario is coeliac disease. Common symptoms of coeliac disease include bloating, flatulence, diarrhoea, abdominal pain as well as extra-intestinal manifestations such as fatigue, weight loss and dermatitis herpetiformis. The patient may also be anaemic, as is the case in this scenario, due to malabsorption of iron. First-line investigations for coeliac disease should include a serum immunoglobulin IgA tissue transglutaminase antibody (tTGA) and total IgA. Testing for specific IgA antibodies must be done alongside a total IgA level, as if the patient has an IgA deficiency, the results may be falsely negative. Selective IgA deficiencies are also more common in people with coeliac disease.

A duodenal biopsy is done to confirm a likely diagnosis of coeliac disease. However, the question asks about the next most appropriate investigation, which in this case would be the less invasive option of serological testing.

Faecal calprotectin may be done if inflammatory bowel disease is considered, however, the triad of bloating, abdominal pain and diarrhoea alongside anaemia point towards a diagnosis of coeliac disease, and therefore this test would not be first line.

Faecal immunochemical testing (FIT testing) is done to identify human haemoglobin in faeces. This test is used mainly in bowel cancer screening. Bowel cancer most commonly affects older patients and may present with blood in the stool, weight loss and a palpable mass in the abdomen. As the scenario does not meet this presentation, FIT testing is not appropriate.

Serum IgA endomysial antibody (EMA) should be tested second line if serum immunoglobulin IgA tissue transglutaminase antibody (tTGA) is unavailable, or in the case, that tTGA is weakly positive. If IgA deficiency is present, selective IgG antibody tests should be done instead.

Question:

Which one of the following is least associated with Crohn's disease?

A.Fistulae

B.Kantor's string sign

C.'Cobblestone' pattern of mucosa

D.Crypt abscesses

E.Involvement of all layers of bowel wall

Answer:Crypt abscesses

Explanation:

Crypt abscesses are sometimes seen in Crohn's disease but they are more commonly associated with ulcerative colitis

Question:

A 26-year-old female is admitted to hospital with palpitations. ECG shows a shortened PR interval and wide QRS complexes associated with a slurred upstroke seen in lead II. What is the definitive management of this condition?

A.Accessory pathway ablation

B.Lifelong aspirin

C.AV node ablation

D.Lifelong amiodarone

E.Permanent pacemaker

Answer:Accessory pathway ablation

Explanation:

This patient has Wolff-Parkinson White syndrome, with accessory pathway ablation being the definitive treatment.

Question:

You are the F1 doctor on the ward, filling out a death certificate for one of your patients.

His admission notes state that he was a 62-year-old male admitted from a care home three days previously with abdominal pain and an emaciated appearance. He had a diagnosis of type II diabetes mellitus and passed away due to a hyperkalaemia-induced cardiac tachyarrhythmia.

Which factor in this case would require it to be reported to the coroner?

A.His death potentially occurring as a result of diabetes mellitus

B.His residence in a care home

C.His dying under the age of 65-years-old

D.His death potentially occurring as a result of starvation

E.His death being in the first 72 hours of admission

Answer:His death potentially occurring as a result of starvation

Explanation:

Deaths occurring as a result of starvation, ill-treatment or neglect should be reported to the coroner

Important for meLess important

Deaths that are, or are suspected to be, a result of starvation, ill-treatment or neglect should be reported to the coroner.

Deaths occurring as a result of diabetes mellitus or under the age of 65 are not routinely reported to the coroner.

Being a resident of a care home does not warrant a referral, but those who reside in a prison or deaths in police custody should be reported.

It is deaths within the first 24 hours of admission are usually reported to the coroner, not the first 72 hours.

Question:

A 47-year-old female presents as she is concerned about elbow pain. She has just spent the weekend painting the house. On examination there is localised pain around the lateral epicondyle and a diagnosis of lateral epicondylitis is suspected. Which one of the following movements would characteristically worsen the pain?

A.Resisted thumb flexion

B.Thumb extension

C.Flexion of the elbow

D.Pronation of the forearm with the elbow flexed

E.Resisted wrist extension with the elbow extended

Answer:Resisted wrist extension with the elbow extended

Explanation:

Lateral epicondylitis: worse on resisted wrist extension/suppination whilst elbow extended

Important for meLess important

Question:

A 61-year-old man is seen in the diabetic foot clinic because of a chronic ulcer on his left leg. The ulcer has been present for the past 5 months and is well demarcated with no sensation at the base of the ulcer. He has grown the same bacteria from swabs taken from the ulcer multiple times. On examination his heart rate is 81 bpm, his blood pressure is 132/83 mmHg and his temperature is 37.1ºC. The base is wet with a pale green slough over it and smells damp and offensive.

Which of the following organisms is most likely to be responsible for this ulcer based on this clinical picture?

A.Pseudomonas aeruginosa

B.Streptococcus pyogenes

C.Staphylococcus aureus

D.Clostridium perfringens

E.Klebsiella pneumoniae

Answer:Pseudomonas aeruginosa

Explanation:

Pseudomonas is a common cause of chronic wound infections

Important for meLess important

Pseudomonas commonly causes opportunistic infections in patients with any degree of immunosuppression and is an important pathogen in diabetic patients, especially in neuropathic ulcers. The chronicity of the ulcer is the biggest clue to the pathogen as all the other options are bacteria associated with invasive or necrotic infections which would be associated with a systemic response and a much shorter history. Pseudomonas is the only pathogen which could cause a chronic sloughy ulcer with a duration of months without any systemic symptoms. The green colour is also characteristic of Pseudomonas infections as the bacteria produce a blue-green pigment called pyocyanin as well as the classical offensive smell.

Question:

A 56-year-old man attends his GP with a history of recurrent fevers and a persisting sore throat with swollen glands. He describes these symptoms lasting the past two months and not improving with over the counter analgesics. He also describes having lost weight over the last six months. On examination his temperature is 36.5°C, heart rate 71 bpm and blood pressure 131/84 mmHg. His throat is not red but he does have bilateral cervical lymphadenopathy which is non-tender. A blood test shows the following:

Hb 128 g/l Na+ 141 mmol/l

Platelets 365 \* 109/l K+ 4.1 mmol/l

WBC 21.9 \* 109/l Urea 4.1 mmol/l

Neuts 3.7 \* 109/l Creatinine 88 µmol/l

Lymphs 17.3 \* 109/l CRP 4.3 mg/l

Which of the following investigations is most likely to give a definitive diagnosis?

A.CT thorax, abdomen and pelvis

B.MRI neck

C.Bronchoscopy and biopsies

D.Lymph node biopsy

E.Bone marrow biopsy

Answer:Lymph node biopsy

Explanation:

Persistent PUO and lymphadenopathy with high WCC? Look for lymphoma

Important for meLess important

The question here is asking for you to first make a diagnosis and then decide which investigation is going to give a definitive diagnosis. The scenario describes someone with systemic symptoms suggestive of malignancy (pyrexia of unknown origin and weight loss) as well as features in keeping with a haematological disorder (lymphadenopathy and lymphocytosis). The two differentials here would be chronic lymphocytic leukaemia and lymphoma, the second one being the more likely diagnosis due to the presence of lymphadenopathy. Therefore the correct answer is a lymph node biopsy as this would provide a diagnosis of either of these conditions while a bone marrow aspirate would be more likely to pick up a leukaemia but not be as helpful in making a formal diagnosis of lymphoma.

While imaging is necessary in anyone with malignancy for staging purposes, the diagnosis cannot be made from it as this would require a histological test and hence none of the imaging options are correct. There is nothing to suggest this is a lung pathology so a bronchoscopy is inappropriate.

Question:

A 64-year-old woman presents to the emergency department with a 2-hour history of chest pain associated with moderate dyspnoea and dizziness.

She has a past medical history of type 1 diabetes, hypertension, and open-angle glaucoma, for which she takes insulin, ramipril, and acetazolamide.

An ECG is recorded, showing peaked T waves, flattened P waves, and a prolonged PR interval.

The results of a venous blood gas are shown below.

pH 7.28 (7.35-7.45)

Sodium 144 mmol/L (135-145)

Chloride 114 mmol/L (95-110)

Bicarbonate 20 mmol/L (22-30)

Given this information, what is a possible cause of this patient's presentation?

A.Acetazolamide toxicity

B.Bilateral idiopathic adrenal hyperplasia

C.Diabetic ketoacidosis

D.Familial hypocalciuric hypercalcaemia

E.Renal tubular acidosis

Answer:Renal tubular acidosis

Explanation:

Renal tubular acidosis (type 4) causes hyperkalaemia

Important for meLess important

The correct answer is renal tubular acidosis, as it is the only condition listed that would be associated with hyperkalemia and a normal anion gap metabolic acidosis. Her anion gap is 10mmol/L [144 - 114- 20]. Although not explicitly stated in the stem, this patient has multiple features of hyperkalaemia on his ECG, including peaked T waves, flattened P waves, and a prolonged PR interval.

Type 4 renal tubular acidosis is the most common renal tubular acidosis in adults, characterised by reduced aldosterone production or increased resistance to aldosterone at the collecting duct. Hypoaldosteronism leads to reduced reabsorption of sodium and impaired excretion of potassium at the collecting duct, leading to hyperkalaemia.

Acetazolamide toxicity is incorrect, as although this may cause a normal anion gap metabolic acidosis, acetazolamide toxicity is not associated with hyperkalaemia.

Bilateral idiopathic adrenal hyperplasia is incorrect, as is a cause of Conn's syndrome and is associated with hypokalemia rather than hyperkalaemia due to aldosterone excess.

Diabetic ketoacidosis is incorrect, as although this may cause hyperkalaemia, it is associated with a raised anion gap metabolic acidosis rather than a normal anion gap. The anion gap is raised as the concentration of serum bicarbonate falls due to increased serum concentrations of organic keto-acids.

Familial hypocalciuric hypercalcaemia is incorrect, as this is not associated with hyperkalaemia or metabolic acidosis. Familial hypocalciuric hypercalcaemia is a genetic condition characterised by decreased excretion of calcium in the urine.

Question:

A 40-year-old male presents to the Emergency Department with abdominal pain. The pain spreads from his right costal margin, down towards his groin and comes and goes in waves. A urine dipstick is positive for blood. Which method of imaging is most likely to be diagnostic for the patient's condition?

A.Contrast CT KUB

B.Abdominal ultrasound

C.Abdominal MRI

D.Non-contrast CT KUB

E.IV urography

Answer:Non-contrast CT KUB

Explanation:

Non-contrast CT-KUB is the imaging of choice in suspected renal colic

Important for meLess important

Non-contrast CT-KUB is recommended by NICE and the European Association of Urology as the definitive investigation for renal stones. Ultrasound may be used to examine for hydronephrosis or hydroureter but is not the first choice for renal stones. IV urography has been replaced by CT. MRI would not be appropriate at this stage.

Question:

You are working in a busy emergency department. A worried mother brings her 3-year-old boy to see you. He has been crying excessively for the last 12 hours and has had bilious vomiting on multiple occasions. The boy passed one stool around 2 hours ago which contained small amounts of blood.

With the patients likely diagnosis what initial investigation would you do?

A.Colonoscopy

B.X-Ray

C.Bowel enema

D.Ultrasound

E.CT

Answer:Ultrasound

Explanation:

Ultrasound is the investigation of choice for intussusception

Important for meLess important

Ultrasound is the first line investigation, it is non-invasive and comfortable for the patient with a high sensitivity. CT, bowel enema, X-Ray are useful for the diagnosis of intussusception but would generally not be done first line. Colonoscopy would not be used first line and is rarely used in the diagnosis.

Question:

A 64-year-old patient with psoriasis, hypothyroidism and psychotic depression presents to you with painful aphthous-like ulcers for the past 3 weeks since starting a new medication.

Which of the following medications is most likely to be causing their symptom?

A.Lithium

B.Levothyroxine

C.Atorvastatin

D.Methotrexate

E.Sertraline

Answer:Methotrexate

Explanation:

Methotrexate may cause mucositis

Important for meLess important

Lithium has a wide rage of side effects including, notably for this case, thyrotoxicosis. Lithium , however, is not typically known to cause oral ulcers.

Mouth ulcers are not a recognised side effect of levothyroxine, although, as well as lithium it can cause thyrotoxicosis.

Atorvastatin does not case mouth ulcers. The most common side effects from statins include myalgia and flushing of the skin.

Methotrexate is the only medication of those listed that has mucositis as a listed side effect in the BNF.

Sertraline may cause a dry mouth, however it is not known to cause mouth ulcers.

Question:

Which one of the following medications is most useful for helping to prevent attacks of Meniere's disease?

A.Promethazine

B.Prochlorperazine

C.Betahistine

D.Chlorphenamine

E.Cinnarizine

Answer:Betahistine

Explanation:

Question:

Which of the following results establishes a diagnosis of diabetes mellitus?

A.Asymptomatic patient with fasting glucose 7.9 mmol/L on one occasion

B.Symptomatic patient with fasting glucose 6.8 mmol/L on two occasions

C.Glycosuria +++

D.Asymptomatic patient with random glucose 22.0 mmol/L on one occasion

E.Symptomatic patient with random glucose 12.0 mmol/L on one occasion

Answer:Symptomatic patient with random glucose 12.0 mmol/L on one occasion

Explanation:

Diabetes meliitus diagnosis: fasting > 7.0, random > 11.1 - if asymptomatic need two readings

Important for meLess important

Question:

A 42-year-old man presents to his GP feeling generally unwell. For the past three months he has been experiencing daily frontal headaches which have not been helped by regular paracetamol. He has also noticed some unusual symptoms such as his wedding ring no longer fitting, his shoe size apparently increasing and a small amount of milky discharge from both nipples. On examination his blood pressure is 168/96 mmHg. What is the most likely diagnosis?

A.Phaeochromocytoma

B.Cushing's syndrome

C.Diabetes insipidus

D.Macroprolactinoma

E.Acromegaly

Answer:Acromegaly

Explanation:

Question:

A 54-year-old man with a history of type 2 diabetes mellitus presents with a history of right shoulder pain. On examination there is limited movement of the right shoulder in all directions. What is the most likely diagnosis?

A.Adhesive capsulitis

B.Dermatomyositis

C.Avascular necrosis

D.Lhermitte's syndrome

E.Diabetic amyotrophy

Answer:Adhesive capsulitis

Explanation:

Diabetes mellitus is a risk factor for developing adhesive capsulitis

Important for meLess important

Diabetic amyotrophy affects the lower limbs

Question:

A 57-year-old man with a background of alcoholic liver disease and known hepatic fibrosis comes to the gastroenterology clinic for review. He is being followed up from a recent admission into a hospital with decompensated hepatic failure secondary to myocardial infarction. He was managed medically and is now taking dual antiplatelet therapy and a statin. He was not taking any medications before this and has no allergies. He was previously investigated for iron deficiency anaemia and was found on endoscopy to have oesophageal varices. He has now become more concerned about this and he understands the large risk of bleeding. Which further medication can help prevent variceal bleeding?

A.Ciprofloxacin

B.Propranolol

C.Nifedipine

D.Omeprazole

E.Prednisolone

Answer:Propranolol

Explanation:

A non-cardioselective B-blocker (NSBB) is used for the prophylaxis of oesophageal bleeding

Important for meLess important

The correct answer is propranolol. Propranolol is a Beta-blocker which works by producing splanchnic vasoconstriction and reducing portal venous inflow. This limits blood flow to the hepatic varices and reduces the pressure causing a smaller chance of bleeding. Ciprofloxacin can be used in the acute bleeding setting to reduce mortality but is not indicated for long-term use and does not help prevent bleeds.

Question:

When talking to a new mother about the benefits of breastfeeding, she asks you for some more information about how breastfeeding can improve her baby's immune system. You explain that some of her immunoglobulins are secreted in her breast milk passing immunity from certain conditions to the baby.

Which immunoglobulin will this patient be providing to her infant?

A.IgA

B.IgD

C.IgE

D.IgG

E.IgM

Answer:IgA

Explanation:

IgA is the main immunoglobulin found in breast milk

Important for meLess important

IgA is the main immunoglobulin found in secretions including breast milk (colostrum), tears, saliva and GI secretions.

It is unclear what the function of IgD is. it may be found on B-cell membranes and is found in small amounts in serum.

IgE is the immunoglobulin responsible for mediation of allergic and anaphylactic reactions. It is found on cell membranes.

IgG is the most abundant immunoglobulin in serum, lymph and the GI tract. It is the only immunoglobulin that can cross the placenta.

IgM is the main immunoglobulin of the primary reaction to infection. It is vital in protection from bacteria and viruses

Question:

A 62-year-old man presented to the emergency department with fever and confusion. His wife reports that he had a cough productive of green sputum over the last few days. He had seen his GP who prescribed oral co-amoxiclav and doxycycline.

He has no other past medical history. In addition to the recently prescribed antibiotics, he has been taking paracetamol for his fever. He has no known allergies.

On arrival, he had a temperature of 38.8ºC, heart rate was 125bpm, blood pressure was 60/40mmHg and he was started on oxygen due to peripheral saturations reading 88% on air. On examination, he was peripherally cool, had bilateral coarse crackles on auscultation of his chest and was responsive to voice. He was immediately given a bolus of fluids and commenced on broad-spectrum antibiotics for sepsis.

A portable chest x-ray shows bilateral patchy opacifications. His blood results are shown below:

Hb 130 g/L (135-180)

Platelets 451 \* 109/L (150 - 400)

WBC 15.7 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 5.2 mmol/L (3.5 - 5.0)

Urea 11.2 mmol/L (2.0 - 7.0)

Creatinine 320 µmol/L (55 - 120)

CRP 222 mg/L (< 5)

Bilirubin 45 µmol/L (3 - 17)

ALP 248 u/L (30 - 100)

ALT 2015 u/L (3 - 40)

Albumin 34 g/L (35 - 50)

His systolic blood pressure is 65mmHg despite several fluid boluses. He is admitted to ITU for inotropes.

What is the most likely cause of his deranged LFTs?

A.Co-amoxiclav induced cholestasis

B.Ischaemic hepatitis

C.Biliary sepsis

D.Alcoholic hepatitis

E.Paracetamol overdose

Answer:Ischaemic hepatitis

Explanation:

Acute hypoperfusion (e.g. low BP secondary to blood loss) may result in ischaemic hepatitis

Important for meLess important

This man is suffering from septic shock and end-organ damage secondary to the hypoperfusion. This is evidenced by the deranged LFTs and AKI. Therefore ischaemic hepatitis is the most likely diagnosis.

Co-amoxiclav is known to cause cholestatic liver injury. If this was the cause, the ALP would be proportionally higher compared to the ALT.

There is no question that the patient is septic with the presentation of fever, tachycardia, hypotension and raised inflammatory markers. However, there is no evidence of abdominal pain; and the symptoms and x-ray finding are in keeping with community-acquired pneumonia therefore biliary sepsis is not the most likely cause.

Alcoholic hepatitis would be associated with a greater increase in bilirubin. There is also no evidence provided to support alcohol misuse.

Whilst we know that patient had been taking paracetamol, there are no details indicating overdose. In these situations, it would be good practice to check paracetamol levels.

Question:

A 62-year-old woman attends her optician for routine screening. She is found to have a raised intraocular pressure but is currently asymptomatic. A diagnosis of primary open-angle glaucoma is made.

She has no past medical history of note and currently takes no medications.

Which of the following correctly identifies a possible treatment and its mechanism of action?

A.IV acetazolamide - reduces aqueous production

B.Oral latanoprost - increases uveoscleral outflow

C.Topical brimonidine - decreases uveoscleral outflow

D.Topical pilocarpine - reduces aqueous production

E.Topical timolol - reduces aqueous production

Answer:Topical timolol - reduces aqueous production

Explanation:

Beta blockers such as timolol work in primary open-angle glaucoma by reducing aqueous production

Important for meLess important

Primary open-angle glaucoma describes an increased intraocular pressure, due to a build-up of fluid in the anterior chamber. It can present with a constricted visual field or blurred vision in late disease but is commonly asymptomatic. The goal of treatment is to decrease the pressure in the anterior chamber, by either removing fluid via the uveoscleral tract or preventing more fluid from being added via aqueous production.

Timolol is an example of an eye drop that can be applied topically. It functions by reducing aqueous production, therefore preventing more fluid from being added. Therefore, this is the correct answer.

Acetazolamide is a carbonic anhydrase inhibitor that can be given IV for closed-angle glaucoma. It does indeed function by reducing aqueous production. Closed-angle glaucoma is an emergency and needs urgent treatment. Open-angle glaucoma is comparably not an emergency, especially when it is symptomatic. IV treatment would not be given for this, and therefore IV acetazolamide is not the correct answer.

Latanoprost is a prostaglandin that works by increasing uveoscleral outflow. It is given topically, not orally, in order to allow for its function to be local to the eye itself. Therefore, oral latanoprost is not the correct answer.

Brimonidine is an alpha2-adrenoreceptor agonist which is given topically via eye drops. It works by increasing uveoscleral outflow.

Pilocarpine is a muscarinic receptor agonist which can be given topically by eye drops. It functions by increasing uveoscleral outflow.

Question:

A 69-year-old man with chronic obstructive pulmonary disease (COPD) presents to the Emergency Department with dyspnoea. Three days ago he was started on amoxicillin and prednisolone by his GP. Since arriving in the department he has been given back-to-back nebulised salbutamol and ipratropium bromide. The oxygen concentration has been titrated to 28% to achieve a saturation of 88-92%. Due to his poor response to treatment an aminophyline infusion is started. Thirty minutes later, his arterial blood gases show the following (taken on 28% oxygen):

pH 7.30

pCO2 7.6 kPa

pO2 8.1 kPa

What is the most appropriate next step in management?

A.Intravenous magnesium sulphate

B.Intravenous hydrocortisone

C.Decrease his oxygen to 24%

D.Non-invasive ventilation

E.Increase his oxygen to 35%

Answer:Non-invasive ventilation

Explanation:

Intravenous magnesium sulphate is useful in acute asthma, rather than COPD. Giving intravenous hydrocortisone is unlikely to make any difference given that he has had three days worth of prednisolone already.

Question:

A 60-year-old man comes to his GP. He has had a series of unpleasant symptoms over the last two months including frequent flushing, diarrhoea, tightness in his throat that sounds to the GP like bronchospasm, and weight loss. The GP also notices he is hypotensive.

Which of the following investigations is the best for diagnosing the condition you suspect?

A.CA125

B.MRCP

C.Ultrasound abdomen

D.Urinary 5-HIAA

E.Urinary metanephrines

Answer:Urinary 5-HIAA

Explanation:

Carcinoid tumours release serotonin, so will cause a raised urinary 5-HIAA

Important for meLess important

This is a typical history of carcinoid syndrome- flushing, diarrhoea, bronchospasm, hypotension, and weight loss. The investigation for this is urinary 5-HIAA, as the tumour will secrete serotonin. CA125 is used for ovarian cancer, which this man obviously does not have. MRCP will be used for gallbladder or pancreatic conditions, and urinary metanephrines are used to diagnose a phaeochromocytoma.

Question:

A 60-year-old man presents with increasing shortness-of-breath on exertion. During the examination a third heart sound is heard. Examination of the respiratory system is unremarkable. Which one of the following is most consistent with this finding?

A.Dilated cardiomyopathy

B.Hypertrophic obstructive cardiomyopathy

C.Atrial fibrillation

D.Mitral stenosis

E.Normal variant

Answer:Dilated cardiomyopathy

Explanation:

A third heart sound is only considered a normal variant in patients < 30 years of age.

Question:

A 22-year-old gentleman presents to his GP complaining of a bumpy rash on his face, which is painful and interferes with shaving. On examination there is widespread erythema with a mixture of open and closed comedones and pustules. There are several smooth, 1-2cm nodules present in the malar area which do not transilluminate.

What is the most likely diagnosis?

A.Neurofibromatosis type 1

B.Acne vulgaris

C.Acne rosacea

D.Neurofibromatosis type 1 with acne vulgaris

E.Impetigo

Answer:Acne vulgaris

Explanation:

Open and closed comedones, pustules and nodules are all characteristic lesions of acne vulgaris

Important for meLess important

This gentleman has a severe form of acne vulgaris. This can be quite painful! In severe acne, it is not uncommon to see comedones, pustules and nodules together, along with severe inflammation.

Neurofibromatosis type 1 would explain the nodules and could indeed present along with acne vulgaris, however severe acne vulgaris alone is a unifying diagnosis and is much more likely. There is no family history to suggest that this patient is likely to have neurofibromatosis.

Acne rosacea generally presents later in life and involves pustules and erythema; comedones point away from this diagnosis.

Impetigo is a superficial infection of the skin caused by Staphylococcus aureus and presents with characteristic golden crusted lesions, often around the mouth. It is more common in school-aged children and can be painful, however it is not indicated by any of the other symptoms here.

Question:

A 72-year-old man is brought to clinic by his family. They are very concerned about his declining cognition. He was normally very well and independent until 3 months ago. He has lost no weight, has no headache but has been falling a lot. He also complains of urinary incontinence.

What is the most likely diagnosis?

A.Subdural haematoma

B.Normal pressure hydrocephalus

C.Extradural haematoma

D.Alzheimer's disease

E.Parkinson's disease

Answer:Normal pressure hydrocephalus

Explanation:

Urinary incontinence + gait abnormality + dementia = normal pressure hydrocephalus

Important for meLess important

The clinical features are very suggestive of normal pressure hydrocephalus. The features of this condition can be remembered by 'wet, wobbly and whacky' which represent urinary incontinence, gait ataxia, and dementia respectively.

Question:

A 14-year-old boy presents to his general practitioner with a 5-month history of dull, aching pain and swelling in the distal aspect of his left thigh.

He has a past medical history of exercise-induced asthma and a family history of retinoblastoma.

Amongst a series of other investigations, a knee radiograph is ordered which identifies a triangular area of new subperiosteal bone in the metaphyseal region of the femur which shows a 'sunburst' pattern.

Which of the following is the most likely diagnosis?

A.Chondrosarcoma

B.Ewing's sarcoma

C.Osteoma

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 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 would be 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.

Osteoma presents with a benign 'overgrowth' of bone, most typically occurring on the skull. It is also classically associated with Gardner's syndrome (a variant of familial adenomatous polyposis) so there may also be a family history of colorectal cancer.

Osteochondroma 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 and findings.

Question:

A 36-year-old male presents to his general practitioner with some troublesome symptoms that have started recently. He has a past medical history of schizophrenia, diagnosed when he was twenty, which is currently treated with olanzapine. He has had no surgeries and is otherwise fit and well.

Which symptoms is he most likely to experience?

A.Diarrhoea

B.Polyuria and polydipsia

C.Priapism

D.Tinnitus

E.Weight loss

Answer:Polyuria and polydipsia

Explanation:

Long-term atypical antipsychotics can lead to the development of glucose dysregulation and diabetes

Important for meLess important

Polyuria and polydipsia is the correct answer. Atypical antipsychotics are used first-line in patients with schizophrenia and bring with them the benefit of reducing extrapyramidal side effects. The use of long-term atypical antipsychotics can lead to the development of a number of side effects, including metabolic dysregulation leading to insulin resistance and diabetes.

Diarrhoea is incorrect. Atypical antipsychotics will antagonise acetylcholine M1 receptors throughout the body, blocking the action of acetylcholine. We would therefore see constipation as a potential adverse effect, rather than diarrhoea.

This class of drugs is more likely to cause sexual dysfunction rather than priapism, which is defined as a prolonged erection of the penis. Hence, this is the incorrect option. The mechanism by which atypical antipsychotics cause erectile dysfunction is not fully understood, but it is thought to be due to the action of the drugs on multiple receptors at the same time.

Tinnitus is a common side effect of medications such as Sertaline which is an SSRI, used to treat depression. But this patient does not have this condition in his past medical history, making this answer unlikely.

The metabolic disturbances (hyperlipidaemia and hyperglycaemia) caused by long-term usage of these drugs cause weight gain. This is the most common side effect of this class of drugs. Weight loss is therefore an incorrect option here.

Question:

Sabrina is a 16-year-old woman presenting with abdominal pains. The abdominal pain was around her lower abdomen and is crampy in nature and occasionally radiates to her back. Her pain normally comes on approximately 4-12 hours before the onset of her menstruation and lasts throughout the menstruation period. She also feels increasingly fatigues during this period. No abdominal pains were noted outwith her menstruation period.

Sabrina has just started menstruation 1 year ago. Her menstrual flow was normal and she only experienced minor pains during her previous menstrual cycles. She is not currently sexually active with no previous sexual partners. She denies any vaginal discharge or bleeding in between cycles. She remains unsure if she wants children in the near future.

Given the likely diagnosis, what is the likely 1st line treatment?

A.Combined oral contraceptive pill

B.Intrauterine copper coil

C.Intravenous ceftriaxone and oral doxycycline

D.Mefenamic acid

E.Tranexamic acid

Answer:Mefenamic acid

Explanation:

NSAIDs such as mefenamic acid are the first line treatment for primary dysmenorrhoea

Important for meLess important

This patient likely has primary dysmenorrhoea as her abdominal pains occur close to the period of her menstruation and there are no accompanying symptoms with the abdominal pains. As she is also not sexually active, this makes secondary dysmenorrhoea less likely. Given the lack of risk factors, a pelvic ultrasound is not always necessary and a clinical diagnosis of primary dysmenorrhoea can be made.

The 1st line treatment for primary dysmenorrhoea is a non-steroidal anti-inflammatory medication (NSAID). This can include ibuprofen, naproxen and mefenamic acid. They reduce the severity of the pain by reducing the amount of prostaglandins in the body.

Tranexamic acid, although similar in name to mefenamic acid, is not an NSAID and does not provide any form of analgesia property. This is commonly used as an antifibrinolytic and is commonly used in haemorrhages.

The combined oral contraceptive pill is often helpful in the management of primary dysmenorrhoea but is used when NSAIDs are not tolerated or ineffective at controlling the symptoms.

Intrauterine copper coil should not be used as this can occasionally worsen dysmenorrhoea and can induce menorrhagia as well.

Question:

A 32-year-old presents with an exacerbation of their ulcerative colitis reporting 6-8 bloody stools per day for 3 days. On exam, they had a mild fever at 38 oC and mild tachycardia with a heart rate of 105bpm. All other observations were within normal range and blood results found increased raised inflammatory markers only.

The patient was admitted, and remission of the flair achieved with steroid therapy. This is her second admission, with the last being 6 months ago when she presented with similar symptoms and examination/investigation findings.

On discharge what medication, if any, should be trialled?

A.No regular treatment required at this point

B.Oral aminosalicylate

C.Oral azathioprine

D.Oral methotrexate

E.Topical (rectal) aminosalicylate

Answer:Oral azathioprine

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

This patient has presented with her second severe exacerbation of ulcerative colitis (UC) within a year, with 6-8 bloody stools a day, fever, tachycardia and raised inflammatory markers. As such oral azathioprine or oral mercaptopurine should be commenced to maintain remission. This drug act as an immunosuppressant and has been shown to reduce the number and severity of UC exacerbations.

Given this is the patient's second severe exacerbation of their UC within a year treatment should be offered to reduce the risk of further episodes and therefore no regular treatment required at this point is incorrect.

Oral aminosalicylate can be used in patients suffering mild to moderate exacerbations of UC, however, it is normally used with a topic form of the medication (unless a patient has isolated left-sided disease). This patient has presented with their second severe exacerbation and therefore a more potent therapy is required.

Unlike in Crohn’s disease, oral methotrexate is not recommended in the management of UC as its use is associated with lower remission rates and higher complication rates when compared to its use in the other forms of inflammatory bowel disease.

Again topical (rectal) aminosalicylate can be considered to maintain remission in mild disease but once patients have severe exacerbations as in this case an oral immunosuppressant is required.

Question:

An 8-year-old boy presents to the emergency department with periorbital and peripheral oedema of 2 days duration. Blood tests were carried out which show the following:

Hb 160g/L (135-180)

Platelets 250\* 109/L (150 - 400)

WBC 9\* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 6.6 mmol/L (2.0 - 7.0)

Creatinine 120 µmol/L (55 - 120)

Albumin 10 g/L (35 - 50)

Triglycerides 10mmol/L (< 2 mmol/L)

HDL cholesterol 1.5mmol/L > (1 mmol/L)

LDL cholesterol 12mmol/L (< 3 mmol/L)

The patient is admitted to the ward for further management. He subsequently develops a deep vein thrombosis in his left calf.

Given the most likely diagnosis, what is the reason for this latest development?

A.The patient is in a hypercoagulable state due to being immobilised for a long period of time

B.The patient is in a hypercoagulable state due to increased activation of proteins C and S

C.The patient is in a hypercoagulable state due to loss of antithrombin III and plasminogen via the kidneys

D.The patient is in a hypercoagulable state due to loss of fibrinogen via the kidneys

E.The patient is in a hypercoagulable state due to the third spacing of fluid

Answer:The patient is in a hypercoagulable state due to loss of antithrombin III and plasminogen via the kidneys

Explanation:

Nephrotic syndrome is associated with a hypercoagulable state due to loss of antithrombin III via the kidneys

Important for meLess important

The patient is in a hypercoagulable state due to loss of antithrombin III and plasminogen via the kidneys is the correct answer. The patient presents with typical features of nephrotic syndrome (oedema, low albumin, high LDL). Antithrombin III inhibits coagulation by inhibiting the action of thrombin while plasminogen is involved in fibrinolysis. Both these molecules are lost via the kidneys in nephrotic syndrome giving rise to a hypercoagulable state. This is the most likely reason for the development of deep vein thrombosis in this patient.

The patient is in a hypercoagulable state due to being immobilised for a long period of time is plausible but there is no indication for this in the stem. Furthermore, the patient is suffering from a nephrotic syndrome which results in a hypercoagulable state due to loss of antithrombin III and plasminogen from the kidneys.

The patient is in a hypercoagulable state due to increased activation of proteins C and S is incorrect. Nephrotic syndrome results in the loss of protein C and S from the urine which would result in lower than normal levels. Furthermore, this answer choice is incorrect as increased activation of proteins C and S would result in a less coagulable state given that these proteins inhibit the coagulation cascade.

The patient is in a hypercoagulable state due to loss of fibrinogen via the kidneys is incorrect. Loss of fibrinogen would result in a less coagulable state as fibrinogen is converted into fibrin and then integrated into a fibrin-based clot. Furthermore, in nephrotic syndrome, fibrinogen levels are actually increased, thought to be due to increased synthesis by the liver.

The patient is in a hypercoagulable state due to third spacing of fluid is incorrect. This describes the mechanism of oedema formation in nephrotic syndrome but does not explain why the patient has developed a deep vein thrombosis.

Question:

A 62-year-old man presents to the emergency department with a 3-day history of shortness of breath on exertion and dizziness. He has no cough or chest pain but has noticed palpitations for the last 3 days.

The patient takes ramipril for hypertension and a GTN spray for his angina. He has no other medical history.

On examination, he is alert and orientated. Observations show heart rate 130 BPM, respiratory rate 25 breaths/min, blood pressure 130/92mmHg.

An ECG shows a narrow complex irregular tachycardia without P waves.

What is the most important next step in management?

A.Electrical cardioversion

B.Give a bolus of IV saline

C.Start bisoprolol

D.Start digoxin

E.Start high dose aspirin

Answer:Start bisoprolol

Explanation:

Acute onset of atrial fibrillation: if ≥ 48 hours or uncertain (e.g. patient not sure when symptoms started) → rate control

Important for meLess important

The correct answer is to start bisoprolol. Bisoprolol is a beta-blocker that slows down the heart rate by blocking the sympathetic nervous system's effect on the ventricles and causing systemic vasodilation. In atrial fibrillation (AF), the atrium is not contracting regularly to push blood into the ventricles and the ventricles are contracting so quickly that they are not spending enough time relaxed in order to fill with blood. By giving a beta blocker, the ventricular rate is slowed to allow more time for blood to enter the ventricle, increase preload and increase cardiac output.

Electrical cardioversion is incorrect. The patient has likely been in AF for the last 3 days judging by the 3 day's history of palpitations. If that is the case it is possible he has built up a clot in the left atrial appendage caused by stasis of blood. If this patient is cardioverted, their AF may resolve but the patient may have had embolus formation which could cause a stroke.

Starting high dose aspirin is the treatment for myocardial infarction and has no use in the treatment of atrial fibrillation.

Starting digoxin is incorrect. Digoxin is the second line of management for atrial fibrillation if the patient is haemodynamically stable. The patient is haemodynamically stable in this case so digoxin would be considered if beta blockers fail.

Give a bolus of IV saline is not correct. The atrium is not pushing sufficient blood into the ventricles and the ventricles not relaxing for long enough to fill with blood. Increasing blood volume with IV fluids will not push more blood into the ventricles and therefore make little difference to blood pressure.

Question:

A 7-month-old boy is brought to the emergency department by his family. He has a history of eczema, which is usually well-controlled, and previous chickenpox. Over the last 5 days, he has developed a worsening rash. This started with clusters of blisters on the face and neck. These have now spread to the trunk and arms.

You find a symmetrical monomorphic eruption of small blisters with central umbilication. They are filled with yellow fluid and blood-stained. The skin surrounding these clusters is normal. The patient is febrile and lethargic.

What is the most likely causative organism?

A.Staphylococcus aureus

B.Streptococcus pyogenes

C.Trichophyton rubrum

D.Herpes simplex virus

E.Varicella zoster virus

Answer:Herpes simplex virus

Explanation:

Eczema herpeticum is a primary infection of the skin caused by herpes simplex virus (HSV) and uncommonly coxsackievirus

Important for meLess important

The correct answer is herpes simplex virus. This patient's presentation is suggestive of eczema herpeticum. This affects patients with atopic eczema and typically presents with clusters of blisters, fever and malaise. The lesions may have clear, yellow or purulent fluid and are often blood-stained. Central umbilication is common. Herpes simplex virus is the most common cause, although in some cases others such as coxsackievirus may be seen.

Staphylococcus aureus is incorrect. This is a common cause of skin and soft tissue infections in adults and children. In children, it can be associated with outbreaks of staphylococcal scalded skin syndrome. This does cause a widespread rash but is generally quite different to that described here, with wrinkling of the skin followed by the development of large fluid-filled blisters which rupture easily. A generalised exfoliative dermatitis is seen. In the case described, the normal skin between lesions makes this less likely, as does the description of small umbilicated blisters rather than large bullae.

Streptococcus pyogenes is incorrect. This is a frequent cause of infections in children, including pharyngitis and impetigo. It can cause secondary infections in patients with eczema herpeticum, generally presenting as cellulitis spreading from the lesions. In this case, we are told the skin between lesions is normal, making this less likely.

Trichophyton rubrum is incorrect. This is a common cause of fungal skin infections such as tinea corporis. This typically presents with a single circular patch with erythema and scaling. Multiple lesions can develop and may coalesce but generally would not spread as widely as described. It is also generally asymmetrical.

Varicella zoster virus is incorrect. This is the causative organism of two distinct diseases, chickenpox and shingles. The blisters of chickenpox can be difficult to distinguish from eczema herpeticum. In chickenpox, the blisters do tend to be larger and have larger spaces between them. In this case, the history of eczema puts the patient at higher risk of eczema herpeticum. The key clue is the previous history of chickenpox - it is extremely unusual to have this illness more than once.

Question:

A 50-year-old male has been treated for 3 flares of gout over the last year and would like some medication to prevent this from reoccurring. His past medical history includes: gout, Crohn's disease, hypertension and depression. His regular medications are: paracetamol, omeprazole, ramipril, azathioprine and sertraline.

Which of the following medications would put this patient at risk of bone marrow suppression?

A.Ranitidine

B.Colchicine

C.Allopurinol

D.Prednisolone

E.Naproxen

Answer:Allopurinol

Explanation:

Azathioprine and allopurinol have a severe interaction causing bone marrow suppression

Important for meLess important

This patient has Crohn's disease and is taking azathioprine. This would react with allopurinol as they are both inhibitors of xanthine oxidase, causing bone marrow suppression.

Question:

A 1-year-old boy is brought to the GP as his mother has noticed an unusual lump on his neck. She is not sure how long it has been there for. It is located in the anterior triangle just in front of the sternocleidomastoid muscle and is soft in texture. The lump does not transilluminate but is mobile.

A biopsy is performed and reveals cholesterol crystals in the fluid extracted.

What is the most likely underlying diagnosis?

A.Branchial cyst

B.Cystic hygroma

C.Lipoma

D.Thyroglossal cyst

E.Thyroid mass

Answer:Branchial cyst

Explanation:

Branchial cysts characteristically contain cholesterol crystals

Important for meLess important

Branchial cysts are congenital abnormalities associated with the formation of a neck lump located in the anterior triangle. They characteristically appear in-front on sternocleidomastoid. The fluid may contain cholesterol crystals which are also characteristic. The wall of a branchial cyst is typically lined with squamous or columnar cells. They develop due to the failure of the second and third branchial arches to fuse in-utero.

Cystic hygromas are located in the posterior triangle of the neck (incorrect).

Lipomas would not contain fluid (incorrect).

Thyroglossal cysts are located in the mid-line and characteristically rise on protrusion of the tongue (incorrect).

Thyroid masses would also typically be central and they would not usually contain fluid.

Question:

A 30-year-old female is rushed into the Emergency Department with an asthma attack. On examination the patient has an SpO2 = 88%, blood pressure 100/65 mmHg and her chest is silent on auscultation. An arterial blood gas (ABG) sample reveals:

pO2 6.5 kPa

pCO2 7.6 kPa

pH 7.32

HCO3- 24 mmol/l

How would you describe the acid-base balance?

A.Respiratory acidosis with partial metabolic compensation

B.Mixed metabolic acidosis and respiratory acidosis

C.Respiratory acidosis with full metabolic compensation

D.Respiratory alkalosis with no metabolic compensation

E.Respiratory acidosis with no metabolic compensation

Answer:Respiratory acidosis with no metabolic compensation

Explanation:

The pH is low confirming acidaemia. The pCO2 is high confirming a respiratory acidosis. The HCO3- is normal suggesting there is no metabolic derangement or compensation. It is important to remember that metabolic compensation takes time (e.g. over days to weeks).

The pO2 is < 8 kPa confirming respiratory failure. As the pCO2 is high, this is more specifically an example of type 2 respiratory failure.

This is a near fatal asthma attack and the patient needs urgent intubation and ventilation.

Question:

John is a 59-year-old man who has come to the GP with his wife, Mary, for a gradual reduction in his hearing. He has noticed trouble hearing the television, causing him to turn up the volume and annoy Mary. He also struggles to hear on the telephone when its heard to his left ear. Over the last few weeks he has also noticed a 'whining' when the room is quiet and nobody is around. His past medical history is not significant and he is not on any medications. Mary says he gets through a box of cotton buds each week, John says they do not help. He denies any pain or discharge.

The GP performs the Rinne test and Weber test, the results of which are shown below.

Left Right

Rinne Negative Positive

Weber Lateralises to the left ear

What is the most likely diagnosis?

A.Age-related hearing loss

B.Ear wax impaction

C.Otosclerosis

D.Perforated tympanic membrane

E.Vestibular schwannoma

Answer:Ear wax impaction

Explanation:

Ear wax is a frequent cause of conductive hearing loss

Important for meLess important

John has a build up of ear wax which is causing his hearing loss. The use of cotton buds is likely to be worsening the condition, pushing the ear wax further in the ear canal, causing it to become impacted and stiff.

Age-related hearing loss is often bilateral and at 59 you wouldn't expect it to be that severe.

Otosclerosis presents very similarly, with conduction hearing loss and tinnitus, but given the patients age, sex and the rarity of the condition compared to cerumen impaction, it is not the most likely diagnosis.

Perforated tympanic membrane often presents suddenly with acute hearing loss or muffling. It is commonly associated with pain or aching of the ear. It can cause tinnitus however.

Vestibular schwannoma (acoustic neuromas) are relatively rare tumours that grown in the cerebellopontine angle and can compress the eight cranial nerve. It presents with similar symptoms, mostly unilateral, but due to compression of the vestibular nerve, patients often experience dizziness and loss of balance. In some cases, patients can get facial paralysis or numbness because of encroachment onto the facial nerve.

Question:

A 52-year-old male presents to the emergency department with a 4-hour history of acute loin pain associated with haematuria and fever. He has a past medical history of hyperparathyroidism. Observations show:

Respiratory rate of 18 breaths/min

Pulse of 113 beats/min

Temperature of 38.7ºC

Blood pressure of 126/88 mmHg

Oxygen saturations of 94% on room air

Blood results show:

Hb 147 g/L Male: (135-180)

Platelets 190 \* 109/L (150 - 400)

WBC 14.3 \* 109/L (4.0 - 11.0)

Neut 13.2 \* 109/L (2.0 - 7.0)

A CT kidney, ureters and bladder (KUB) identifies hydronephrosis of the left kidney and a renal stone in the left ureter, measuring 1.6cm in diameter. The sepsis 6 pathway is initiated.

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

A.Antibiotics only

B.Deferred surgical intervention

C.Nephrostomy tube insertion

D.Shockwave lithotripsy

E.Ureteroscopy with stone removal

Answer:Nephrostomy tube insertion

Explanation:

Acute upper urinary tract obstruction is managed with nephrostomy

Important for meLess important

The correct answer is nephrostomy tube insertion. This patient is presenting with symptoms suggestive of renal calculi (confirmed by CT KUB) and sepsis. Imaging also shows hydronephrosis, indicating the ureter is almost completely occluded. In cases of renal calculi with associated sepsis and acute kidney obstruction, the European Association of Urology recommends urgent decompression to prevent further complications in infectious hydronephrosis secondary to stone-induced, unilateral or bilateral, renal obstruction. Options for decompression include percutaneous placement of a nephrostomy tube or placement of an indwelling ureteral stent.

Antibiotics only is incorrect as this will do nothing to treat the underlying cause of the patient's sepsis.

Deferred surgical intervention is incorrect as urosepsis is a surgical emergency requiring immediate surgical intervention.

Shockwave lithotripsy is incorrect. This is only suitable for small renal calculi and does not sufficiently address the patients urosepsis.

Ureteroscopy with stone removal is incorrect. While this may be performed, the most important immediate step in the management of this patient is to relieve the obstructed kidney with either a nephrostomy tube or placement of an indwelling ureteral stent.

Question:

A 19-year-old man presents to the urgent GP clinic on Monday morning having been involved in a physical altercation on Friday night. He is worried he may have broken his nose. On examination, you see facial bruising and minor lacerations. The nose is visibly displaced and there is a bilateral, red swelling arising from the nasal septum.

What is the management plan?

A.Immediate closed reduction

B.Refer for facial X-ray

C.Refer to the emergency department

D.Return in one week for review

E.Same day ENT referral

Answer:Same day ENT referral

Explanation:

Nasal septal haematomas should be urgently referred to ENT for drainage

Important for meLess important

Same day ENT referral is correct. This patient has a nasal septal haematoma as indicated by the red swelling arising from the nasal septum. If left untreated this could lead to septal necrosis and a 'saddle-nose' deformity. He needs to be referred immediately to ENT for drainage.

Immediate closed reduction is incorrect. Mild, unilateral fractures can undergo closed reduction either immediately before swelling develops, or after 7-10 days when the swelling has settled but the nose can still be manipulated.

Refer for facial X-ray is incorrect. Facial x-rays are not indicated for simple nasal fractures or septal haematomas.

Refer to the emergency department is not appropriate. Though this patient needs urgent ENT input, he is otherwise stable and does not need emergency department care.

Refer in one week for review may be appropriate if this patient had just a simple nasal fracture without the septal haematoma, but due to the red swelling from the septum, he needs urgent ENT input.

Question:

A 23-year-old woman comes to the GP with a three-day history of vaginal itching and thick, non-odorous white discharge. She previously complained of the same symptoms four months ago but has no other medical history.

She is married and sexually active with her husband Her periods are regular, following a 28-day cycle. Vaginal pH testing reveals a value of 4.3.

What additional investigations should be performed before treatment?

A.Glycated haemoglobin (HbA1c)

B.High vaginal swab

C.Midstream urine sample

D.None needed, the diagnosis is clinical

E.Urine dipstick

Answer:None needed, the diagnosis is clinical

Explanation:

Vaginal candidiasis: Diagnosis does not require a high vaginal swab if the symptoms are highly suggestive

Important for meLess important

None needed, the diagnosis is clinical is correct. Vaginal candidiasis can be diagnosed clinically if the symptoms are highly suggestive. This patient has thickened, white (cottage cheese-like) discharge and vaginal itching, with a normal vaginal pH, making a diagnosis of vaginal candidiasis very likely.

Glycated haemoglobin (HbA1c) is incorrect. This could be considered in someone who has recurrent episodes of vaginal candidiasis, as diabetes mellitus increases the risk of developing candidiasis. However, this patient has only had 2 episodes. The British Association for Sexual Health and HIV (BASHH) defines recurrent vaginal candidiasis as 4 or more episodes per year.

High vaginal swab is incorrect. If the clinical features are highly suggestive of vaginal candidiasis, a high vaginal swab is not necessary.

Midstream urine sample is incorrect. There is no role for midstream urine samples in the diagnosis of vaginal candidiasis. It could be used if a sexually-transmitted infection is suspected. However, the history is highly suggestive of vaginal candidiasis.

Urine dipstick is incorrect. There is no role for urine dipstick testing in the diagnosis of vaginal candidiasis.

Question:

A 28-year-old woman who is 34 weeks pregnant presents to her GP with pruritus in the soles of her hands and feet which is worse at night and affecting her sleep. She is later referred to the obstetric team in view of deranged liver function tests (LFTs). She is provided with some medication by the obstetric team which significantly improves her pruritic symptoms.

What medication has most likely been provided to this patient given the history above?

A.Cetirizine

B.Colestyramine

C.Dexamethasone

D.Rifampicin

E.Ursodeoxycholic acid

Answer:Ursodeoxycholic acid

Explanation:

The first-line medical treatment for intrahepatic cholestasis of pregnancy is ursodeoxycholic acid

Important for meLess important

The history above in combination with a deranged LFTs in a pregnant woman who is in her third trimester is suggestive of obstetric cholestasis. According to the Royal College of Obstetricians and Gynaecologists, women with obstetric cholestasis can be given ursodeoxycholic acid to help improve pruritus and LFTs.

Antihistamines like cetirizine do not typically help the pruritic symptoms in pregnancy.

Colestyramine is the drug of choice for treating cholestatic pruritus but is not usually indicated specifically for obstetric cholestasis.

Dexamethasone should not be first-line therapy for the treatment of obstetric cholestasis and is, therefore, incorrect.

Rifampicin according to the British National Formula, can be used as an alternative treatment for pruritus but should be used with caution in patients with pre-existing liver disease because of possible hepatotoxicity. But is not indicated in obstetric cholestasis.

Question:

A 56-year-old man presents to his GP, complaining of erectile dysfunction. He denies any current stressors or changes in his lifestyle or diet. His past medical history includes type 2 diabetes mellitus, hypertension, gastroesophageal reflux disease (GORD) and osteoarthritis. His regular medications include gliclazide, indapamide, metformin, omeprazole and paracetamol.

The GP suspects that one of his regular medications is causing his erectile dysfunction.

Which medication is most likely to be the cause?

A.Gliclazide

B.Indapamide

C.Metformin

D.Omeprazole

E.Paracetamol

Answer:Indapamide

Explanation:

Sexual dysfunction is an important side effect of thiazide-like diuretics such as indapamide

Important for meLess important

Of the medications listed, indapamide is the most likely cause of this man's erectile dysfunction - it is listed as a common side-effect in the BNF. Thiazide-like diuretics, in general, are known to cause sexual dysfunction. The other medications listed are not associated with sexual dysfunction.

Gliclazide is a sulfonylurea, used in the management of diabetes mellitus. Its common side effects are primarily gastrointestinal upset: diarrhoea, nausea and abdominal pain. Due to it's action as an insulin secretagogue, it can cause hypoglycaemia.

Metformin is used in the management of type 2 diabetes mellitus. It's side effect profile consists of nausea, vomiting, constipation and rarer adverse effects such as B12 deficiency and lactic acidosis.

Omeprazole is a proton-pump inhibitor used to control excess stomach acid production, used in the management of dyspepsia. It causes gastrointestinal side-effects such as diarrhoea, nausea and vomiting. Proton-pump inhibitors are also associated with electrolyte disturbances such as hyponatraemia and hypomagnesaemia.

Paracetamol has a minuscule side effect profile; in toxicity in can cause acute hepatic failure.

Question:

A 57-year-old man has undergone ambulatory blood pressure monitoring (ABPM) after it was found that he had raised blood pressure during a routine GP check-up.

His average blood pressure recorded is 164/108 mmHg. His GP calculates his QRisk score to be 12%.

The patient has no known past medical history but he takes regular ibuprofen for lower back pain.

Given this patient's investigation findings, what is the most appropriate next step in his management?

A.Lifestyle advice and calcium channel blocker

B.Lifestyle advice and statin

C.Lifestyle advice, statin, and ACE-inhibitor

D.Lifestyle advice, statin, and angiotensin-receptor blocker

E.Lifestyle advice, statin, and calcium channel blocker

Answer:Lifestyle advice, statin, and 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

Lifestyle advice, statin, and calcium channel blocker is the correct answer. This patient has stage 2 hypertension (characterised by clinic blood pressure of 160/100 mmHg or higher but less than 180/120 mmHg and subsequent ABPM average blood pressure of 150/95 mmHg or higher). Given his age, and the fact that he has no past medical history, he should be offered lifestyle advice and a calcium channel blocker. Further, as his Q-Risk score is >10%, this patient should also be offered a statin.

Lifestyle advice and calcium channel blocker is incorrect. While this is the first-line treatment for hypertension in patients over 55 years with stage 2 hypertension and no diagnosis of type 2 diabetes, this patient's Q-Risk score is >10% which is an indication for a statin.

Lifestyle advice and statin is incorrect. While these both form part of the management of a patient with diagnosed hypertension and QRisk score >10%, this patient has stage 2 hypertension and should therefore be offered antihypertensive medication. Given his age and past medical history, a calcium channel blocker should be offered first-line.

Lifestyle advice, statin, and ACE-inhibitor is incorrect. An ACE inhibitor would be offered to manage this patient's hypertension first-line if he was <55 years and not black African/African-Caribbean or if he had a diagnosis of type 2 diabetes. As this patient fits neither of these criteria, a calcium channel blocker should be offered instead. He will require lifestyle advice and a statin as he has a Q-Risk score of >10%.

Lifestyle advice, statin, and angiotensin-receptor blocker is incorrect. This patient has a diagnosis of stage 2 hypertension as characterised by his clinic and ABPM blood pressure readings. Further, he has a Q-Risk score of >10%. As such, he should be offered medical management of his hypertension and a statin alongside lifestyle advice. Given his age, and lack of medical history, first-line antihypertensive would be a calcium channel blocker.

Question:

A 23-year-old man presents to his GP. He describes episodes of leg weakness following bouts of laughing whilst out with friends. The following weekend his friends described a brief collapse following a similar episode. What is the most likely diagnosis?

A.Stokes-Adams attack

B.Cataplexy

C.Hypokalaemic periodic paralysis

D.Absence seizure

E.Myasthenia gravis

Answer:Cataplexy

Explanation:

Laughter → fall/collapse ?cataplexy

Important for meLess important

Question:

A 35-year-old man presents to his GP with a persistent cough and some unintended weight loss over the past 6 months. On examination, the GP notices some erythematous lumps on his shins that are tender to touch.

An image of these lesions is shown below.

© Image used on license from DermNet NZ

Given his presentation, which combination of tests would be most useful to investigate this patient initially?

A.Serum ACE, chest x-ray and ANA autoantibodies

B.Serum ACE, chest x-ray and rheumatoid factor

C.Serum ACE, sputum culture and chest x-ray

D.Sputum culture, spirometry and ANA autoantibodies

E.Sputum culture, spirometry and rheumatoid factor

Answer:Serum ACE, sputum culture and chest x-ray

Explanation:

Serum ACE, sputum culture, and chest x-ray is the correct answer. The lesions on this man's legs are consistent with erythema nodosum (tender, erythematous nodules most commonly seen on the shins). There are many possible causes of erythema nodosum, including infections (such as TB), systemic conditions (such as sarcoidosis, IBD and Behcet's disease), malignancy and certain drugs. Given the cough and weight loss, investigations for TB and sarcoidosis must be considered. Sputum culture is the gold standard for TB diagnosis, serum ACE is useful in indicating possible sarcoidosis, and a chest x-ray can be useful in both conditions for showing and staging the disease.

Serum ACE, chest x-ray and ANA autoantibodies is incorrect. ANA antibodies are usually used to look for systemic lupus erythematosus (SLE). SLE can cause lung fibrosis, pneumonitis and pleurisy. Patients with SLE may have respiratory symptoms; however, it is associated with pyoderma gangrenosum, not erythema nodosum; therefore, it is unlikely in this case. As such, there are better combinations of investigations that could be carried out initially.

Serum ACE, chest x-ray and rheumatoid factor is incorrect. Rheumatoid factor would be useful if we suspected rheumatoid arthritis. While rheumatoid arthritis can have some respiratory manifestations, like pulmonary fibrosis/pleural effusion, it is associated with pyoderma gangrenosum, not erythema nodosum; therefore, it is unlikely in this case. As such, there are better combinations of investigations.

Sputum culture, spirometry and ANA autoantibodies is incorrect. As described above, this picture doesn't fit with SLE; therefore, ANA autoantibodies are unnecessary. Though sarcoidosis doesn't have one set diagnostic test, serum ACE and an x-ray would be useful, as raised serum ACE may be seen, and an x-ray may show changes such as bilateral hilar lymphadenopathy.

Sputum culture, spirometry and rheumatoid factor is incorrect. As described above, rheumatoid factor is unlikely to be useful, given that rheumatoid arthritis is an unlikely diagnosis, and other investigations, like serum ACE levels and an x-ray, would be more useful.

Question:

An 84-year-old gentleman with known metastatic lung cancer comes to the oncology clinic for review. He was treated with multiple courses of radiotherapy but with lack of response the treatment has stopped and he is being managed symptomatically. He has noticed that his face looks different and whilst not concerning him, his daughter wanted him to mention it.

On examination, he has drooping of the right eyelid and the right pupil is smaller. What other feature would be consistent with Horner's syndrome?

A.Wasting of the small muscles of the hand

B.Ipsilateral loss of sweating of the face

C.Supraclavicular mass

D.Inability to abduct the ipsilateral shoulder

E.Shoulder pain

Answer:Ipsilateral loss of sweating of the face

Explanation:

The correct answer is ipsilateral loss of sweating of the face. This is a patient with Horner's syndrome most likely due to Pancoast's tumour. Horner's syndrome features miosis, ptosis, enophthalmos and anhidrosis as unilateral features. Whilst evidence of a mass which may be causing brachial plexus damage leading to loss of arm nerve function can be associated, they are not part of Horner's syndrome.

Question:

A 26-year-old woman is found to be hypertensive with a blood pressure of 155/110 mmHg during labour for her first baby at 39 weeks. Urinalysis shows +++ protein. Which of these is the most appropriate way to manage her hypertension?

A.Administer lisinopril with target blood pressure < 135/85 mmHg

B.Administer aspirin and intramuscular steroids

C.Administer intravenous nifedipine with target blood pressure < 145/90 mmHg

D.Administer intravenous labetalol with target blood pressure < 135/85 mmHg

E.Administer intravenous labetalol with target blood pressure < 145/90 mmHg

Answer:Administer intravenous labetalol with target blood pressure < 135/85 mmHg

Explanation:

Question:

A 26-year-old male presents with headaches. His GP finds his blood pressure to be 190/115 mmHg. He is urgently referred to hospital where investigations show:

Hb 145 g/l

Platelets 360 \* 109/l

WBC 6.8\* 109/l

Na+ 138 mmol/l

K+ 3.8 mmol/l

Urea 2.3 mmol/l

Creatinine 101 µmol/l

Ca2+ 2.95 mmol/l

PO4-3 0.74 mmol/l

PTH 8.6 pmol/l (normal range 1.2 - 5.7 pmol/l)

Further investigations reveal raised 24 hour urinary catecholamines and an adrenal mass on abdominal CT.

What is the most likely diagnosis?

A.Multiple endocrine neoplasia type 1

B.Autoimmune polyendocrine syndrome type 1

C.Primary hyperparathyroidism

D.Multiple endocrine neoplasia type 2

E.Autoimmune polyendocrine syndrome type 2

Answer:Multiple endocrine neoplasia type 2

Explanation:

Multiple endocrine neoplasia (MEN) type 2 is a genetic condition characterised by neoplasia of the thyroid (medullary cell carcinoma), parathyroid (parathyroid adenoma) and adrenal glands (phaeochromocytoma).

In this example, raised 24 hour urinary catecholamines and an adrenal mass on abdominal CT are suggestive of a phaeochromocytoma, which would also explain the severe hypertension.

The high PTH, hypercalcaemia and low phosphate would be explained by a parathyroid adenoma.

It would be important to assess this patients thyroid gland - both clinically and biochemically. The tumour may not be palpable within the thyroid gland itself so it would also be important to measure serum calcitonin which is a tumour marker for medullary cell cancer.

Question:

A 32-year-old man presents to the medical assessment unit with a dry cough for 1-week. His oxygen saturations are 92% on room air. He has bilateral coarse crackles on auscultation and a chest X-ray shows bilateral consolidation.

A peripheral blood smear shows red blood cell agglutination.

What bacteria is most likely to cause this presentation?

A.Klebsiella pneumoniae

B.Legionella pneumophilia

C.Moraxella catarrhalis

D.Mycoplasma pneumoniae

E.Pneumocystis jiroveci

Answer:Mycoplasma pneumoniae

Explanation:

Pneumonia, peripheral blood smear showing red blood cell agglutination → Mycoplasma pneumoniae

Important for meLess important

IgM antibodies against Mycoplasma pneumoniae react against human red blood cells at cold temperatures causing them to agglutinate. This can be seen in a peripheral blood smear and is the reason Mycoplasma pneumoniae causes haemolytic anaemia.

Klebsiella pneumonia typically causes pneumonia in alcoholics.

Legionella pneumophilia classically causes a dry cough and is related to air-conditioning systems. It can cause lymphopenia, hyponatraemia and deranged liver function tests.

Moraxella catarrhalis is gram-negative coccus that is implicated in infective exacerbation of COPD.

Pneumocystis jiroveci typically causes exertional hypoxia and is a cause of pneumonia in HIV and immunosuppressed patients.

Question:

You are running a Thursday afternoon clinic and a father comes in with his 12-year-old son who has developed new pustular, honey-coloured crusted lesions over his chin. He is systemically well with all observations in the normal range and no evidence of lymphadenopathy on examination. He has no allergies to any medications and is normally fit and well.

You diagnose localised non-bullous impetigo.

The son is due to go on a school trip to the Science Museum in London the following day and is extremely excited about this. The father asks if he is allowed to go on this school trip.

What is your management plan?

A.Admit him to hospital for further investigations and swabbing

B.Arrange an urgent outpatient dermatology appointment

C.Prescribe topical hydrogen peroxide 1% cream and advise them that the child should be excluded from school until the lesions are crusted and healed

D.Prescribe topical hydrogen peroxide 1% cream and reassure them that he can go on the school trip as soon as he has started using it

E.Prescribe topical fusidic acid 2% and reassure them that he can go on the school trip as soon as he has started using it

Answer:Prescribe topical hydrogen peroxide 1% cream and advise them that the child should be excluded from school until the lesions are crusted and healed

Explanation:

A child with impetigo should be excluded from school until the lesions are crusted and healed or 48 hours after commencing antibiotic treatment

Important for meLess important

NICE CKS advises that for localised non-bullous impetigo, you can consider prescribing hydrogen peroxide 1% cream (apply two or three times daily for 5 days) for people who are not systemically unwell or at a high risk of complications.

Only if this is 'unsuitable', should you consider topical antibiotics (first line is fusidic acid 2%, with mupirocin 2% as second line if fusidic acid resistance is suspected or confirmed).

Neither referral nor admission are required for this simple primary care presentation.

Unfortunately, even if you were to prescribe topical antibiotics, he must not return to school (and thus his school trip) for either 48 hours after commencing antibiotic treatment or until the lesions are crusted and healed.

Question:

A 34-year-old woman who takes hydrocortisone and fludrocortisone replacement therapy for Addison's disease presents for review. She has a three-day history of a productive cough associated with feeling hot. On examination the chest is clear, her pulse is 84 / min and temperature is 37.7ºC. You elect to prescribe an antibiotic given her medical history. What is the most appropriate advice with regard to her adrenal replacement therapy?

A.Keep the same hydrocortisone and fludrocortisone dose

B.Double both the hydrocortisone and fludrocortisone dose

C.Double the hydrocortisone dose, keep the same fludrocortisone dose

D.Convert her to prednisolone for the duration of the illness

E.Stop the hydrocortisone and fludrocortisone until the patient recovers

Answer:Double the hydrocortisone dose, keep the same fludrocortisone dose

Explanation:

Addison's patient with intercurrent illness → double the glucocorticoids, keep fludrocortisone dose the same

Important for meLess important

Question:

A 72-year-old woman presents to the emergency department. She describes to the doctors that a few minutes ago she felt a tingling sensation in her left little toe followed by jerking movements on the rest of her left side of the body.

Given the likely diagnosis, what part of her brain is affected?

A.Frontal lobe

B.Hippocampus

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

This woman experienced a case of a Jacksonian seizure, which is a specific type of focal partial seizures. It usually starts with a twitching or tingling sensation in an area such as the little toe or the finger, which is followed by jerking movements moving proximally at the same side of the body.

Frontal lobe is correct. These movements originate from abnormal electrical activity in this area of the brain, particularly in the motor cortex. The frontal lobe is the second most common origin site of focal partial seizures after the temporal lobe. As explained, the pattern of tingling and jerking movements in the case is typical of a Jacksonian movement.

Hippocampus is wrong. There is instead an association between temporal lobe seizures and the hippocampus, with many temporal lobe seizures starting or causing damage to the hippocampus.

Occipital lobe is wrong. Seizures beginning at the occipital lobe affect eyesight and are rarer compared to other types.

Parietal lobe is wrong. Seizures starting in this area of the brain are also uncommon and can cause numerous sensory disturbances. These include visual and vestibular hallucinations, paresthesias and somatic illusions.

Temporal lobe is also wrong. Temporal lobe seizures are the most common type of focal partial seizures and can give rise to a variety of symptoms, such as strong emotions, including fear, epigastric discomfort, automatic repeated movements and a characteristic smell.

Question:

A 33-year-old woman who is 34 weeks pregnant sees her midwife for a routine review. She feels well in herself apart from reporting some constipation, for which she has been taking lactulose.

The midwife's checks reveal:

Fundal height: 35cm

Blood pressure: 142/92 mmHg

Urine dip: protein 1+

What is the most appropriate next step in her management?

A.Arrange a growth scan

B.Arrange home blood pressure monitoring

C.Repeat in 24 hours

D.Start labetalol

E.Urgent obstetrics referral

Answer:Urgent obstetrics referral

Explanation:

NICE recommend arranging emergency secondary care assessment for any woman in whom pre-eclampsia is suspected

Important for meLess important

This patient has features of pre-eclampsia (blood pressure >=140/90 mmHg and proteinuria >= +1). Although pre-eclampsia may present with symptoms such as headache or swelling, it is often asymptomatic and detected initially through routine monitoring of urine and blood pressure. It is potentially life-threatening and she should therefore be referred to secondary care for further investigation and management.

A growth scan is likely to take place as part of her overall management but is not the priority now. Pre-eclampsia can cause intrauterine growth restriction, so growth scans are used to monitor this.

Home BP monitoring may be helpful going forward but is not indicated now. She needs further assessment first and therefore this is not the most appropriate option.

Repeating in 24 hours is incorrect as emergency secondary care assessment is indicated.

Labetalol may be indicated for the management of her blood pressure but it would not be initiated before obstetric specialist investigation and input.

Question:

A 1-year-old male is admitted to a paediatric ward with bacterial meningitis. He is discharged with a full recovery.

Which of the following complications should he be assessed for?

A.Epilepsy

B.Attention deficit hyperactivity disorder

C.Learning difficulties

D.Sensorineural hearing loss

E.Vision loss

Answer:Sensorineural hearing loss

Explanation:

Sensorineural hearing loss is the most common complication following meningitis

Important for meLess important

Sensorineural hearing loss is the most common complication of bacterial meningitis and hearing tests are routinely performed to assess for this.

Epilepsy, concentration problems, learning difficulties and vision loss are potential complications of bacterial meningitis but they are not routinely tested for.

Question:

You want to prescribe an antiemetic to a 19-year-old female who is having a migraine attack. Which one of the following medications is most likely to precipitate extrapyramidal side-effects?

A.Meptazinol

B.Ondansetron

C.Domperidone

D.Cyclizine

E.Metoclopramide

Answer:Metoclopramide

Explanation:

Extrapyramidal side-effects are particularly common in children and young adults.

Question:

A 4-year-old boy is brought in to surgery by his mother. He has reportedly been drowsy and pyrexial for the past 2 hours. Whilst waiting to be seen he becomes unresponsive. One of your GP colleagues performs an urgent assessment whilst the practice nurse calls 999. He is making no respiratory effort so 5 rescue breaths are given. As you arrive your colleague cannot detect a brachial or carotid pulse. What is the most appropriate course of action?

A.Start chest compressions/ventilations at a ratio of 5:1

B.Check for a femoral pulse

C.Start chest compressions/ventilations at a ratio of 15:2

D.Give a further 5 rescue breaths

E.Start chest compressions/ventilations at a ratio of 30:2

Answer:Start chest compressions/ventilations at a ratio of 15:2

Explanation:

As two trained members of staff are present the ratio of chest compressions to ventilations should be 15:2

Question:

A 42-year-old female is referred to the endocrinology outpatient clinic for review after presenting with gradual arm and leg weakness and feeling fatigued. She disclosed that she has also gained 25kg in three months despite being on a calorie-controlled diet. Her observations show a heart rate of 92 beats/min, temperature of 36.7ºC, blood pressure of 180/98mmHg, respiratory rate of 18/min with oxygen saturations of 98% in room air.

What is the single most appropriate test for diagnosis in this patient?

A.Insulin tolerance testing

B.Low-dose (overnight) dexamethasone suppression test

C.Oral glucose tolerance test

D.Short ACTH stimulation (Synacthen) test

E.Thyroid function tests

Answer:Low-dose (overnight) dexamethasone suppression test

Explanation:

The low-dose (overnight) dexamethasone suppression test is the best test to diagnosis Cushing's syndrome

Important for meLess important

This patient is presenting with symptoms and observations consistent with Cushing's disease:

Cortisol induced fatigue.

Weight gain and altered fat distribution.

Proximal muscle weakness.

Hypertension.

The first-line investigation in these patients is a low-dose dexamethasone suppression test where 1mg is given at night and the cortisol is tested at 8 am the next morning. In patients with Cushing's disease, there would be no cortisol level. In patients without Cushing's disease, they will have reduced cortisol levels.

Insulin tolerance testing is used to assess the hypothalamic-pituitary-adrenal axis (HPA axis) in suspected panhypopituitarism. It assesses cortisol and growth hormone levels. Hypoglycaemia (after an insulin injection) should induce a rise in cortisol levels. However, this should be avoided in patients with severely low cortisol levels, elderly/frail, ischaemic heart disease, or history of seizures due to the risk of hypoglycaemic events. While this patient does have symptoms of low cortisol, it is not a first-line test for assessing low cortisol.

An oral glucose tolerance test would be appropriate if the patient was suspected to have acromegaly. This diagnosis is confirmed if there is no growth hormone suppression following administration of glucose solution. The clinical presentation would be with increasing size of hands and feet, frontal bossing, headache, macroglossia, and proximal myopathy. This patient does have symptoms of weakness however she does not have any of these characteristic descriptions of change in appearance.

A short ACTH stimulation test is used to assess for Addison's disease. Patients presenting with Addison's disease usually appear tanned, lean, fatigued, and have weight loss. A short ACTH stimulation test with Synacthen. In patients without Addison's, this will increase cortisol levels (while there is no change in Addisonian patients).

Thyroid function testing would be appropriate if the patient was suspected to have a deranged thyroid function. Symptoms of hypothyroidism include lethargy and weight gain, however, the constellation of hypertension, proximal muscle weakness, weight gain, and fatigue are more consistent with Cushing's.

Question:

There has been a recent outbreak of norovirus in a local nursing home. The manager of the care home has contacted you at the GP surgery seeking information on this illness and advice on how to reduce the risk of spreading the virus.

Which of the following is the most appropriate advice on preventing the spread of this virus?

A.Handwashing with soaps and warm water before and after contact with those infected with norovirus

B.Regular use of alcohol gels before and after contact with those infected with norovirus

C.Early treatments with antivirals in suspected cases of norovirus

D.Avoid contact with any blood products of those infected with norovirus

E.Staffs infected with norovirus should only return to work 24 hours after symptoms have resolved

Answer:Handwashing with soaps and warm water before and after contact with those infected with norovirus

Explanation:

Alcohol gels are less effective than handwashing in preventing the spread of norovirus

Important for meLess important

The correct answer is 'handwashing with soaps and warm water before and after contact with those infected with norovirus'. Alcohol gels are less effective than handwashing in preventing the spread of norovirus.

There are no roles of antivirals in the treatment of norovirus.

Norovirus is not a blood-borne virus. They are commonly spread through contaminated food or drinks, touching surfaces or objects contaminated with norovirus or having direct contact with someone who is infected with norovirus.

Staffs infected with norovirus must stay off work for at least 48 hours after symptoms have stopped.

Question:

A 90-year-old woman with no past medical history presents with increasing forgetfulness. Her daughter is worried that over the last four weeks her mother has been forgetting her grandchildren's names and stories from her upbringing. The patient states that she has had a loss of appetite, sometimes forgetting if she has eaten, is not getting good quality sleep and is angry with her daughter for taking her to the doctors. She sometimes sees and hears her recently deceased husband.

The mini-mental test score is 17/30 and the patient is not happy with this result.

What is the most likely diagnosis in this case?

A.Alzheimer’s dementia

B.Depression

C.Frontotemporal lobe dementia

D.Lewy body dementia

E.Paraphrenia

Answer:Depression

Explanation:

Severe depression can mimic dementia but gives a pattern of global memory loss rather than short-term memory loss - this is called pseudodementia

Important for meLess important

Depression is the correct answer. This is a classical presentation of pseudodementia - the most common mimic for dementia amongst elderly patients. Although there is evidence of some cognitive impairment, the key feature present is a global memory loss affecting both short and longer-term memory, over a short history of four weeks with reluctance to engage with clinical assessment. These symptoms, coupled with the recent loss of her husband, indicate a severe reactive depressive episode.

Alzheimer’s dementia is a key differential diagnosis for these symptoms given the patient's age, though it would tend to present more gradually, with selective impairment of short-term memory, and relative sparing of longer-term memories.

Frontotemporal lobe dementia tends to present with more florid frontal lobe symptoms, e.g. dramatic behavioural change or emotional disinhibition and is less likely than depression in this instance.

Lewy body dementia shares some features of this case, including visual hallucinations and impaired cognition. However, the specific hallucination of the patient's husband is more likely related to a grief reaction and depression, which is also favoured by the relatively short symptom course. Question stems describing Lewy body dementia will often also give some hint towards a movement disorder.

Paraphrenia is incorrect as this disorder tends to manifest as (often persecutory) audiovisual hallucinations in older patients, rather than the cognitive impairment seen in this case. The isolated hallucination of this patient's husband is also more in keeping with a normal grief response than paraphrenia.

Question:

A 71-year-old woman is diagnosed with polymyalgia rheumatica. She is started on prednisolone 15mg od. What is the most appropriate approach to bone protection?

A.Arrange a DEXA scan

B.Ensure calcium and vitamin D replete

C.Do a FRAX assessment

D.Reassess fracture risk after 3 months

E.Start oral alendronate + ensure calcium and vitamin D replete

Answer:Start oral alendronate + ensure calcium and vitamin D replete

Explanation:

Bone protection for patients who are going to take long-term steroids should start immediately

Important for meLess important

Question:

A 29-year-old woman attends the GP for a mental health follow-up. She first presented 7 months ago with an episode of major depression which resolved with fluoxetine, which the patient has now stopped.

Today, she feels 'great'. Over the 5 days, she has only needed to sleep for 4 hours per night and instead, has been renovating her whole house whilst still attending work, where her boss has praised her for her newfound confidence and productivity. You notice that she is talking quickly and that her thoughts are hard to follow at times. There is no sign of self-neglect.

What is the likely diagnosis?

A.Cyclothymic disorder

B.Emotionally unstable personality disorder

C.Schizoaffective disorder

D.Type 1 bipolar affective disorder

E.Type 2 bipolar affective disorder

Answer:Type 2 bipolar affective disorder

Explanation:

Type I bipolar is associated with mania and type 2 is associated with hypomania

Important for meLess important

This patient presents today with features of mania, including elated mood, decreased need for sleep, increased productivity, fast speech and flight of ideas. The patient does not have psychotic symptoms and her symptoms do not appear to be attending her functioning (for example, she is still attending work and engaging in self-care). This suggests a diagnosis of hypomania, rather than mania. As the patient has already had an episode of depression, her presentation is in keeping with bipolar affective disorder. Type 2 bipolar affective disorder is characterised by at least one episode of major depression (as suggested in this patient's history) and at least one episode of hypomania.

Cyclothymic disorder is characterised by at least 2 years of symptoms, marked by periods of hypomanic symptoms that do not meet the criteria for a manic episode and periods of depressive symptoms that do not meet criteria for a major depressive episode. During this time, the person has not been without mood symptoms for 2 years. This is not the diagnosis in this patient, firstly as she has not had symptoms for 2 years, and secondly as her symptoms meet the criteria for a manic episode, and previously met the criteria for a major depressive episode.

Emotionally unstable personality disorder (EUPD) can also present with mood swings. However, in this condition, there is a longstanding pattern of mood that can change over minutes-hours, rather than bipolar affective disorder which is characterised by discrete episodes of mania/hypomania and depression, each of which last days - weeks with periods of normal mood in between. Other features of EUPD include impulsivity, self-harm, fear of abandonment, intense and unstable personal relationships and feelings of emptiness. None of these features are mentioned in this patient.

Schizoaffective disorder is marked by a combination of both symptoms of schizophrenia and symptoms of mood disorder. This patient brief displays no features of psychosis, such as delusions or hallucinations. Whilst mania may also be associated with features of psychosis (such as grandiose beliefs), the psychotic symptoms in schizoaffective disorder are seen outside of the mood symptoms. In patients who have psychosis in association with a mood disorder, the symptoms are only seen during episodes of the mood disorder.

Type 1 bipolar affective disorder is diagnosed if there is at least one episode of major depression and one episode of mania. This patient has hypomania, rather than mania, as her symptoms are not affecting her functioning (e.g. she is attending work, not neglecting her self-care and does not appear so unwell that she requires hospitalisation). Also, she does not have any psychotic symptoms (if she did, this would also confirm a diagnosis of mania).

Question:

A 23-year-old female presents to her GP with a positive urine pregnancy test, believing she is 4-5 weeks pregnant. She is anxious as she has recently heard a friend had an ectopic pregnancy and wants to know if she is at increased risk.

Her notes state that she had an intrauterine system (IUS) removed 8 months ago and was treated for a Chlamydia infection 5 years ago. She had a cervical ectropion identified at a gynaecology appointment 2 months ago after a 3cm simple ovarian cyst was seen on ultrasound.

The patient also reports attending a party two nights ago where she drank excessively. Prior to her pregnancy test today she would usually drink a bottle of wine a week.

Which feature of this patient's history could increase her risk?

A.Drinking to excess

B.Previous Chlamydia infection

C.Cervical ectropion

D.Intrauterine system (IUS) use

E.Simple ovarian cyst

Answer:Previous Chlamydia infection

Explanation:

Pelvic inflammatory disease increases the risk of an ectopic pregnancy

Important for meLess important

This patient has a history of Chlamydia which may have caused pelvic inflammatory disease before it was identified. Chlamydia is often asymptomatic, especially in women and can cause scarring of the fallopian tubes, subfertility and increased risk of ectopic pregnancy. Any pathology that slows the egg's passage to the uterus can lead to an increased risk of ectopic pregnancy.

Drinking to excess while pregnant is not recommended due to the risk of neural tube defects and foetal alcohol syndrome, however, it is not associated with ectopic pregnancy. It should be noted, however, that smoking is believed to increase the risk of ectopic pregnancy - cementing the importance of asking about social history when counselling patients wanting to conceive.

A history of cervical ectropion is not a risk factor for ectopic pregnancy. It can predispose a patient to bleed in pregnancy, though.

Previous use of an IUS will not increase the risk of an ectopic pregnancy, however, conceiving when an IUS is in situ will increase the risk of this occurring. This is due to the aforementioned effect of slowing the ovum transit to the uterus.

A simple ovarian cyst will not increase the risk of an ectopic pregnancy. There is a risk of ovarian torsion with large ovarian cysts, however, 3cm is not a cause for concern and the patient does not have signs or symptoms of ovarian torsion (or ectopic pregnancy).

Question:

A 56-year-old man presents with a 48 hour history of nausea, vomiting and abdominal tenderness. His partner accompanies him and reports an increase in confusion. His past medical history includes alcohol dependence and depression. On examination you notice a liver flap and abdominal distention, which tests positive for shifting dullness. He has an AMTS score of 6/10. Observations are as follows: heart rate 92/min, blood pressure 142/85mmHg, respiratory rate 14/min, SpO2 96%, temperature 37.8ºC.

Paracentesis is performed, which reveals an ascitic neutrophil count of 314x106/L.

What is the most likely organism that will be found on ascitic fluid culture in this patient?

A.Staphylococcus aureus

B.E. coli

C.Streptococcus pyogenes

D.Candida species

E.Staphylococcus epidermis

Answer:E. coli

Explanation:

Spontaneous bacterial peritonitis: most common organism found on ascitic fluid culture is E. coli

Important for meLess important

The patient in this question has spontaneous bacterial peritonitis (SBP). SBP presents with non-specific symptoms including nausea and vomiting, abdominal tenderness, fever and general malaise. Patients may also develop hepatic encephalopathy. The most common organism causing SBP is E. coli.

Question:

A 46-year-old man presents to the emergency department of a tertiary centre with a 4-hour history of central chest pain. The pain does not radiate and the patient reports feeling palpitations. Past medical history includes hypertension. Electrocardiogram (ECG) shows widespread saddle-shaped ST-elevation and PR depression in all leads.

Troponin I 50 ng/L Male: (0-34) Female: (0-17)

What initial management should be started?

A.Anti-platelet drug

B.Fibrinolysis

C.Non-steroidal anti-inflammatory drug

D.Percutaneous coronary intervention

E.Pericardiocentesis

Answer:Non-steroidal anti-inflammatory drug

Explanation:

Saddle-shaped ST elevation is often seen in the ECG of a patient with acute pericarditis

Important for meLess important

This scenario describes a 46-year-old man presenting with central chest pain and palpitations. Whilst this is a broad presentation, ECG changes show widespread saddle-shaped ST elevation and PR depression, suggestive of pericarditis. As a result, non-steroidal anti-inflammatory drug is the single best answer, as management consists of treating any cause and giving non-steroidal anti-inflammatory drugs (NSAIDs).

Anti-platelet drug is incorrect. Antiplatelets, such as clopidogrel, are commonly used as secondary prevention in patients who have had a myocardial infarction. It is not used in pericarditis management.

Fibrinolysis is incorrect. Fibrinolysis is alternative management for ST-elevation myocardial infarction if percutaneous coronary intervention is not available within 120 minutes. It works by breaking up the occlusion. It is not indicated in pericarditis.

Percutaneous coronary intervention (PCI) is incorrect. Patients presenting within an ST-elevation myocardial infarction (STEMI) should receive PCI where possible as this allows revascularisation, however, this is not the management for pericarditis. The widespread saddle-shaped ST elevation and the PR depression is more suggestive of pericarditis than a STEMI.

Pericardiocentesis is incorrect. Pericardiocentesis is a procedure in which fluid is drained from around the heart; it is most commonly used in conditions such as cardiac tamponade. It is not indicated for this patient with pericarditis.

Question:

A parent brings their 2-week-old boy, who was diagnosed prenatally with Down's syndrome, to hospital. He has been feeding poorly and has been constipated.

On examination, his abdomen is distended.

A colonic biopsy shows absence of ganglion cells in the submucosa.

What is the initial management for this condition?

A.Conservative management with monitoring of disease progression

B.Course of high dose steroids

C.Immediate surgery

D.Medical management with laxatives

E.Rectal washouts/bowel irrigation

Answer:Rectal washouts/bowel irrigation

Explanation:

The initial management in Hirschprung's disease is rectal washouts/bowel irrigation

Important for meLess important

Absence of ganglion cells in the submucosa is diagnostic for Hirschprung's disease. Serial rectal irrigation should be performed before surgery to help prevent enterocolitis.

Conservative management is not in keeping with current guidelines.

There is no role for high dose steroids in this scenario.

While surgery is the definitive treatment, serial rectal irrigation should be performed before surgery to help prevent enterocolitis.

In the setting of Hirschprung's disease, medical management with laxatives is not appropriate.

Question:

How many units of alcohol are in a 750ml bottle of red wine with an alcohol by volume of 12%?

A.6 units

B.7 units

C.8 units

D.9 units

E.10 units

Answer:9 units

Explanation:

Alcohol units = volume (ml) \* ABV / 1,000

Important for meLess important

Question:

A 75-year-old woman is brought to the emergency department after slipping on ice. She has a painful right leg that is shortened and externally rotated, and she cannot weight bear. There is no breaking of the skin or neurovascular compromise.

An x-ray is performed which shows a non-displaced subtrochanteric fracture. She lives independently and does not use any walking aids, has no history of cognitive impairment and is generally fit and well.

What treatment option is most likely to be offered?

A.Dynamic hip screw

B.Hemiarthroplasty

C.Internal fixation

D.Intramedullary device

E.Total hip replacement

Answer:Intramedullary device

Explanation:

Extracapsular hip fracture (subtrochanteric fracture) - intramedullary device

Important for meLess important

The presence of an inability to weight bear and a shortened, externally-rotated leg following a fall should raise suspicion of a hip fracture. The management of hip fractures depends on whether they are intracapsular (above the inter-trochanteric line) or extracapsular (below the inter-trochanteric line).

Intramedullary device is correct. This patient has a subtrochanteric fracture, which is managed using an intramedullary device. This allows for stabilising the whole femoral shaft. Since this is an extracapsular fracture, options such as hip replacement or hemiarthroplasty are not indicated as the problem is lower down the femur.

Dynamic hip screw is incorrect as this is used in stable intertrochanteric fractures, not subtrochanteric fractures. A dynamic hip screw is a type of extramedullary device that allows for the repositioning of the broken bone while it heals.

Hemiarthroplasty is incorrect. This would be appropriate if the patient had a displaced intracapsular fracture and if the patient required more than a stick to aid walking, had cognitive impairment, or was not medically fit. These features do not apply to this patient, and they have a subtrochanteric fracture, therefore an intramedullary device is indicated. All patients with a subtrochanteric fracture that are fit for surgery should be offered an intramedullary device regardless of these aforementioned factors.

Total hip replacement is incorrect. If this patient had a displaced intracapsular fracture, then this would be appropriate, as they do not require more than a stick to aid walking, have no cognitive impairment, or are medically unfit. However this patient does not have this type of fracture and, as mentioned above, all patients with a subtrochanteric fracture that are fit for surgery should be offered an intramedullary device regardless of these aforementioned factors.

Internal fixation is incorrect. If this patient had an undisplaced intracapsular hip fracture, then this option would be appropriate as they are deemed fit for the surgery. However, this patient does not have this type of fracture and instead has a subtrochanteric fracture, which is managed using an intramedullary nail.

Question:

Which of the following is least likely to be associated with ankylosing spondylitis?

A.Apical fibrosis

B.Achilles tendonitis

C.Amyloidosis

D.Achalasia

E.Heart block

Answer:Achalasia

Explanation:

Ankylosing spondylitis features - the 'A's

Apical fibrosis

Anterior uveitis

Aortic regurgitation

Achilles tendonitis

AV node block

Amyloidosis

Important for meLess important

Achalasia is not a recognised association of ankylosing spondylitis

Question:

A 4-year-old boy presents with his mother who is worried, as she notices that his urine is often a dark reddish colour. She is also concerned that he has begun to eat less and less over the past couple of weeks. On examination he is afebrile and there is no history of any recent illness. The mother mentions that his father and grandfather both had kidney trouble but is unsure of what their diagnosis was. Examination reveals a distended abdomen which is soft and non-tender. A palpable mass is felt in the right flank. What is the most likely diagnosis?

A.Polycystic kidney disease

B.Renal cyst

C.Hydronephrosis

D.Wilms' tumour

E.Urinary tract infection

Answer:Wilms' tumour

Explanation:

Given the boy's age, and the symptom of haematuria with no reports of any pain, a palpable non-tender mass and a reduction in appetite with a distended abdomen Wilms' tumour is the most likely diagnosis. Renal cysts depending on their size often give rise to pain on palpation similar with polycystic kidney disease. Urinary tract infections are often painful and are accompanied by a feeling of unwellness, therefore, it is unlikely. Hydronephrosis is accompanied by a distended abdomen which becomes increasingly painful as the bladder further expands and is, therefore, an unlikely diagnosis in this case.

Question:

You review a 24-year-old woman in the high dependency unit. She is moaning but unable to form words, and appears to open her eyes when you speak to her. She is unable to follow commands but withdraws from a painful stimulus. What is her GCS?

A.5

B.7

C.9

D.10

E.12

Answer:9

Explanation:

GCS: Motor (6 points) Verbal (5 points) Eye opening (4 points). Can remember as '654...MoVE'

Important for meLess important

In the case of this patient, she therefore scores as follows:

Best eye response: 3 (opens to voice)

Best verbal response: 2 (incomprehensible sounds)

Best motor response: 4 (withdraws from pain)

Question:

A 75-year-old gentleman presents with painful itchy white spots on his penis. These lesions are hyperkeratotic and have been placed in multiple locations on his foreskin and glans. This has been associated with dysuria and a reduction of sensation in the glans. You believe he has Balanitis Xerotica Obliterans. What can be associated with this condition?

A.Protection from cancer

B.Phimosis

C.Protection from infection

D.Prostate hyperplasia

E.Basal cell carcinoma

Answer:Phimosis

Explanation:

Balanitis xerotica obliterans is a cause of phimosis

Important for meLess important

Balanitis Xerotica Obliterans is a cause of phimosis. This is the male equivalent to lichen sclerosis in women. In an uncircumcised male, it can cause phimosis which is when the foreskin is too tight and can not be pulled back past the glans. This is due to the scarring that occurs from BXO.

It increases your risk for squamous cell cancer.

It predisposes you to infection.

It does not cause prostate hyperplasia.

It does not cause basal cell carcinoma but squamous cell carcinoma instead.

Question:

A 62-year-old female patient attends an outpatient cardiology clinic for review. She has a past medical history of heart failure, type-2 diabetes, and osteoporosis. She has been taking NovoRapid (rapid-acting insulin analogue) 10iU three times daily, Lantus (insulin glargine) 3 iU once daily, ramipril 10mg once daily, bisoprolol 5mg once daily, and AdCal D3 (calcium and vitamin D) two tablets once daily for the past 3 years without any side effects. Recently, she was started on amiloride 10mg once daily. Her blood tests show:

Na+ 141 mmol/L (135 - 145)

K+ 6.0 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.3 mmol/L (2.0 - 7.0)

Creatinine 92 µmol/L (55 - 120)

Which of her medications is likely to have interacted with her new prescription to cause the blood abnormality shown?

A.Bisoprolol

B.Lantus (insulin glargine)

C.NovoRapid (rapid-acting insulin analogue)

D.Ramipril

E.AdCal D3 (calcium and vitamin D)

Answer:Ramipril

Explanation:

Potassium-sparing diuretics may interact with K+ supplements or ACE inhibitors to cause dangerous hyperkalemia.

Important for meLess important

This patient has recently been started on amiloride which is a potassium-sparing diuretic.

Potassium sparing diuretics can precipitate hyperkalaemia in patients if concurrently taking ACE-inhibitors (e.g. ramipril in this patient).

The mechanism of action for amiloride is by directly blocking sodium channels at the luminal surface of the renal tubule. This leads to reduced re-absorption of sodium in exchange for potassium.

Spironolactone and eplerenone (aldosterone antagonists) are also potassium sparing diuretics which compete with aldosterone for binding to intracellular receptors to cause:

Decreased gene expression and reduced synthesis of epithelial sodium channels (ENaC) in the apical membrane

Decreased Na+/K+/ATPase pumps in the basolateral membrane.

Question:

A 41-year-old man with a history of chronic kidney disease stage 4 is admitted to the emergency department with breathlessness. He complains of sharp pain in the right side of his chest and is visibly breathless at rest. On examination, his heart rate is 121 bpm, blood pressure is 141/83 mmHg and oxygen saturation is 91% on air. Examination of his chest is normal. Blood tests are performed and the results are shown below:

Hb 141 g/L Male: (135-180)

Female: (115 - 160)

Platelets 343 \* 109/L (150 - 400)

WBC 6.9 \* 109/L (4.0 - 11.0)

Urea 9.1 mmol/L (2.0 - 7.0)

Creatinine 296 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

A chest x-ray is also performed and is reported to be normal.

What is the most appropriate investigation to perform next?

A.CT pulmonary angiogram

B.Echocardiogram

C.High-resolution CT chest

D.Lower limb venous doppler ultrasound

E.V/Q scan

Answer:V/Q scan

Explanation:

Pulmonary embolism and renal impairment → V/Q scan is the investigation of choice

Important for meLess important

The presence of hypoxia (oxygen saturation of 91% on air), tachycardia and pleuritic pain with a normal examination suggest the most likely diagnosis is a pulmonary embolism (PE). This man’s modified Well’s Score is 4.5 (tachycardia = 1.5, no other diagnosis = 3) indicating a higher likelihood of PE and need for diagnostic imaging. In the context of significant renal impairment, the best investigation to make a diagnosis here from the options is a V/Q scan. The scan is safer as it uses small doses of inhaled then injected radio-nucleotides rather than iodine-based contrast so there is no risk of further renal impairment. The radiation dose absorbed from the radio-nucleotides is also lower than the dose absorbed from CT imaging making V/Q scanning the investigation of choice in pregnancy.

CT pulmonary angiography (CTPA) is otherwise the gold standard for diagnosing PEs. The test is more sensitive to small emboli and the 3-dimensional imaging CT provides also allows for diagnosis of alternative pathology (such as infection, interstitial lung disease or congestive cardiac failure) if a PE is not found. The main risks of a CTPA are renal impairment due to the high dose of iodine-based contrast required and radiation exposure. The approximate dose of a CTPA is 5-10 mSv, the equivalent of 2-4 years of background radiation or 100-200 plain chest x-rays. A V/Q scan has an average dose of 1-2 mSv in comparison.

An echocardiogram is the investigation of choice for the diagnosis of heart failure and measurement of left ventricular ejection fraction. Although in severe PE, right heart strain can develop and this can be assessed with an echocardiogram, it is not the diagnostic examination in this case.

A high-resolution CT chest would include an angiographic sequence (a CTPA) as well as high-resolution axial imaging of the lung fields. It is primarily used for investigating interstitial lung diseases but as it requires contrast, it would be unsafe here.

A lower limb venous doppler ultrasound is used to diagnose lower limb deep vein thrombosis (DVT). Although a DVT is a risk factor for developing a PE and they often co-exist, an ultrasound would not provide a diagnosis and additionally, as there are no clinical features of a DVT, is not currently indicated.

Question:

A 32-year-old man with type 1 diabetes presents to the GP with bloating and vomiting. This has been gradually worsening for the last 6 weeks. He attended his diabetic review last week and his control is much worse than it was this time last year even though he is taking his insulin properly.

Given the above, which of the following may explain all of his symptoms?

A.Gastro-oesophageal reflux disease (GORD)

B.Ulcerative colitis

C.Crohn's disease

D.Gastroparesis

E.Irritable bowel syndrome (IBS)

Answer:Gastroparesis

Explanation:

Erratic blood glucose control, bloating and vomiting think gastroparesis

Important for meLess important

This question is asking about a young man with type 1 diabetes, presenting with bloating, vomiting and impaired glucose control. This is a typical pattern of gastroparesis. Gastroparesis can occur in diabetics due to neuropathy of the vagus nerve, causing abnormal gut movement.

Gastro-oesophageal reflux disease (GORD) could be a cause of this mans symptoms, however, it is less likely to cause vomiting and it would have less of an effect on his diabetic control.

In ulcerative colitis or Crohn's disease, you would expect a history of diarrhoea.

Irritable bowel syndrome could cause bloating and vomiting in the same way as the above presentation, however, you would also expect a change in bowel habit. Even still you would not expect IBS to cause fluctuations in diabetic control as well.

Question:

A 60-year-old man arrives into the emergency department shocked with sudden onset, severe chest pain at rest. He complains that the pain is radiating into his back and down his arms. He has a past medical history of hypertension, angina and had a deep vein thrombosis (DVT) 4 years ago. His regular medications include ramipril, glyceryl trinitrate (GTN) spray and simvastatin. He has never smoked, doesn't drink alcohol and has not had any recent travel abroad. A chest x-ray reveals a widened mediastinum and ECG shows sinus tachycardia. He thinks he found some relief from the pain 20 minutes after using his GTN spray. What is the most likely diagnosis?

A.Aortic dissection

B.ST elevation myocardial infarction

C.Pulmonary embolism

D.Unstable angina

E.Pneumothorax

Answer:Aortic dissection

Explanation:

Aortic dissection presents very similarly to a myocardial infarction, however, the pain is classically described as tearing in nature and radiates into the back. An ECG can show ST elevation in the inferior leads if it involves the right coronary artery. In this case, the ECG did not show any ST elevation therefore it is not a ST elevation myocardial infarction.

Although a pulmonary embolism is possible, his Wells score isn't high and alternative diagnoses are more likely.

With regards to unstable angina, he has a history of angina which would come about on exertion. The pain described differs from myocardial ischaemia pain i.e. left arm/jaw, nausea, sweating, shortness of breath.

On a side note, a GTN spray should provide relief within a few minutes, therefore taking 20 minutes to provide light relief is unlikely genuine vasodilatation relieving angina.

Question:

Which one of the following interventions is most likely to increase survival in patients with COPD?

A.Home nebulisers

B.Tiotropium inhaler

C.Long-term steroid therapy

D.Smoking cessation

E.Long-term oxygen therapy

Answer:Smoking cessation

Explanation:

Whilst long-term oxygen therapy may increase survival in hypoxic patients, smoking cessation is the single most important intervention in patients with COPD

Question:

A 24-year-old woman attends her GP at 4 pm on Friday concerned about her risk of pregnancy. She had unprotected sexual intercourse (UPSI) 5 days previously at 9 pm Sunday.

The patient takes no regular medications. She has no relevant past medical history but mentions that she has been experiencing some unusual discharge and intermenstrual bleeding over the last two weeks.

What method of emergency contraception would you recommend?

A.Copper coil

B.Levonorgestrel

C.No emergency contraception needed

D.Progesterone only pill

E.Ulipristal acetate

Answer:Ulipristal acetate

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 emergency contraception of choice in this situation as it has been approximately 115 hours since unprotected sexual intercourse. Ulipristal acetate can be used up to 120 hours after UPSI.

The copper coil is not a viable option for this patient who has a suspected sexually transmitted infection (STI) (due to the symptoms of unusual discharge and intermenstrual bleeding). A copper coil is contraindicated in patients with an active STI or pelvic inflammatory disease. This would otherwise be the first-line option if the patient did not have a suspected STI.

Levonorgestrel can only be used up to 72 hours post-UPSI so, therefore, would not be a suitable option for this patient.

The progesterone only pill is not a method of emergency contraception.

No emergency contraception needed is untrue and would not be appropriate advice to give as the patient had UPSI and is on no regular contraception.

Question:

A 19-year-old woman presents to the GP with her mother. She has been experiencing fatigue for 2 weeks which she says is unusual for her. She has multiple petechiae on her arms and legs and hepatomegaly on examination. Her vital signs are all normal, and she is not aware of having any long-term medical conditions. Which of the following is the most appropriate management?

A.Order blood test results within 48 hours to assess if the patient requires referral

B.Refer the patient to a specialist within a few hours

C.Order liver function tests, a hepatitis screen and refer the patient routinely to hepatology

D.Give IM benzylpenicillin and call an ambulance

E.Refer the patient to a specialist within 2 weeks

Answer:Refer the patient to a specialist within a few hours

Explanation:

Children and young people (0-24yrs): Refer for immediate specialist assessment for leukaemia if: unexplained petechiae or hepatosplenomegaly

Important for meLess important

This patient has unexplained petechiae and hepatomegaly. These are very concerning features and could indicate leukaemia. This is the most urgent possible differential to be addressed as acute leukaemia can be very aggressive in its progression and hence the patient should be referred immediately to see a specialist. A 48 hour blood test is recommended for children and young people with general symptoms or signs of leukaemia, however, when either hepatosplenomegaly or unexplained petichiae are present, the patient should be referred for immediate assessment where blood tests will be performed more quickly than from general practice. Hence in this patient it would not be appropriate to delay the referral by 48 hours whilst awaiting blood test results.

The patient has normal vital signs and does not report any neck stiffness or photophobia. This would be an unusual way for meningococcal disease to present

Question:

A 64-year-old man visits his general practitioner with a 2-month history of deteriorating breathlessness. He has a background of COPD for which he takes salbutamol regularly throughout the day. He reports having a dry cough which is worse in the morning and before bedtime but denies fever or coryzal symptoms. On examination, he has mild wheeze bilaterally with saturations of 94% on room air.

Peak expiratory flow rate (PEFR) diary:

8am 400 L/min

12pm 520 L/min

6pm 480 L/min

10pm 410 L/min

Key:

SABA = short-acting beta agonist

LABA = long-acting beta agonist

SAMA = short-acting muscarinic antagonist

LAMA = long-acting muscarinic antagonist

ICS = inhaled corticosteroid

What is the next step in this patient’s management?

A.Add LABA + ICS

B.Add LABA + LAMA

C.Add LAMA

D.Add LAMA + ICS

E.Switch SABA to SAMA + LABA

Answer:Add LABA + ICS

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

This patient has poorly controlled COPD. The clinical history and PERF diary suggest a diurnal variation in symptoms, similarly to patients with asthma. NICE guidelines recommend that features of asthma can be identified by either: a large (over 400ml) response to bronchodilators or a large (over 400ml) response to 30mg oral prednisolone daily for 2 weeks or serial peak flow measurements showing 20% or greater diurnal or day-to-day variability. In patients with COPD who fail to improve with short-acting beta-agonist (SABA) or short-acting muscarinic-agonist (SAMA) inhalers and who have features of asthma should be treated with a SABA, a long-acting beta-agonist (LABA), and an inhaled corticosteroid (ICS). If symptoms continue to fail to improve, the addition of a long-acting muscarinic-agonist (LAMA) can be considered.

In patients who do not show symptoms of asthma or steroid responsiveness should be offered a SABA, a LABA, and a LAMA. If patients don't respond to this regime, a trial period of a SABA, a LABA, a LAMA, and an ICS can be offered for 3 months.

A SABA and LAMA is not a step in the management of COPD.

A SABA, a LAMA, and an ICS is not a step in the management of COPD. Instead, a SABA, a LABA, and an ICS are used.

Switching a SABA to a SAMA with the addition of a LABA is not a step in the management of COPD.

Question:

A 76-year-old woman with a history of stage 3 chronic kidney disease presents with worsening anaemia. As a result, she is started on erythropoietin.

Which of the following side effects is she most likely to experience?

A.Hypotension

B.Increased bleeding risk

C.Iron overload

D.Skin rash

E.Thrombocytopenia

Answer:Skin rash

Explanation:

Bone aches, flu-like symptoms and skin rashes are all potential side effects of erythropoietin

Important for meLess important

Erythropoietin treatment has been shown to decrease bleeding time, over increase the risk of bleeding.

Question:

A 28-year-old male attends the emergency department after 4 days of watery diarrhoea and fever. He states he has had diarrhoea for the past 6 months but had put it down to the stress of completing a PhD and poor diet. He has lost 10 kilograms in weight. His abdomen is very tender and distended. Bowel sounds are present. A colonoscopy shows diffuse erythema with deep ulcers in a patchy distribution. Samples are taken for pathology. Considering the likely diagnosis what treatment should be initiated immediately?

A.Oral azathioprine

B.Rectal prednisolone

C.IV hydrocortisone

D.5-aminosalicylate

E.Oral budesonide

Answer:IV hydrocortisone

Explanation:

This patient most likely has Crohn's disease. The long history of diarrhoea, weight loss, and abdominal pain is classical for Crohn's and the colonoscopy macroscopic findings are more in keeping with a diagnosis of Crohn's disease. His presentation is quite severe and he requires treatment immediately to try and induce remission.

NICE guidelines recommend to start with monotherapy with glucocorticosteroid such as IV hydrocortisone. Budesonide is not as effective but has few side effects so its use is only for those who cannot tolerate glucocoticosteroids or if glucocorticoids are contraindicated. 5-aminosalicylate (5-ASA) can also be used to induce remission but is not first line as it is less effective than glucocorticoids or budesonide. NICE guidelines also state that for severe presentations, as in the above patient, budesonide or 5-ASA treatment should not be used.

Azathioprine and methotrexate should not be used as monotherapy.

Rectal steroids are only used for disease that is confined to the rectum and this is not the case for this patient as the disease is quite extensive.

Even if, after pathology, this patient is diagnosed with ulcerative colitis treatment with IV hydrocortisone is still the initial management of an individual presenting to hospital with acute and severe disease.

Newer treatments for Crohn's such as infliximab and adalimumab are used as treatment options for adults with severe active disease once conventional therapy (such as steroids and other immunosuppressive agents) has failed. (Source: NICE Guidance TA187)

Question:

A 55-year-old man presents for a review of his atrial fibrillation. Despite treatment, he is still experiencing recurrent episodes of dyspnoea and palpitations. His heart rate is 85 bpm, his blood pressure is 125/75 mmHg, and his chest is clear with normal heart sounds. An ECG shows absent p-waves and an irregularly irregular rhythm.

He has a history of asthma and takes salbutamol and beclometasone inhalers and does very little exercise. He has been given diltiazem which has been trialled for a few weeks but has been ineffective and he is still symptomatic.

What additional drug would be most appropriate?

A.Amiodarone

B.Bisoprolol

C.Digoxin

D.Dronedarone

E.Flecainide

Answer:Digoxin

Explanation:

Digoxin can be added as a second line treatment for rate control in atrial fibrillation

Important for meLess important

Digoxin is correct. This patient has signs and symptoms consistent with atrial fibrillation (AF), confirmed by the ECG findings (absent p waves and an irregularly irregular rhythm). In this scenario, rate control has already been initiated, therefore this patient will continue with rate control treatment. The first-line options for rate control are beta-blockers and rate-limiting calcium channel blockers (such as diltiazem). Since he has asthma, beta-blockers are contraindicated, and he has been given diltiazem, which has been ineffective. The next step would be to add digoxin, which is now a second-line treatment for rate control in atrial fibrillation. As well as this, the patient is inactive and does little exercise, making digoxin more appropriate, as it is more effective in sedentary individuals.

Amiodarone is incorrect. This is used for rhythm control rather than rate control and is preferred in people with structural heart disease. In this scenario, rate control has already been initiated, therefore this patient will continue with rate control treatment. It would not be appropriate to give rhythm control as of now due to the risk of blood clots that have formed travelling as emboli and causing strokes. It would be more appropriate to offer anticoagulation and rate control, which involves the use of beta-blockers or rate-limiting calcium channel blockers. Since he is asthmatic, beta-blockers are contraindicated, and he is already taking a rate-limiting calcium channel blocker, it would be more appropriate to offer digoxin, which is now a second-line treatment for rate control in atrial fibrillation. Since in this scenario, rate control has already been initiated, this patient will continue with rate control treatment.

Bisoprolol is incorrect. This patient is asthmatic, therefore beta-blockers are contraindicated. As well as this, he is already taking a rate-limiting calcium channel blocker, which must never be co-prescribed with a beta-blocker as this may precipitate severe bradycardia. It would be more appropriate to offer digoxin, which is now a second-line treatment for rate control in atrial fibrillation.

Dronedarone is incorrect. This is used for rhythm control rather than rate control and is preferably used in people who are responsive to cardioversion. In this scenario, rate control has already been initiated, therefore this patient will continue with rate control treatment. It would not be appropriate to give rhythm control as of now due to the risk of blood clots that have formed travelling as emboli and causing strokes. It would be more appropriate to offer anticoagulation and rate control, which involves the use of beta-blockers or rate-limiting calcium channel blockers. Since he is asthmatic, beta-blockers are contraindicated, and he is already taking a rate-limiting calcium channel blocker, it would be more appropriate to offer digoxin, which is now a second-line treatment for rate control in atrial fibrillation. In this scenario, rate control has already been initiated, therefore this patient will continue with rate control treatment.

Flecainide is incorrect. This is used for rhythm control rather than rate control. In this scenario, rate control has already been initiated, therefore this patient will continue with rate control treatment. It would not be appropriate to give rhythm control as of now due to the risk of blood clots that have formed travelling as emboli and causing strokes. It would be more appropriate to offer anticoagulation and rate control, which involves the use of beta-blockers or rate-limiting calcium channel blockers. Since he is asthmatic, beta-blockers are contraindicated, and he is already taking a rate-limiting calcium channel blocker, it would be more appropriate to offer digoxin, which is now a second-line treatment for rate control in atrial fibrillation. Since in this scenario, rate control has already been initiated, this patient will continue with rate control treatment.

Question:

A 62-year-old man is found to have a corrected QT interval (QTc) of 470ms on pre-operative ECG. In light of this, the anaesthetist recommends one of his medications is changed prior to surgery.

Which of the following medications are known to cause QTc prolongation?

A.Bisoprolol

B.Diazepam

C.Salbutamol

D.Sotalol

E.Carvedilol

Answer:Sotalol

Explanation:

Sotalol is known to cause long QT syndrome

Important for meLess important

The majority of beta blockers do not cause QTc prolongation, however, sotalol is an exception to this rule.

Tricyclic antidepressants, selective serotonin uptake inhibitors and haloperidol are psychiatric drugs known to cause QTc prolongation. Benzodiazepines are not known to cause QTc prolongation.

Short-acting beta-receptor agonists are not known to cause QTc prolongation.

Question:

A 57-year-old female with a past medical history of polymyalgia rheumatica, type 2 diabetes, hypertension, and osteoarthritis comes in for a review of her medications. She is currently prescribed metformin, prednisolone, paracetamol, ramipril, , ibuprofen, and omeprazole.

She finds that her polymyalgia rheumatica, which she has had for over 12 years now, is well controlled. Her diabetes is also under control and she has not developed any long term sequelae. Her blood pressure is measured at 130/80 mmHg.

Which of the following complications is she most a risk of considering her drug history?

A.Anaphylaxis

B.Fractures

C.Hepatitis

D.Lactic acidosis

E.Meningitis

Answer:Fractures

Explanation:

Long-term, systemic corticosteroids increase the risk of osteoporosis and fractures

Important for meLess important

The most likely complication would be fractures. Considering her long-standing history of polymyalgia rheumatica, she has most likely been on steroids for a long time. This increases her risk of osteoporosis, which in turn makes her more prone to fractures.

Paracetamol can cause hepatitis in overdoses, not if taken in small doses regularly for osteoarthritis.

Lactic acidosis is an extremely rare complication of metformin.

Anaphylaxis would be highly unlikely, especially if she's been on the medications for many years already.

Question:

You are an FY2 working in Acute Medicine. You clerk and admit a 90-year-old man with an infectious exacerbation of COPD.

The patient is admitted to your ward, and dies overnight, 12 hours after presenting to hospital. There was no suspicion of negligence.

Which legal imperative regarding the death is correct?

A.This death must be discussed with the coroner, but will likely not be investigated

B.This death must be investigated by the coroner's court

C.The police must be notified of this death

D.You can complete the death certificate, with 'cardiac arrest' as cause 1a

E.An FY2 is not senior enough to certify the cause of death, as five years of training is needed

Answer:This death must be discussed with the coroner, but will likely not be investigated

Explanation:

Deaths occurring within 24 hours of admission to hospital should be discussed with the coroner before a death certificate is issued

Important for meLess important

Deaths occurring within 24 hours of admission to hospital should be discussed with the coroner before a death certificate is issued.

Avoid 'modes of dying' such as 'cardiac arrest or respiratory failure' as the causes. It would be more informative to write 'infectious exacerbation of COPD.'

Five years of training is needed to complete cremation form 5, but not for death certificates.

Question:

A 19-year-old man presents to his GP with some concerns regarding his appearance. He has been going to the gym recently, but despite his efforts has found it very difficult to build muscle and bulk up. He has always been tall and slim and is not yet able to grow facial hair.

His blood results show the following:

FSH 11.2 IU/L (1 - 7)

LH 12.6 IU/L (1 - 8)

Serum total testosterone 182 nanograms/dL (>300)

Which of the following is the most likely diagnosis?

A.Kallman's syndrome

B.Laurence-Moon-Biedl syndrome

C.Klinefelter's syndrome

D.Pituitary adenoma

E.Prolactinoma

Answer:Klinefelter's syndrome

Explanation:

Klinefelter's syndrome causes high LH and low testosterone

Important for meLess important

This scenario describes a case of primary hypogonadism. Hypogonadism is suggested by the lack of secondary sexual characteristics that this patient reports (e.g. slim build; difficulty growing facial hair).

Primary hypogonadism would cause a low testosterone level due to testicular failure, which would, in turn, cause a high FSH and LH due to a lack of negative feedback. Conversely, secondary hypogonadism is caused by decreased levels of the gonadotrophins FSH and LH.

Klinefelter's syndrome is the only option which causes primary hypogonadism. It is a genetic condition, caused by having the sex chromosomes XXY.

All of the other options would instead cause secondary hypogonadism.

Question:

An 89-year-old man presents to his general practitioner for a medication review. He has been complaining of a burning sensation in his chest just after eating. It does not improve with over-the-counter antacids and denies any red flag symptoms of cancer. You need to decide whether to prescribe him some proton pump inhibitors for his symptoms. He has a complex medical history, comprising mild dementia, depression, resected prostate cancer, chronic back pain and hypertension.

Which one of the following tools would help you in your decision?

A.FAST

B.FRAX

C.START

D.STOPP

E.PRISMA-7

Answer:START

Explanation:

The START tool suggests medications that may provide additional benefits ie proton pump inhibitors for gastroprotection in patients on medications increasing bleeding risk

Important for meLess important

The correct answer is the START (screening tool to alert doctors to the right treatment) tool. It is used in patients with multiple morbidities, especially elderly patients, to decide whether the introduction of a new medication will be beneficial. In this case, we would need to prescribe proton pump inhibitors in a patient taking multiple medications. It is used in patients undergoing polypharmacy to assess the benefit of starting a new medication.

FAST is an alcohol screening tool used in the emergency department, making this answer incorrect. It enquires about the frequency and modalities of alcohol consumption. In the case of positivity, the patient is assessed further and directed towards the right support systems.

FRAX is a risk assessment tool developed by WHO that calculates a patient's 10-year risk of developing an osteoporosis-related fracture. This patient already has been diagnosed with osteoporosis. Additionally, the aim of the doctor is to assess frailty, making this the wrong answer.

STOPP tool is used to assess which drugs can be potentially discontinued in elderly patients undergoing polypharmacy.

PRISMA-7 is a validated questionnaire that can be used to confirm frailty in an individual. Frailty is defined as a state of impaired homeostasis leading to increased vulnerability to minor stressor events. If individuated early, it can be managed and lead to great improvements to patient care in the long term.

Question:

A 34-year-old male returns to your clinic for review of his blood tests. In particular, his hepatitis screen returns as follows:

HBsAg negative

anti-HBc positive

anti-HBs positive

These results can be best interpreted as:

A.Acutely infected

B.Susceptible to hepatitis B

C.Immune due to hepatitis B vaccination

D.Chronically infected

E.Immune due to natural infection

Answer:Immune due to natural infection

Explanation:

HBsAg negative, anti-HBs positive, IgG anti-HBc positive - previous infection, not a carrier

Important for meLess important

This gentleman's hepatitis screen shows evidence of both anti-HBc and anti-HBs antibodies without the presence of the surface antigen. The lack of surface antigen rules out him being acutely or chronically infected. A vaccine would only lead to anti-HBs antibodies, however immunity due to natural infection also leads to the presence of anti-HBc antibodies, as in this case

Question:

Which of the following findings is not typical in a patient with antiphospholipid syndrome?

A.Prolonged APTT

B.Thrombocytosis

C.Recurrent venous thrombosis

D.Recurrent arterial thrombosis

E.Livedo reticularis

Answer:Thrombocytosis

Explanation:

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

Important for meLess important

Thrombocytopenia is associated with antiphospholipid syndrome

Question:

A 43-year-old man presents to his GP with tiredness, low mood and unintentional weight gain of 13kg over the past 4 months. Prior to feeling like this he recalls having a flu-like illness following which he had a two-week period of feeling very anxious, shaky and energetic. He wonders if this is connected.

On examination he has a heart rate of 68 bpm, his blood pressure is 147/83 mmHg and his temperature is 37.1ºC. Examination of his abdomen and chest are unremarkable and he does not have a goitre or any palpable lymphadenopathy. He has no family history of note and no past medical history.

Blood tests to look at his thyroid function show the following:

Thyroid stimulating hormone (TSH) 6.1 mu/l (0.5-5.5 mu/l)

Free T4 6 pmol/l (9-18 pmol/l)

What is the most likely cause of this man’s symptoms?

A.Grave’s disease

B.Hashimoto’s thyroiditis

C.Papillary cancer of the thyroid

D.De Quervain’s thyroiditis

E.Toxic multinodular goitre

Answer:De Quervain’s thyroiditis

Explanation:

Subacute thyroiditis causes hyper- then hypothyroidism

Important for meLess important

This gentleman has a clinical picture of hypothyroidism with what appears to be a brief period of hyperthyroidism prior to this. The most common cause of this is De Quervain’s thyroiditis and this would be in keeping with the history of a viral infection before the initial hyperthyroid episode. There is a rare form of Hashimoto’s in which the patient has an initial phase of hyperthyroidism before becoming hypothyroid, however the period of hyperthyroidism is prolonged in those cases and the clinical picture is often indistinguishable from Grave’s disease. In addition it happens far more commonly in women than men (around 5 times) and has a strong association with other auto-immune diseases. The key to this question is what is most likely and given the relatively brief period of hyperthyroidism (in Hashimoto’s it would be in the order of 6-12 months rather than a few weeks) and the preceding viral infection, De Quervain’s is far more likely.

Grave’s disease and toxic multinodular goitre would both present with hyperthyroidism and papillary thyroid cancer does not produce thyroxine so would not cause any systemic symptoms.

Question:

A 15-year-old boy presents with diffuse, central abdominal pain and vomiting. He denies passing faeces and flatus for the past 3 days and has a usual bowel habit of one stool every day.

He has a past medical history of surgically-corrected hypospadias.

On examination, his abdomen is slightly distended. Macular mucocutaneous pigmentation of the vermillion border is noted on inspection.

What is the most likely underlying diagnosis?

A.Abdominal adhesions

B.Familial adenomatous polyposis

C.Juvenile polyposis syndrome

D.Lynch syndrome

E.Peutz-Jeghers syndrome

Answer:Peutz-Jeghers syndrome

Explanation:

Small bowel obstruction (often due to intussusception) is a common presenting complaint in Peutz-Jegher's syndrome

Important for meLess important

Peutz-Jeghers syndrome is correct. Small bowel obstruction can commonly be the presenting complaint of Peutz-Jegher's syndrome, which is indicated by the hyperpigmented mucosal macules (most commonly seen on the vermillion border of the lips). Polyps are a risk factor for intussusception as the bowel's peristaltic action pulls at the polyp, invaginating the bowel walls. This, in turn, causes small bowel obstruction.

Abdominal adhesions is incorrect. While adhesions are the overall most common cause of small bowel obstruction, they are usually only seen in those who have undergone abdominal surgery. The patient has had surgery for hypospadias, a congenital condition where the urethra does not open from its usual location, but its surgical correction does not involve abdominal surgery, making adhesions unlikely.

Lynch syndrome is incorrect. Although Lynch syndrome also causes colonic polyps that increase the risk of intussusception. However, the history of mucocutaneous pigmentation makes Peutz-Jegher's syndrome the more likely explanation.

Familial adenomatous polyposis is incorrect. This condition could account for small bowel obstruction by the same mechanism as Peutz-Jegher's syndrome, but the hyperpigmented mucosal macules are more suggestive of the latter.

Juvenile polyposis syndrome is incorrect. Again, this could account for small bowel obstruction by the same mechanism, but hyperpigmented macules are absent.

Question:

A 19-year-old woman presents to your surgery 14 weeks into her second pregnancy. Her pregnancy has been progressing normally so far, including a normal dating scan at 10 weeks.

She visited 24 hours ago due to excessive nausea and vomiting and was started on oral cyclizine 50mg TDS. However, she is still unable to tolerate any oral intake, including fluids. Her urine dip is positive for ketones.

What is the most appropriate next step?

A.Repeat ultrasound scan

B.Advise bed rest and arrange for the district nurses to provide IM antiemetics

C.Switch antiemetic to metoclopramide

D.Reassure as most women experience a settling of nausea and vomiting by the 16th week of pregnancy

E.Arrange admission to hospital

Answer:Arrange admission to hospital

Explanation:

Failure of oral antiemetics to control symptoms, ketonuria and weight loss (>5% of pre pregnancy body weight) are all reasons to refer a woman to gynaecology for urgent assessment and intravenous fluids. It is particularly important to keep a low threshold for referral if the woman has a concurrent condition which may be affected by prolonged nausea and vomiting (for example diabetes).

Metoclopramide should be prescribed with caution in young women due to the possibility of extra-pyramidal side effects. Additionally, the fact that this lady is unable to keep fluids down and is testing positive for ketones, suggests that hospital management and assessment for intravenous fluids is now indicated and it would not be appropriate to simply reassure her and send her home.

Question:

A 45-year-old man who is known to have haemochromatosis presents with a swollen and painful right knee. An x-ray shows no fracture but extensive chondrocalcinosis. Given the likely diagnosis of pseudogout, which one of the following is most likely to present in the joint fluid?

A.Raised hyaluronic acid levels

B.Monosodium urate crystals

C.Bipyramidal oxalate crystals

D.Gonococci

E.Positively birefringent rhomboid shaped crystals

Answer:Positively birefringent rhomboid shaped crystals

Explanation:

Pseudogout - weakly positively birefringent rhomboid-shaped crystals

Important for meLess important

Question:

A 24-year-old lady presents with blurred vision and a headache over 2 days. Fundoscopy reveals a right-sided optic neuritis. She had a previous episode of arm weakness 4-months ago that was also associated with blurred vision.

What is the most likely diagnostic investigation for this lady?

A.PET scan

B.Lumbar puncture

C.CT brain

D.X-ray upper limbs

E.MRI brain

Answer:MRI brain

Explanation:

Acute optic neuritis is treated with high dose steroids

Important for meLess important

This lady is likely presenting with multiple sclerosis (MS). Her symptoms are disseminated in space and time.

An MRI brain would be first-line in assessment for areas of demyelination

Other options:

Lumbar puncture is a good option and may show oligoclonal bands. But MRI would still be diagnostic first-line

PET scan has no value in MS

CT brain is less detailed at ascertaining areas of demyelination and therefore is rarely used when MRI is available.

X-ray has no value here

Question:

A 56-year-old man is admitted with a 5 day history of fever and productive cough. He has had no chest pain, but does feel slightly short of breath of mild exertion. Past medical history includes type 2 diabetes, Kartagener's syndrome with early bronchiectasis, and hypertension. An electrocardiogram (ECG) is done and a chest x-ray is requested and pending.

On assessment of the ECG he is found to have sinus rhythm of 76 beats per minute, with an inverted P wave in lead I and right axis deviation.

What is the most likely reason for these ECG changes?

A.Dextrocardia

B.Pulmonary embolism

C.Right ventricular hypertrophy

D.Silent myocardial infarction

E.Wolff-Parkinson-White syndrome

Answer:Dextrocardia

Explanation:

Dextrocardia is associated with an inverted P wave in lead I, right axis deviation, and loss of R wave progression

Important for meLess important

Dextrocardia is a rare cardiac condition where the heart's apex is located on the right side of the body. This means when looking at the conventional axis, the heart is deviated far to the right of what is normally expected. Lead I looks right to left, and as the heart is now is essence 'flipped' in this plane, the electric waveform is reversed, this leads to inversion of the P wave, QRS complex and T wave. Loss of R wave progression is also seen in dextrocardia.

The most common finding in pulmonary emboli (PE) is that of a sinus tachycardia. Right axis deviation can occur, but inverted P waves in lead I is not an associated feature. Other ECG features of PE include right bundle branch block and if the clot is large a right ventricular strain pattern can be seen - T wave inversion in V1-4.

Right ventricular hypertrophy is also associated with right axis deviation, but not P wave inversion in lead I. Other ECG findings are a dominant R wave in V1.

A silent myocardial infarction may be possible due to this patient's diabetes. However, the ECG findings are not consistent with this. Myocardial infarcts typically affect the ST segment, T waves and the Q waves.

Wolff-Parkinson-White syndrome is a condition caused by an accessory conducting pathway, allowing electric activity to bypass the atrioventricular node. In an ECG this is demonstrated by a slurred upstroke of the QRS complex - called a delta wave.

Question:

John is a 19-year-old man who has just started his first year at university. He is described by others as quite a cold character. He has one friend but prefers solitary activities and has few interests. John has never had a girlfriend and does not seem to be interested in companionship. When he is praised or criticised by others, he remains indifferent to their comments. There is no history of low mood or hallucinations.

Which of the following is the most likely diagnosis?

A.Avoidant personality disorder

B.Borderline personality disorder

C.Histrionic personality disorder

D.Schizoid personality disorder

E.Schizotypal personality disorder

Answer:Schizoid personality disorder

Explanation:

Schizoid personality disorder displays the negative symptoms of schizophrenia

Important for meLess important

Schizoid personality disorder is characterized by at least 3 of the following:

Few, if any, activities, provide pleasure;

Emotional coldness, detachment or flattened affectivity;

Limited capacity to express either warm, tender feelings or anger towards others;

Apparent indifference to either praise or criticism;

Little interest in having sexual experiences with another person (taking into account age);

Almost invariable preference for solitary activities;

Excessive preoccupation with fantasy and introspection;

Lack of close friends or confiding relationships (or having only one) and of desire for such relationships;

Marked insensitivity to prevailing social norms and conventions.

John appears to have >3 of these traits which is highly suggestive of schizoid personality disorder.

People with avoidant personality disorder experience long-standing feelings of inadequacy and are extremely sensitive to what others think about them. These feelings of inadequacy lead the person to be socially inhibited and feel socially inept.

Borderline personality disorder is an illness marked by an ongoing pattern of varying moods, self-image, and behaviour. These symptoms often result in impulsive actions and problems in relationships with other people. A person with borderline personality disorder may experience episodes of anger, depression, and anxiety that may last from a few hours to days.

Histrionic personality disorder is a psychiatric disorder distinguished by a pattern of exaggerated emotionality and attention-seeking behavior. These people are typically the life of the party and have a “larger than life” presence. They may be vibrant, enchanting, overly seductive, or inappropriately sexual with most of the people they meet, even when they are not sexually attracted to them.

Schizotypal personality disorder is characterised by cognitive or perceptual distortions, odd behaviour and the inability to maintain any close relationships. Those with schizotypal personality disorder have difficulties forming relationships and typically have few, if any, close friends. They also feel extreme anxiety in social situations and may act inappropriately, or not react at all, during conversations.

Question:

You see a worried mum with her 6 month old baby boy. She is concerned that his skull shape is not normal. His development and birth have been normal and there are no conditions in the family. On examination his head circumference is at the 40th centile with his height and weight at the 30th centile. His occiput is flattened on the left, his left ear mildly protruding forward and his left forehead more prominent than the right. No other abnormality is detected. What is the most appropriate management?

A.Urgent referral to neurosurgery

B.Suggest buying an infant helmet

C.Arrange an MRI scan

D.Routine referral to community child health clinic

E.Reassurance

Answer:Reassurance

Explanation:

Plagiocephaly is more common since there have been campaigns to encourage babies to sleep on their back to reduce the risk of sudden infant death syndrome (SIDS). Plagiocephaly is a skull deformity producing unilateral occipital flattening, which pushes the ipsilateral forehead ear forwards producing a 'parrallelogram' appearance. The vast majority improve by age 3-5 due to the adoption of a more upright posture. Helmets are not usually recommended as there was no significant difference between groups in a randomised controlled trial. Turning the cot around may help the child look the other way and take the pressure off the one side. Other simple methods include giving the baby time on their tummy during the day, supervised supported sitting during the day, and moving toys/ mobiles around in the cot to change the focus of attention. Ensure all advice is in line with prevention of SIDS.

Question:

A 23-year-old man presents to the emergency department with pain in his right eye. He has a past medical history of recurrent sinusitis and ankylosing spondylitis.

On examination, there is erythema and swelling around the right eye. There is pain on testing of eye movements. The pupils are normal.

What is the appropriate management?

A.IV acetazolamide

B.IV antibiotics

C.Oral antibiotics

D.Oral steroids

E.Topical antibiotics

Answer:IV 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

IV antibiotics is the correct answer. The combination of ocular pain and pain on eye movements associated with redness and swelling around the eye suggests orbital cellulitis. This is a medical emergency requiring admission to the hospital for IV antibiotics due to the risk of cavernous sinus thrombosis and intracranial spread. Sinusitis is a risk factor for the development of this condition.

IV acetazolamide is incorrect. This is a treatment for acute glaucoma. Acute glaucoma may cause ocular pain. However, the eye itself will be red rather than the surrounding structures and therefore this is not a likely diagnosis.

Oral antibiotics is incorrect. This may be suitable for a very mild case of periorbital cellulitis but would not be sufficient to treat orbital cellulitis. Patients with periorbital cellulitis do not have pain on eye movements.

Oral steroids is incorrect. This is an option for treating uveitis, which is associated with ankylosing spondylitis. However, like glaucoma, this is a case of acute red eye. The eye itself is red rather than the surrounding structures and therefore this is not the correct diagnosis.

Topical antibiotics is incorrect. This might be useful in the treatment of bacterial conjunctivitis but not orbital cellulitis.

Question:

A 40-year-old obese woman presented to her GP complaining of daytime somnolence. She is asked to fill out an Epworth sleepiness scale questionnaire and scores 20/24.

Her GP arranges overnight pulse oximetry, and she is diagnosed with obstructive sleep apnoea.

Alongside weight loss, what other intervention is appropriate in this setting?

A.Overnight BiPAP (Bilevel Positive Airway Pressure) ventilation

B.Overnight CPAP (Continuous Positive Airway Pressure) ventilation

C.A mandibular advancement device

D.Antihypertensive medication

E.Uvulopalatopharyngoplasty

Answer:Overnight CPAP (Continuous Positive Airway Pressure) ventilation

Explanation:

Following weight loss, CPAP is the first-line treatment for moderate/severe obstructive sleep apnoea

Important for meLess important

This lady has scored highly on the Epworth sleepiness scale questionnaire suggesting her symptoms are severe. SIGN guidelines recommend that for moderate to severe sleep apnoea treatment is with weight loss and overnight CPAP.

BiPAP should not be used routinely for people with OSA and is only reserved for those with coexisting ventilatory failure.

Mandibular advancement devices should only be used in those that can't tolerate CPAP and only have mild symptoms.

Hypertension can be a consequence of OSA but antihypertensive do not address the underlying problem.

Uvulopalatopharyngoplasty, the surgical removal of the uvula, soft palate and pharynx have been shown in randomised controlled trials not to be effective in the treatment of OSA.

Question:

A 62-year-old woman is admitted with back pain. She has a past medical history of osteoarthritis, glaucoma and hypertension. Drug history includes ibuprofen, amlodipine and latanoprost. Two days after admission her creatinine rises from 75 micromol/l to 150 micromol/l.

What would be an appropriate action?

A.Decrease dose of ibuprofen

B.Stop amlodipine

C.Monitor patient and repeat U&Es next day

D.Stop ibuprofen

E.Change ibuprofen to naproxen

Answer:Stop ibuprofen

Explanation:

An acute kidney injury (AKI) can be diagnosed if any one of the following is present: increase in serum creatinine by 26.5 mol/l within 48 hours, increase in serum creatinine to 1.5 times baseline, or urine volume < 0.5 ml/kg/h for 6 hours. Therefore the patient in this case has suffered an AKI and all nephrotoxic drugs should be withheld.

Question:

A 23-year-old male presents to his general practitioner reporting a painful swelling of his left knee, associated with dysuria and discharge from both eyes. He is usually well but reports a diarrhoeal illness 3 weeks ago. He has no allergies and no medical history of note. On examination, you note that the patient has a swollen left knee and a number of waxy, scaly patches on the soles of both the patient's feet.

Given the likely diagnosis, what is the most appropriate initial management?

A.Ibuprofen

B.Methotrexate

C.Paracetamol

D.Prednisolone

E.Sulfasalazine

Answer:Ibuprofen

Explanation:

Acute reactive arthritis can be treated with NSAIDs, as long as there are no contraindications

Important for meLess important

Reactive arthritis classically presents as a triad of arthritis, urethritis and conjunctivitis. The arthritis can occur weeks after an initial infection, in this case an episode of dysentery. The rash on the soles of the feet is likely to be keratoderma blennorrhagica, which are waxy, scaly patches that can present in reactive arthritis. Acute reactive arthritis is best treated with NSAIDs such as ibuprofen initially.

Paracetamol can be used as an analgesic in reactive arthritis but it is not as effective as ibuprofen.

If NSAIDs are contraindicated, then steroids can be considered to reduce inflammation. Steroids can also be used second line behind NSAIDs if inflammation is persisting.

Persistent reactive arthritis refractory to management with NSAIDs or steroids may be managed with disease-modifying anti-rheumatic drugs (DMARDs) such as sulfasalazine or methotrexate.

Question:

A 54-year-old man is noted to have papilloedema on examination. Which one of the following may be responsible?

A.Vitamin D toxicity

B.Hypercapnia

C.Hyperkalaemia

D.Hypercalcaemia

E.Hypoglycaemia

Answer:Hypercapnia

Explanation:

Hyperventilation to induce hypocapnia may be used in the emergency setting to reduce intracranial pressure

Question:

A nine-year-old boy presents to the urgent GP clinic with a cough. He has a history of asthma and eczema. He walks into the room and looks well. He is speaking in full sentences. His oxygen saturations are 97% in air, peak expiratory flow is 60% of expected, heart rate is 115/min and respiratory rate is 28/min. Chest examination showed widespread wheeze.

What is the management for this patient?

A.High flow oxygen and salbutamol nebuliser

B.Oral prednisolone and salbutamol as required

C.Oral prednisolone and salbutamol via a spacer: one puff every 30-60 seconds to a maximum of 10 puffs

D.Oral prednisolone, salbutamol and arrange for hospital admission

E.Salbutamol via a spacer: one puff every 30-60 seconds to a maximum of 10 puffs

Answer:Oral prednisolone and salbutamol via a spacer: one puff every 30-60 seconds to a maximum of 10 puffs

Explanation:

Steroid therapy should be given to all children who have an asthma attack

Important for meLess important

This boy is having a moderate acute asthma attack. His oxygen saturations are >92%, he is talking in full sentences, his peak expiratory flow rate is 50%-75% of expected, his respiratory rate is <30/min and his heart rate is <125bpm.

Oral prednisolone and salbutamol via a spacer: one puff every 30-60 seconds to a maximum of 10 puffs is correct. Steroid therapy should be given to all children who have an asthma attack and this is the correct administration of salbutamol for a child of this age.

High flow oxygen and salbutamol nebuliser is incorrect. His SP02 is 97% so oxygen therapy is not required, and he can be given salbutamol via a spacer. A nebuliser is not required.

Oral prednisolone and salbutamol as required is incorrect. One puff of salbutamol should be given every 30-60 seconds to a maximum of 10 puffs with this presentation rather than using it as required. After the management of the acute presentation, it would be appropriate to have a medication review which would include discussing salbutamol use as required.

Oral prednisolone, salbutamol and arrange for hospital admission is incorrect. If this child's symptoms settle with the appropriate treatment, he could be managed in the community and a hospital admission avoided.

Salbutamol via a spacer: one puff every 30-60 seconds to a maximum of 10 puffs should be given, but steroids are also required for all children who have an asthma attack.

Question:

An 87-year-old lady with advanced vascular dementia has been admitted with an acute left middle cerebral artery (MCA) infarct. She failed a swallow screen on admission and has been kept nil by mouth for a few days with intravenous fluids being given as maintenance. Once the nasogastric tube was inserted and radiologically confirmed to be situated in a satisfactory gastric placement, feeding was commenced slowly. Upon investigating her re-feeding blood tests such as magnesium, potassium and phosphate - her phosphate level came back as 0.25mmol. What is the most appropriate way to treat this hypophosphataemia?

A.Continue feeding and repeat blood tests tomorrow

B.Stop feeding

C.Speed up feeding and repeat blood tests tomorrow

D.Oral Phosphate Replacement (Phosphate Sandoz effervescent tablets)

E.Intravenous Phosphate Infusion (Phosphate Polyfusor)

Answer:Intravenous Phosphate Infusion (Phosphate Polyfusor)

Explanation:

Intravenous infusion of phosphate polyfusor is commonly used to treat acute hypophosphataemia in adults

Important for meLess important

Hypophosphatemia is recognised by a serum phosphate level <0.80 mmol/L. It is further classified as mild (∼0.64–0.80 mmol/L), moderate (∼0.32–0.64 mmol/L) and severe (<0.32 mmol/L).

In mild to moderate hypophosphataemia where patients are asymptomatic, enteral replacement is required using Phosphate Sandoz® effervescent tablets. Each tablet contains 16.1mmol of phosphate, 20.4mmol of sodium and 3.1mmol of potassium. An adult dose is usually up to 6 tablets daily in divided doses, which is dissolved in water to produce a solution that can safely be administered via feeding tubes. Dose adjustments to be made according to response.

Intravenous phosphate replacement is required for patients with severe hypophosphataemia or when symptomatic. Phosphate Polyfusor® is a commonly used 500ml solution which contains 50mmol of phosphate, 81mmol of sodium and 9.5mmol of potassium. The maximum dose is 500ml Polyfusor® per infusion and maximum infusion rate is 150ml Polyfusor® per hour.

Question:

A 27-year-old woman presents to the Emergency Department with sharp, right lower abdominal pain, which has been intermittently present for several days. It does not radiate anywhere. It is not associated with any gastrointestinal upset. Her last menstrual period was 8 weeks ago. She is sexually active although admits to not using contraception all the time. Her past medical history includes multiple chlamydial infections. On examination, the abdomen is tender. An internal examination is also performed; adnexal tenderness is demonstrated. A urine pregnancy test is positive.

Given the likely diagnosis, which of the following is the investigation of choice?

A.Diagnostic laparoscopy

B.Nucleic acid amplification test (NAAT)

C.Serial serum beta-human chorionic gonadotrophin (beta-hCG)

D.Transabdominal ultrasound

E.Transvaginal ultrasound

Answer:Transvaginal ultrasound

Explanation:

The investigation of choice for ectopic pregnancy is a transvaginal ultrasound

Important for meLess important

The diagnosis here is a likely ectopic pregnancy, given the symptoms and examination findings. The investigation of choice is transvaginal ultrasound.

Transabdominal ultrasound is not ideal, as this is less sensitive than a transvaginal scan.

NAAT is incorrect - this would be used to detect chlamydia. We know that this patient's history includes recurrent infections, which is a risk factor for ectopic pregnancy. The current history and examination findings point much more towards an ectopic pregnancy rather than infection.

Laparoscopy is incorrect - this would be used to confirm a diagnosis of endometriosis, but clinically, this does not correlate with the picture given above.

Question:

A 27-year-old man presents to his GP three weeks after a flare of ulcerative colitis. During the flare, he reported passing stool with a small amount of blood up to three times daily. His symptoms have persisted despite daily use of topical mesalazine. He has a pulse rate of 72 bpm, a respiratory rate of 16/min, and a temperature of 37.1ºC.

Several blood tests are performed:

Hb 145 g/L (135-180)

Platelets 201 \* 109/L (150 - 400)

WBC 12.1 \* 109/L (4.0 - 11.0)

ESR 22 mm/hr Men: < (age / 2)

Ferritin 120 ng/mL (20 - 230)

Vitamin B12 307 ng/L (200 - 900)

What is the most appropriate next course of action in managing this patient?

A.Add oral budesonide, continue topical mesalazine

B.Add oral budesonide, stop topical mesalazine

C.Add oral mesalazine, continue topical mesalazine

D.Add oral mesalazine, stop topical mesalazine

E.Continue topical mesalazine and advise the patient to book a follow-up appointment if his symptoms do not resolve within two weeks

Answer:Add oral mesalazine, continue topical mesalazine

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

According to Truelove and Witt's criteria, this man's symptoms are typical of a mild flare of ulcerative colitis. He is passing stool fewer than four times per day with only small amounts of blood, he is apyrexial, and his heart rate and temperature are within normal expected ranges. An erythrocyte sedimentation rate of above 30 would be indicative of a more severe flare. As his symptoms are not responding to topical aminosalicylate therapy, oral salicylates should be added as an adjunct alongside the topical treatment. Mesalazine is an aminosalicylate, so adding oral mesalazine and continuing topical mesalazine is correct.

Oral steroids such as budesonide or prednisolone may be indicated in more severe flares. As this patient is experiencing a mild flare, steroids are not currently indicated, so add oral budesonide, continue topical mesalazine and add oral budesonide, stop topical mesalazine are both incorrect answers.

Topical therapy should not be discontinued in this flare. Topical and oral aminosalicylates should be used together to manage a mild flare that does not respond to topical therapy alone. Therefore, add oral mesalazine, stop topical mesalazine is incorrect.

This patient's flare has been ongoing for three weeks already without signs of improvement. Maintaining topical therapy alone is unlikely to manage the patient's symptoms. Therefore, continue topical mesalazine and advise the patient to book a follow-up appointment if his symptoms do not resolve within two weeks is incorrect.

Question:

A 52-year-old woman presents to the emergency department with sudden onset central chest pain radiating through to her back. She has a past medical history of hypertension.

An ECG shows sinus tachycardia but no other abnormalities. A CT scan shows an aortic dissection distal to the left subclavian origin, involving the descending aorta. Her condition is stable at the moment, other than a blood pressure of 178/102 mmHg.

What is the most appropriate management for this condition?

A.Adrenaline and hydrocortisone IV

B.Control blood pressure with labetalol and supportive treatment

C.Control blood pressure with labetalol then for emergency repair surgery

D.Straight to theatre for emergency surgery

E.Tranexamic acid and supportive treatment

Answer:Control blood pressure with labetalol and supportive treatment

Explanation:

Aortic dissection

type A - ascending aorta - control BP (IV labetalol) + surgery

type B - descending aorta - control BP(IV labetalol)

Important for meLess important

A type B aortic dissection is one that occurs distal to the left subclavian origin. These are generally managed with supportive treatment and blood pressure control to prevent progression. According to BMJ Best Practice 'surgery in this group is reserved for those with end-organ malperfusion, persistent pain, rapid aneurysmal degeneration, or rupture'. A type A aortic dissection however involves the ascending aorta, and this warrants urgent surgical repair.

Adrenaline and hydrocortisone is not the correct answer, as this is the emergency treatment for anaphylaxis.

Control blood pressure and then emergency surgery is not indicated in this patient with type B aortic dissection, due to reasons described above in the first paragraph of the explanation.

Straight to theatre for emergency surgery is not correct because surgery may not be needed, and you need to make sure the blood pressure is controlled first.

Tranexamic acid has no role in the management of aortic dissection.

Question:

A 56-year-old man presented to his general practice with chronic pruritus and occasional headache for the past 6 months. On further questioning regarding his family history, he recalled his father has had a genetic test in the past as shown below:

JAK2 mutation positive

On examination, the patient has plethoric facies. His recent blood test result is as shown below:

Hb 190 g/L Male: (135-180)

Female: (115 - 160)

Platelets 430 \* 109/L (150 - 400)

WBC 13 \* 109/L (4.0 - 11.0)

Which one of the following conditions is this patient at the highest risk of developing?

A.Stroke

B.Ruptured spleen

C.Hepatitis

D.Acute kidney injury

E.Acute lymphoblastic leukaemia

Answer:Stroke

Explanation:

Polycythaemia vera: thrombotic events are a significant cause of morbidity and mortality

Important for meLess important

Polycythaemia vera is a rare blood disorder in which there are an increase in all blood cells, particularly red blood cells. This increases the risk of thrombotic events such as myocardial infarction and stroke. Low dose aspirin should be given to patients with polycythaemia vera as it helps to reduce the risk, whilst not increasing the risk of haemorrhage. In this scenario, the patient presented with chronic pruritus and occasional headache which are symptoms of polycythaemia vera. The more obvious pieces of evidence will be the presence of the JAK2 mutation detected in the genetic test and the patient's blood result. The abnormal blood result includes high Hb level, high platelets level and high WBC level, which are commonly seen in patients with polycythaemia vera.

A ruptured spleen is less likely to be seen in patients with polycythaemia vera. However, patients might have painful splenomegaly due to splenic infarction from the blood clots and this will increase the risk of having a ruptured spleen. When this happens, splenectomy will be considered. Since this question is asking about the most common complication among patients with polycythaemia vera, the chances of getting a stroke will be higher than a ruptured spleen. Medical conditions that increase the risk of a ruptured spleen can be malaria infection, Epstein-Barr virus infection, liver disease and lymphoma.

Hepatitis will not be seen in patients with polycythaemia vera. There will be an increased risk of getting hepatomegaly due to accumulating blood clots. Things that will predispose a patient to hepatitis will be large alcohol intake, paracetamol overdose, intravenous drug user and environmental factors such as poor sanitation service, unsafe water.

Acute kidney injury in patients with polycythaemia vera is rarely seen, although there might be a chance that the abnormally high levels of uric acid causing kidney stones. This may only be seen in untreated patients, but usually, they will present with some other common complications such as gout or thrombolytic events. Medical conditions that increase the risk of AKI can be diabetes, hypertension, heart failure, liver failure.

Acute lymphoblastic leukaemia is not routinely seen in patients with polycythaemia vera. Instead, it is more likely for polycythaemia vera to progress into acute myeloid leukaemia. Chemotherapy will be the treatment option for the patient. High levels of radiation exposure, Epstein-Barr virus infection, Klinefelter syndrome, Fanconi anaemia and neurofibromatosis will increase the risk of developing acute lymphoblastic leukaemia.

Question:

A 21-year-old female has been suffering from well demarcated red, scaly lesions on her elbow and knees for the past few years. She is treated for her condition with corticosteroids and vitamin D.

Which of the following drugs would most likely exacerbate her underlying condition?

A.Tamsulosin

B.Propranolol

C.Phentolamine

D.Amlodipine

E.Penicillin

Answer:Propranolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

The underlying diagnosis is plaque psoriasis. Numerous drugs are known to exacerbate psoriasis including:

Lithium

Beta-blockers

NSAIDs

ACEi

TNF-alpha inhibitors

Anti-malarials

Tamsulosin and phentolamine are alpha-blockers. They are not known to exacerbate psoriasis.

Propranolol is a beta-blocker and so is the correct answer.

Amlodipine is a calcium channel blocker. They are not known to exacerbate psoriasis.

Penicillin is not known to exacerbate psoriasis.

https://www.psoriasis.org/files/publications/forum/FORUM-SPRING-2012-drugs-that-induce-psoriasis.pdf

Question:

A 63-year-old man presents to his general practitioner with progressive breathlessness on exertion and a persistent dry cough. He denies haemoptysis, fevers and weight loss.

The patient is a non-smoker, has a body mass index of 27 kg/m² and is a keen cyclist. He informs you that he now works in recruitment but throughout his 20s he worked as a joiner which involves working with wood.

His past medical history includes eczema which is well controlled with topical emollients.

On examination, the patient's blood pressure was 127/70 mmHg, respiratory rate 16/min, pulse rate 63/min. His saturations are 98%. He has mild finger clubbing.

What other sign on examination would support the likely diagnosis?

A.Bilateral widespread wheeze

B.Ejection systolic murmur

C.Fine end-inspiratory crepitations

D.Loud first heart sound

E.Peripheral oedema

Answer:Fine end-inspiratory crepitations

Explanation:

Fine end-inspiratory crepitations are seen in idiopathic pulmonary fibrosis

Important for meLess important

This patient's symptoms are suggestive of idiopathic pulmonary fibrosis. Exposure to wood dust has been shown to be a risk factor for the development of this condition.

His good cardiovascular health makes heart failure unlikely, although this would cause exertional dyspnoea and peripheral oedema.

An ejection systolic murmur would be present if he had aortic stenosis but this would not cause clubbing or a dry cough.

As a non-smoker and with no red-flag symptoms, lung cancer is less likely.

The presence of eczema may lead you to think that the patient also has asthma. However, asthma is likely to present with wheeze at an earlier age.

A loud S1 may be present in a number of cardiological conditions whenever there is late AV valve closure (atrial fibrillation, heart block), but not idiopathic pulmonary fibrosis.

Question:

Masood, 27, presents to the Emergency Department following a fall. He was subsequently found to have rigidity, cogwheeling and bradykinesia, along with ataxia and slurred speech. On examination he displays past pointing and a lack of co-ordination. Further examination reveals the presence of ascites and splenomegaly. He has been recently treated for haematemesis due to oesophageal varices, despite the fact that he reports he does not drink alcohol due to his religion. Otherwise, Masood is fit and well. The nursing staff have reported that Masood has shown signs of memory loss, slow thinking processes and possible psychotic symptoms since being admitted. Which of the following diagnoses fit Masood's symptoms?

A.Wernicke Korsakoff syndrome

B.Parkinson's disease

C.Alcohol Intoxication

D.Wilson's disease

E.Psychotic illness

Answer:Wilson's disease

Explanation:

A combination of liver and neurological disease points towards Wilson's disease

Important for meLess important

The answer to this question is Wilson's disease.

Patients with Wilson's disease can show several characteristics of the condition, including both liver and neuropsychiatric symptoms. Masood initially presents following a fall and is found to have rigidity, cogwheeling and bradykinesia, along with ataxia and slurred speech. Rigidity, cogwheeling and bradykinesia are all features of Parkinson's disease, however, ataxia and slurring of speech are not generally symptoms, meaning this diagnosis is unlikely.

Subsequently Masood is found to have past pointing on examination, another cerebellar symptom along with ataxia and slurred speech. Alcohol intoxication results in the presence of cerebellar symptoms, and the past medical history of oesophageal varices further reinforces this possibility. However, the fact that Masood reports that he does not drink alcohol, plus the presence of Parkinsonian symptoms, which would not be present in alcohol intoxication, makes this diagnosis less likely.

The presence of memory loss, slow thinking processes and possible psychotic symptoms make this case more interesting. However, psychotic illness can not be a diagnosis for this patient due to the presence of physical symptoms.

This leaves us with Wernicke Korsakoff syndrome and Wilson's disease. Both of these conditions could present as Masood has. However, Wernicke Korsakoff syndrome is less likely in this case as Masood does not drink alcohol due to his religion. Furthermore, oesophageal varices would generally only present in Wernicke Korsakoff syndrome due to chronic excessive alcohol ingestion, whereas liver damage is a major component of Wilson's disease. Portal hypertension, among other liver symptoms, can develop, resulting in oesophageal varices. Furthermore, Wilson's disease can cause neuropsychiatric symptoms. The absence of Kayser-Fleischer rings does not mean that Wilson's disease can not be the diagnosis, as this feature is not present in all individuals with the condition.

Question:

A mother brings her 6-year-old son to the GP. The mother says that she has found it extremely difficult to control her son's behaviour. She explains stories of her son rarely listening to her, constant bickering and even fighting. A referral is made to the paediatrician where after an assessment he may be started on methylphenidate.

Which of the following is a side effect of this drug?

A.Tremor

B.Hypersomnia

C.Stunted growth

D.Weight gain

E.Tinnitus

Answer:Stunted growth

Explanation:

A side effect of methylphenidate is stunted growth

Important for meLess important

Restricted growth is a potential side effect for a small minority of patients on methylphenidate. The mechanism is thought to be through a decrease in appetite. Patients under the age of 10 should have their weight and height plotted at regular intervals. Other side effects of this drug include insomnia, weight loss, anxiety, nausea and pain.

Question:

A patient with sepsis is being treated in hospital. Initially, two 500ml boluses of 0.9% sodium chloride are required to raise his systolic blood pressure (BP) above 90mmHg. Once the BP is in range the foundation doctor prescribes sodium chloride 0.9% maintenance fluids at 1L every 8 hours.

Which of the following complications is most likely to occur as a result of the choice of fluid administered to this patient?

A.Central pontine myelinolysis

B.Hyperchloraemic metabolic acidosis

C.Hyperkalaemia

D.Hypochloraemic hypokalaemic metabolic alkalosis

E.Lactic acidosis

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 received 0.9% sodium chloride. Hyperchloraemic metabolic acidosis is a known iatrogenic complication of using 0.9% sodium chloride in large volumes. In the event of hyperchloraemia or acidaemia, monitor chloride levels daily. If resuscitation is required Hartmanns can be used instead. If the patient now only requires maintenance fluids NICE recommends considering 25–30 ml/kg/day sodium chloride 0.18% in 4% glucose (with potassium supplement as required). See compositions of commonly used crystalloids for further information: https://www.nice.org.uk/guidance/cg174/resources/composition-of-commonly-used-crystalloids-table-191662813)

Central pontine myelinolysis is a complication of correcting hyponatraemia too rapidly which does not apply to this scenario.

Hyperkalaemia is not a complication of sodium chloride as it contains no potassium.

Hypochloraemic hypokalaemic metabolic alkalosis is commonly seen in children with pyloric stenosis. It is not associated with 0.9% sodium chloride use.

Lactic acidosis It is not associated with 0.9% sodium chloride. A drug classically associated with lactic acidosis is metformin.

Question:

Which one of the following statements regarding the NHS Breast Screening Programme is correct?

A.Women are given a 'triple assessment' at each screening cycle

B.It is targeted at women aged 40-70 years

C.Women with a family history of cervical cancer should be offered more regular and/or earlier screening

D.Women are screened every 3 years

E.Women over the age of 70 years are not eligible for screening

Answer:Women are screened every 3 years

Explanation:

Question:

A 26-year-old woman is recovering on the ward following a subarachnoid haemorrhage 6 days ago. She has been managing to maintain her oral fluid intake above 3 litres per day and her heart rate is 72 bpm at rest and her blood pressure is 146/88 mmHg at rest. Her fluid balance shows that she is net positive 650 ml over the last 6 days. Her daily bloods show the following:

Hb 134 g/l Na+ 129 mmol/l

Platelets 253 \* 109/l K+ 4.1 mmol/l

WBC 5.1 \* 109/l Urea 2.3 mmol/l

Neuts 3.9 \* 109/l Creatinine 49 µmol/l

Lymphs 1.2 \* 109/l CRP 12.3 mg/l

Paired serum and urine samples shows the following:

Serum Osmolality 263 mosm/l Urine Osmolality 599 mosm/l

Serum Na+ 129 mmol/l Urine Na+ 63 mmol/l

What is the most likely cause for the patient's hyponatraemia?

A.Cerebral salt-wasting syndrome

B.Iatrogenic fluid overload

C.Cranial diabetes insipidus

D.Syndrome of inappropriate anti-diuretic hormone secretion (SIADH)

E.Adrenal insufficiency

Answer:Syndrome of inappropriate anti-diuretic hormone secretion (SIADH)

Explanation:

SIADH is a common consequence of subarachnoid haemorrhage

Important for meLess important

The key to working out the cause here is looking at the paired serum and urine samples and the fluid status. The patient is haemodynamically stable and has a positive fluid balance which indicates the cause of the low sodium is unlikely to be diabetes insipidus or adrenal insufficiency as these cause fluid depletion. The high urine sodium indicates either excessive sodium loss or excessive water retention, were this iatrogenic then the urine would be as dilute as the serum.

Cerebral salt-wasting syndrome is known to occur following subarachnoid haemorrhage but the sodium loss is accompanied by water loss as the kidneys are still functioning normally so urine output is high and there is a relative fluid depletion. In SIADH the kidneys hold on to too much water, diluting the serum sodium and resulting in concentrated urine as in this case.

Question:

A 5-year-old girl presents to her GP accompanied by her mother. She has a 2-week history of pain in her right hip which has got progressively worse. Upon examination, she has a reduced range of hip movement, and she walks with a limp. A plain x-ray shows a widening of the joint space. She is diagnosed with Perthes' disease.

What aspect of her history is atypical for this condition?

A.Her age

B.Her sex

C.Unilateral pain

D.Widening of the joint space

E.Worsening symptoms

Answer:Her sex

Explanation:

Perthes' disease is around 5 times more common in boys

Important for meLess important

Her sex is the correct answer. Perthes' disease is 5 times more common in boys than girls.

Her age is typical of a patient with Perthes' disease, which typically affects patients between 4 and 8.

Unilateral pain is typical of Perthe's disease, only around 10% of cases are bilateral.

In Perthe's disease, a plain x-ray will show widening of the joint space early on, and flattening of the femoral head later.

Worsening symptoms are typical in Perthe's disease, pain develops over a few weeks.

Question:

A 27-year-old male returns from a recent trip to South America. Soon after he presents to the emergency department with symptoms of fever, headache, arthralgia, constipation and abdominal pain. On examination, he has splenomegaly and blanching maculopapular rose spots on his trunk. What is the most likely diagnosis?

A.Infectious mononucleosis

B.Leptospirosis

C.Typhoid fever

D.Malaria

E.Yellow fever

Answer:Typhoid fever

Explanation:

Salmonella typhi infection can cause rose spots on the abdomen

Important for meLess important

1 - Incorrect. Infectious mononucleosis would present with fever, lymphadenopathy, but would not present with a rash or abdominal symptoms.

2 - Incorrect. Leptospirosis is a bacterial infection that is transmitted via swimming, working, or playing in contaminated water and presents with influenza-like pyrexial symptoms.

3 - Correct. Typhoid fever is a type of enteric fever caused by the bacterium Salmonella Typhi, which grows in the intestines and blood. It is spread by eating or drinking food or water contaminated with the faeces of an infected person.

4 - Incorrect. Malaria usually causes anaemia, fever, jaundice, headache, myalgia. However malaria does not present with a rash and does not usually cause constipation or abdominal pain.

5 - Incorrect. Yellow fever presents with fever, chills, headache, backache, and muscle aches, but it would not present with a rash.

Question:

A 45-year-old male presents to the emergency department at 3am with a severe unilateral headache. He describes the pain as being 'unbearable' and located behind his right eye. On examination, his right eye is red and watery, with a small pupil, and the patient is noticeably agitated. On further questioning, he states that this has been happening each night for several weeks.

Which drug can be used long-term to prevent these headaches from occurring?

A.Sumatriptan

B.Verapamil

C.Propranolol

D.Sertraline

E.Paracetamol

Answer:Verapamil

Explanation:

Verapamil is used for long-term prophylaxis of cluster headaches

Important for meLess important

Verapamil is used for cluster headache prophylaxis. Sumatriptan is used as an acute rescue therapy (along with high-flow oxygen), so make sure you read the question properly. Propranolol is used for migraine prophylaxis. Sertraline has a similar mode of action to sumatriptan but is an SSRI used for depression. Paracetamol would not be effective for prophylaxis of cluster headaches.

Question:

A 58-year-old woman is referred to the hearing clinic by her GP. She has been complaining of having difficulty following conversations and finds herself asking people to speak louder. She has no history of vertigo or nausea. Otoscopy shows minimal wax in the external auditory canal, no erythema, and an intact tympanic membrane.

An audiogram shows bilateral downward-sloping pure tone thresholds and high-frequency hearing loss with relative preservation of word recognition scores.

What is the likely diagnosis?

A.Acoustic neuroma

B.Cholesteatoma

C.Osteoma

D.Otosclerosis

E.Presbycusis

Answer:Presbycusis

Explanation:

Presbycusis presents with bilateral high-frequency hearing loss

Important for meLess important

Presbycusis (or age-related hearing loss) occurs bilaterally and affects 1 in 3 adults over 65 years. It is a progressive, bilateral sensorineural hearing loss. Patients typically present with difficulty hearing high-pitch sounds, difficulty differentiating 's' and 'th', and finding women's voices more difficult to hear than men's. Word recognition is relatively preserved, but many eventually develop poor word distinction (particularly in crowded, noisy settings). This patient's audiogram is typical of presbyacusis:

Bilateral impairment

High-frequency hearing loss

Downward-sloping pure tone thresholds

An acoustic neuroma would most likely be unilateral and thus only cause hearing loss in one ear. Symptoms of vertigo and nausea/vomiting are common along with hearing loss. An audiogram is not the most sensitive test to detect acoustic neuromas, and you would not see the typical high-frequency loss pattern in this scenario. Note that an MRI head or auditory brainstem response testing should be used to diagnose an acoustic neuroma.

A cholesteatoma would present with unilateral hearing loss (and may have intermittent episodes of ear discharge). Otoscopy would show a greasy, pearly-white lump in the 'attic' of the tympanic membrane. An audiogram will show a conductive hearing loss with an 'air-bone gap' > 10 decibels. An 'air-bone gap' is a measure of the difference in transmission in the middle ear with the difference in hearing in air versus hearing with the ear bones being directly stimulated with vibrations.

An osteoma is an ear canal bony growth that is seen most commonly in cold-water swimmers. Osteomas are rare and when they occur will typically cause ear pain and eventual hearing loss. Examination with otoscopy would show irregularly shaped, osseous tumours in the ear canal. There would be a conductive hearing loss (with an 'air-bone gap') seen on an audiogram. This patient has no history which would point towards this diagnosis (such as cold water swimming or ear pain) and there is no evidence of abnormality on otoscopy, as such this answer is incorrect.

Otosclerosis is a hereditary condition where the stapes becomes fixed. Hearing loss with this condition becomes noticeable before middle-age (as such, the patient in the vignette would be considered old for otosclerosis onset) but it is highly variable. It causes a conductive hearing loss which would present with an air-bone gap bilaterally on an audiogram.

Question:

A 70-year-old man presents to his general practitioner (GP) with sweating, agitation and diarrhoea. On further questioning he says that he feels constantly hot, sometimes gets palpitations and has noticed a neck swelling. He has a 30 pack-year smoking history and does not drink alcohol. He has no past medical history of note and has no family history of thyroid disorders. He is taking vitamin D tablets three times a day as he read this was good for him in the winter months.

On examination: appears restless, tremulous and sweaty hands, fast pulse of 100bpm, has lid lag, a wide-eyed appearance and a smooth, large, non-tender goitre in the centre of his neck.

His thyroid function test are as follows:

Thyroid stimulating hormone (TSH) 0.01 mU/L (0.5-5.5)

Free thyroxine (T4) 30 pmol/L (9.0 - 18)

Which risk factor for Grave’s disease is present in this case?

A.Genetic

B.Male sex

C.Smoking

D.Vitamin D toxicity

E.Age >60

Answer:Smoking

Explanation:

Smoking is a risk factor for Grave's disease

Important for meLess important

Smoking is the correct answer, as this has been found to be a risk factor for the development of Grave’s disease.

Genetic is incorrect in this case because he has no family history of Grave’s disease. However, it is true that there is a genetic susceptibility for Grave’s and the disease does run in families.

Male sex is incorrect as Grave’s disease is 5-10 times more common in women.

Vitamin D toxicity is incorrect, as it is actually Vitamin D deficiency implicated in the development of Grave’s disease.

Age >60 is incorrect. The incidence of Grave’s disease is highest between the age of 30 and 60.

Alessandro Antonelli, Silvia Martina Ferrari, Francesca Ragusa et al, Graves’ disease: Epidemiology, genetic and environmental risk factors and viruses, Best Practice & Research Clinical Endocrinology & Metabolism, Volume 34, Issue 1, 2020.

Question:

A 76-year-old female is admitted after being found on the floor at her home. On examination she has a core temperature of 30ºC. Her serum electrolytes are within normal range. Which one of the ECG findings is most likely to be seen?

A.Long QT interval

B.'U' waves

C.Short PR interval

D.Second degree heart block

E.Flattened T waves

Answer:Long QT interval

Explanation:

Question:

A 25-year-old man reports that he experienced a sharp pain in the back of his calf while he was playing football and had to go offside following this as he was struggling to walk. He is seen by his team doctor who examines him and remarks that he has a positive Simmond's sign.

Which one of the following injuries is he likely to have sustained?

A.Navicular bone fracture

B.Dislocation of the peroneal tendon

C.Achilles tendon rupture

D.Posterior ankle impingement

E.Stress metatarsal fracture

Answer:Achilles tendon rupture

Explanation:

Achilles tendon rupture should be suspected if the person describes the following whilst playing a sport or running; an audible 'pop' in the ankle, sudden onset significant pain in the calf or ankle or the inability to walk or continue the sport.

Posterior ankle impingement causes pain on forced plantar flexion when jumping or kicking. It is most common in gymnasts, ballet dancers and footballers. A navicular bone fracture is a stress fracture which affects athletes, particularly those involved in sports that include sprinting and jumping. The dislocation of the peroneal tendon occurs in athletes who have had repeated ankle sprains- as this results in friction and inflammation of the tendon. A stress metatarsal fracture is also known as a march fracture and is most common in soldiers, hikers and also may occur in hospital doctors -all of which entail long periods of standing and walking.

Question:

Which one of the following features is not present in diabetic pre-proliferative retinopathy?

A.Microaneurysms

B.Blot haemorrhages

C.Cotton wool spots

D.Venous beading

E.Neovascularisation

Answer:Neovascularisation

Explanation:

Retinal neovascularisation is seen in proliferative retinopathy

Question:

A 23-year-old pregnant woman presents at 16 weeks gestation. She is complaining of painless vaginal bleeding, excessive morning sickness and shortness of breath. Routine examination of the patient's abdomen reveals a uterus which extends up to the umbilicus. Ultrasound revealed a solid collection of echoes with numerous small anechoic spaces. What is the most likely diagnosis?

A.Multiple pregnancy

B.Threatened miscarriage

C.Hydatidiform mole

D.Choriocarcinoma

E.Fibroids

Answer:Hydatidiform mole

Explanation:

A molar pregnancy is also called a Hydatidiform mole and is a pre-cancerous form of gestational trophoblastic disease. Molar pregnancies are caused by an imbalance in chromosomes in pregnancy. They are non viable pregnancies. Key clinical features include painless vaginal bleeding in early pregnancy and a uterus which is large for dates. The abnormal trophoblastic tissue can produce excessive amounts of human chorionic gonadotropin (hCG) which may result in hyperemesis gravidarum and thyrotoxicosis (as hCG has a structural resemblance to thyroid stimulating hormone). The diagnosis is strongly suggested by ultrasound, but definitive diagnosis requires histopathological examination. On ultrasound, the mole appears as a solid collection of echoes with numerous small anechoic spaces which resembles a bunch of grapes (also known as 'snow-storm' appearance).

It is important to note that the question states the uterus extends up to the umbilicus. This usually occurs at approximately 20 weeks gestation. It can therefore be inferred that the pregnancy is large for dates. Although fibroids can cause a large for dates uterus and abnormal bleeding, they would not present with the ultrasound features stated.

Miscarriage and ectopic pregnancy are unlikely due to the painless nature of the bleed.

Question:

A 70-year-old presents with a progressive urge to pass urine. He reports frequently feeling the need to urinate with episodes of urinary incontinence. His symptoms occur throughout the day and night. He is otherwise well and denies any other urinary symptoms.

Urinalysis is normal, digital rectal exam relieves a normal size prostate and a prostate-specific antigen test is within normal range, therefore his symptoms are attributed to an overactive bladder.

Fluid intake and bladder retraining advice are provided with limited improvement.

What first-line medication should now be commenced?

A.A 5-alpha reductase inhibitor

B.A calcium channel blocker

C.An alpha-blocker

D.An anti-diuretic

E.An antimuscarinic

Answer:An antimuscarinic

Explanation:

Antimuscarinic drugs are useful in patients with an overactive bladder

Important for meLess important

This patient has presented with lower urinary tract symptoms (LUTS) which are very common in men over the age of 50 years. In this case, the patient has predominately overactive bladder symptoms and therefore conservative measurements such as adjustments to fluid intake and bladder retraining should be trialled. If, however, these approaches fail an antimuscarinic should be offered as first-line medications. Common examples of these drugs include oxybutynin, tolterodine or darifenacin. These medications are thought to affect/block receptors located at the detrusor muscles that make up the bladder, reducing overactive symptoms. Second-line treatment includes the beta-3 agonist mirabegron which can be trialled if antimuscarinics do not improve symptoms.

5-alpha reductase inhibitors are mainly used in the management of LUTS when an enlarged prostate plays the main role in the condition and patients experience voiding issues. Patients with enlarged prostates such as in benign prostatic hyperplasia (BPH) commonly experience voiding symptoms including hesitancy, poor stream, straining and incomplete bladder emptying. 5-alpha reductase inhibitors affect the male hormones resulting in an involution/shrinkage of prostate tissue and therefore they are of little use in patients with prominently overactive bladder symptoms.

Calcium channel blockers do not play a role in the management of LUTS and instead are known to cause/worse symptoms when used in the management of conditions such as blood pressure control. As such patients on calcium channel blockers who present with LUTS symptoms should be considered for medication alteration (i.e. changing to another anti-hypertensive) before starting an additional medication for LUTS.

Alpha-blockers, similarly to 5-alpha reductase inhibitors, are mainly used for patients with LUTS secondary to an enlarged prostate. Alpha-blockers relax the smooth muscle in the bladder so again they are of limited use for patient’s experiencing bladder overactive symptoms and are instead helpful for those with voiding symptoms.

Anti-diuretic such as desmopressin may be used for patients who mainly experience nocturia in an attempt to reduce urine production however they are not normally used as first-line medication and have a limited role in patients with overactive bladder symptoms.

Question:

A 36-year-old female is started on haloperidol for treatment-resistant schizophrenia. She presents to her general practitioner with a 1-day history of neck pain and difficulty moving the neck. On examination, she has normal observation except a mild tachycardia of 105 and neck stiffness with restricted range of motion. Her neck is involuntarily flexed to the right. She has normal facial movements.

What is the most likely diagnosis?

A.Neuroleptic malignant syndrome

B.Oculogyric crisis

C.Torticollis

D.Tardive dyskinesia

E.Akathisia

Answer:Torticollis

Explanation:

Acute dystonia - sustained muscle contraction such as torticollis or oculogyric crisis

Important for meLess important

This patient has experienced acute dystonia secondary to commencing a typical antipsychotic - haloperidol. Torticollis or 'wry' neck can be diagnosed where there is unilateral pain and deviation of the neck with pain on palpation and restricted range of motion.

Neuroleptic malignant syndrome is a medical emergency which occurs in patients taking antipsychotics. It is characterised by altered mental state, generalised rigidity, fever, fluctuating blood pressure and high temperature. This patient has a mild tachycardia which could be explained by pain, given the otherwise normal observations and the lack of any suggestion of altered mental state it is unlikely the correct diagnosis. It should, however, be considered in patients taking antipsychotics.

An oculogyric crisis is a further example of an acute dystonia. Patients experience sustained upward deviation of the eyes, clenched jaw and hyperextension of the back/neck with torticollis. Given that this patient has no facial signs or symptoms, torticollis alone is a more appropriate answer.

Tardive dyskinesia occurs in patients on long term typical antipsychotics and is characterised by uncontrolled facial movements such as lip-smacking.

Akathisia is characterised by severe restlessness with patients having difficulty in sitting still. Patients may rock, tap their legs or cross and uncross the legs. It typically occurs with long term use of antipsychotics.

Question:

You are working as one of the junior doctors on paediatrics and are called to review a newborn born at 33 weeks gestation with respiratory distress. There were no issues during delivery. The baby's observations are as follows.

Heart rate 185 bpm (100 - 180 bpm)

Oxygen saturation 96% (≥ 96%)

Respiratory rate 70 /min (25 - 65 /min)

Temperature 37.0 ºC (36.0 ºC - 38.0 ºC)

The baby is also requiring 2 litres of oxygen to maintain their oxygen saturation. On examination they are acyanotic and there are subcostal recessions and respiratory grunts. There are no added breath sounds on auscultation but bowel sounds can be heard in the left lung field.

What is the most likely cause of their symptoms?

A.Congenital diaphragmatic hernia

B.Early onset neonatal sepsis (EONS)

C.Surfactant deficient lung disease (SDLD)

D.Tetralogy of Fallot (TOF)

E.Transient tachypneoa of the newborn (TTNB)

Answer:Congenital diaphragmatic hernia

Explanation:

Evidence of bowel sounds in a respiratory exam of a neonate in respiratory distress should make you consider a diaphragmatic hernia

Important for meLess important

The most likely cause of this newborn's symptoms is a congenital diaphragmatic hernia. It is an important cause of respiratory distress in the newborn and is not always picked up prenatally. The main clue in this case is the presence of bowel sounds within the respiratory examination.

EONS is an important cause of respiratory distress in the newborn. However, this is less likely to be the cause of this newborn's symptoms as they are apyrexial and there were no issues during delivery. EONS is more likely to occur when the mother was pyrexial during labour or in prelabour rupture of membranes.

SDLD (also known as respiratory distress syndrome) is unlikely to be the cause of symptoms in this case. SDLD occurs in premature births before 31 weeks gestation as there is not enough surfactant production due to the immaturity of the lungs. This newborn was born at 33 weeks gestation and so should not have any issues with surfactant production.

TOF is a congenital heart disease that can cause respiratory distress in the newborn period. However, it is not likely to be the cause of symptoms in this case as it is causes the newborn to be cyanotic, which is not the case in this patient.

TTNB is the most common cause of respiratory distress in the newborn period and is caused by delayed reabsorption of fluid from the lungs. It is more common following caesarean sections. A congenital diaphragmatic hernia is more likely in this case as bowel sounds can be heard during the respiratory examination.

Question:

A 75-year-old man presents with a one-month history of dyspnoea, palpitations and dizziness. However, within the last few days, he has developed a productive cough with blood-streaked frothy white sputum. On examination, a low-pitch, rumbling, mid-diastolic murmur, is heard loudest at the apex and bilateral crepitations at the lung bases.

What is the most likely diagnosis?

A.Aortic regurgitation

B.Aortic stenosis

C.Mitral regurgitation

D.Mitral stenosis

E.Tricuspid regurgitation

Answer:Mitral stenosis

Explanation:

Haemoptysis can be a symptom of mitral stenosis

Important for meLess important

Mitral stenosis is the correct answer. The patient presents with a mid-diastolic low-pitched rumbling murmur which is characteristic of mitral stenosis. Mitral stenosis may present with haemoptysis due to increased pressures causing rupture of pulmonary vessels.

Aortic regurgitation is incorrect for this scenario. An early diastolic decrescendo murmur is characteristic of aortic regurgitation. The patient presents with a mid-diastolic murmur. Murmurs from aortic regurgitation are usually best heard at the 3rd intercostal space on the left on expiration.

Aortic stenosis is incorrect. A high-pitched mid-systolic ejection murmur is typical for aortic stenosis which the patient does not have.

Mitral regurgitation is incorrect. A pan-systolic murmur best describes a murmur of mitral regurgitation. It is best heard at the apex. The patient presented with a mid-diastolic murmur.

Tricuspid regurgitation is incorrect for this scenario. The murmur typically heard in tricuspid regurgitation is a pan systolic murmur which is similar to mitral regurgitation. The difference between these two murmurs is the area they are heard best; tricuspid regurgitation is heard at the lower left sternal border.

Question:

A 43-year-old Asian man presents with headache and neck stiffness. CT brain is normal and a lumbar puncture is performed with the following results

Serum glucose 4.7 mmol/L (4.0 - 7.0)

Lumbar puncture reveals:

Opening pressure 15 cmCSF (10 - 20)

Appearance Cloudy

Glucose 3.3 mmol/L (2.8 - 4.2)

Protein 0.7 g/L (0.15 - 0.45)

White cells 100 / mm³

(70% lymphocytes) (0 - 8)

What is the most likely diagnosis?

A.Bacterial meningitis

B.Viral meningitis

C.Tuberculous meningitis

D.Normal CSF result

E.Cryptococcal meningitis

Answer:Viral meningitis

Explanation:

The CSF lymphocytosis combined with a glucose greater than half the serum level points towards a viral meningitis. TB meningitis is associated with a low CSF glucose

Question:

A 50-year-old man presents to the GP complaining of numbness and tingling in both of his hands. His symptoms are worse at night and he has to shake his hands for relief. He is concerned as his symptoms are beginning to affect his job which involves typing. He is also worried that his symptoms will start to affect his hobby of tennis.

He has a past medical history of rheumatoid arthritis for which he takes methotrexate.

On examination, Tinel's test is positive bilaterally. A full examination is normal other than a BMI of 18kg/m².

What is the biggest risk factor in this patient's history for this condition?

A.Low BMI

B.Male sex

C.Playing tennis

D.Rheumatoid arthritis

E.Working as a typist

Answer:Rheumatoid arthritis

Explanation:

Rheumatoid arthritis is a common cause of bilateral carpal tunnel syndrome

Important for meLess important

This history is in keeping with carpal tunnel syndrome, a collection of symptoms and signs caused by compression of the median nerve as it travels through the carpal tunnel. Tinel's test involves tapping a finger over the affected nerve to reproduce the symptoms. Bilateral carpal tunnel syndrome is associated with conditions that narrow the carpal tunnel or put pressure on it - such as obesity or pregnancy. Rheumatoid arthritis is another strong risk factor for carpal tunnel syndrome as it is associated with synovitis that leads to narrowing of the carpal tunnel.

Low BMI is incorrect; it is raised BMI that is associated with an increased risk of carpal tunnel syndrome.

Male sex is incorrect. It is females are at increased risk of carpal tunnel syndrome; females are at least three times more likely to develop carpal tunnel syndrome than men. The reason for this is not fully known.

Playing tennis is, at most, a weak risk factor for carpal tunnel syndrome. It has been hypothesised that sports that put pressure through the wrist joint - such as racket sports -increase the risk of carpal tunnel syndrome, but there is a lack of strong evidence for this.

Whilst some jobs are more strongly associated with carpal tunnel syndrome, such as those using vibrating tools, the evidence for computer-based occupations increasing the risk of carpal tunnel syndrome is weak. Working as a typist is certainly not as strong a risk factor for carpal tunnel syndrome as rheumatoid arthritis is.

Question:

A 35-year-old female patient attends the emergency department with burns to her head, neck, left arm and anterior chest following an explosive vaping accident.

She has burns to 20% of her body and weighs 50kg, using the Parkland formula below, calculate how much fluid replacement she will have received after 8hrs.

Fluid replacement over first 24hrs = SA% x weight x 4ml.

A.1000ml

B.2000ml

C.3000ml

D.4000ml

E.5000ml

Answer:2000ml

Explanation:

The 24hr fluid requirement for burns is given as 50% over 8hrs followed by 50% over 16hrs

Important for meLess important

20 x 50 x 4 = 4000mls to be given over 24hrs.

First 50% over 8hrs = 4000 x 0.5 = 2000ml

Question:

A 67-year-old male attends the emergency department due to epistaxis. He reports that he has been having a nosebleed for around 25 minutes and it isn't stopping. He has not had any trauma to the area. His observations are all within normal range and he is fully alert. He does not take any medications. The emergency department doctor advises him to pinch the soft area of his nose firmly and lean forwards for 20 minutes.

After 20 minutes, the epistaxis has not stopped. A nasal examination is performed and no bleeding point can be visualised.

What is the most appropriate next step?

A.Anterior packing

B.Cautery

C.Naseptin cream

D.Refer to ENT for posterior packing

E.Continue first aid measures for further 20 minutes then reassess

Answer:Anterior packing

Explanation:

Anterior packing is the most suitable management option for epistaxis where the bleed site is difficult to localise

Important for meLess important

The most appropriate next step is anterior packing, as initial first aid measures have been unsuccessful. As there is no bleeding point visible, cautery is not possible, therefore the next step is anterior packing. There are two types of anterior packing: dissolvable (typically reserved for ENT use) and non-dissolvable. Non-dissolvable anterior packing includes Rapid Rhino® (an inflatable nasal balloon catheter) and Merocel® (an absorbent sponge tampon). If epistaxis continues after anterior packing, then it is likely that it is a posterior bleed, and this requires referral to ENT for posterior packing.

Cautery is not an appropriate next step in this case as no bleeding point can be visualised, therefore cautery would not be possible.

Naseptin cream is a topical nasal antiseptic cream containing chlorhexidine and neomycin. It can be applied following successful first aid measures to reduce crusting and vestibulitis. As first aid measures have not been successful in this case, applying Naseptin cream in this situation would be inappropriate.

Refer to ENT for posterior packing is not correct, as anterior packing should be attempted first. As explained above, if this fails should the patient be referred to ENT for posterior packing.

Continue first aid measures for a further 20 minutes then reassess is an inappropriate and unsafe management plan. He requires further management of his nosebleed sooner than this to limit blood loss.

Question:

A 10-day-old neonate presents with sudden onset bilious vomiting. These episodes of vomiting are occurring frequently. On examination, he has a swollen, firm abdomen, is pale and appears dehydrated. He has not passed stool in the last 48 hours. He was born at term and there were no complications around the time of his delivery.

What is the most likely diagnosis in this patient?

A.Appendicitis

B.Malrotation

C.Necrotising enterocolitis

D.Pyloric stenosis

E.Reflux

Answer:Malrotation

Explanation:

Malrotation most commonly affects neonates in the first 30 days of life and is most commonly bilious

Important for meLess important

Malrotation is most common in babies <30 days of age. It tends to present with bilious vomiting. The abdomen is typically soft and non-tender initially, but if not treated, it leads to strangulation of the gut. This is suggested in this scenario by the presence of a distended and firm abdomen, and the lack of stool.

Appendicitis does not generally present in neonates. It becomes more common in children over the age of 3. Typical presenting features of appendicitis in children include right-sided abdominal pain, anorexia, fever, and vomiting. The child in this scenario has bilious vomiting, which would be unusual in appendicitis unless it had been going on for a long time.

Necrotising enterocolitis usually presents in neonates with abdominal pain, swelling, diarrhoea with bloody stool, green/yellow vomit, lethargy, refusal to eat, and lack of weight gain. It is more common in premature babies and tends to have a more insidious course, rather than presenting in an acutely unwell and dehydrated neonate.

Vomiting associated with pyloric stenosis is non-bilious and is typically projectile. Its peak age of onset is age 4-8 weeks. Weight loss and dehydration are very common at presentation. On examination, there may be visible peristalsis and a palpable olive-sized pyloric mass, best felt during a feed. Lack of ability to pass stool and a distended abdomen are not usually features of this condition.

Reflux is a common problem in infants. It usually starts before the baby is 8 weeks old, and tends to resolve by the time the child is one. Typical symptoms include bringing up milk or being sick during or shortly after feeding, coughing or hiccuping when feeding, being unsettled during feeding, swallowing or gulping after burping or feeding, or crying after feeding. Babies with reflux are not usually acutely unwell but may struggle to gain weight.

Question:

A 70-year-old woman is admitted to the Emergency Department after presenting with shortness-of-breath and a persistent cough. Around two weeks ago she was started on a course of amoxicillin by her GP but this did not improve her symptoms.

On examination the respiratory rate is 24/min, oxygen saturations 93% on room air and the pulse rate is 84/min. Reduced breath sounds are noted in the right lower zone. A chest x-ray is requested:

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What is the most appropriate next course of action?

A.Insert cannula into right 2nd intercostal space, mid-clavicular line

B.Insert a chest drain into the right side

C.Diagnostic aspiration from the right side

D.Start intravenous furosemide and repeat chest x-ray in 3 days

E.Arrange a high-resolution CT scan of the thorax

Answer:Diagnostic aspiration from the right side

Explanation:

This patient has a large unilateral pleural effusion. The differential diagnosis includes malignancy and infection. A diagnostic tap is important as it will give clues to the underlying aetiology and if suggestive of infection will guide treatment.

The diagnostic aspiration should be performed with a green 21G needle and a 50ml syringe.

Whilst this is a relatively large pleural effusion, a diagnostic tap should be performed prior to any symptomatic drainage. This will help determine whether there are any absolute indications for drainage, such as an empyema. Please see the British Thoracic Society Pleural Disease guidelines for more information.

A high resolution CT scan may be required in a new presentation to assess for underlying causes but the diagnostic tap should be done prior to this.

Question:

An 82-year-old lady is found to have heart failure with a left ventricular ejection fraction (LVEF) of 30%. Her renal function is normal and BP is 165/102mmHg. She is not taking any other medication. What combination of drugs would be the best initial treatment for her?

A.Amlodipine and spironolactone

B.Bisoprolol and lercanidipine

C.Candesartan and ramipril

D.Furosemide and digoxin

E.Ramipril and bisoprolol

Answer:Ramipril and bisoprolol

Explanation:

Patients with heart failure with reduced LVEF should be given a beta blocker and an ACE inhibitor as first-line treatment

Important for meLess important

Normal LVEF is 45%-60%. This is, therefore, heart failure with reduced ejection fraction. The primary aim is to protect the heart and first line treatment is to use an ACE inhibitor (e.g. ramipril) and a beta blocker (e.g. bisoprolol).

Spironolactone, an aldosterone antagonist, might be added further down the line, as might digoxin. Neither of these is the first port of call.

Furosemide (loop diuretic) might be used for relief of fluid overload but is not a treatment for heart failure; it is considered symptom management.

Amlodipine and lercanidipine are calcium channel blockers which could be used to control hypertension but are not treatments for heart failure in and of itself.

Candesartan is an ARB and could be used in combination with an ACE inhibitor further down the line, but a beta blocker would be used first. (NB – Losartan, the other common ARB, cannot be used with an ACEI.)

Question:

You are performing a routine examination on a 32-year-old female for her private medical insurance. Her only past medical history of note is a diagnosis of Ehler-Danlos syndrome. She is generally fit and well. On examination, you note widespread bruising and on auscultation of her chest, there is a faint diastolic murmur audible.

Which complication of Ehler-Danlos is she most likely to be experiencing?

A.Mitral stenosis

B.Atrial septal defect

C.Aortic dissection

D.Aortic regurgitation

E.Ventricular septal defect

Answer:Aortic regurgitation

Explanation:

One of the cardiac complications of Ehler-Danlos is aortic regurgitation

Important for meLess important

Ehler-Danlos syndrome is a genetic collagen disorder, which results in widespread elasticity of tissue. There are many differing subtypes, but most commonly it is an autosomal dominant condition affecting type III collagen.

The diastolic murmur here means that mitral stenosis and aortic regurgitation are the most likely answers. It is valvular incompetence that individuals with Ehler-Danlos are most likely to suffer with, due to the connective tissue pathology. Aortic dissection is another complication of Ehler-Danlos, but is unlikely to present in this way.

Atrial and ventricular septal defects are not commonly associated with Ehler-Danlos syndrome.

Question:

A 55-year-old man with type 2 diabetes is brought to the practice by his partner for acting strangely and is acutely confused on questioning. He was recently started on insulin therapy for his diabetes. His observations are quickly taken:

Blood pressure 145/87 mmHg

Heart rate 110 beats per minute

Temperature 37.2ºC

Oxygen saturation 99% on room air

Respiratory rate 18 breaths per minute

Capillary blood sugar level 2.1 mmol/L

What is the most appropriate management of this patient?

A.Intramuscular glucagon

B.Intravenous glucagon

C.Intravenous glucose

D.Oral glucose gel

E.Oral jelly beans

Answer:Oral 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

This patient has hypoglycaemia and requires treatment glucose - the form in which this is given depends on his consciousness and ability to swallow. In this case, he is conscious and apart from confusion, there are no indications he will have issues swallowing. The best option is therefore an oral glucose gel which can quickly increase his blood glucose level.

Intramuscular glucagon is not required in this situation given the patient is conscious and will be likely to swallow the glucose given. If he became combative and was unable to take any oral glucose, then this could be considered.

Intravenous administration is not a recommended route for glucagon making this option incorrect.

Intravenous glucose is not required at this stage in this patient as he is conscious. It would be considered in the hospital setting for a patient who is unable to take glucose orally.

Oral jelly beans can be used by patients but it is not the best option for this situation. Although this patient is conscious, he is confused. It would be much easier to provide a gel for swallowing than jelly beans - he may not chew on the jelly beans and this could present a choking hazard.

Question:

A 64-year-old woman presents with a 1 month history of post-menopausal bleeding. Her only medication is aspirin 75 mg once daily. An ultrasound scan of the uterus shows an endometrial lining thickness of 4.1 mm. An endometrial pipelle biopsy is taken but is inconclusive. What is the next step?

A.Dilation and curettage

B.Repeat endometrial pipelle biopsy

C.Repeat USS to determine endometrial thickness in 6 months time

D.Hysteroscopy with biopsy

E.CT scan pelvis

Answer:Hysteroscopy with biopsy

Explanation:

Post-menopausal bleeding should always be investigated. The initial investigation is a transvaginal ultrasound scan to look at the endometrial thickness. Pipelle biopsy is used to sample the endometrium and in most cases can be used to diagnose endometrial cancer. Hysteroscopy with directed sampling (dilation and curettage) can be used to detect lesions or when pipelle has been inconclusive.

CT scan is not required as a pre-operative imaging test nor is it used to diagnose endometrial cancer.

Reference: Colombo N, Preti E, Landoni F, Carinelli S, Colombo A, et al. Endometrial cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2013; 24 (6): vi33-vi38.

Question:

A 62-year-old woman presents with post-menopausal bleeding. Which one of the following is not a risk factor for endometrial cancer?

A.Diabetes mellitus

B.Late menopause

C.Obesity

D.Past history of combined oral contraceptive pill use

E.Nulliparity

Answer:Past history of combined oral contraceptive pill use

Explanation:

The combined oral contraceptive pill is a protective factor for endometrial cancer

Important for meLess important

Question:

You are reviewing the blood results for a pregnant woman. Which one of the following results would indicate the need for routine antenatal anti-D prophylaxis to be given at 28 weeks?

A.Rhesus negative mothers who are not sensitised

B.Rhesus negative mothers who are sensitised

C.Rhesus negative mothers who are sensitised where there is coexistent anaemia

D.Rhesus positive mothers who are sensitised

E.Rhesus positive mothers who are not sensitised

Answer:Rhesus negative mothers who are not sensitised

Explanation:

Question:

An 89-year-old female was admitted to the stroke ward with right facial droop and hemiplegia. CT head confirmed a large left middle cerebral artery infarct. The patient has completed 14 days of high-dose aspirin (300mg) for the treatment of an acute ischaemic stroke.

Which of the following options is most appropriate for secondary prevention?

A.Continue high-dose aspirin

B.Reduce to low-dose aspirin

C.Switch to a direct oral anticoagulant (DOAC)

D.Switch to clopidogrel

E.Switch to warfarin

Answer:Switch to clopidogrel

Explanation:

Clopidogrel is the preferred antiplatelet for secondary prevention following stroke

Important for meLess important

Clopidogrel 75mg is the preferred antiplatelet for secondary prevention following a stroke as it reduces the risk of major adverse cardiovascular events. This is used in patients who have had a transient ischaemic attack or following two weeks of high-dose aspirin in patients who have had a confirmed stroke. If clopidogrel is contraindicated, low-dose aspirin (75mg) and modified-release dipyridamole can be used second line.

High-dose aspirin (300mg) is only indicated in the first 2 weeks following an acute ischaemic stroke.

DOACs and warfarin are used to anticoagulate patients with atrial fibrillation (AF), to reduce the risk of clot formation and subsequent embolisation that can lead to stroke. There is no evidence of AF described in this patient, and so these options are incorrect.

Question:

A 55-year-old man is reviewed following results for a health check. Three months ago, his thyroid function tests (TFTs) showed:

TSH 7.4 mU/L (0.5 - 5.5)

Free T4 15 pmol/L (9.0 - 18)

His TFTs were repeated recently and showed:

TSH 7.2 mU/L (0.5 - 5.5)

Free T4 16 pmol/L (9.0 - 18)

TSH receptor-stimulating antibodies negative

Anti-thyroid peroxidase antibodies negative

He mentions he has recently been more tired and cold than usual, however, denies any weight gain, hair loss, or bowel habit changes. He has no past medical history. His mother has a history of autoimmune thyroiditis.

What is the most appropriate step in his management?

A.Prescribe levothyroxine for 6 months and repeat thyroid function tests

B.Prescribe levothyroxine only if further symptoms develop

C.Repeat thyroid autoantibody tests

D.Repeat thyroid function testing after 3 months

E.Repeat thyroid function testing after 6 months

Answer:Prescribe levothyroxine for 6 months and repeat thyroid function tests

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

An elevated thyroid-stimulating hormone (TSH) and normal T4 on 2 separate occasions 3 months apart, and negative autoantibodies suggest a diagnosis of subclinical hypothyroidism. The initial absence of symptoms associated with hypothyroidism (such as weight gain, cold intolerance, and fatigue) supports this diagnosis. The management of subclinical hypothyroidism depends on how much the TSH value is elevated and the presence of symptoms.

Prescribe levothyroxine for 6 months and repeat thyroid function tests is correct. If a patient's TSH level is elevated but less than 10 mU/L on two separate occasions three months apart and symptoms of hypothyroidism are present (such as fatigue and cold intolerance in this case), NICE recommends a 6-month trial of levothyroxine and rechecking TFTs after. This is because patients with subclinical hypothyroidism have an increased risk of cardiovascular disease and progression to overt hypothyroidism, and treatment generally resolves symptoms.

Prescribe levothyroxine only if further symptoms develop is incorrect. Since this patient has had two elevated TSH levels 3 months apart and has fatigue and cold intolerance, this result is less likely to be spurious and qualifies them for treatment with levothyroxine, regardless of if further symptoms (such as hair loss or weight gain) have developed or not. Leaving this patient with untreated subclinical hypothyroidism increases the risk of cardiovascular disease and progression to overt hypothyroidism, as well as leaving them with symptoms that can negatively impact their quality of life.

Repeat thyroid autoantibody tests is incorrect. This patient has no features of hypothyroidism and has already had negative autoantibody test results. Although anti-thyroid peroxidase antibodies can increase the risk of progression to overt hypothyroidism, NICE does not recommend repeat antibody testing. This patient also meets the criteria for a trial with levothyroxine for 6 months as their TSH has been elevated on 2 occasions 3 months apart, therefore this step would unnecessarily delay this.

Repeat thyroid function testing after 3 months is incorrect. There is no need for any more measurements to confirm the elevated TSH according to the NICE guidelines. If a patient has a TSH value that is elevated on 2 separate occasions 3 months apart, it is unlikely to be spurious. Since this is the case with this patient and their TSH is less than 10 mU/L and they are symptomatic, a 6-month trial of levothyroxine is indicated. This step would unnecessarily delay treatment with levothyroxine.

Repeat thyroid function testing after 6 months is incorrect. As mentioned above, this patient qualifies for a 6-month trial of levothyroxine as they have an elevated TSH value 6 months apart that is less than 10 mU/L and are symptomatic. This step would unnecessarily delay treatment with levothyroxine.

Question:

A 77-year-old gentleman reports an ongoing feeling of ringing in his right ear for the past 3 months. For the past 3-weeks, he has also noticed that he struggles to hear from his right ear.

On examination, Rinne's test shows that air conduction is louder than bone conduction in the right ear and Weber's test lateralises to the left ear.

Unilateral tinnitus associated with deafness is likely to be a feature of which one of these conditions?

A.Multiple sclerosis

B.Chronic otitis media

C.Acoustic neuroma

D.Stroke

E.Labyrinthitis

Answer:Acoustic neuroma

Explanation:

The classical history of vestibular schwannoma includes a combination of vertigo, hearing loss, tinnitus and an absent corneal reflex

Important for meLess important

Unilateral tinnitus and deafness are classically associated with an acoustic neuroma.

Multiple sclerosis (MS) is a demyelinating disease which is not associated with tinnitus or deafness.

Chronic otitis media is a chronic inflammation of the middle ear and mastoid cavity. Clinical features include recurrent otorrhoea and conductive hearing loss.

Labyrinthitis is an inflammation of the inner ear, that usually occurs following a viral infection and results in vertigo and hearing loss.

Question:

A 7-day-old baby is brought to see you with difficulty in feeding over the past 24 hours. He was born at 37 weeks, induced 24 hours after pre-labour spontaneous rupture of membranes. After a period of observation, there were no concerns and were subsequently discharged.

He is exclusively breastfed 1-2 hourly, however of the past 24 hours, has been less interested in feeding, occurring every 3-4 hours, sometimes being woken to feed. He seems uncomfortable when feeding, continually pulling away. Mum also states that he seems to be making an unusual grunting sound after he exhales.

Based on this history, what would be the most likely diagnosis?

A.Cows milk protein allergy

B.Gastro-oesophageal reflux disease

C.Neonatal sepsis

D.Normal newborn variance

E.Reduced milk supply

Answer:Neonatal sepsis

Explanation:

Neonatal sepsis should be considered in infants with vague signs such as poor feeding, grunting, lethargy

Important for meLess important

Neonatal sepsis is the most likely diagnosis here due to the prolonged rupture of membranes followed by symptoms that can be attributable to neonatal sepsis which is often vague such as lethargy and poor feeding. Grunting however is also a definite red flag features of serious illness and neonatal sepsis in this context.

Cows milk protein allergy is less likely due to the relatively quick deterioration, lack of other symptoms such as rash, wheeze and vomiting.

Gastro-oesophageal reflux disease is unlikely here as although there is a report of him appearing 'uncomfortable with feeding', this is more likely due to tachypnoea and grunting. There is no mention of vomiting/ excessive positing or pain with feeding.

This baby is not well, the reduced feeding (<50% usual amount) and evident grunting are features of serious illness.

Reduced milk supply is possible in respect of the baby developing dehydration and lethargy with subsequent disinterest in feeding. However, grunting is unusual in this context and there is no report of concerns regarding supply in the preceding days.

Question:

You review the blood results taken from a pregnant woman at her booking visit. In addition to the standard antenatal bloods she also had her rubella status checked as she didn't have the MMR vaccine as a child. She is now 11 weeks pregnant and currently well.

Rubella IgG NOT detected

What is the most appropriate course of action?

A.Advise her of the risks and the need to keep away from anyone who has rubella

B.Discuss the risks of congenital rubella syndrome and counsel regarding a termination of pregnancy

C.Advise monthly rubella IgM checks + avoid infectious contacts

D.Advise vaccination against rubella

E.Advise weekly human normal immunoglobulin injections until > 20 weeks gestation + avoid infectious contacts

Answer:Advise her of the risks and the need to keep away from anyone who has rubella

Explanation:

This scenario is now rare due to the widespread uptake of the MMR vaccination. It does however still occur, particularly in immigrant communities.

Question:

A 75-year-old man presents to memory services. His daughter reports that he has had significant cognitive decline over two years and is now unable to perform self-care.

The patient describes visual hallucinations, causing him significant distress. He is not currently prescribed any medications.

On assessment, his heart rate is 70bpm and blood pressure is 180/90mmHg.

His MRI findings are consistent with Alzheimer's disease and small vessel disease.

What medication should be considered with caution in this patient, due to its association with a significant increase in mortality in this condition?

A.Amlodipine

B.Donepezil

C.Memantine

D.Olanzapine

E.Rivastigmine

Answer:Olanzapine

Explanation:

Antipsychotics are associated with a significant increase in mortality in dementia patients

Important for meLess important

Olanzapine is an antipsychotic medication. Antipsychotics are associated with a significant increase in mortality in dementia patients and should only be used with caution for patients at risk of harming themselves or others, or when the agitation, hallucinations, or delusions are causing them severe distress as in this case.

Amlodipine would be a sensible treatment to start given his raised blood pressure and known small vessel disease. It does not cause increased mortality in dementia.

Donepezil is relatively contraindicated in patients with bradycardia which does not apply in this case.

Donepezil and rivastigmine are acetylcholinesterase inhibitors that are first-line options in managing mild to moderate dementia. This patient has advanced dementia. Additionally, these medications are not associated with increase mortality in dementia.

Memantine is an NMDA antagonist. It would be appropriate in this patient, either as a monotherapy or in conjunction with an acetylcholinesterase inhibitor for severe Alzheimer's.

Question:

A 75-year-old man has attended the falls clinic with a 1-month history of an increased frequency of falls. In the last month, he reports falling 5 times. Prior to this, he was independently mobile but now requires the assistance of a frame. He lives with his wife who says that he has brief episodes of confusion following by lucid periods. His past medical history includes hypertension, alcoholic fatty liver disease, and gout.

On examination, he has normal power and sensation in his upper limbs. He has a shuffling gait but there is generally good power in his lower limbs. His cranial nerve examination is unremarkable aside from being unable to abduct his left eye on the left lateral gaze.

What is the most likely diagnosis?

A.Hepatic encephalopathy

B.Lewy body dementia

C.Normal-pressure hydrocephalus

D.Subdural haematoma

E.Wernicke’s encephalopathy

Answer:Subdural haematoma

Explanation:

Fluctuating confusion/consciousness? - subdural haematoma

Important for meLess important

In the elderly population and particularly those with a background of alcohol excess, a combination of fluctuating confusion, and increased frequency of falls should raise suspicion of a subdural haematoma. The presence of a left abducens nerve palsy is suggestive of a false localising sign from a space-occupying lesion. This patient should have a CT head which would demonstrate the presence of a subdural haematoma, a lentiform-shaped collection of blood often from rupture of cortical bridging veins.

Hepatic encephalopathy is staged as minimal, mild, moderate, severe and comatose. The minimal and milder forms of the disease can be difficult to distinguish from other disease presentations. However, given the absence of further signs of decompensated liver disease including ascites and jaundice, hepatic encephalopathy seems less likely to be the underlying cause.

Lewy body dementia tends to present with fluctuating cognitive impairment. Hallucinations may also be seen as well as sleep disturbance. Patients with LBD can also experience Parkinsonian motor symptoms including rigidity, bradykinesia and a shuffling gait. However, LBD would not explain this patient’s abducens nerve palsy.

Normal-pressure hydrocephalus is the presence of excess cerebrospinal fluid in the brain without an increase in intracranial pressure. The condition typically presents as a triad of dementia, gait apraxia and urinary or faecal incontinence. It should be considered as a differential diagnosis in this patient. However, the history of fluctuating confusion is more suggestive of a subdural haematoma.

Wernicke’s encephalopathy is a reasonable differential given the history of alcohol excess. However, in Wernicke’s encephalopathy cerebellar signs tend to predominate such as gait ataxia, nystagmus and ophthalmoplegia.

Question:

An 18-year-old primiparous woman is being reviewed on the labour ward following a midwife becoming concerned about a cardiotocography (CTG) tracing. She is 39 weeks gestation and she has been in the active second stage of labour for 3 hours. She is using gas and air for analgesia.

The CTG shows the following:

Foetal heart rate 90 bpm (110 - 160)

Variability 15 bpm (5 - 25)

Decelerations absent absent

Contractions 6-7 per 10 minutes (3 - 4)

This has been the case for 7 minutes.

What is the most appropriate immediate next step?

A.Arrange a caesarean section within 30 minutes

B.Arrange a caesarean section within 75 minutes

C.Perform foetal blood sampling

D.Place foetal scalp electrode

E.Take an ECG of the mother

Answer:Arrange a caesarean section within 30 minutes

Explanation:

Category 1 caesarean sections should occur within 30 minutes of making the decision

Important for meLess important

This situation represents persistent foetal bradycardia, in the context of a frequency of contractions that is higher than expected. This represents a foetal compromise, and as such, a category 1 caesarean section is indicated. Category 1 caesarean sections should occur within 30 minutes. Therefore, the correct answer here is to arrange a caesarean section within 30 minutes.

Arranging a caesarean section within 75 minutes is incorrect. This is the time frame for a category 2 caesarean section - where there is a maternal or foetal compromise that is not immediately life-threatening. The scenario here is dangerous to the foetus, and therefore a category 1 caesarean section is needed.

Performing foetal blood sampling is incorrect. Whilst this can be useful in the presence of a non-reassuring CTG, in order to determine whether the foetus is acidotic due to hypoxia, an abnormal CTG with persistent foetal bradycardia does not need further investigations- urgent delivery is prioritised.

Placing foetal scalp electrode is incorrect. This can be useful if a CTG monitor does not pick up a proper trace, or if there is more than one foetus. However, in this case, the trace is being picked up and is abnormal, meaning urgent delivery is required.

Taking an ECG of the mother is incorrect. This may be useful if there is a suggestion that the CTG monitor is perhaps picking up the mother's pulse instead of the pulse of the foetus. However in this case, given the variability of the pulse, and the fact foetal bradycardia is likely in this situation, it is appropriate to prioritise urgent delivery.

Question:

A 56-year-old man presents with a 6-week history of progressively worsening hoarse voice, difficult and painful swallowing and weight loss. He has a past medical history of gastro-oesophageal reflux disease (GORD) and his BMI is 31kg/m². He takes no regular medication and reports having never drunk alcohol, but he is a current smoker with a 30 pack-year history.

What is the most likely cause of this man's symptoms?

A.Adenocarcinoma of the oesophagus

B.Keratinizing squamous cell carcinoma of the nasopharynx

C.Pancoast tumour of the lung

D.Squamous cell carcinoma of the larynx

E.Squamous cell carcinoma of the oesophagus

Answer:Adenocarcinoma of the oesophagus

Explanation:

Odynophagia is a concerning symptom that may be present in patients with oesophageal cancer

Important for meLess important

This patient is presenting with multiple red flags for oesophageal cancer (weight loss, odynophagia, dysphagia). In his past medical history, he has a diagnosis of GORD (for which he is not taking any regular medication as stated), he is overweight with a BMI of 31kg/m² and he has a 30 pack-year history of smoking. These are all risk factors for the development of adenocarcinoma of the oesophagus. Adenocarcinoma is the most common type of cancer affecting the oesophagus in the UK and it arises in the lower third of the oesophagus, near the gastro-oesophageal junction. Repeat injury from GORD and smoking cause damage to the squamous epithelium lining the distal third of the oesophagus and over time metaplasia occurs with the cell lining changing to simple columnar epithelium, in a condition known as Barrett's oesophagus. Barrett's oesophagus is a premalignant condition and over time, the continued injury will lead to the development of adenocarcinoma of the oesophagus.

Keratinizing squamous cell carcinoma of the nasopharynx is likely to cause epistaxis, hearing problems (and/or tinnitus) and a blocked or stuffy nose.

Pancoast tumour of the lung is a malignancy that arises in the apex of one of the lungs. Due to the proximity to the recurrent laryngeal nerve it can cause compression and result in hoarseness of voice, and it would also cause weight loss but the other symptoms are unlikely to be due to this.

Squamous cell carcinoma (SCC) of the larynx can present with similar symptoms although symptoms that are common in these cases (referred otalgia, difficulty breathing and stridor) are not mentioned in the text.

Squamous cell carcinoma (SCC) of the oesophagus would be a differential but as the patient has a history of untreated GORD, is overweight, and SCC is rarer in the UK it is more likely to be adenocarcinoma.

Question:

A 20-year-old woman with a history of severe depression and multiple paracetamol overdoses is brought in by her partner, who reports having found her on the floor of her bedroom 2 days after an argument between them. Concerned, her partner asks you what her prognosis is.

Which factor would be most associated with a poor prognosis for this patient?

A.Hepatic encephalopathy

B.Previous paracetamol overdoses

C.INR 1.3

D.Arterial pH of 7.03

E.AST 750 units/L

Answer:Arterial pH of 7.03

Explanation:

The arterial pH is the single most important prognostic factor in paracetamol overdose

Important for meLess important

The single most important prognostic indicator in paracetamol overdoses is acidosis. In one study, 95% of patients with an arterial pH <7.30 who didn't receive a liver transplant died. Other indicators of reduced prognosis include a creatinine >300, and increased prothrombin time.

Hepatic encephalopathy is a marker of poor prognosis in cirrhosis, and is part of the Child-Pugh score.

There is a group of patients who present frequently with paracetamol overdoses. Often these are small overdoses that require n-acetyl cysteine only, and usually result in full recovery. It is not a good indicator of poor prognosis in any one overdose.

An INR of 1.3 is indicative of a poor prognosis. However, it is not as strongly linked to poor outcomes as is reduced arterial pH.

Both AST and ALT are commonly raised in paracetamol overdoses, and elevated levels are not a good indicator of poor prognosis.

Question:

A 42-year-old man is diagnosed with syphilis following months of ill health. On examination he is noted to have bilateral small pupils which accommodate but do not respond to light. What is the most likely diagnosis?

A.Internuclear ophthalmoplegia

B.Bilateral third nerve palsy

C.Horner's syndrome

D.Holmes-Adie syndrome

E.Argyll-Robertson pupil

Answer:Argyll-Robertson pupil

Explanation:

Question:

You review a 72-year-old man with metastatic bowel cancer who is in the terminal phase and has a syringe driver. Unfortunately he has developed intestinal obstruction and is suffering with bowel colic. What is the most appropriate drug to add to the syringe driver?

A.Metoclopramide

B.Morphine

C.Levomepromazine

D.Haloperidol

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

Question:

A father brings his child to the GP surgery concerned about his child's development. His child is 18 months old and has been slow to meet all developmental milestones. His health visitor advised that he come to see you. You learn that the child has experienced feeding difficulties throughout his life.

On examination of the child, you notice that he is drooling and is making lots of slow, writhing movements of his hands and feet. The father tells you that this is common and that his son struggles to hold onto objects such as toys.

What is the likely diagnosis?

A.Ataxic cerebral palsy

B.Duchenne's muscular dystrophy

C.Dyskinetic cerebral palsy

D.Hydrocephalus

E.Spastic cerebral palsy

Answer:Dyskinetic cerebral palsy

Explanation:

Dyskinetic cerebral palsy typically manifests as athetoid movements and oro-motor problems

Important for meLess important

Dyskinetic cerebral palsy is correct. This child is presenting with general symptoms of cerebral palsy - namely being slow to meet developmental milestones and feeding difficulties. This child is displaying symptoms of dyskinetic cerebral palsy, a subtype of cerebral palsy. Key symptoms that differentiate dyskinetic cerebral palsy from other subtypes are athetoid movements and oro-motor problems. The athetoid movements are shown in this stem by the slow writhing movements of his hands and feet and also the difficulty of holding onto objects. Patients with dyskinetic cerebral palsy experience difficulty in holding objects due to fluctuating muscle tone. The oro-motor problems are evidenced by this child's drooling.

Ataxic cerebral palsy is incorrect. This is another subtype of cerebral palsy that is caused by damage to the cerebellum. This would consequently present with classic cerebellar signs such as nystagmus and ataxia.

Duchenne's muscular dystrophy (DMD) is incorrect. DMD usually presents in boys around the ages of 3-5 years old. It would commonly present with large calves in a patient with weakness in the muscles surrounding their pelvis. The age range and symptoms of DMD do not match those in the stem. Therefore, this is incorrect.

Hydrocephalus is incorrect. Although this patient is experiencing some symptoms that would be indicative of hydrocephalus (poor feeding), the patient in this stem is not demonstrating key features of hydrocephalus such as a bulging anterior fontanelle.

Spastic cerebral palsy is incorrect. This is the most common type of cerebral palsy. However, the symptoms in this stem describe athetoid movements and oro-motor problems that are specific to dyskinetic cerebral palsy - making a diagnosis of spastic cerebral palsy incorrect.

Question:

You are working at the paediatric oncology unit and you are called to talk to the parents of a 5-year-old girl who has just been diagnosed with acute lymphoblastic leukaemia (ALL). Her parents are concerned as they have a older son and are worried that he is also at an increased risk of getting ALL too.

What can you tell them about the epidemiology of acute lymphoblastic leukaemia?

A.It accounts for 45% of childhood leukaemias

B.It is more common in girls than boys

C.It is the second most common malignancy affecting children

D.Peak incidence is 2-5 years

E.20% of cases are familial

Answer:Peak incidence is 2-5 years

Explanation:

ALL: peak incidence is 2-5 years

Important for meLess important

Acute Lymphoblastic Leukaemia has a peak incidence of 2-5 years, affects slightly more boys than girls and accounts for 80% of childhood leukaemias. It is the most common malignancy affecting children. There is not a strong family correlation, although some genetic disorders, such as Down's syndrome, increase the likelihood of developing the disease.

Question:

A 37-year-old female presents to her GP complaining of dyspareunia, irregular menstrual cycles for 6 months until she recently missed 3 periods. She also complains of sudden hot flushes for the past 3 months. Her only history of note includes previous breast cancer for which she was on chemotherapy and radiation. Examination reveals no abnormalities and her pregnancy test is negative.

What is the most likely diagnosis?

A.Endometriosis

B.Fibroids

C.Polycystic ovarian syndrome

D.Breast cancer

E.Premature ovarian failure

Answer:Premature ovarian failure

Explanation:

Premature ovarian failure (POF) is defined as the cessation of menses for 1 year before the age of 40. It can, however, be preceded by irregular menstrual cycles. Common symptoms include hot flushes, vaginal dryness, vaginal atrophy, sleep disturbance, and irritability.

Strong risk factors for POF include a positive family history, exposure to chemotherapy/radiation and autoimmune disease.

From the above choice of answers, POF is the most likely diagnosis.

Question:

A 5-year-old boy is brought to the office due to ear pain. Two days ago he developed low-grade fever and pain in the left ear, which his parents note he tugs. For the past week, he has also had a runny nose and cough, which developed after a flight from a family vacation. This morning, yellow stain was noted on his pillow. He has no history of ear infection and is up to date with vaccinations. He is allergic to penicillin, and has no other medical history. Temperature is 37.9 degrees Celsius. Nasal mucosa appears boggy, and postnasal drip is present.

What should you advise the parents?

A.Amoxicillin

B.Erythromycin

C.Grommets

D.Paracetamol

E.Reassurance and supportive therapy

Answer:Erythromycin

Explanation:

Oral antibiotics should be given in acute otitis media with perforation

Important for meLess important

The child has acute otitis media with perforation. This often follows upper respiratory tract infection, and has acute onset of symptoms, with pain and ear tugging. Yellow discharge likely indicates perforation, with discharge of effusion from the canal. Fluid accumulation in the distal tube allows for growth of colonised bacteria, most commonly Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis.

Antibiotics should be prescribed due to the perforation. Amoxicillin is first line, unless the patient is allergic, in which case erythromycin would be indicated.

Paracetamol may settle the child and help with pain management, but will not address the underlying problem.

Reassurance and supportive therapy is not appropriate.

Grommets are indicated in patients with recurrent acute otitis media, otitis media with effusion in both ears 3 months or one ear for 6 months, and in patients with speech delays.

Question:

A 45-year-old man presents to the emergency department with the worst headache he has ever head. He reports he was sitting with his wife when he felt sudden onset pain at the back of his head. The pain reached 10/10 intensity rapidly. He also feels nauseous but has not vomited yet.

His past medical history includes adult dominant polycystic kidney disease and hypertension for which he takes ramipril. On examination, his Glasgow coma scale is 15/15 and there is no focal neurology.

You are concerned regarding an intracranial bleed and request a non-contrast CT head, which demonstrates hyperdensity in the subarachnoid space and ventricles.

Given the diagnosis, what is the most appropriate definitive intervention?

A.Thrombectomy

B.External ventricular drain

C.Haematoma evacuation

D.Aneurysm clipping

E.Aneurysm coiling

Answer:Aneurysm coiling

Explanation:

Following a subarachnoid haemorrhage, most intracranial aneurysms are now treated with a coil by an interventional neuroradiologist

Important for meLess important

The description given is of a thunderclap headache which is synonymous with a subarachnoid haemorrhage. Further evidence to support this is the CT findings of fresh blood in the subarachnoid space. The likely aetiology is an aneurysmal bleed given the background of ADPKD which is associated with Berry aneurysms. Most aneurysms are now managed by interventional radiology with coils, therefore is the most appropriate definitive intervention.

Thrombectomy is used in at management of acute ischaemic stroke.

External ventricular drains are used to treat complications such as hydrocephalus and therefore is not treating the aneurysm itself.

Haematoma evacuation via craniotomy is a neurosurgical procedure used in the management of moderate to large-sized subdural haematomas.

Aneurysm clipping by neurosurgery is also used to manage aneurysmal bleeds but is not the first-line treatment option.

Question:

A 37-year-old man presents to his general practitioner with a wheezy cough and difficulty breathing that developed in the last six months. He has never experienced anything like this before. He recently changed his job and started to work in a spray painting factory. The doctor decides to ask the patient to keep a diary and after seeing the results decides to refer the patient to the respiratory specialist.

Which one of the following substances is the most likely to have caused his symptoms?

A.Asbestos

B.Benzidine

C.Coal

D.Cyclophosphamide

E.Isocyanates

Answer:Isocyanates

Explanation:

Isocyanates are the most common cause of occupational asthma

Important for meLess important

The correct answer is isocyanates. This patient is suffering from occupational asthma. A history of late-onset asthma, associated with a new job or a new hobby should raise a concern about occupational asthma. Isocyanates are found in factories producing spray painting and foam moulding using adhesives.

Asbestos exposure is associated with multiple conditions related to the lungs. It can cause asbestosis or mesothelioma. Both these conditions are associated with reduced exercise tolerance and shortness of breath, but none of them is associated with wheeze, making this option incorrect.

Benzidine exposure is a risk factor for the development of transitional cell carcinoma of the bladder. This substance is found in aniline dyes in the printing and textile industry.

Long-term coal exposure is responsible for the development of coal workers' pneumoconiosis. This patient has no occupational exposure to it. Additionally, patients are often asymptomatic, making this option unlikely.

Cyclophosphamide is an alkylating agent used in the management of cancer and autoimmune conditions, that has been associated with the development of transitional cell carcinoma of the bladder. This patient has a negative past medical history and no urinary symptoms making this choice unlikely.

Question:

A 34-year-old woman presents to the antenatal clinic. She is 16 weeks pregnant and she discovered her pregnancy just last week, as it was unexpected for her. She has already been pregnant three times but she had three spontaneous abortions.

The midwife offers her a quadruple test due to her late discovery of her pregnancy, which shows the following:

Alpha-fetoprotein (AFP) ↓

Unconjugated oestriol (uE3) ↓

Total human chorionic gonadotrophin (hCG) ↓

inhibin-A ↔

What is the most likely diagnosis?

A.Autosomal recessive polycystic kidney disease (ARPKD)

B.Down’s syndrome

C.Edward's syndrome

D.Neural tube defects

E.Turner's syndrome

Answer:Edward's syndrome

Explanation:

Edward's syndrome: quadruple test result

↓ AFP

↓ oestriol

↓ hCG

↔ inhibin A

Important for meLess important

Edward's syndrome is the correct answer. The quadruple test is a screening test used to find patients with a higher chance of having pregnancies where the fetus is affected by Down's syndrome, Edwards' syndrome, Patau's syndrome, or neural tube defects. It is usually offered to patients who discovered their pregnancy late and are not suitable anymore for the combined test. In this case, the results indicate Edward's syndrome, caused by trisomy 18. It would present with micrognathia, low-set ears, rocker bottom feet and overlapping fingers.

Autosomal recessive polycystic kidney disease (ARPKD) is a condition which can be diagnosed prenatally with an ultrasound but not with a quadruple test.

Down's syndrome would present with low AFP, low unconjugated oestriol, but high hCG and inhibin A.

Neural tube defects would present with isolated high AFP and normal oestriol, hCG and inhibin A.

Turner's syndrome is a genetic syndrome characterised by only one sex chromosome (X) or a deletion of the short arm of one of the X chromosomes. It is not screened using the quadruple tests.

Question:

A 45-year-old Afro-Caribbean lady presents to the dermatology department with several painful raised lesions on her shins. The only past medical history of note is asthma. She uses a salbutamol inhaler as required and takes the oral contraceptive pill.

A set of baseline investigations were performed:

Hb 132 g/l

Platelets 374 \* 109/l

WBC 7.8 \* 109/l

Na+ 142 mmol/l

K+ 3.9 mmol/l

Urea 5.5 mmol/l

Creatinine 67 µmol/l

Calcium 2.8 mmol/l

Phosphate 1.2 mmol/l

TSH 3.0 mlU/l

Free T4 12.6 pmol/l

A chest x-ray is reported as normal.

What is the most likely underlying diagnosis?

A.Tuberculosis

B.Oral contraceptive pill

C.Graves disease

D.Thyrotoxicosis

E.Sarcoidosis

Answer:Sarcoidosis

Explanation:

Sarcoidosis is the answer here. This is because this patient has erythema nodosum and a raised serum calcium. The history of asthma may also actually be due to sarcoid. Her age and ethnicity also make this the most likely diagnosis.

With normal normal thyroid function tests and no other signs, grave's disease is unlikely. Thyrotoxicosis would cause pre-tibial myxoedema not erythema nodosum.

TB and the oral contraceptive pill are less likely causes of erythema nodosum given a raised serum calcium.

Question:

A 36-year-old man presents to the GP with a three months history of diarrhoea and abdominal pain. He describes vacating his bowels more than five times a day and sometimes feels the need to pass stool with no bowel emptying. He has not noticed mucous or blood.

His stool culture is negative, and his faecal calprotectin is positive.

The doctor refers him for colonoscopic biopsy, which shows continuous distal disease, absence of granulomas, and anal sparing.

Based on this history, what is the most likely diagnosis?

A.Coeliac disease

B.Crohn's disease

C.Infectious colitis

D.Irritable bowel syndrome

E.Ulcerative colitis

Answer:Ulcerative colitis

Explanation:

Ulcerative colitis - tenesmus

Important for meLess important

Ulcerative colitis (UC) is the correct answer. Although the patient in the vignette does not have bloody diarrhoea, there are other features that support a diagnosis of UC. The patient has diarrhoea associated with lower abdominal pain and tenesmus (urge to pass to stool with an empty rectum). The positive faecal calprotectin suggests inflammatory bowel disease, and his colonoscopic findings of the continuous distal disease, absence of granulomas, and anal sparing are consistent with a diagnosis of UC.

Coeliac disease is incorrect. Coeliac disease is gluten enteropathy and can present in various ways; however, it is typically associated with diarrhoea, abdominal bloating, and failure to thrive (in children). The patient in this vignette has a positive faecal calprotectin which points toward an inflammatory pathology, and his colonoscopy findings are most in keeping with a diagnosis of UC. Colonoscopy in coeliac disease is usually normal as it is a disease which typically affects the small intestines as opposed to the large intestines.

Crohn's disease is incorrect. Crohn's disease is a differential in this scenario. Although the patient in the vignette has a positive faecal calprotectin, the colonoscopy findings are most in keeping with UC. Colonoscopic findings in Crohn's disease typically reveal discontinuous distribution of ulcers (which may involve the anus) with granulomas.

Infectious colitis is incorrect. Patients with infectious colitis have acute diarrhoea, which may be associated with tenesmus, and a history of recent contact with contaminated food/water. The patient in the vignette has chronic diarrhoea and no identifiable source of infection with negative stool cultures. Furthermore, there is positive faecal calprotectin, and the colonoscopy findings are most in keeping with UC. Colonoscopy is unnecessary in infectious colitis and may only show non-specific inflammation.

Irritable bowel syndrome (IBS) is incorrect. This diagnosis of exclusion needs to meet the Rome IV criteria. The patient in the vignette has a positive faecal calprotectin, and the colonoscopy findings are most in keeping with UC. There would be no colonoscopy findings in IBS. The Rome IV criteria state that the patient needs to have recurrent abdominal pain at least one day/week over the past three months (with symptom onset at least six months ago) and two of the following: 1. It is related to defecation and/or 2. it is associated with a change in stool frequency, and/or 3. It is associated with a change in stool appearance.

Question:

A 65-year-old woman with end-stage renal disease secondary to adult polycystic kidney disease, presented with a 4-month history of worsening lower back and sacral pain. She appeared cachectic with significant weight loss. Her pain was unbearable despite taking regular paracetamol. She is currently awaiting further investigations.

Which of the following analgesics would help better control her pain?

A.High-dose aspirin

B.Morphine sulfate

C.Naproxen

D.Oxycodone

E.Tramadol

Answer:Oxycodone

Explanation:

Oxycodone is a safer opioid to use in patients with moderate to end-stage renal failure

Important for meLess important

Oxycodone is a safer opioid to use in patients with moderate to end-stage renal failure as it is mainly metabolised in the liver.

NSAIDs like naproxen are to be avoided in patients with end-stage renal failure making the answer incorrect. Their use can be associated with acute renal failure, interstitial nephritis particularly with ibuprofen and naproxen, volume overload and worsening hypertension. This is secondary to sodium retention due to the antagonism of prostaglandin which influences sodium excretion.

Tramadol is an opioid analgesic that should be used cautiously in renal impairment as it reduces its clearance and can result in toxicity meaning the answer is incorrect.

Morphine is metabolised to morphine-3-glucuronide and morphine-6-glucuronide, both of which are excreted via the kidneys. Accumulation of the drug during renal failure can result in opioid toxicity such as severe and prolonged respiratory depression, as a result, this drug should not be used.

High-dose aspirin can precipitate reversible acute renal failure in predisposed individuals like one described in this case with her history of polycystic kidney disease by producing acute tubular necrosis of proximal tubules.

Question:

Which of the following is not a recognised feature of temporal arteritis?

A.Rapid response to high dose prednisolone

B.Pyrexia

C.Skip lesions in temporal artery

D.Visual disturbance

E.Elevated creatine kinase

Answer:Elevated creatine kinase

Explanation:

Creatine kinase levels are not elevated in temporal arteritis

Question:

At what age would the average child start to smile?

A.Birth

B.2 weeks

C.6 weeks

D.3 months

E.4 months

Answer:6 weeks

Explanation:

Question:

You are reviewing a 37-year-old gravida 3 para 2 woman who has come in for her booking visit. She is now 10 weeks gestation.

She had gestational hypertension during her first pregnancy which was treated with labetalol but her blood pressure is currently normal. She is currently taking 400 µcg folic acid supplements but no other medications.

A full set of blood and urine samples are taken during this clinic visit.

Which of the following changes would you expect to see in a healthy pregnant patient as compared to before pregnancy?

A.Increased serum haemoglobin

B.Increased serum platelets

C.Increased serum creatinine

D.Decreased serum urea

E.Decreased urine protein

Answer:Decreased serum urea

Explanation:

Normal laboratory findings in pregnancy: Reduced urea, reduced creatinine, increased urinary protein loss

Important for meLess important

Physiological changes to the circulation results in increased perfusion to the kidneys in pregnancy. This results in reduced serum urea and reduced serum creatinine. There is also usually increased urine protein and the threshold for excessive proteinuria in pregnancy is >300 mg/24 hours versus >150 in non-pregnant patients. However, protein should still be monitored as proteinuria can be a feature of pre-eclampsia.

Dilutional anaemia can also be seen in pregnancy, yielding a low Hb on FBC.

Platelet counts usually remain within a normal range. However, gestational thrombocytopaenia (platelet count falls under 80 x 10^9/L) affects approximately 6% of pregnancies.

Question:

A 30-year-old woman presents to her GP complaining of a lump in her neck. On examination you find a small raised neck lump midway down her trachea, with similarly sized nodules palpable along the anterior cervical chain of lymph nodes on the left side. You suspect an underlying thyroid malignancy and send her for further imaging which confirms a malignancy, likely thyroid in origin. Her case is brought up at the next multi-disciplinary team meeting (MDT) and her prognosis is considered to be excellent.

What is the most likely diagnosis?

A.Anaplastic thyroid cancer

B.Follicular lymphoma

C.Follicular thyroid cancer

D.Medullary thyroid cancer

E.Papillary thyroid cancer

Answer:Papillary thyroid cancer

Explanation:

Papillary thyroid cancer shows excellent prognosis, despite the tendency to spread to cervical lymph nodes early

Important for meLess important

Papillary thyroid cancer has an average 10-year survival greater than 90%, with low risk of recurrence and metastasis after surgery. The presence of lymph node metastasis contrasts papillary thyroid cancer with follicular thyroid cancer, where haematological metastasis predominates.

Anaplastic thyroid cancer is one of the least well differentiated types of thyroid cancer, typically presenting as a rapidly enlarging bulky neck mass that invades local structures and carries a very poor prognosis.

Follicular lymphoma is a type of non-Hodgkin's lymphoma that originates in B cells. Although it is associated with slow-growing disease and hence a better prognosis than other lymphomas, it is not a type of thyroid-derived cancer (though can invade the thyroid gland).

Follicular thyroid cancer is considered to be more aggressive than papillary thyroid cancer.

Medullary thyroid cancer is a rare (5% of thyroid cancers) type of thyroid cancer that produces calcitonin. It is associated with the MEN2A/2B syndromes and has a worse survival rate than papillary thyroid cancers.

Question:

A 72-year-old woman presents to her GP with a persistent stinging sensation in her mouth. This is worse when eating salty food, and has been the case for just over 3 weeks now.

On examination, there is a 1 cm ulceration on the buccal mucosa, with a small surrounding area of erythema.

What is the most appropriate next step?

A.Routine referral to dentistry

B.Test for HIV

C.Trial of chlorhexidine mouthwash

D.Trial of steroid ointment

E.Urgent referral to oral and maxillofacial surgery

Answer:Urgent referral to oral and maxillofacial surgery

Explanation:

Persistent mouth ulcer → ?squamous cell carcinoma

Important for meLess important

The correct answer is an urgent referral to oral and maxillofacial surgery. A persistent mouth ulcer should raise suspicions of oral cancer, and these patients should be referred urgently to either oral surgery or ENT specialists. This patient presents with a mouth ulcer lasting more than 3 weeks therefore, she should be treated via this pathway.

Routine referral to dentistry is incorrect. Dentists are able to help with non-suspicious mouth ulcers by prescribing analgesia or steroids to help. They have the same role in assessing and treating mouth ulcers as GP, but more complex or suspicious mouth ulcers need to be referred to tertiary care.

Test for HIV is incorrect. Oral lesions may be suggestive of HIV, but persistent mouth ulcers in an older adult should be handled as suspected oral cancer instead.

Trial of chlorhexidine mouthwash is incorrect. This can be useful for regular mouth ulcers by working as an anti-microbial agent, however, is not useful in persistent mouth ulcers.

Trial of steroid ointment is incorrect. Steroid ointment, like chlorhexidine mouthwash, can be useful for non-sinister mouth ulcers. However, it should not be used in suspicious mouth ulcers.

Question:

A 43-year-old man is reviewed on the mental health ward following a deterioration of his psychiatric condition. The patient was originally admitted with a major depressive disorder associated with psychiatric hallucinations.

Recently the patient has been consistently reporting that he believes he is dead. As a result, the patient has stopped eating and has clear evidence of self-neglect. The patient is not known to have any other medical conditions other than his mental health issues.

What syndrome is this patient suffering from?

A.Capgras syndrome

B.Charles Bonnet syndrome

C.Cotard syndrome

D.De Clérambault syndrome

E.Impostor syndrome

Answer:Cotard syndrome

Explanation:

Cotard syndrome is characterised by a person believing they are dead or non-existent

Important for meLess important

This patient has presented with the rare psychiatric disorder Cotard syndrome where an affected patient holds the delusion that they (or part of their body) are dead or non-existent. The condition is associated with severe depression/psychotic disorders and can have significant detrimental effects on patients suffering self-neglect and withdrawal from others. Management ranges from pharmacological treatments as well as electroconvulsive therapy.

Capgras syndrome is an irrational delusion of misidentification where patients believe that a relative or friend has been replaced by an identical impostor. The diagnosis is normally associated with schizophrenia although cases have been reported in patients suffering significant brain trauma or dementia.

Charles Bonnet syndrome is a psychophysical visual disorder where patients with significant vision loss have vivid, often recurrent visual hallucinations. These hallucinations can be simple (i.e. shapes, patterns) or complex (i.e. detailed objects, people) but patients almost always have insight into the fact that they are not real and do not suffer from any other forms of hallucinations (e.g. auditory) or delusions.

De Clérambault syndrome, also known as erotomania, is a rare delusion disorder where patients believe another individual is infatuated with them, often despite the individual being imaginary, deceased or someone the patient has never met. A common symptom of the syndrome is patients perceiving that they are being sent messages from the false secret admirer via innocuous events (e.g. messages via number plate or the television).

Impostor syndrome is a pattern of negative psychological behaviour where an individual doubts their own ability or achievements and hold a chronic fear that they will be exposed. These beliefs are held often despite clear external evidence they are false and patients often report feeling they are ‘frauds’.

Question:

A 25-year-old woman is investigated for acute pelvic pain and is diagnosed as having pelvic inflammatory disease. What is the most common cause of pelvic inflammatory disease in the UK?

A.Chlamydia trachomatis

B.Mycoplasma genitalium

C.Escherichia coli

D.Neisseria gonorrhoeae

E.Staphylococcus aureus

Answer:Chlamydia trachomatis

Explanation:

Chlamydia trachomatis is the most common cause of pelvic inflammatory disease

Important for meLess important

Question:

A 28-year-old woman attends her GP with heavy menstrual bleeding. She also describes cramping pain during menstruation and abdominal bloating. She does not have any past medical history although she has a family history of uterine fibroids.

The GP organises a transvaginal ultrasound scan which confirms a 5cm submucosal fibroid with distortion of her uterine cavity.

He considers starting a medication that would shrink the size of her fibroid after referring her to secondary care.

What important complication about this medication should the GP advise her about?

A.Liver toxicity

B.Loss of bone mineral density

C.Peptic ulceration

D.Venous thromboembolism

E.Weight loss

Answer:Loss of bone mineral density

Explanation:

GnRH agonists should be used for a short period in patients with uterine fibroids due to side-effects such as loss of bone mineral density

Important for meLess important

Loss of bone mineral density is the correct answer. This patient as stated in this scenario is suffering from a large uterine fibroid. There are various different medications used to treat fibroids however given the size in this situation it would be appropriate to try and shrink the size of the fibroid before further management. Medication used to shrink the size of fibroids are GnRH agonists as they act to overstimulate GnRH production resulting in exhaustion of the GnRH axis and reduced oestrogen and progesterone concentration. Because they decrease serum oestrogen they have an increased risk of resulting in loss of bone mineral density when used for a long period hence are only used for a short time. Other side effects include menopausal symptoms such as hot flashes and vaginal dryness.

Liver toxicity is incorrect. This is a complication of ulipristal acetate. This is a selective progesterone receptor modulator with partial progesterone antagonist action. This will act to reduce the size of the fibroid by reducing progesterone action. However, this medication is not currently licensed for use in the UK because of its severe side effects on the liver and risk of liver toxicity.

Peptic ulceration is incorrect. This is a complication of NSAIDs such as mefenamic acid commonly used to treat menorrhagia secondary to uterine fibroids. The GP has stated a medication that will shrink the size of her fibroid which is not an action of NSAIDs as they do not affect the concentration of oestrogen and progesterone in the body this will.

Venous thromboembolism is incorrect. Combined oral contraceptive pills commonly increase the risk of venous thromboembolism and are used again as management of menorrhagia secondary to uterine fibroids. The GP specifically stated a drug that would reduce the size of her fibroid which combined oral contraceptive pills do not do.

Weight loss is incorrect. Weight gain is a noted complication of GnRH agonists. This occurs due to its effects on fat metabolism resulting in increased fat masses and decreased lean body mass.

Question:

A 79-year-old man presents to the emergency department with weakness in his right arm and right leg, as well as drooping of right side of his lip. These symptoms lasted for about 1 hour and have now resolved. He hasn't had any similar previous episodes. His past medical history includes a pulmonary embolism 3 months ago, for which he is being treated with warfarin. Examination is unremarkable.

What is the next step in the management of this man?

A.Admit for an urgent CT head scan

B.Admit for an urgent CT head scan and give aspirin 300 mg

C.Give aspirin 300 mg and arrange follow-up in TIA clinic within 7 days

D.Give aspirin 300 mg and arrange urgent follow-up in TIA clinic within 24 hours

E.Give clopidogrel 300 mg and arrange follow-up in TIA clinic within 7 days

Answer:Admit for an urgent CT head scan

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

Admit for an urgent CT head scan is correct. This man has likely suffered a TIA and is currently on treatment with warfarin. He, therefore, requires an urgent CT scan of the head to exclude intracranial haemorrhage.

Admit for an urgent CT head scan and give aspirin 300 mg is incorrect. Although an urgent CT head scan is indicated, this man should not be given aspirin as he is already on an anticoagulant.

Give aspirin 300 mg and arrange follow-up in TIA clinic within either 7 days or 24 hours. These are both inappropriate options as intracranial haemorrhage needs to first be excluded in a patient with suspected TIA in patients who are on anticoagulants.

Give clopidogrel 300 mg and arrange follow-up in TIA clinic within 7 days is incorrect. Clopidogrel would be given after 2 weeks of treatment with aspirin. Also as the options above, this is inappropriate as intracranial haemorrhage needs to first be excluded in a patient with suspected TIA, who is also on anticoagulants.

Question:

A 35-year-old female presents with shortness of breath. The following blood gases are obtained on room air:

pH 7.54

pCO2 1.8 kPa

pO2 12.4 kPa

Which one of the following should NOT be included on the list of differential diagnoses?

A.Opiate overdose

B.Pulmonary embolism

C.Pregnancy

D.Encephalitis

E.Anxiety

Answer:Opiate overdose

Explanation:

The question asks for the least likely cause of a respiratory alkalosis. Salicylate, not opiate, poisoning is associated with a respiratory alkalosis. Opiate overdose would lead to respiratory depression and hence a respiratory acidosis

Question:

A 55-year-old man is admitted following an anterior myocardial infarction. Which of the following drugs is least likely to reduce mortality in the long-term?

A.Atorvastatin

B.Atenolol

C.Ramipril

D.Aspirin

E.Isosorbide mononitrate

Answer:Isosorbide mononitrate

Explanation:

Isosorbide mononitrate may be important in managing symptoms yet it has no proven mortality benefit following a myocardial infarction

Question:

A 24-year-old woman had blood tests taken at her 10-week booking appointment with the midwife. This is her first pregnancy. She has no past medical history to note and was well at the appointment. The blood tests included a full blood count (FBC); the results of which are shown below:

Hb 107 g/L Male: (135-180)

Female: (115 - 160)

Platelets 356 109/L (150 - 400)

WBC 6.7 109/L (4.0 - 11.0)

What would be the most appropriate management based on these results?

A.Arrange for an intravenous (IV) iron infusion

B.Check serum ferritin levels

C.Give dietary advice to increase iron intake

D.Recheck FBC in four weeks time

E.Start oral iron replacement therapy

Answer:Start oral iron replacement therapy

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

Start oral iron replacement therapy is correct. A cut-off of 110 g/L should be used in the first trimester to determine if iron supplementation should be taken. This reduces to 105 g/L in the second trimester.

Arrange for an intravenous iron infusion is incorrect. There is no indication that IV iron replacement is required in this case. Oral supplementation should be adequate and the response to this should be reviewed.

Check serum ferritin levels is incorrect. NICE guidelines state that haemoglobin of less than 110 g/L in the first trimester should begin oral iron supplementation. While ferritin levels could be checked and are usually accurate in the first trimester; by the second and third-trimester serum ferritin levels fall independently of iron stores and are therefore unreliable.

Give dietary advice to increase iron intake is incorrect. As the patient is pregnant iron replacement therapy should be commenced. However, it can also be relevant if dietary deficiency of iron is thought to contribute to the deficiency to give dietary advice and consider dietician referral.

Recheck FBC in four weeks time is incorrect. The results show that this patient's Hb is below the cut off for treating anaemia in pregnancy therefore iron replacement should be started. The patient will require blood tests to monitor FBC four weeks after starting treatment, however treatment shouldn't be delayed by waiting for repeat tests.

Question:

A 25-year-old man is referred to neurology by his GP. Over the last six months he has been experiencing neck pain and stiffness and arm weakness. He is normally fit and well and denies any history of trauma, bowel or bladder problems or erectile dysfunction. He drinks five pints of beer per week.

On examination, there is a small area of erythema with central blistering on his right elbow which he had not noticed previously. Pin-prick sensation is reduced in the C5-6 dermatomes bilaterally. Fine touch, proprioception and vibration sensation are intact throughout. Forearm flexion is weak bilaterally with reduced biceps tendon reflexes. Forearm extension is weak on the right with a brisk triceps reflex. He is alert and orientated. His cranial nerves are intact. His coordination and gait are normal.

What is the most likely diagnosis?

A.Friedreich's ataxia

B.Multiple sclerosis

C.Subacute combined degeneration of the spinal cord

D.Syringobulbia

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 correct answer is syringomyelia.

This patient is presenting with symptoms consistent with a lesion around the C4-C5 level affecting the anterior white commissure, anterior horns and the corticospinal tract.

The spinothalamic tract (pain and temperature sensation) decussates 1-2 spinal levels above the level of entry in the anterior white commissure. This results in loss of pain/pinprick sensation on examination and a possible unnoticed burn injury e.g. from reaching inside an oven.

The anterior horns carry lower motor neurones. These are being affected bilaterally at the level of the lesion, resulting in a lower motor neurone pattern of weakness around the C4-5-6 myotome. In this case it is causing incomplete paresis (rather than paralysis) of the biceps because biceps is supplied by C5-7 via the musculocutaneous nerve. The corticospinal tract carries upper motor neurones to lower spinal levels. Compression at C4-5 is causing an upper motor neurone pattern below the level of the lesion.

Friedreich's ataxia is a genetic progressive neurodegenerative disorder. It causes degeneration of the corticospinal tracts, dorsal columns and spinocerebellar tracts, as well as hypertrophic cardiomyopathy and diabetes. Symptoms include ataxia, slurred speech, spasticity, dysphagia, limb sensory loss and vision and hearing loss. Symptoms are usually apparent by adolescence and the absence of ataxia makes Friedreich's ataxia less likely.

While multiple sclerosis (MS) is a cause of sensory disturbance upper motor neurone lesions, diagnosis requires lesions separated in space and time - the lesions may be asymmetrical and at different spinal levels. The lesion pattern here is more suggestive of syringomyelia. Additionally, MS does not typically cause lower motor neurone lesions (apart from cranial nerve lesions and some reports of demyelination affecting the ventral horns).

Subacute combined degeneration of the cord (SACD) causes a lesion of the dorsal columns, then later the corticospinal tracts and spinothalamic tract. SACD occurs due to vitamin B12, vitamin E and copper deficiency. It causes loss of vibration and proprioception (later other sensory modalities), sensory gait ataxia, distal muscle weakness and dementia. SACD is more common in older adults with malabsorption or poor nutrition.

Syringobulbia is a similar disorder to syringomyelia where a syrinx affects the brainstem. It causes cranial nerve abnormalities e.g. trigeminal pain and temperature sensation loss, nystagmus, dysphagia, palatal weakness and tongue atrophy.

Question:

A 6-year-old boy is brought to the emergency department today by his father. The father tells you that his son has had a fever for the past 6 days and has not been himself. He has given him paracetamol but this has had no effect.

On examination, the boy has bright red cracked lips, injection of the conjunctiva, palpable lymph nodes in the cervical region and the palms of his hands and soles of his feet are red.

Given the likely diagnosis, what medication should be administered?

A.Benzylpenicillin

B.High-dose aspirin

C.Ibuprofen

D.Low-dose aspirin

E.Phenoxymethylpenicillin

Answer:High-dose aspirin

Explanation:

High dose aspirin is indicated in Kawasaki disease, despite it usually being contraindicated in children

Important for meLess important

This child has a persistent fever lasting >5 days which has not responded to paracetamol, injected conjunctiva, dry and swollen mucosal linings around the mouth and red, swollen hands and feet. These are all characteristics of Kawasaki disease and the management of choice is high-dose aspirin alongside intravenous immunoglobulin. Aspirin is usually contraindicated in children due to the risk of developing Reye's syndrome (a rapidly progressive encephalopathy), but in patients with Kawasaki disease, it is indicated.

Benzylpenicillin (penicillin G) is indicated for patients with various infections, including meningitis and endocarditis. This child does not have features suggestive of either of these diseases. While he does have a fever, he does not have other classical features such as headache, vomiting, neck stiffness, photophobia or altered consciousness. The signs and symptoms described are all suggestive of Kawasaki disease.

Ibuprofen does not have a role in the management of Kawasaki disease, it tends to be used for conditions such as juvenile idiopathic arthritis and soft-tissue injuries.

Low-dose aspirin is typically given to children who present >10 days after the onset of symptoms and who are considered to be at low risk of complications. Low-risk patients are those that have normal ESR/CRP results, are without persistent fever and have a normal initial echocardiogram result.

Phenoxymethylpenicillin (penicillin V) is indicated for patients with scarlet fever. While it can have a similar presentation to the scenario above, scarlet fever does not have manifestations affecting the lips or conjunctiva so this can be useful in differentiating.

Question:

You are considering prescribing enalapril for a patient with newly diagnosed heart failure. Which one of the following best describes the most characteristic side-effects of angiotensin-converting enzyme inhibitors?

A.Nephrotoxicity + cough

B.Cough + hyperkalaemia

C.Nephrotoxicity + erythema multiforme

D.Cough + reflex tachycardia

E.Cough + erythema multiforme

Answer:Cough + hyperkalaemia

Explanation:

Question:

A 26-year-old man presents with a persistent cough for the past 18 days which initially started with a few days of cold symptoms. He describes it as ‘the worst cough I’ve ever had’. He has bouts of coughing followed by an inspiratory gasp. This is usually worse at night and can be so severe that he sometimes vomits. He is otherwise fit and well and confirms he completed all his childhood immunisations. Examination of his chest is unremarkable.

Given the likely diagnosis, what is the most appropriate initial management?

A.Do not start any treatment as he has presented too late to benefit

B.Offer an immediate booster vaccination

C.Start a course of oral clarithromycin

D.Start a course of oral doxycycline

E.Start a course of oral prednisolone

Answer:Start a course of oral clarithromycin

Explanation:

Whooping cough - azithromycin or clarithromycin if the onset of cough is within the previous 21 days

Important for meLess important

The correct answer is start a course of oral clarithromycin. This man's history is consistent with whooping cough. A macrolide antibiotic such as clarithromycin or azithromycin is the first-line treatment and should be continued for 14 days. Although this has not been shown to alter the course of the illness, if started within 21 days of onset of the cough it can reduce the risk of spread.

Do not start any treatment as he has presented too late to benefit is incorrect. As he has presented within 21 days of the onset of the cough, starting a macrolide antibiotic can help to reduce the risk of spread.

Offer an immediate booster vaccination is incorrect as he has already completed his childhood immunisations. If he had any outstanding vaccinations, this could be offered once he has recovered from the acute illness but is not indicated in the initial management of the index case (it may, however, be offered to close contacts under certain circumstances).

Start a course of oral doxycycline is incorrect as the first-line antibiotic is a macrolide. If macrolides are contraindicated or not tolerated then co-trimoxazole can be given instead.

Start a course of oral prednisolone is incorrect as steroids are not indicated in the management of whooping cough.

Question:

A 39-year-old female presents with difficulty swallowing, and a CT reveals a thymoma.

Which of these conditions is most commonly associated with thymomas?

A.Lambert-Eaton myasthenic syndrome

B.Muscular dystrophy

C.Myasthenia gravis

D.Systemic lupus erythematosus

E.Systemic sclerosis

Answer:Myasthenia gravis

Explanation:

Thymomas are commonly associated with myasthenia gravis

Important for meLess important

This is a very common association, so when you see a thymoma, think myasthenia gravis. Many patients with MG will have had thymectomies, and a scar will be visible on examination.

Lambert-Eaton myasthenic syndrome is commonly associated with small-cell lung cancer.

Muscular dystrophy is an inherited myopathy. Additional features include diabetes and cardiac involvement.

SLE may be associated with thymomas, but not as commonly as myasthenia gravis.

Systemic sclerosis is characterised by hardened, sclerotic skin and systemic features.

Question:

A 57-year-old man attends his optician for review. He suffers from long-sightedness and has a current prescription of +3/+3.25 with no astigmatism or concurrent myopia.

What condition is this patient most at risk of with his current eye condition?

A.Acute angle-closure glaucoma

B.Cataracts

C.Central retinal artery occlusion

D.Primary open-angle glaucoma

E.Retinal neovascularisation

Answer:Acute angle-closure glaucoma

Explanation:

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

Important for meLess important

Acute angle-closure glaucoma is associated with hypermetropia (long-sightedness) - this is due to their eyes being smaller, having shallower anterior chambers, and their angles being narrower.

The association between primary open-angle glaucoma and myopia (near-sightedness) is less clear-cut, it may be due to increased susceptibility of the optic nerve head being damaged by raised intraocular pressure. This correlation is supported by population-based surveys but in individuals, the link between these is less concrete.

Cataracts are associated with aging and high myopia (severe short-sightedness).

Central retinal artery occlusion is associated with aneurysms, arterial disease, and emboli.

Retinal neovascularisation occurs in proliferative diabetic retinopathy and is not associated with either hypermetropia or myopia.

Question:

A 23-year-old primigravida woman at 36 weeks gestation presents with mild irregular labor pains in the lower abdomen. On examination she has a firm, posterior, closed cervix. Fetal heart tones are heard. The pain stops during the consultation. What is the most appropriate next step?

A.Magnesium sulphate

B.Betamethasone

C.Vaginal swab

D.Reassure and discharge

E.Emergency delivery

Answer:Reassure and discharge

Explanation:

False Labor

Occurs in the last 4 weeks of pregnancy

Presentation: contractions felt in the lower abdomen. The contractions are irregular and occur every 20 minutes. Progressive cervical changes are absent.

Question:

A 28-year-old primiparous woman who is 20 weeks pregnant presents after her foetal anomaly scan. The scan showed polyhydramnios and a midline sac containing bowel. She takes no regular medications and has no significant past medical history. She was planning on having a home birth and would like to know how this will affect her delivery.

Which of these is the most appropriate plan of action for this condition?

A.Plan for delivery on the ward

B.Plan for instrumental delivery

C.Reassure and continue with the home birth

D.Schedule an elective caesarean section

E.Plan for induction of labour at 37 weeks

Answer:Schedule an elective caesarean section

Explanation:

If an unborn has exomphalos then caesarean section is indicated to reduce the risk of sac rupture

Important for meLess important

The foetus has confirmed exomphalos. While it is primarily a clinical diagnosis at birth, some cases are diagnosed prenatally, in which case a caesarean section should be scheduled and performed, at term, to reduce the risk of sac rupture, infection and atresia secondary to injury.

All though ward delivery allows access to theatres, specific surgical planning is indicated to lower the risk of complications.

Instrumental delivery, while still in theatre, does not lower the risk of sac rupture.

The choice of delivery location is often important to the mother so in this case care needs to be taken to explain why she needs to come into hospital, stating the risks of a home birth (i.e. sac rupture, infection etc.).

Induction of labour at 37 is not appropriate as vaginal delivery increases the risk of complications.

Question:

A 66-year-old male attends a follow-up clinic for an ultrasound of his abdominal aorta. His aorta width is measured and found to be 4.9 cm. It was 3.5 cm during his initial free screening appointment the previous year. He is asymptomatic.

What is the next step in his management?

A.No further action necessary as the patient is asymptomatic

B.Refer to vascular surgery to be seen within 2 weeks

C.Re-scan in 3 months

D.Re-scan in 6 months

E.Re-scan in 12 months

Answer:Refer to vascular surgery to be seen within 2 weeks

Explanation:

Rapidly enlarging aneurysms of any size should be repaired even if asymptomatic

Important for meLess important

Refer to vascular surgery to be seen within 2 weeks is the correct answer. His aorta width has increased by 1.4 cm (>1 cm/year) and therefore presents a high rupture risk, requiring referral and probable intervention.

No further action necessary as the patient is asymptomatic is an incorrect answer. This answer is incorrect as despite the patient being asymptomatic, his aorta width has increased by 1.4 cm in 1 year, which represents a high rupture risk and requires referral to vascular surgery for repair.

Re-scan in 3 months is an incorrect answer. While the aorta width is < 5.5 cm, as it has increased by >1 cm/year, it presents a high rupture risk and requires further investigation and likely intervention to prevent a catastrophic rupture.

Re-scan in 6 months is an incorrect answer. This timeframe is not used as an interval for repeat abdominal aorta ultrasound scanning.

Re-scan in 12 months is an incorrect answer. Yearly repeat scanning would be appropriate for asymptomatic patients with an abdominal aorta width between 3-4.4 cm.

Question:

A 59-year-old patient is being reviewed in a type 2 diabetes clinic. They are currently treated with metformin. Their past medical history is significant for G6PD deficiency.

An HbA1C level taken today is 60 mmol/mol. Due to their condition, the actual value will be higher than this. They are willing to accept further drug management to help maintain their target.

What drug is contraindicated in this patient?

A.Dapagliflozin

B.Glipizide

C.Insulin

D.Pioglitazone

E.Sitagliptin

Answer:Glipizide

Explanation:

G6PD deficiency: sulph- drugs: sulphonamides, sulphasalazine and sulfonylureas can trigger haemolysis

Important for meLess important

G6PD deficiency is a lack of glucose-6-phosphate dehydrogenase, which is an enzyme integral to the function of red blood cells, especially protecting them from free radicals. It can predispose individuals to develop haemolytic anaemia if their red blood cells break down. There are certain triggers for haemolysis, which all revolve around increasing the amount of oxidative stress on the body. Certain drugs can contribute to this, and should be avoided in G6PD deficiency. Sulfonylurea is an example of a drug used in the management of diabetes that may cause this. Glipizide is a sulfonylurea and is therefore the correct answer.

Dapagliflozin is a SGLT2 inhibitor, and is safe to use in G6PD deficiency therefore this cannot be the correct answer.

Sitagliptin is a DPP-4 inhibitor, and is safe to use in G6PD deficiency therefore this cannot be the correct answer.

There is no reason insulin cannot be used in this patient, therefore this cannot be the correct answer.

Pioglitazone is a thiazolidinedione, and is safe to use in G6PD deficiency therefore this cannot be the correct answer.

Question:

You review a 60-year-old man who complains that he is 'tripping over' all the time. Whilst examining him you notice he has a 'high-stepping' gait - he tends to excessively flex his knees to ensure the feet 'clear' the ground when walking. What is the most likely cause for this examination finding?

A.Peripheral neuropathy

B.Myasthenia gravis

C.Parkinson's disease

D.Polymyalgia rheumatica

E.Knee osteoarthritis

Answer:Peripheral neuropathy

Explanation:

A high-stepping gait develops to compensate for foot drop. If found unilaterally then a common peroneal nerve lesion should be suspected. Bilateral foot drop is more likely to be due to peripheral neuropathy.

Question:

A 32-year-old woman presents to her GP due to a reduced frequency of periods. She previously had a regular 28 day cycle, however has only had 4-5 periods over the last year. On further questioning, she reports several episodes of diarrhoea over the last few months but thinks this is due to eating gluten. She denies any other symptoms and says that she is not under any more stress than usual.

Her past medical history is significant for coeliac disease but otherwise fit and well.

What is the most likely cause of her presentation from the following?

A.Graves’ disease

B.Hashimoto’s thyroiditis

C.Iodine deficiency

D.Subacute granulomatous thyroiditis

E.Toxic multinodular goitre

Answer:Graves’ disease

Explanation:

Hyperthyroidism is associated with oligomennorhoea, or amennorhoea, whereas hypothyroidism is associated with menorrhagia

Important for meLess important

The patient presents with oligomenorrhoea and diarrhoea, which are commonly associated with hyperthyroidism. Graves’ disease is the most common cause of hyperthyroidism, and is the most likely cause here given the history of coeliac disease (another autoimmune condition).

Hashimoto’s thyroiditis is an autoimmune condition that leads to the destruction of the thyroid resulting in hypothyroidism. Hypothyroidism tends to result in menorrhagia rather than oligomenorrhea, so is less likely in this case.

Iodine deficiency can result in hypothyroidism as iodine is required for the synthesis of thyroid hormones. As this patient has presented with signs of hyperthyroidism, this is not the correct answer.

Subacute granulomatous thyroiditis, also known as 'de Quervain's thyroiditis', is a painful swelling of the thyroid gland often associated with a high temperature, triggered by a viral infection. It may initially cause signs of hyperthyroidism, but these symptoms usually settle in a few days and are followed by symptoms of hypothyroidism which can last for weeks to months. This is therefore not the correct answer in this case.

Toxic multinodular goitre occurs due to multiple nodules on the thyroid that function independently of thyroid-stimulating hormone. It is a less common cause of hyperthyroidism and tends to occur in older patients, so is not the correct answer here.

Question:

An 18-year-old man is on the ward recovering from a tonsillectomy performed 4 hours ago. He is well, however, he is experiencing some pain and there is a small amount of bleeding in the peritonsillar area.

His heart rate is 94 bpm, his blood pressure is 126/85 mmHg, his respiratory rate is 13 /min, and his temperature is 37.3ºC. He has no other past medical history, nor does he smoke or drink alcohol.

What is the most appropriate next step in his management?

A.Apply gauze soaked in 1:10,000 adrenaline, monitor, and provide supportive treatment

B.Immediate return to theatre

C.Offer analgesia, monitor, and provide supportive treatment

D.Prescribe antibiotics, monitor, and provide supportive treatment

E.Repeat observations in 1 hour then return to theatre if not resolved

Answer:Immediate return to theatre

Explanation:

Primary haemorrhage within hours after tonsillectomy requires immediate return to theatre

Important for meLess important

Immediate return to theatre is correct. Haemorrhage is one of the most important and concerning complications following tonsillectomy, even in small amounts. Post-tonsillectomy haemorrhages can be categorised as primary (or reactionary, within the first 6-8 hours following surgery), and secondary (between 5-10 days following surgery). This patient's bleeding started 4 hours after the surgery, indicating they have a primary haemorrhage. Primary haemorrhages are managed by an immediate return to theatre as the risks associated with haemorrhage can be dire, and can be missed as many people, particularly younger patients, can lose a significant amount of blood and compensate before serious problems arise, such as shock.

Apply gauze soaked in 1:10,000 adrenaline, monitor, and provide supportive treatment is incorrect. This may be considered initially to stop the bleeding, but is only a temporary measure, and can be difficult and unpleasant for patients that have sensitive gag reflexes. This is not a definitive step in the management of a primary haemorrhage following a tonsillectomy. The more appropriate option would be an immediate return to theatre, as the haemorrhage carries risks such as haemodynamic instability and subsequent shock.

Offer analgesia, monitor, and provide supportive treatment is incorrect. While it is important to ensure the patient is comfortable and analgesia should be offered, this is not a definitive step in the management of a primary haemorrhage following a tonsillectomy. The more appropriate option would be an immediate return to theatre, as the haemorrhage carries risks such as haemodynamic instability and subsequent shock.

Prescribe antibiotics, monitor, and provide supportive treatment is incorrect. This is a management step for secondary haemorrhages (occurring at 5-10 days after surgery rather than in the first 6-8 hours), as they are often associated with a wound infection. This patient has a primary haemorrhage as their bleeding started 4 hours after the surgery, and should return immediately return to the theatre, as the haemorrhage carries risks such as haemodynamic instability and subsequent shock.

Repeat observations in 1 hour then return to theatre if not resolved is incorrect. It would be inappropriate to watch and wait, as many people, particularly younger patients, can lose a significant amount of blood and compensate before serious problems arise, such as shock. The more appropriate option would be an immediate return to the theatre.

Question:

A 65-year-old man is referred to secondary care after presenting to his GP with a persistent cough, shortness of breath and fatigue over several months. His employment history is diverse; he previously worked as a miner, and subsequently worked in dye manufacturing.

A chest X-ray is performed, and the report states that 'there is bilateral upper zone fibrosis, with eggshell calcification of the hilar nodules'.

Given the history and investigation results, what is the most likely diagnosis?

A.Mesothelioma

B.Pulmonary metastases from primary bladder cancer

C.Sarcoidosis

D.Silicosis

E.Tuberculosis

Answer:Silicosis

Explanation:

Mining occupation, upper zone fibrosis, egg-shell calcification of hilar nodes → ? silicosis

Important for meLess important

Silicosis is correct as these symptoms and chest x-ray findings (upper zone fibrosis and egg-shell calcification of the hilar nodes) are characteristic. A major risk factor for silicosis is a history of working as a miner.

Mesothelioma is incorrect. While a mining occupation could have led to asbestos exposure, this condition does not lead to upper zone fibrosis on CT. Asbestosis would typically present with lower zone fibrosis on a chest x-ray.

Pulmonary metastases from primary bladder cancer is incorrect. While this man's history of working in a dye factory is a risk factor for this condition, no urinary symptoms are suggested (such as haematuria or dysuria), and these x-ray findings are more typical of silicosis.

Sarcoidosis is incorrect. A characteristic x-ray finding for this condition would be bilateral hilar lymphadenopathy, also known as 'bat-winging', though upper zone fibrosis may also be seen. This patient's risk factors are more typical for silicosis than sarcoidosis.

Tuberculosis (TB) is incorrect. While upper zone fibrosis may be seen with this condition, this man does not appear to have any risk factors for TB exposure such as immunosuppression or recent travel to an endemic country. His employment history means that silicosis is more likely to be the cause of his x-ray findings.

Question:

A 24-year-old woman presents to the GP with vaginal bleeding. She is 5-weeks pregnant. She reports no abdominal pain, no dizziness, no shoulder tip pain. There are no clots and she has passed less than a teaspoon amount of blood. She has no history of ectopic pregnancy. On examination, her heart rate is 85 beats per minute, blood pressure is 130/80 mmHg and her abdomen is soft, non-tender.

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

A.Refer the patient urgently to the early pregnancy assessment unit for an outpatient scan

B.Refer the patient urgently to gynaecology for same day admission

C.Monitor expectantly and advise to repeat pregnancy test in 7 days. If negative, this confirms miscarriage. If positive, or continued or worsening symptoms, refer to the early pregnancy assessment unit

D.Perform a serum beta-human chorionic gonadotropin (hCG) blood test and repeat in 48 hours

E.Perform a serum beta-human chorionic gonadotropin (hCG) blood test and repeat in 120 hours

Answer:Monitor expectantly and advise to repeat pregnancy test in 7 days. If negative, this confirms miscarriage. If positive, or continued or worsening symptoms, refer to the early pregnancy assessment unit

Explanation:

Pregnant women who are < 6 weeks gestation and present with vaginal bleeding and no pain can be managed expectantly

Important for meLess important

According to current NICE CKS guidance, pregnant women who are < 6 weeks gestation and present with vaginal bleeding and no pain can be managed expectantly. As this patient is systemically well and presenting with no features to suggest an ectopic pregnancy, it is appropriate to advise the woman to repeat a urine pregnancy test after 7–10 days and to return if the test is positive or if her symptoms continue or worsen.

There is no indication for same day gynaecology admission as there are no features of an ectopic pregnancy and the patient is systemically well.

Referring to the early pregnancy assessment unit is not correct as it is unlikely that an ultrasound scan will be of benefit at this gestation.

Although serial beta-human chorionic gonadotropin (hCG) blood tests can be useful in differentiating between miscarriage and ectopic pregnancy, this is usually conducted and interpreted by specialists and there is no evidence to suggest that this would be necessary in this case.

Question:

You are called to assist in the resuscitation of a neonate who has just been born at 38 +6 weeks but is showing signs of respiratory distress. On auscultation of the precordium you note the heart sounds are absent on the left hand side but can hear tinkling sounds. The infant is also cyanosed.

What is the best initial management?

A.BIPAP (bi-level positive airway pressure)

B.CPAP (continuous positive airway pressure)

C.Facemask ventilation

D.Intubation and ventilation

E.Nasal cannulae

Answer:Intubation and ventilation

Explanation:

Evidence of bowel sounds in a respiratory exam of a neonate in respiratory distress should make you consider a diaphragmatic hernia

Important for meLess important

This is a classical description of congenital diaphragmatic hernia. The abdominal contents push through a defect in the diaphragm (normally on the left) thus resulting in lung hypoplasia and subsequent respiratory distress.

The bowel in the thorax is responsible for the bowel sounds heard. The physical presence of bowel in thorax displaces the heart, and thus the heart sounds are heard louder on the right hand side.

Initial management is through the insertion of a nasogastric tube with the aim of keeping air out of the gut. Therefore for cyanosed pt the best way to assist breathing is to intubate and ventilate. The child needs definitive management in the form of surgical repair of the diaphragm.

BIPAP and CPAP are airway adjuncts used when the problem is keeping the airway open, such as COPD or respiratory distress syndrome.

Facemask ventilation and nasal cannulae would only increase the risk of air entering the gut, the infant needs an artificial airway to ensure they are able to receive oxygen.

Question:

A 72-year-old woman with back pain and chronic renal failure has the following blood test results:

Reference range

Ca2+ 2.03 2.15-2.55 mmol/l

Parathyroid hormone 10.4 1-6.5 pmol/l

Phosphate 0.80 0.6-1.25 mmol/l

What is the most likely diagnosis?

A.Hypoparathyroidism

B.Primary hyperparathyroidism

C.Secondary hyperparathyroidism

D.Tertiary hyperparathyroidism

E.Pseudohypoparathyroidism

Answer:Secondary hyperparathyroidism

Explanation:

In relation to secondary hyperparathyroidism; there is a HIGH PTH and the Ca2+ is NORMAL or LOW. In secondary hyperparathyroidism there in hyperplasia of the parathyroid glands in response to chronic hypocalcaemia (or hyperphosphataemia) and is a normal physiological response. Calcium is restored from bone, kidneys and the gastrointestinal system.

Question:

A 45-year-old male comes to the GP for a general check-up. He is a heavy smoker of 60 pack years and does not drink alcohol. When questioned he states he has had a cough for the last few months that has not gone away, on further questioning he reports blood stained sputum once or twice last week. As well as this he has experienced weight gain of 10kg over the last 3 months and chronic muscle fatigue. His wife makes fun of his 'chubby' face and purple stretch marks. He has no significant past medical history and is not on any regular medications.

On examination he is alert and oriented, though tired, and struggles to get up from his chair. He has a persistent cough but his chest is clear and heart sounds normal. His pulse is 90/min, resp 18/min, blood pressure 189/102 mmHg and oxygen saturation 93% on room air.

What is the most likely diagnosis?

A.Adenocarcinoma

B.Large cell carcinoma

C.Pituitary adenoma

D.Small cell carcinoma

E.Squamous cell carcinoma

Answer:Small cell carcinoma

Explanation:

Small cell lung carcinoma secreting ACTH can cause Cushing's syndrome

Important for meLess important

The patient is a heavy smoker who is experiencing cushingoid symptoms. This leads to a probable diagnosis of an ACTH secreting lung cancer and warrants urgent referral down the 2-week wait pathway.

Adenocarcinoma can cause gynaecomastia and hypertrophic pulmonary osteoarthropathy (HPOA).

Large cell carcinoma is a group of neoplasms that aren't know to be paraneoplastic.

While pituitary adenomas are known to cause cushing's, this patient's history suggest a pulmonary origin.

Squamous cell carcinoma can release parathyroid hormone-related protein (PTH-rp), causing hypercalcaemia and TSH causing hyperthyroidism.

Question:

A 65-year-old man attends his GP complaining of a 3-month history of worsening movement problems. On further questioning, he reports difficulty getting up from a seated position and he is also finding it harder to perform small movements, such as picking up a pen and zipping up his jumper. He has a past medical history of hypertension and schizophrenia. He currently only takes ramipril.

His blood pressure is 138/82 mmHg lying and 122/74 standing. Cranial nerve examination is unremarkable. On examination of the upper limbs, he has increased tone, particularly in the right arm. He also has a tremor of the right hand, which improves when asked to do some movements.

What is the most likely diagnosis?

A.Cerebellar disease

B.Drug-induced parkinsonism

C.Idiopathic Parkinson's disease

D.Postural hypotension

E.Progressive supranuclear palsy

Answer:Idiopathic Parkinson's disease

Explanation:

Asymmetrical symptoms suggests idiopathic Parkinson's

Important for meLess important

Idiopathic Parkinson's disease is the correct answer. The patient has typical features of Parkinsonism: difficulty with fine movements; increased tone and resting tremor (improved by movement). Idiopathic Parkinson's disease is more likely than drug-induced parkinsonism due to the asymmetrical nature of his symptoms and the fact that he is not taking any dopamine antagonists.

Cerebellar disease is incorrect, as it would typically cause decreased tone and intention tremor (i.e. a tremor worsened by movement).

Drug-induced parkinsonism is incorrect. The patient has asymmetrical symptoms and we are told that his movement problems have been 'worsening'. Patients with drug-induced parkinsonism typically have bilateral symptoms and their symptoms tend to remain at the presenting level (i.e. they do not get worse). Moreover, this patient is not taking any anti-dopaminergic drugs.

Postural hypotension is incorrect, as it would not explain the patient's motor symptoms. Moreover, his lying to standing blood pressure does not indicate postural hypotension.

Progressive supranuclear palsy is incorrect. This is a rare, Parkinson's plus syndrome. It is an unlikely diagnosis, as the patient has normal eye movements, as indicated by the normal cranial nerve examination.

Question:

A 35-year-old lady has been experiencing intermittent pins and needles in her right hand for the past month. As part of your neurological examination, you attempt to elicit the triceps reflex by placing the lady's arm across her chest and striking the triceps tendon with a tendon hammer. Which nerve (and its nerve root) are you testing?

A.Radial nerve C7

B.Median nerve C6

C.Median nerve C7

D.Ulnar nerve C5

E.Radial nerve C6

Answer:Radial nerve C7

Explanation:

The radial nerve innervates the triceps muscle. It is primarily derived from the C7 nerve root.

The radial nerve is the motor supply to the extensor compartments of the upper arm.

The triceps muscle is the chief extensor of the forearm. Its name derives from its three heads of origin; the long, lateral and medial heads. It attaches to the olecranon of the ulna.

It is these components which form the triceps reflex arc.

Question:

A 32-year-old woman with type 1 diabetes attends her GP surgery for a review of her glycaemic control. She has been keeping a record of her blood glucose and her diabetes appears to be well controlled with an average blood glucose level of 6.8 mmol/L. Confusingly, her HbA1c level is 47.5mmol/mol (6.6%) which would suggest suboptimal control (corresponding to an average blood glucose of 7.9 mmol/L).

Which of the following would increase the lifespan of her red blood cells and explain the incorrect HbA1c result?

A.Blood donation

B.Splenectomy

C.G6PD deficiency

D.Sickle-cell anaemia

E.Hereditary spherocytosis

Answer:Splenectomy

Explanation:

Splenectomy can give a falsely high HbA1c level due to the increased lifespan of RBCs

Important for meLess important

HbA1c depends on two main factors, average blood glucose concentration and red blood cell (RBC) lifespan. Asplenia increases the lifespan of RBCs giving the haemoglobin inside more time to become glycated and hence raising HbA1c levels.

G6PD deficiency, sickle-cell anaemia and hereditary spherocytosis all decrease the lifespan of RBCs and hence give a falsely low HbA1C reading. Blood donation induces production of new RBCs which reduces the average lifespan and hence HbA1C.

Gallagher, E. J., Roith, D. L., & Bloomgarden, Z. (2009). Review of hemoglobin A1c in the management of diabetes. Journal of Diabetes, 1(1), 9-17.

Question:

A 63-year-old female attends her general practitioner with worsening osteoarthritic pain in her knees, wrists, and fingers. She has a past medical history of depression and a right-sided stroke. Her currently medication is sertraline, omeprazole, atorvastatin, and paracetamol. She has no known allergies. She would like something to improve her joint pain.

What medication may help alleviate her symptoms?

A.Capsaicin cream

B.Diclofenac

C.Naproxen

D.Oromorph

E.Transcutaneous electrical nerve stimulation (TENS) machine

Answer:Naproxen

Explanation:

Diclofenac is now contraindicated with any form of cardiovascular disease

Important for meLess important

This patient has osteoarthritic pain in large and small joints which is not being controlled by paracetamol. Naproxen is an NSAID that provides the analgesic benefit of an NSAID (ideal in the management of osteoarthritic pain) without the increased risk of cardiovascular events that diclofenac carries.

Capsaicin cream is a useful topical analgesic for osteoarthritic pain in small joints, however, due to the multiple sites of joint pain and its effect on large joints, it would be inappropriate for the patient to rely on this as analgesia without any oral medication.

Due to her past medical history of a cerebrovascular event (stroke), it is contraindicated for the patient to receive diclofenac. This is due to the cardiovascular safety profile of diclofenac (compared with other NSAIDs).

Oromorph is a strong opioid medication and would be inappropriate to give to a patient for home use if they had not trialled an NSAID first. It also has a limited role in the management of osteoarthritic pain as there are other forms of analgesia (such as steroid injections) that are more effective and less addictive.

TENS machines are useful equipment for the management of chronic pain syndromes (such as fibromyalgia) however due to the bony nature of osteoarthritic pain, TENS machines seem to carry limited value in analgesic management of this condition.

Question:

A 33-year-old woman attends for a routine cervical smear. A positive high-risk human papillomavirus (hrHPV) result prompts the GP to recall her in 12 months for another smear. At this repeat smear, the same result is demonstrated and so the GP recalls her in a further 12 months. At the second repeat smear (third overall), hrHPV is now negative.

The patient has no significant past medical history, nor family history.

What is the most appropriate course of action?

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 3 years

Explanation:

Cervical cancer screening: if 2nd repeat smear at 24 months is now hrHPV -ve → return to routine recall

Important for meLess important

The correct answer is to repeat the smear in 3 years, as this is a return to routine recall. The result being inferred in the scenario here is high-risk human papillomavirus (hrHPV) - a positive result, with normal cytology, would prompt the GP to recall the patient in 12 months for a repeat smear. The other scenario with 12-monthly smears would be in a known HIV-positive patient, but we are told that she has no significant past medical history. If the third smear (second repeat), at the 24-month mark, is normal, the patient may be returned to routine recall.

Referring for colposcopy is incorrect - if the patient had been hrHPV positive on this second repeat smear, this would be warranted.

Repeating in 3 months would be incorrect - this would be warranted if a smear was described as being 'inadequate'.

Repeating in 12 months is incorrect - this has been done twice already, and the third overall smear's result will determine the next course of action - whether to return to routine recall or refer for colposcopy.

Repeating in 5 years is incorrect - this is the length of time between routine smears for older women.

Question:

A 36-year-old builder presents with a 1 day history of pain in his groin on the right side. It is intermittent, but extremely severe when it occurs and radiates from across the flank. His examination, observations and blood tests are unremarkable. The pain is not related to movement. A urine dip showed ++ blood. He is otherwise fit and well. He mentions that his job involves a lot of heavy lifting and he rarely has time for breaks at work. What is the most likely diagnosis?

A.Direct inguinal hernia

B.Indirect inguinal hernia

C.Femoral hernia

D.Ureteric calculus

E.Psoas abscess

Answer:Ureteric calculus

Explanation:

This young gentleman is presenting with right sided loin to groin pain with microscopic haematuria. The scenario hints that he is often dehydrated during the day at work. Putting this all together, it sounds highly probable that the diagnosis is a right sided ureteric calculus that is causing the colic episodes.

Whilst this gentleman has a job that involves heavy lifting, there is no mention of a palpable lump on examination which makes a hernia very unlikely.

Question:

A 20-year-old female is seen in the emergency department after an intentional overdose. She took all the paracetamol in her house which she estimates to be between 10-20 tablets.

On questioning regarding the timing of ingesting the paracetamol, the patient reported taking the tablets with alcohol, whilst removing them from their blister packets. She knows it took 30 minutes to take the tablets as it was after this period when she was found by her parents. She reports taking the last tablet 3 hours prior to arriving in the department.

On arrival in the emergency department, a serum paracetamol level was taken, which came back at 90mg/L.

What is the most appropriate management plan?

A.No medical treatment required

B.Start activated charcoal treatment followed by N-acetylcysteine treatment

C.Start and complete full N-acetylcysteine treatment

D.Do not start treatment yet and repeat serum paracetamol level at 4 hours post ingestion

E.Start N-acetylcysteine treatment and repeat serum paracetamol level at 4 hours post ingestion

Answer:Do not start treatment yet and repeat serum paracetamol level at 4 hours post ingestion

Explanation:

This patient has potentially taken a significant paracetamol overdose and has presented to the emergency department 3 hours after ingestion. This is not a staggered overdose, as the patient reports taking the tablets over 30 minutes, and a staggered overdose is defined as taking paracetamol over more than a 1 hour period. For this reason, treatment does not need to be started immediately and can be held until a 4-hour post-ingestion paracetamol level result is back. At this point, if the level is confirmed to be above 100 mg/L (on or above the nomogram line) then N-acetylcysteine treatment can be started. Paracetamol levels prior to 4 hours post-ingestion are inaccurate and therefore should not be used to assess the need for treatment.

Medical treatment is potentially needed as the patient may have taken a significant paracetamol overdose. A serum paracetamol level should be taken at 4 hours post-ingestion. If the serum paracetamol level is below the nomogram line no medical treatment will be required.

Activated charcoal can be used to reduce paracetamol absorption in the few patients who present within 1 hour of taking an overdose. As this patient has presented over 1-hour post-ingestion activated charcoal has no role in her management.

The use of N-acetylcysteine may be required however this must first be confirmed via a 4-hour post-ingestion level. As it is unclear as to whether or not the patient’s overdose is significant, treatment should be held until confirmed via 4-hour levels.

If a patient presents following a potentially significant paracetamol overdose and levels will not be available within 8 hours of ingestion, then N-acetylcysteine should be started immediately. Levels can then be taken, and if they are found to be below the nomogram line treatment can be stopped.

Question:

A 29-year-old man with a history of treatment resistant schizophrenia comes into the emergency department complaining of a general malaise over the last few days with accompanying chest pain. He looks uncomfortable and sweaty on the bed.

Which of the following medications is most likely to have caused these symptoms?

A.Clozapine

B.Olanzapine

C.Citalopram

D.Mirtazapine

E.Amitriptyline

Answer:Clozapine

Explanation:

Treatment resistant schizophrenia, as the name suggests, is notoriously difficult to control. One of the most effective drugs is called clozapine, an atypical antipsychotic.

This is not a first line medication and should only be initiated if there is a lack of clinical improvement following sequential use of at least two antipsychotics for 6-8 weeks, with at least one of these antipsychotics being from the atypical class.

Whilst a very effective medication, there are a number of serious side effects including, but not limited to, the following:

weight gain

excessive salivation

agranulocytosis

neutropenia

myocarditis

arrhythmias

In the case of the above patient, your concern would be that he is suffering from myocarditis and given his underlying psychiatric condition it would be likely that he was on clozapine.

Question:

A 23-year-old woman with known type 1 diabetes mellitus presents to the emergency department with abdominal pain and vomiting. On examination, she appears dehydrated. Some of her blood tests are shown below:

pH 7.23 (7.35-7.45)

pCO2 2.1 kPa (4.5-6.0)

pO2 11.2 kPa (10-14)

Na+ 135 mmol/L (135-145)

K+ 3.1 mmol/L (3.5-5.0)

Bicarbonate 13 mmol/L (22-28)

Glucose 22.4 mmol/L (<11.1)

Ketones 3.6 mmol/L (<0.6)

What should happen to her regular insulin while she is treated?

A.Continue both long-acting and short-acting insulin

B.Continue long-acting insulin and stop short-acting insulin

C.Continue short-acting insulin and stop long-acting insulin

D.Increase the dose of both long-acting and short-acting insulin

E.Stop both long-acting and short-acting insulin

Answer:Continue long-acting insulin and stop short-acting insulin

Explanation:

In the acute management of DKA, insulin should be fixed rate whilst continuing regular injected long-acting insulin but stopping short actin injected insulin

Important for meLess important

The correct answer is 'continue long-acting insulin and stop short-acting insulin'.

This patient is presenting in diabetic ketoacidosis (DKA) as evidenced by her known diabetes diagnosis, glucose > 11 mmol/L, pH < 7.3, bicarbonate < 15 mmol/L and ketones > 3 mmol/L. She needs treatment with fixed-rate insulin and fluids. While this takes place, her normal long-acting insulin should be continued, but her short-acting insulin should be stopped.

'Continue both long-acting and short-acting insulin' and 'continue short-acting insulin and stop long-acting insulin' are incorrect as continuing the short-acting insulin may lead to hypoglycaemia.

'Increase the dose of both long-acting and short-acting insulin' is incorrect. Long-acting insulins should be continued at the normal dose until the patient is stabilised. Short-acting insulins should be stopped until the patient is well enough to stop fixed-rate insulin infusion.

'Stop both long-acting and short-acting insulin' is incorrect. Stopping the normal long-acting insulin can increase the risk of complications when patients are converted back onto their normal insulin regime after fixed-rate insulin is stopped.

Question:

A 63-year-old man is brought to the emergency department by ambulance with shortness of breath. He was admitted to the hospital 10 days earlier with an ST-elevation myocardial infarction, which was managed with percutaneous coronary intervention.

On examination, he has a raised JVP, diminished heart sounds, and on inspiration, his systolic blood pressure drops by 20 mmHg.

Given the above, what is the most likely cause of his presentation?

A.Atrial fibrillation

B.Chronic heart failure

C.Dressler syndrome

D.Left ventricular free wall rupture

E.Mitral regurgitation

Answer:Left ventricular free wall rupture

Explanation:

A patient develops acute heart failure 10 days following a myocardial infarction. On examination he has a raised JVP, pulsus paradoxus and diminished heart sounds - left ventricular free wall rupture

Important for meLess important

The above scenario describes a man who is 10 days post-ST-elevation myocardial infarction (STEMI) and is now presenting with signs of acute heart failure (shortness of breath, raised JVP, diminished heart sounds) and pulsus paradoxus (an exaggerated fall in systolic blood pressure during inspiration). This history is suggestive of cardiac tamponade, likely secondary to a left ventricular free wall rupture. Urgent pericardiocentesis will be required.

Atrial fibrillation is incorrect. Whilst arrhythmias can arise following a myocardial infarction, the symptoms described in the above scenario are more suggestive of acute heart failure rather than atrial fibrillation. Atrial fibrillation may eventually lead to heart failure, but it is less likely within such a short time period.

Chronic heart failure is not correct. Whilst some of the symptoms may be similar to chronic heart failure, the above scenario describes an acute episode of heart failure following a STEMI, which is likely to be secondary to a left ventricular free wall rupture. Chronic heart failure can occur following damage caused by myocardial infarction, but this would take longer than 10 days, and history could describe it as a progressive worsening of symptoms (e.g. worsening shortness of breath over some time).

Dressler syndrome is incorrect. Dressler syndrome is an important complication of myocardial infarction, where patients report pericarditis symptoms (e.g. chest pain which is improved by leaning forwards). The above scenario does not fit this description.

Mitral regurgitation is incorrect. Mitral regurgitation is another complication of myocardial infarction, however, the above scenario does not describe the classical symptoms of mitral regurgitation including a systolic murmur and progressively worsening shortness of breath due to pulmonary congestion.

Question:

An elderly, frail woman is admitted to the ward following a fall at home. What is the most appropriate way to assess her risk of developing a pressure sore?

A.PSST-6 score

B.PAST score

C.MUST score

D.Waterlow score

E.Honeywell score

Answer:Waterlow score

Explanation:

Waterlow score - used to identify patients at risk of pressure sores

Important for meLess important

Question:

A 70-year-old woman has had jaw pain and trouble chewing for the last 2 months. She feels like her 'jaw is heavy'. There is no clicking or locking of her jaw and there is no scalp tenderness or changes to her vision. Her past medical history consists of well-controlled polymyalgia rheumatica and depression. She remembers a medical student explaining that this could be a side effect of one of her drugs. She takes vitamin D supplements, calcium supplements, prednisolone, alendronic acid, and sertraline.

What is the most likely cause of her symptoms?

A.Bisphosphonate use

B.Osteoporotic fracture

C.Polymyalgia rheumatica

D.Temporal arteritis (giant cell arteritis)

E.Temporomandibular joint (TMJ) dysfunction

Answer:Bisphosphonate use

Explanation:

Bisphosphonates can cause osteonecrosis of the jaw

Important for meLess important

Bisphosphonate use is correct. Given that her polymyalgia rheumatica is well-controlled and her symptoms have come on over the last 6 weeks, this patient is likely to be experiencing osteonecrosis of the jaw, which is a potential side effect of bisphosphonates.

Osteoporotic fracture is incorrect. An osteoporotic fracture is less likely given the fact she is taking alendronic acid to counteract the possibility of steroid-induced osteoporosis. As well as this, her symptoms are not acute, which makes an osteoporotic fracture less likely.

Polymyalgia rheumatica is incorrect. Polymyalgia rheumatica does not itself cause headaches or jaw pain. Temporal arteritis is that causes the headaches, scalp tenderness, and jaw pain. Her polymyalgia rheumatica is also well-controlled.

Temporal arteritis (giant cell arteritis) is incorrect. Temporal arteritis usually has a much faster onset (<1 month) and often has scalp tenderness and jaw claudication. It can sometimes also have a painless loss of vision. Given that her polymyalgia rheumatica is well-controlled, it is less likely she has temporal arteritis.

Temporomandibular joint (TMJ) dysfunction is incorrect. TMJ dysfunction usually affects jaw movements, and can cause jaw-locking or getting stuck. This patient has none of these symptoms.

Question:

A 24-year-old male patient presents to their GP with abdominal pain and bloody diarrhoea which started around six weeks ago. He has never had any previous episodes like this. He feels he may have lost some weight over the last three months. When asked about family history, he says that his father was diagnosed with bowel cancer aged 30, and though his Grandfather passed away when the patient was a child, he can remember him having a stoma.

The GP suspects bowel cancer and is suspicious of an underlying genetic abnormality

At colonoscopy, a large tumour is found in the ascending colon, close to the hepatic flexure. Other than this, the colonic mucosa looks normal.

What is the most likely underlying genetic problem?

A.Heterozygous Familial Adenomatous Polyposis (FAP)

B.Homozygous Familial Adenomatous Polyposis (FAP)

C.Li-Fraumeni Syndrome (LFS)

D.Lynch Syndrome

E.Von-Hippel Lindau Disease (VHL)

Answer:Lynch Syndrome

Explanation:

Lynch syndrome (HNPCC) is characterised by development of bowel cancer (among other cancers) with little formation of adenomatous polyps

Important for meLess important

Lynch syndrome, or hereditary non-polyposis colorectal cancer, gives a strong disposition towards a number of cancers, but colon cancer in particular. The features which make this case most likely to be Lynch are the bowel cancer at a young age in the absence of polyps, with what sounds like a strong family history of similar.

FAP is ruled out here by the normal colonic mucosa aside from the tumour.

Li-Fraumeni syndrome is caused by a mutation in the tumour suppressor p53 gene, and again causes a predisposition to cancers, but particularly sarcomas, breast cancer, leukaemias and adrenal gland tumours.

VHL also causes a cancer predisposition, commonly phaeochromocytoma, renal cell carcinoma and haemangioblastoma.

Question:

A 25-year-old man presents to the emergency department after being found in a confused and drowsy state by a friend. He appears to be in pain and has his hands over is abdomen. His friend informs you he has vomited twice on the way to the hospital. An arterial blood gas shows:

pH 7.29 7.35-7.45

HCO3- 17mmol/L 22-26mmol/L

pCO2 3kPa 4.5-6kPa

p02 12kPa 10-14kPa

Anion gap 20mEq/L 10-14mEq/L

Which investigation would most quickly provide an indication to the diagnosis?

A.Paracetamol levels

B.Blood cultures

C.Liver function tests

D.Abdominal X-ray

E.Blood glucose monitoring (BM)

Answer:Blood glucose monitoring (BM)

Explanation:

This man has presented with drowsiness and abdominal pain. All of the above options are valid investigations for a patient with these symptoms, however the ABG shows a metabolic acidosis with partial respiratory compensation and an increased anion gap. This is highly suggestive of DKA and this should therefore be investigated first.

Paracetamol overdose could lead to drowsiness and abdominal pain but is unlikely to cause a metabolic acidosis. Aspirin overdose however could also cause a metabolic acidosis with an increased anion gap.

Sepsis could cause similar symptoms and the same pattern on ABG however in a man of this age group DKA is more likely. Blood cultures would be a useful investigation to do at a later stage to rule out sepsis as a cause of the DKA.

Gastrointestinal pathology such as bowel obstruction could cause similar symptoms but would not cause a metabolic acidosis. Bowel ischaemia could cause similar symptoms and ABG pattern but DKA is more common in this age group.

For a useful guide on how to interpret ABG results see:

http://www.oscestop.com/ABGinterpretation.pdf

Question:

A 25-year-old man presents with bloody diarrhoea associated with systemic upset. Blood tests show the following:

Hb 13.4 g/dl

Platelets 467 \* 109/l

WBC 8.2 \* 109/l

CRP 89 mg/l

A diagnosis of ulcerative colitis is suspected. Which part of the bowel is most likely to be affected?

A.Sigmoid colon

B.Rectum

C.Ascending colon

D.Descending colon

E.Terminal ileum

Answer:Rectum

Explanation:

Ulcerative colitis - the rectum is the most common site affected

Important for meLess important

Question:

An 18-month-old boy is brought to the emergency department by his mother due to pain in his right hip and a new limp. He has no past medical history except for a viral upper respiratory tract infection he had 1 week ago, from which he has recovered. There is no trauma to the hip. His development to date has been normal.

On examination, he is afebrile. Slight movement of his right hip is tolerated but excess motion causes him to cry.

Investigations show:

Hb 123 g/L Male: (110-140)

Platelets 200 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

What is the most appropriate next step in his management?

A.Recommend rest and analgesia

B.Refer for urgent MRI of the hip

C.Refer for urgent X-ray of the hip

D.Refer for urgent paediatric assessment

E.Refer for urgent ultrasound of the hip

Answer:Refer for urgent paediatric assessment

Explanation:

Urgent assessment should be arranged for a child < 3 years presenting with an acute limp

Important for meLess important

Refer for urgent paediatric assessment is correct. Although this child has features that are suggestive of transient synovitis, due to their mild symptoms and recent history of an upper respiratory tract infection, NICE recommends that all children <3 years old should have an urgent assessment when presenting with a limp. This is because transient synovitis is rare in this age group and septic arthritis is much more common. Further investigations need to be considered by paediatricians before diagnosis and management. The normal investigations cannot definitely rule out septic arthritis in this scenario and further investigations are needed, which may involve an ultrasound or synovial fluid aspirate.

Recommend rest and analgesia is incorrect. Although this would be appropriate advice for a patient with transient synovitis, this infant must have an urgent assessment by paediatrics as transient synovitis is rare in this age group and septic arthritis is much more common. The normal investigations cannot definitely rule out septic arthritis in this scenario and further investigations are needed, which may involve an ultrasound or synovial fluid aspirate.

Refer for urgent MRI of the hip is incorrect. Although this may be considered to assess for other potential underlying causes, this investigation would be considered by a paediatrician after an initial urgent assessment. An MRI may be used for cases of unexplained complaints (e.g. in Perthes' disease if an x-ray is normal).

Refer for urgent X-ray of the hip is incorrect. Although this may be considered to assess for other potential underlying causes, this investigation would be considered by a paediatrician after an initial urgent assessment. An X-ray may be useful in cases such as fractures.

Refer for urgent ultrasound of the hip is incorrect. Although this may be considered to assess for other potential underlying causes, this investigation would be considered by a paediatrician after an initial urgent assessment. Ultrasound is mainly used for soft tissues to assess for joint effusion, such as in septic arthritis. It may be used once a paediatrician has assessed them and performed by a professional trained in its use for children.

Question:

A 63-year-old female presents with marked right sided weakness and aphasia. Blood results demonstrate:

Hb 92 g/l Na+ 134 mmol/l

Platelets 76 \* 109/l K+ 5.7 mmol/l

WBC 2.9 \* 109/l Urea 12.2 mmol/l

Calcium (corrected) 3.08 mmol/l Creatinine 135 µmol/l

What is the most likely cause of the stroke?

A.Multiple myeloma

B.Polycythaemia

C.Waldenstrom's macroglobulinaemia

D.Leukaemia

E.Atrial fibrillation

Answer:Multiple myeloma

Explanation:

It is important to remember that strokes can be caused by hypercoagulable states and hyperviscosity.

The renal dysfunction, hypercalcaemia and anaemia are very suggestive of multiple myeloma, especially in an elderly patient. The paraproteinaemia associated with myeloma results in hyperviscosity of blood thereby increasing the risk of stroke.

Question:

A 66-year-old man undergoes routine screening for abdominal aortic aneurysm. He is currently experiencing no symptoms.

The diameter of his abdominal aorta is measured as 4.6cm on ultrasound.

What is the most appropriate next step for this patient?

A.Discharge patient

B.Repeat ultrasound in 12 months

C.Repeat ultrasound in 3 months

D.Routine endovascular aneurysm repair (EVAR)

E.Urgent endovascular aneurysm repair (EVAR)

Answer:Repeat ultrasound in 3 months

Explanation:

The majority of patients who develop an abdominal aortic aneurysm are asymptomatic

Important for meLess important

The majority of patients who develop an abdominal aortic aneurysm are asymptomatic. Ultrasound screening is offered for all men in the UK aged over 65 to determine the diameter of their abdominal aorta.

Even though the patient is asymptomatic, it is against recommended guidance to discharge the patient. An abdominal aorta measuring 4.6cm should be re-scanned every 3 months to monitor for any changes which may indicate surgery.

Repeat ultrasound in 12 months is the recommended for abdominal aortic aneurysms which measure 3cm-4.5cm.

Routine endovascular aneurysm repair (EVAR) is not indicated in this case. Surgery is only indicated in those who are symptomatic, or asymptomatic with an AAA larger than 4cm which has grown by more than 1 cm in 1 year, or asymptomatic and 5.5 cm or larger. Surgery is also indicated for a ruptured AAA. He does not meet any of these criteria.

Urgent endovascular aneurysm repair (EVAR) is incorrect as he does not meet any of the criteria for surgery as stated above.

Question:

A 25-year-old woman is seen in clinic with a 3-month history of worsening headaches and associated blurred vision. These are different to her usual headaches which have prodromal zig-zags in her vision and are relieved by her lying in a dark and quiet room.

On examination, her temperature is 37.1ºC, her heart rate is 89 bpm, her blood pressure is 134/75 mmHg, and her BMI is 32 kg/m². There is no weakness or impaired sensation. Her visual fields are intact, but her visual acuity is 6/9 in both eyes. Fundoscopy shows bilateral papilloedema.

What is the most appropriate next step in her management?

A.Prescribe acetazolamide and advise weight loss

B.Prescribe amitriptyline

C.Prescribe prophylactic propranolol

D.Prescribe prophylactic topiramate

E.Prescribe sumatriptan and ibuprofen

Answer:Prescribe acetazolamide and advise weight loss

Explanation:

Obese, young female with headaches / blurred vision think idiopathic intracranial hypertension

Important for meLess important

Prescribe acetazolamide and advise weight loss is correct. This patient is presenting with a new headache that is different to her usual ones, which 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 quiet and dark room, and the presence of aura (the zig-zags in her vision). This headache has associated vision blurring and on examination, her visual acuity is reduced, confirming this. The presence of papilloedema on fundoscopy should raise concerns about increased intracranial pressure. Given that this is a young female patient, she has bilateral papilloedema and no focal neurological deficits, and her BMI is classed as obese, the most likely diagnosis in this scenario is idiopathic intracranial hypertension (IIH). The first-line step in the management of 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 is incorrect. This is a form of analgesia that may be considered for symptomatic relief if her IIH was persisting despite attempting first-line treatment measures. Given that this is her first time presenting with IIH, the most appropriate step that manages the IIH directly would be weight loss. Amitriptyline may be offered to help with pain, however, they carry side effects such as weight gain (which can worsen IIH), dry mouth, urinary retention, and sedation. It may not be necessary at this point to give her amitriptyline and subject her to an unnecessarily increased risk of these side effects. A more appropriate form of analgesia would be NSAIDs.

Prescribe prophylactic propranolol 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 prophylactic topiramate is incorrect. As 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 is incorrect. This is used in the management of acute migraine. The headache this patient is currently experiencing is a result of her IIH, not migraine.

Question:

You are the F2 in the paediatric clinic. A mother comes in saying that she thinks her 6-month-old son has colic. She shows you a video on her phone. The video shows a 6-month-old baby crying, which stops abruptly and the child draws his chin into his chest, throws his arms out. The child then relaxes and starts crying again, and over the course of the minute long video this is repeated around 10 times. The mother also reports that the child has been referred to the community paediatric clinic due to slight delay in reaching developmental milestones. Which one test is most appropriate for you order to help confirm your diagnosis?

A.Abdominal X-ray

B.EEG

C.Genetic Testing

D.MRI Head and Spine

E.US Abdomen

Answer:EEG

Explanation:

In infantile spasms the child will become distressed between spasms, whereas in colic the child will become distressed during the 'spasms'

Important for meLess important

The history is suggestive of infantile spasms and developmental delay.

Abdominal x-ray will be of no benefit.

EEG is needed, as hypsarrhythmia is commonly found in West's syndrome.

Genetic testing is not needed.

MRI head and spine is not needed.

US Abdomen may be useful if you did think this child had colic, but as the history points towards infantile spasms, an EEG is more appropriate.

Question:

A 16-year-old female presents to her GP with episodic shortness of breath and dry cough when she exercises. Her symptoms have been gradually worsening over the past year, and she particularly notices them if it is cold or she has sports lessons early in the morning. She reports no symptoms at rest, no fevers, and no sputum production. She is otherwise fit and well.

Examination is unremarkable, and peak expiratory flow rate is within normal range.

Her GP suspects asthma, and refers her for pulmonary function tests with bronchodilator reversibility testing. Results are below:

FEV1 86% predicted

FVC 95% predicted

FEV1/FVC 0.81

Bronchodilator reversibility Negative

What is the next step in the diagnostic work up for this patient?

A.Prescribe SABA inhaler as required

B.Prescribe SABA inhaler as required + regular low dose ICS

C.Reassure and discharge with safety netting

D.Refer for Fractional Exhaled Nitric Oxide (FeNO) testing

E.Refer to paediatric respiratory clinic

Answer:Refer for Fractional Exhaled Nitric Oxide (FeNO) testing

Explanation:

A negative result on spirometry does not exclude asthma as a diagnosis, and should be further investigated

Important for meLess important

Asthma is a largely clinical diagnosis, although it is important to confirm the diagnosis with further testing. Pulmonary function tests have long formed the basis of asthma diagnosis, with a classical obstructive pattern being present, with bronchodilator reversibility demonstrable. However, NICE now recommend the FeNO test for all new adult diagnoses of asthma, and for use in young patients where there is diagnostic uncertainty or negative spirometry/bronchodilator reversibility. The FeNO test uses exhaled levels of nitric oxide to assess for inflammation in the lungs - it will therefore be elevated in cases of asthma.

It would be reasonable to provide the patient with a SABA inhaler to use as required, although this would not confirm the diagnosis.

Given the nature of this patients symptoms, it would be inappropriate to discharge them.

The diagnosis of asthma using FeNO testing is within the remit of a GP, making a respiratory clinic referral unnecessary.

Question:

A 25-year-old woman presents with an inability to use her right arm, for 3 days. The patient has been living with her mother for the past 5 days after being a victim of domestic abuse from her husband. She is unable to move her right arm from her shoulder to her fingers. She denies any trauma. The patient admits to feeling very stressed currently.

Examination shows normal tone and reflexes but 0/5 power in all muscle groups of the right upper limb. When the affected arm is held above the patient's face and released, the arm misses the face and falls at the patient's side.

What is the likely diagnosis?

A.Acute stress disorder

B.Conversion disorder

C.Post traumatic stress disorder (PTSD)

D.Somatisation disorder

E.Spinal cord lesion

Answer:Conversion disorder

Explanation:

Conversion disorder - typically involves loss of motor or sensory function. May be caused by stress

Important for meLess important

This patient has no historical or clinical findings of neurological disease. The likely diagnosis here is conversion disorder - a psychiatric condition where psychological stress is unconsciously manifested as physical, neurological symptoms. This was most likely triggered by recent domestic abuse and stress. This patient also has a positive drop-arm test in which the patient unconsciously exhibits a controlled drop to prevent the arm from hitting their face.

Acute stress disorder occurs following life-threatening experiences such as abuse; however, it is characterised by symptoms of hyperarousal, re-experiencing of the traumatic event, avoidance of stimuli and distress - not physical weakness. As opposed to post-traumatic stress disorder, it lasts between 3 days and 1 month.

Post-traumatic stress disorder occurs following life-threatening experiences such as abuse; it fits the same definition as acute stress disorder, but symptoms lasting longer than 1 month.

Patients with somatisation disorder have multiple bodily complaints lasting months to years and persistent anxiety about their symptoms. Considering this patient's history and physical findings she likely has conversion disorder.

Considering this patient's normal tone and reflexes and lack of trauma to the neck or spine, a spinal cord lesion causing total arm paralysis is very unlikely.

Question:

A 33-year-old female presents to her GP as she missed her Noriday pill (progestogen only) this morning and is unsure what to do. She normally takes the pill at around 0900 and it is now 1230. What advice should be given?

A.Take missed pill as soon as possible and advise condom use until pill taking re-established for 48 hours

B.Take missed pill as soon as possible and omit pill break at end of pack

C.Perform a pregnancy test

D.Take missed pill as soon as possible and no further action needed

E.Emergency contraception should be offered

Answer:Take missed pill as soon as possible and advise condom use until pill taking re-established for 48 hours

Explanation:

Question:

A mother brings her 2-week-old baby girl into the surgery for review. She has noted a bright red, well-circumscribed and lobulated lesion developing on her right temple. This wasn't noted at birth but is now 5 mm in diameter. What is the most appropriate management?

A.Silver nitrate cautery

B.Refer to paediatrics (on an urgent basis)

C.Topical hydrocortisone + regular emollient

D.Refer to paediatrics (on a routine basis)

E.Reassure the mother that most lesions spontaneously regress and suggest review in 3 months

Answer:Reassure the mother that most lesions spontaneously regress and suggest review in 3 months

Explanation:

This baby has a strawberry naevus. Treatment is only usually required if the lesion is causing a mechanical problem or bleeding. Starting treatment such as propranolol would also clearly not be appropriate at 2 weeks of age.

Question:

A 28-year-old woman develops a productive cough, weight loss and night sweats 4 months after returning from India. She is subsequently diagnosed with pulmonary tuberculosis and started on an appropriate antibiotic regimen. 6 weeks into her treatment, she develops numbness and tingling in her distal extremities, a known side effect of isoniazid, one of the antibiotics she was prescribed.

What medication should she have been prescribed alongside her antibiotic regimen to reduce the risk of this side effect?

A.Ethambutol

B.Prednisolone

C.Pyrazinamide

D.Pyridoxine

E.Rifampicin

Answer:Pyridoxine

Explanation:

The risk of peripheral neuropathy with isoniazid can be reduced by prescribing pyridoxine

Important for meLess important

Pyridoxine is a form of vitamin B6 which is prescribed alongside isoniazid to reduce the risk of peripheral neuropathy. This is because isoniazid induces a B6 deficiency and subsequent peripheral nerve damage in up to 20% of people due to an increased rate of B6 excretion.

Ethambutol is an antibiotic prescribed alongside isoniazid for the treatment of active tuberculosis. It does not protect against peripheral neuropathy and side effects include a loss of visual acuity and colour blindness.

Prednisolone is usually only prescribed for meningeal or pericardial tuberculosis. It does not protect against peripheral neuropathy and side effects include mood changes, weight gain and immunosuppression.

Pyrazinamide is an antibiotic prescribed alongside isoniazid for the treatment of active tuberculosis. It does not protect against peripheral neuropathy and side effects include liver toxicity.

Rifampicin is an antibiotic prescribed alongside isoniazid for the treatment of active tuberculosis. It does not protect against peripheral neuropathy and side effects include liver toxicity and orange discolouration of urine.

Question:

You are reviewing a 31-year-old woman who has type 1 diabetes mellitus. Her control is currently good and she is well with no intercurrent illnesses. How often if it recommended that she monitors her blood glucose?

A.At least 4 times a day, including before each meal and before bed

B.At least 6 times a day, including before each meal and before bed

C.At least 8 times a day, including before each meal and before bed

D.On waking and after lunch and the evening meal

E.On waking, before leaving the house and after lunch and the evening meal

Answer:At least 4 times a day, including before each meal and before bed

Explanation:

In type 1 diabetics, recommend monitoring blood glucose at least 4 times a day, including before each meal and before bed

Important for meLess important

Question:

A 25-year-old woman presents to the GP with a 3-days history of episodic sweating, agitation, palpitations, and restlessness. Two months ago, she underwent an uncomplicated vaginal delivery at 39 weeks gestation. She has a past medical history of coeliac disease.

Investigations are performed:

Thyroid-stimulating hormone (TSH) 0.1 mU/L (0.5-5.5)

Free thyroxine (T4) 26 pmol/L (9.0 - 18)

What is the most appropriate next step in her management?

A.Prescribe NSAIDs and monitor

B.Prescribe carbimazole

C.Prescribe levothyroxine

D.Prescribe propranolol

E.Prescribe propylthiouracil

Answer:Prescribe propranolol

Explanation:

The thyrotoxicosis phase of postpartum thyroiditis is generally managed with propranolol alone

Important for meLess important

Prescribe propranolol is correct. This patient has presented with signs and symptoms of hyperthyroidism 2 months postpartum. This should raise suspicion of postpartum thyroiditis. It is thought that this occurs due to the immune system rebounding causing anti-thyroid antibodies to rise in women who are susceptible, as during the pregnancy the immune system is suppressed to induce tolerance of the foetus. This is usually self-resolving, therefore the most appropriate step in her management is symptomatic relief, which would involve the use of propranolol.

Prescribe NSAIDs and monitor is incorrect. This would be an appropriate management step if this patient was experiencing subacute (de Quervain's) thyroiditis which usually follows a viral infection. Given that there is no painful goitre, this option would be less appropriate.

Prescribe carbimazole is incorrect. Given that postpartum thyroiditis is typically self-limiting, prescribing antithyroid drugs would be less appropriate as this may induce a state of hypothyroidism, requires careful monitoring and also carries side effects despite this patient not necessarily needing them. Postpartum thyroiditis involves symptomatic treatment using propranolol.

Prescribe levothyroxine is incorrect. This would be appropriate if this patient was experiencing hypothyroidism, which would present with cold intolerance, low mood, fatigue, and weight gain, and the thyroid function tests would show a low T4 and raised TSH, which is not the case here.

Prescribe propylthiouracil is incorrect. Postpartum thyroiditis is typically self-limiting, therefore, prescribing antithyroid drugs would be less appropriate as this may induce a state of hypothyroidism, requires careful monitoring and also carries side effects despite this patient not necessarily needing them. Postpartum thyroiditis involves symptomatic treatment using propranolol.

Question:

A 29-year-old man is due for surgery for an open reduction and internal fixation of a complicated ankle fracture. He is normally fit and well with no past medical history, and has a BMI of 31 kg/m2. He is American Society of Anesthesiology (ASA) grade II. General anaesthesia is administered, and the patient is intubated.

What monitoring equipment is most important to assess this patient's intubation?

A.Capnography

B.Entropy

C.Fractional exhaled nitric oxide

D.Manual assessment of chest rise

E.Oxygen saturations

Answer:Capnography

Explanation:

Capnography can be used to detect accidental oesophageal intubation

Important for meLess important

The correct answer is capnography. Capnography measures the concentration of carbon dioxide in exhaled air and displays it on the anaesthetic monitor. By observing a characteristic rise in carbon dioxide concentration during exhalation, and a drop during inhalation, successful tracheal intubation can be confirmed.

Entropy is incorrect. Entropy monitoring assesses the depth of anaesthesia by assessing a patient’s electroencephalogram. It assesses the effect of anaesthetic drugs and does not assess the success of intubation.

Fractional exhaled nitric oxide is incorrect. This is a relatively novel tool used in the diagnosis and follow-up of asthma patients, as asthmatic patients have been found to have higher exhaled nitric oxide levels.

Manual assessment of chest rise is incorrect. Although this is a useful tool to check whether a patient is breathing or being ventilated, it is not a definitive monitoring tool.

Oxygen saturations is incorrect. Although a patient’s partial pressure of oxygen (PaO2) saturations are a useful tool to assess arterial oxygen partial pressure, it is not a safe method of assessing intubation success. Patients are pre-oxygenated prior to induction, so the patient’s saturations would stay high for several minutes post-intubation, even if the airway is incorrectly sited.

Question:

A 72-year-old female presents with progressive immobility, poor balance, and tremor. On examination you note a left sided resting tremor, non velocity dependent hypertonia of all four limbs, bradykinesia, and dysarthria. On examination of the cranial nerves you note that she has difficulties moving her eyes in the vertical plane.

What is the most likely diagnosis?

A.Multi-system atrophy

B.Progressive supranuclear palsy

C.Idiopathic Parkinson's disease

D.Vascular Parkinson's

E.Corticobasal degeneration

Answer:Progressive supranuclear palsy

Explanation:

The patient in this case has the cardinal features of Parkinsonism - resting tremor, rigidity, bradykinesia, and postural instability. However there are other features which suggest that idiopathic Parkinson's disease is not the diagnosis. The dysarthria and reduced vertical eye movements, makes the Parkinson's plus disorder progressive supranuclear palsy the most likely diagnosis.

Question:

A 57-year-old man presents to his general practitioner (GP) with a two day history of productive cough with green sputum, fevers and fatigue. On examination, his temperature is 38.2ºC and there is a mild end-expiratory wheeze throughout the lung fields. His oxygen saturations are 95% on room air.

His past medical history includes COPD and congenital long QT syndrome. He has a penicillin allergy. The last time he had an episode similar to this was 3 years ago.

The GP decides to prescribe a course of antibiotics with oral prednisolone.

Which is the most appropriate course of antibiotics?

A.Co-amoxiclav

B.Doxycycline

C.Levofloxacin

D.Amoxicillin

E.Clarithromycin

Answer:Doxycycline

Explanation:

Infective exacerbation of COPD: first-line antibiotics are amoxicillin or clarithromycin or doxycycline

Important for meLess important

The 2010 NICE guidelines recommend prescribing antibiotics for an infective exacerbation of COPD if there is purulent sputum or signs of pneumonia.

Doxycycline and clarithromycin are both appropriate first line medications in the case of infective exacerbation of COPD. However, clarithromycin should be avoided in patients with congenital long QT syndrome.

Amoxicillin is a first-line treatment for infective exacerbation of COPD and co-amoxiclav is a second line treatment but neither should not be prescribed to a penicillin-allergic patient.

Levofloxacin is a second line treatment which is only indicated for infective exacerbation of COPD when there is a high risk of treatment of treatment failure (e.g. repeated courses of antibiotics or high risk of complications).

Question:

A blood film is reported as follows:

Howell-Jolly bodies, target cells and occasional Pappenheimer bodies are seen

What is the most likley underlying cause?

A.Iron-deficiency anaemia

B.Lead poisoning

C.Myelofibrosis

D.Sideroblastic anaemia

E.Post-splenectomy

Answer:Post-splenectomy

Explanation:

Question:

A 28-year-old intravenous drug user presents to your GP clinic: he is a frequent non-attender and you note he has been recently been discharged from hospital following a diagnosis of chronic hepatitis C.

Given his new diagnosis which vaccination does he now qualify for?

A.Annual pneumococcal vaccine

B.Hepatitis E vaccine

C.One-off pneumococcal vaccine

D.BCG vaccine

E.Tetanus vaccine

Answer:One-off pneumococcal vaccine

Explanation:

The pneumococcal vaccine should be offered to patients with chronic hepatitis

Important for meLess important

Those patients diagnosed with chronic hepatitis should be offered both the annual influenza vaccine and the pneumococcal vaccine, which is given one a one-off basis. The pneumococcal vaccine is only given on a one-off basis, as it is not a rapidly mutating condition, unlike influenza.

The hepatitis E vaccine is unavailable in the UK and the tetanus vaccine would only be indicated if he had sustained a high-risk wound. This patient does not meet the criteria for a BCG vaccine at this time.

Question:

A 28-year-old man is in the surgical intensive care unit. He has suffered a flail chest injury several hours earlier and he was intubated and ventilated. Over the past few minutes he has become increasingly hypoxic and is now needing increased ventilation pressures. What is the most common cause?

A.Pulmonary embolism

B.Cardiac tamponade

C.Fat embolism

D.Tension pneumothorax

E.Adult respiratory distress syndrome

Answer:Tension pneumothorax

Explanation:

A flail chest segment may lacerate the underlying lung and create a flap valve. A tension pneumothorax can be created by intubation and ventilation in this situation. Sudden hypoxia and increased ventilation pressure are clues.

Question:

A 62-year-old woman attends her general practitioner for a blood pressure review. Her past medical history includes hypertension, hypercholesterolaemia and ischaemic heart disease.

Her current medications are:

ramipril 10mg once daily.

amlodipine 10mg once daily.

bendroflumethiazide 2.5mg once daily.

atorvastatin 80mg once daily.

aspirin 75mg once daily.

The most recent change to her blood pressure medication was the addition of bendroflumethiazide 6 months ago which has reduced the average home systolic readings by about 15 mmHg. The average of home blood pressure monitoring over the past 2 weeks is now 162/83 mmHg.

A blood test is performed which shows the following:

K+ 4.7 mmol/L (3.5 - 5.0)

After secondary causes of hypertension have been ruled out, what is the next step in the management of her blood pressure?

A.Advise patient to restrict potassium intake and repeat blood test in 2 weeks

B.Continue with current medications and review in 6 months

C.Stop bendroflumethiazide and review in 6 months

D.Add atenolol 25mg orally once daily

E.Add spironolactone 25mg orally once daily

Answer:Add atenolol 25mg orally once daily

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor, calcium channel blocker and a standard-dose thiazide diuretic. K+ > 4.5mmol/l - add an alpha- or beta-blocker

Important for meLess important

The 2019 NICE guidelines advise that once a patient is taking an ACE inhibitor, a calcium channel blocks and a standard-dose thiazide diuretic, if they continue to have raised blood pressure (confirmed via ABPM or HBPM), this is termed 'treatment resistance hypertension'. At this point, the GP could either add a fourth drug, taking into consideration the serum potassium, or refer to a specialist. Other steps to take at the stage are to assess for a postural drop and speak to the patient about adherence to their medication.

The potassium is in the normal range and therefore no action needs to be taken with regards to restriction or repeat blood tests.

The patient has raised blood pressure confirmed via HBPM. It is therefore appropriate to take action at this stage.

There is no reason to stop bendroflumethiazide because potassium is in normal range and it had a positive effect on blood pressure.

Atenolol is a suitable beta blocker to start at this stage. A reasonable starting dose is 25mg which can be titrated gradually according to response. An alpha-blocker would be an appropriate alternative at this stage.

Adding spironolactone would only be recommended if the potassium was below 4.5mmol/l.

Question:

A 50-year-old diabetic woman is admitted to the day surgery unit for an elective incision and drainage of a groin abscess. Her diabetes is usually well controlled on metformin. What should be done with regard to her diabetic control?

A.Stop metformin, restart 48 hours after surgery

B.Continue her normal regimen

C.Admit the day before surgery and commence variable rate insulin infusion

D.Commence variable rate insulin infusion on the day of surgery

E.Stop metformin for 2 weeks and delay surgery

Answer:Continue her normal regimen

Explanation:

This patient is an orally controlled diabetic and therefore is unlikely to need a sliding scale regimen unless it is particularly major surgery, which an incision and drainage is not. If the patient was undergoing significant surgery, then they would usually be admitted the night before, and commenced on a variable rate infusion.

Delaying surgery is not normally advised unless there are significant contraindications.

This type of surgery is likely to be a day case and therefore she can continue on her normal metformin regimen.

Question:

When is the neonatal blood spot screening test typically performed in the United Kingdom

A.At birth

B.On first day of life

C.On fourth day of life

D.Between fifth and ninth day of life

E.Any time in first month of life

Answer:Between fifth and ninth day of life

Explanation:

Question:

A 28-year-old man who has recently emigrated from Nigeria presents with a penile ulcer. It initially started as a papule which later progressed to become a painful ulcer 15mm in diameter with an undermined ragged edge. Examination of the testes was unremarkable but tender inguinal lymphadenopathy was noted. What is the most likely diagnosis?

A.Chancroid

B.Lymphogranuloma venereum

C.Syphilis

D.Herpes simplex infection

E.Granuloma inguinale

Answer:Chancroid

Explanation:

Genital ulcers

painful: herpes much more common than chancroid

painless: syphilis more common than lymphogranuloma venereum

Important for meLess important

A diagnosis of chancroid is more likely than lymphogranuloma venereum as the ulcer is painful. Whilst herpes simplex is obviously more common the description of the ulcer is very characteristic of chancroid. Painful inguinal lymphadenopathy is present in around 50% of patients.

Question:

A 40-year-old man of African origin presents to his GP complaining that his fingers go extremely cold and white at random times of the day. It is worse outdoors and particularly in the winter. On examination, you see small white deposits on his arms. There are a large number of spider naevi on his cheeks. The skin on the top of hands is thickened and he is unable to completely straighten out his fingers. At present, the colour and temperature of his fingers are normal.

Considering the likely diagnosis, which of the following features are you most likely to see?

A.Dysphagia

B.Glomerulonephritis

C.Xerostomia

D.Gottron’s papules

E.Dilated capillary loops

Answer:Dysphagia

Explanation:

CREST syndrome is a subtype of limited systemic sclerosis and includes: calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly, telangiectasia

Important for meLess important

This question describes a patient with all the features of CREST syndrome except oesophageal dysmotility, which causes dysphagia:

Calcinosis (white deposits)

Raynaud’s (cold, white fingertips precipitated by cold weather)

oEsophogeal dysmotility (dysphagia)

Sclerodactyly (thickened skin on top of hands and inability to straighten fingers)

Telangiectasia (excessive number of spider naevi)

Gottron’s papules and dilated capillary loops are features of dermatomyositis. Limited scleroderma does not cause internal organ involvement, and so glomerulonephritis is unlikely. Xerostomia means dry mouth and is a feature of Sjogren’s syndrome. Sjogren’s can overlap with other connective tissue diseases, but this is less likely than dysphagia which is part of the syndrome.

Question:

A 24-year-old bi-polar woman comes to the GP clinic as she wants a review of her medications as she's wanting to become pregnant. She is currently taking lithium as a mood stabiliser.

Which foetal abnormality would you be concerned about with this medication?

A.'Grey baby' syndrome

B.Ebstein's anomaly

C.Craniofacial abnormalities

D.Neural tube defects

E.Ototoxicity

Answer:Ebstein's anomaly

Explanation:

Lithium can cause cardiac foetal abnormalities

Important for meLess important

Lithium can cause cardiac foetal abnormalities - Ebstein's anomaly

'Grey baby' syndrome is associated with chloramphenicol.

Craniofacial abnormalities are associated with ACE inhibitors, alcohol, carbamazepine, valproate and warfarin.

Neural tube defects are associated with carbamazepine and valproate.

Ototoxicity is associated with aminoglycosides.

Question:

A 31-year-old lady presents with a two day history of general malaise and breathlessness. Her past medical history and family history are unremarkable. She does not drink alcohol or smoke.

On examination, her sclerae are found to be jaundiced and mild hepatosplenomegaly is noted. Observations show she is tachycardic and tachypneic.

Hb 45 g/L Male: (135-180)

Female: (115 - 160)

Platelets 500 \* 109/L (150 - 400)

WBC 12.3 \* 109/L (4.0 - 11.0)

Bilirubin 112 µmol/L (3 - 17)

ALP 87 u/L (30 - 100)

ALT 33 u/L (3 - 40)

γGT 23 u/L (8 - 60)

Albumin 37 g/L (35 - 50)

Peripheral blood smear mild spherocytosis

Which of these tests is most likely to confirm the diagnosis?

A.EMA binding assay

B.Direct Coombs test

C.Indirect Coombs test

D.Serum haptoglobin

E.Hepatitis viral screen

Answer:Direct Coombs test

Explanation:

Spherocytes are found in autoimmune haemolytic anaemia as well as hereditary spherocytosis

Important for meLess important

The FBCs reveal severe anaemia, and the LFTs together with the examination findings demonstrate a pre-hepatic jaundice (only bilirubin is deranged). The most likely cause is therefore haemolysis. The peripheral blood smear narrows the differentials, as it shows spherocytes which are found in hereditary spherocytosis and autoimmune haemolytic anaemia. In hereditary spherocytosis, the anaemia is usually mild to moderate, more chronic, and may have a family history. Autoimmune haemolytic anaemia is therefore more likely.

The direct Coombs test would confirm autoimmune haemolytic anaemia and is therefore the answer. The indirect test is typically only used for Rhesus haemolytic disease of the newborn.

EMA binding assay is the test for hereditary spherocytosis.

Serum haptoglobin reductions are evidence of haemolysis, but not a specific cause of haemolysis.

Hepatitis viral screening would not be indicated here as ALT is not deranged so the jaundice is not intra-hepatic.

Question:

A 50-year-old woman presents with petechiae, purpura and epistaxis. She had an upper respiratory tract infection 5 weeks ago. She does not have a family history of bleeding disorder. Her blood test showed:

Platelets 80 \* 109/L (150 - 400)

Based on the most likely diagnosis, what is the first-line treatment for this patient?

A.Fresh frozen plasma (FFP) and cryoprecipitate transfusion

B.Intravenous prednisolone

C.Oral prednisolone

D.Pooled human immunoglobulin (IVIG)

E.Red blood cells (RBC) transfusion

Answer:Oral prednisolone

Explanation:

First-line treatment for ITP is oral prednisolone

Important for meLess important

The correct answer is oral prednisolone. The patient presented with petechiae, purpura and epistaxis, with a blood result of thrombocytopenia. This is a typical picture of immune thrombocytopenic purpura (ITP). This is an autoimmune condition characterised by low platelets. The history of respiratory tract infection also hints at ITP. The first-line treatment for ITP is oral prednisolone.

FFP and cryoprecipitate transfusion are not necessary when the patient does not have any major haemorrhage. FFP is used to correct coagulation factor deficiency and disseminated intravascular coagulation. Cryoprecipitate is used to replace fibrinogen. Neither is used for thrombocytopenia and are indicated in massive transfusion.

Intravenous prednisolone does not exist.

Pooled normal human immunoglobulin (IVIG) is used as a second-line treatment in ITP. It raises the platelet count quicker than steroids, therefore may be used if active bleeding or an urgent invasive procedure is required.

RBC transfusion is indicated when patients have major haemorrhage or severe anaemia. It is not used in patients with ITP.

Question:

Paramedics handover a middle-aged man who has been in a road traffic accident to the emergency department team. They report that his last Glasgow coma scale (GCS) score was 10 thirty minutes ago. You are asked to repeat his score. On examination he is not opening his eyes to any stimulus, he is making incomprehensible sounds and he withdraws to pain. You notice he has an obvious open left tibial fracture and his leg is bleeding heavily.

What is the most important immediate action that needs to be taken by the clinical team?

A.Arrange for emergency O- blood to be given

B.Give stat IV fluids

C.Intubation by a clinician with advanced airway skills

D.Take routine blood tests and samples for group and save

E.Update the next of kin

Answer:Intubation by a clinician with advanced airway skills

Explanation:

Intubate if the GCS is less than 8

Important for meLess important

This patient's GCS = 7 (E1, V2, M4). Therefore he requires emergency intubation by a suitably trained clinician to secure his airway, as his GCS is less than 8. This is the most immediate action that needs to be taken as he is otherwise at risk of losing his airway and deteriorating rapidly within seconds to minutes.

Arranging for emergency O- blood to be given will likely be an important step in managing this patient as he is bleeding heavily. However, a lost airway will kill him sooner than blood loss, so it is not the first thing that should be done. Having said that, in reality, when there is a large team available to support a patient, the emergency blood could be arranged while the patient is being intubated.

We know this patient has an open fracture and is bleeding, so giving IV fluids will be an important measure to help stabilise him, especially while blood for transfusion is being sourced. Nonetheless, giving IV fluids is not as crucial as securing his airway.

This patient will likely need emergency theatre and a blood transfusion due to his open fracture. Therefore blood tests including group and save will be important. This is the case even if the patient is given emergency O- blood in the emergency department, as he may need ongoing transfusions after he has been stabilised, so it will be useful to know his blood group. It will also be important to find out his haemoglobin and check his clotting factors regularly. However, the most critical thing is to intubate to secure his airway first.

In any emergency case such as this where there is a high risk of patient morbidity and mortality, the patient's next of kin should be updated promptly. Additionally, in circumstances such as this, where the patient is unconscious, you may need to speak to the next of kin to learn details about the patient's medical history and to try and make decisions in the patient's best interests. Nonetheless, this should be done after emergency interventions have been completed to stabilise the patient.

Question:

A 45-year-old woman is seen by her nephrologist following allogeneic renal transplant for end-stage renal failure. She continues to take prednisolone, azathioprine and ciclosporin. What complication is this patient most at risk of?

A.Colorectal carcinoma

B.Lung cancer

C.Ovarian carcinoma

D.Breast cancer

E.Squamous cell carcinoma

Answer:Squamous cell carcinoma

Explanation:

Patients who have received an organ transplant are at risk of skin cancer (particularly squamous cell carcinoma) due to long-term use of immunosuppressants

Important for meLess important

Patients on long-term immunosuppression for organ transplantation require regular monitoring as they are at increased risk of skin malignancy. Patients should be educated about minimising sun exposure to reduce the risk of squamous cell carcinomas and basal cell carcinomas.

Question:

A 59-year-old man presents to his general practitioner accompanied by his wife. His wife expresses concern that he has not been himself lately. She says that he used to be shy, but that over the last year he has become much louder to the extent that now he is so loud that he is the centre of attention at events. She has also noticed that he often makes inappropriate comments and feels that he is no longer able to empathise with her. She reports that he has been eating a large amount of fatty food and carbohydrates despite being very health-conscious all his life. She has not noticed that he is particularly forgetful, or that he gets lost. She recalls that his mother died aged 65 from a neurological condition but cannot remember the name of it. His neurological examination is normal.

Which of the following conditions is this man likely to be suffering from?

A.Alzheimer's disease

B.Bipolar disorder

C.Lewy body dementia

D.Frontotemporal dementia

E.Vascular dementia

Answer:Frontotemporal dementia

Explanation:

Frontotemporal lobar degeneration: Gradual-onset dementia at a young age with relatively preserved memory and visuospatial skills

Important for meLess important

This patient has presented with a gradual onset of personality change and social conduct problems at a relatively young age with preserved memory and visuospatial skills. His mother died at 65 years of age from a similar neurological problem. This condition is likely to be Frontotemporal dementia (Pick's disease). The other forms of dementia present rather differently and can be read about in the PassMedicine textbook. Bipolar disorder is unlikely to develop so insidiously over 1 year and the family history is strongly associated with Pick's disease.

Question:

A 62-year-old woman with localised breast cancer decides to start tamoxifen therapy. She is otherwise fit and well, with a past medical history of well-controlled hypertension (on amlodipine) and a total hysterectomy with bilateral salpingo-oophorectomy 4 years ago.

Which of the following is the most important for the woman to be counselled on, regarding the proposed therapy?

A.Increased cholesterol level

B.Increased risk of endometrial cancer

C.Increased risk of osteoporosis

D.Increased risk of ovarian cancer

E.Increased risk of venous thromboembolism

Answer:Increased risk of venous thromboembolism

Explanation:

Tamoxifen therapy increases the risk of venous thromboembolism

Important for meLess important

Tamoxifen is a selective oestrogen receptor modulator (SERM), commonly used in the management of oestrogen receptor-positive breast cancer. It can commonly be used following surgery to reduce the chance of recurrence or to prevent the development of cancer in the other breast. As a SERM, tamoxifen selectively blocks oestrogen from binding to receptors in the breast tissue, reducing the stimulation for oestrogen receptor-positive breast cancer to replicate. However, whilst it blocks oestrogen binding in the breast, it is believed that tamoxifen causes oestrogen-like effects at other sites. This oestrogen-like activity is believed to be responsible for an increased risk of venous thromboembolism.

Increased cholesterol level is incorrect. It has been described that tamoxifen can decrease total serum cholesterol (in particular reducing low-density lipoproteins (LDLs)), and therefore this is an incorrect answer.

Increased risk of endometrial cancer is not the correct answer. Whilst tamoxifen is suspected to cause an oestrogen-like effect in endometrial tissue (increasing the risk of endometrial cancer), this patient has had a total hysterectomy. This risk is therefore not the most important piece of information to counsel the woman on.

Increased risk of osteoporosis is incorrect. Tamoxifen is believed to exert an oestrogen-like effect on bone tissue, causing slowed bone breakdown. This, therefore, reduces the risk of osteoporosis and can be seen as an advantage of tamoxifen therapy.

Increased risk of ovarian cancer is an incorrect answer. It has been described that tamoxifen can cause an increased risk of follicular cysts in the ovaries, and therefore may increase the risk of ovarian cancer, however, this has been more commonly described in pre-menopausal women. Due to this, plus the fact that the woman has had her ovaries removed during her previous surgery, this risk is not the most important to counsel the patient with.

Question:

A 26-year-old woman presents to her GP with painful ulcers of the genital region. She also describes fever, headache, malaise and dysuria. She is sexually active and recently has a new partner. She has no significant past medical history.

On examination, she has multiple, tender erythematous ulcerations in the genital area. As well as this, she has bilateral tender inguinal lymphadenopathy. Aside from mild pyrexia, her other observations are normal.

Given the likely diagnosis, which of the following is the investigation of choice?

A.Gram stain

B.Nucleic acid amplification test

C.Serology

D.Viral culture

E.Ziehl–Neelsen stain

Answer:Nucleic acid amplification test

Explanation:

Nucleic acid amplification tests (NAAT) are the investigation of choice in genital herpes

Important for meLess important

The diagnosis here, given the history and examination findings, is genital herpes. This has classically been thought to be caused by herpes simplex virus-2 (HSV-2), whereas HSV-1 causes oral sores. However, there is now thought to be considerable overlap. The correct answer is the nucleic acid amplification test (NAAT) - this is considered superior to viral culture in terms of sensitivity.

Gram staining is used with regards to bacterial identification. As genital herpes is caused by a virus, it would not be useful here.

Serology may be useful in certain situations, such as recurrent genital ulceration where a cause is unknown. However, with an initial presentation like this, NAAT would be more appropriate.

Viral culture is still used in some places to establish the diagnosis, although it is largely being superseded by NAAT due to its superior reliability.

Ziehl-Neelsen staining is incorrect - this is used to identify acid-fast bacilli such as Mycobacterium tuberculosis.

Question:

A 63-year-old man is brought into the emergency department by ambulance due to the sudden onset of left-sided weakness. He has a past medical history of hypercholesterolemia and TIA.

On examination, his right pupil is enlarged with the eye pointed outwards and downwards.

What is the most likely diagnosis?

A.Bell’s palsy

B.Lacunar stroke

C.Lateral pontine syndrome

D.Wallenberg syndrome (lateral medullary syndrome)

E.Weber’s syndrome

Answer:Weber’s 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

Weber’s syndrome is the correct answer. This is a type of brainstem stroke, specifically in the midbrain. It occurs due to an occlusion in a branch of the posterior cerebral artery. The syndrome is characterised by an ipsilateral cranial nerve III palsy (oculomotor nerve) and contralateral hemiparesis (weakness). This fits the scenario described above as the man has experienced a right oculomotor nerve lesion shown by the enlarged pupil due to loss of parasympathetic innervation and ‘down and out’ pupil position, due to only cranial nerve IV and cranial nerve VI remaining.

Bell's palsy is incorrect. A presentation of unilateral facial droop with eyebrow involvement would indicate Bell's palsy. However, the involvement of limb weakness excludes this option as Bell's palsy only affects the facial nerve.

Lacunar stoke is incorrect. Lacunar stroke involves an infarction to the subcortical region of the brain. Hemiparesis and hemisensory loss are common findings. A risk factor is hypertension. The patient would report a change in temperature sensation, touch and taste, as well as a sign of ataxia. There are no eye signs or symptoms in a lacunar stroke so this answer is unlikely.

Lateral pontine syndrome is incorrect. This is a stroke affecting the pons meaning the cranial nerve nuclei arising from the pons are affected here. Facial paralysis and deafness are common findings on the same side as the infarction. This is accompanied by contralateral weakness. Facial paralysis and deafness are not a concern in this patient making this an unlikely diagnosis.

Wallenburg syndrome (lateral medullary syndrome) is incorrect. This presents with ipsilateral facial pain and temperature loss. Along with contralateral limb/ torso pain, ataxia and nystagmus. These signs have not been reported in this patient.

Question:

A 35-year-old woman, who is accompanied by her husband, presents to her GP exhibiting strange behaviour. Her husband reports that the changes have mostly taken place over the last week and that he has never witnessed this behaviour before. He describes often waking to find her walking around the house and talking to people who don't appear to be there. During the consultation, the patient seems distracted and occasionally smiles and waves at the wall behind you. There is no personal or family history of psychiatric illness. The patient does not appear to be distressed and politely asks if she can leave as she believes the appointment is a waste of time.

The patient usually takes loratadine 10mg once daily for hay-fever, salbutamol and beclometasone inhalers for asthma, and has recently started a combined oral contraceptive pill for contraception. She is also taking a course of prednisolone tablets following a recent exacerbation of her asthma.

Which of her medications is most likely to be the cause of her symptoms?

A.Loratadine

B.Salbutamol inhaler

C.Beclometasone inhaler

D.Combined oral contraceptive pill

E.Prednisolone

Answer:Prednisolone

Explanation:

Sudden onset psychosis following course of corticosteroids – consider steroid-induced psychosis

Important for meLess important

Steroid-induced psychosis is a recognised side effect of corticosteroid use. In this scenario, both her beclometasone inhaler and prednisolone are corticosteroids, however prednisolone would certainly be a higher dose than beclometasone and would therefore be the most likely cause of her symptoms.

Question:

A 45-year-old lady presents to the pre-operative clinic for assessment before a cholecystectomy. She smokes 20 cigarettes per day for the past 10 years and eats a high fat diet despite advice from her GP. She takes metformin 1g b.d. for type 2 diabetes and amlodipine 10mg once a day for hypertension. She states she monitors her blood sugar and pressure at least three times a day. Her blood sugar and blood pressure are well controlled on her current medication. Based on this information alone, what American Society of Anaesthesiologists Classification (ASA) class does this lady fall into?

A.ASA V

B.ASA II

C.ASA I

D.ASA III

E.ASA IV

Answer:ASA II

Explanation:

This lady belongs to ASA II due to her smoking history, well controlled diabetes and blood pressure. A high BMI is likely due to her high fat diet but this needs to be confirmed.

Question:

A 34-year-old man with a history of polyarthralgia, back pain and diarrhoea is found to have a 3 cm red lesion on his shin which is starting to ulcerate. What is the most likely diagnosis?

A.Systemic Shigella infection

B.Syphilis

C.Metastatic colon cancer

D.Erythema nodosum

E.Pyoderma gangrenosum

Answer:Pyoderma gangrenosum

Explanation:

This patient is likely to have ulcerative colitis, which has a known association with large-joint arthritis, sacroilitis and pyoderma gangrenosum

Question:

A 55-year-old male presented following a collapse. In his initial workup, he is found to have postural hypotension despite being on no anti-hypertensives. He was recently diagnosed with idiopathic Parkinson's disease and was started on Levodopa three months ago, but has noticed no substantial change from using it. He also confides that he has been having problems with impotence and has started using a catheter due to frequent episodes of urinary retention. What is the most likely diagnosis?

A.Multi-system atrophy

B.Normal progression of idiopathic Parkinson's disease

C.Normal pressure hydrocephalus

D.Progressive supranuclear palsy

E.Corticobasal syndrome

Answer:Multi-system atrophy

Explanation:

The correct answer is multi-system atrophy due to classical history of poor response to levodopa, impotence, urinary retention and age group.

The classical triad of idiopathic Parkinson's disease is rigidity, a resting tremor and bradykinesia (slowness of movement), collectively known as parkinsonism. Other features can include a shuffling gait, mask-like face, micrographia (small handwriting) and dementia.

Normal pressure hydrocephalus is characterised by progressive mental impairment and dementia, difficulty walking and impaired bladder control. The gait disturbance is often the most noticeable symptom, it can resemble a parkinsonian gait but unlike Parkinson's there is no rigidity or tremor.

Progressive supranuclear palsy starts with patients having impaired balance and therefore being prone to many falls. On examination, they have a vertical gaze palsy. It has a symmetrical onset and is poorly responsive to levodopa, unlike Parkinson's disease.

Corticobasal syndrome begins as a movement disorder, with a unilateral absence of movements and muscle rigidity with a tremor. It is a progressive neurological disorder that can also affect cognition.

Question:

A 25-year-old woman attends the haematology clinic with a past medical history of antiphospholipid syndrome. She informs you that she is pregnant at 12 weeks gestation. She has had a previous deep vein thrombosis associated with antiphospholipid syndrome (APS) for which she completed a 6-month course of warfarin.

How should she be managed during pregnancy?

A.Aspirin and LMWH

B.LMWH

C.Observation

D.Unfractionated heparin

E.Warfarin

Answer:Aspirin and LMWH

Explanation:

Antiphospholipid syndrome in pregnancy: aspirin + LMWH

Important for meLess important

Aspirin and LMWH is correct. The patient has had a previous VTE associated with antiphospholipid syndrome (APLS) and therefore has an extremely high risk of VTE during pregnancy. Women with VTE associated with antiphospholipid syndrome (APS) should be offered thromboprophylaxis with higher dose LMWH (either 50%, 75% or full treatment dose) antenatally and for 6 weeks postpartum or until returned to oral anticoagulant therapy after delivery. The addition of aspirin is also recommended to reduce the risk of pre-eclampsia.

LMWH is incorrect. The patient should indeed be started on LWMH however aspirin is also recommended to reduce the risk of pre-eclampsia.

Observation is incorrect. The patient has a substantial risk factor for VTE and as such needs prophylactic anticoagulation.

Unfractionated heparin is incorrect. Unfractionated heparin is rarely required during pregnancy. The main indication would be in the management of an acute VTE during labour due to the benefits of using a very short half-life product in a patient with a high risk of bleeding.

Warfarin is incorrect. Warfarin is teratogenic and is therefore rarely used during pregnancy. The main indication for its use in pregnancy would be high-risk mechanical heart valves.

Question:

A 60-year-old lady with a background of atrial fibrillation and bowel cancer undergoes a laparotomy for small bowel obstruction. During the operation her temperature is recorded at 34.8 ºC. Her blood pressure is 98/57 mmHg. The surgeon notes that the patient is bleeding more than would be expected.

Which of the following may account for the excessive bleeding?

A.Use of intra-operative tranexamic acid

B.Intra-operative hypothermia

C.Intra-operative hypotension

D.Active malignancy

E.Cessation of warfarin prior to surgery

Answer:Intra-operative hypothermia

Explanation:

Thermoregulation is impaired in the perioperative period

Important for meLess important

Thermoregulation is impaired in the peri-operative period. This happens in a number of different ways:

Administration of unwarmed intravenous fluids, inhalation gases or irrigation of body cavities

Exposure to cold theatre environment

Use of cool skin preparation fluids

Use muscle relaxants prevents shivering

Spinal or epidural anaesthesia prevents peripheral vasoconstriction via reduced sympathetic tone. This causes increased heat loss at the peripheries

The consequences of hypothermia are many and not all are fully understood. As the proteins and enzymes in our body are designed to work at optimum pH and temperature, any deviation from this will effect their function. As a result, anaesthetic drugs are metabolised more slowly and platelet, coagulation factors and the immune system are less effective.

Tranexamic acid is an anti-fibrinolytic and prevents the breakdown of fibrin. It is being used increasingly in the setting of trauma and major haemorrhage.

Intra-operative hypertension may produce excess bleeding as blood is leaking out of the cut vessels under a higher pressure.

Active malignancy confers a hypercoagulable state. However, tumours themselves may have an abundance of friable vessels due neovascularisation and if erroneously cut then they may bleed excessively.

Warfarin is stopped prior to surgery in an attempt to prevent excessive bleeding.

Question:

A 45-year-old man attends a sexual health clinic following an episode of unprotected receptive anal intercourse (URAI) with a casual male partner 12 hours previously. The partner is of unknown HIV status and the patient does not wish to get in contact with them.

The patient is counselled regarding the risk of HIV transmission and opts for a course of post-exposure prophylaxis (PEP).

Pre-treatment liver and renal function testing are normal.

What is the recommended duration of treatment?

A.3 days

B.7 days

C.14 days

D.28 days

E.42 days

Answer:28 days

Explanation:

Post-exposure prophylaxis for HIV: oral antiretroviral therapy for 4 weeks

Important for meLess important

Post-exposure prophylaxis (PEP) is a course of antivirals prescribed to those at high risk of contracting HIV. PEP should be initiated immediately after exposure but can be considered for up to 72 hours. According to the British Association for Sexual Health and HIV (BASHH) guidelines, the length of treatment Is 28 days (4 weeks).

3, 7 and 14 days are incorrect. Data on the optimum duration of PEP is limited, as carrying out randomised control studies in humans is considered unethical. However, studies using macaque monkeys demonstrated optimal protection at 28 days, with 0% protection with three days duration and 50% protection with ten days protection. Case-controlled studies of healthcare workers exposed to HIV occupationally have also demonstrated reduced efficacy with durations of less than 28 days.

42 days is incorrect. As observational data demonstrates optimal protection at 28 days, a longer course does not provide additional clinical benefit but carries the risk of side effects, including gastrointestinal disturbance, renal toxicity and liver toxicity.

Question:

A 53-year-old woman is seen in the one-stop breast clinic for triple assessment after a screening mammogram showed a suspicious lesion.

Before seeing her, you review some recent blood tests from her GP:

Hb 121 g/L Male: (135-180)

Female: (115 - 160)

Platelets 242 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

Calcium 2.6 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) 4.5 mU/L (0.5-5.5)

Free thyroxine (T4) 12 pmol/L (9.0 - 18)

Amylase 203 U/L (70 - 300)

Uric acid 0.46 mmol/L (0.18 - 0.48)

Creatine kinase 1200 U/L (35 - 250)

What is the most likely underlying cause of the abnormal blood test result?

A.Drug-induced

B.Myocardial infarction

C.Polymyalgia rheumatica

D.Polymyositis

E.Rhabdomyolysis

Answer:Polymyositis

Explanation:

Malignancy + raised CK → ?polymyositis

Important for meLess important

This patient is likely to have breast cancer given her age and the abnormal mammogram scan. The blood tests show a raised creatinine kinase (CK). Suspected malignancy with a raised creatinine kinase should prompt thoughts of polymyositis, a condition that is associated with cancer. Of course, a detailed history should be taken before making any diagnosis - this patient would probably report proximal muscle weakness (e.g. shoulders) and tenderness.

Drug-induced - many drugs can cause a raised CK but there's no reason to suspect that in this case, and that wouldn't account for the ?malignancy. The most common drug causing raised CK is statins.

Myocardial infarction (MI) is another cause of raised CK, but there's nothing suggestive of an MI in the stem.

Polymyalgia rheumatica may present similarly to polymyositis but it does not cause a raised CK. It instead causes raised inflammatory markers e.g. ESR, CRP. CK is a good way to differentiate between polymyalgia rheumatica and polymyositis.

Rhabdomyolysis occurs when damaged skeletal muscle breaks down and releases myoglobin. This causes a raised CK, at least 5X the upper limit of normal. This classically occurs in elderly patients after a long lie following a fall.

Question:

A 68-year-old male presents to the emergency department with crushing chest pain radiating up his neck. His heart rate is 72 beats/min with a regular pulse. Electrocardiogram demonstrates sinus rhythm with no ST-elevation, however point-of-care troponin is elevated.

Although the patient is not at high-risk of bleeding, a joint decision is made that he is not for percutaneous coronary intervention at this point.

He has already received aspirin.

Which of the following medications should also be administered?

A.Clopidogrel

B.Amiodarone

C.Prasugrel

D.Ticagrelor

E.Warfarin

Answer:Ticagrelor

Explanation:

NSTEMI (managed conservatively) antiplatelet choice

aspirin, plus either:

ticagrelor, if not high bleeding risk

clopidogrel, if high bleeding risk

Important for meLess important

Dual antiplatelet therapy (DAPT) is indicated in the conservative management of non-ST elevation myocardial infarction (NSTEMI). Ticagrelor is the correct option as this is a case of NSTEMI with low bleeding risk, as stated.

Clopidogrel should be administered if this patient were at high risk of bleeding and undergoing conservative management.

Amiodarone is incorrect. There is no arrhythmia present, hence there is no indication for amiodarone.

Prasugrel should be administered as part of a DAPT regime when patients are undergoing PCI.

Warfarin is incorrect as an anticoagulant that inhibits the production of clotting factors II, VII, IX and X and not indicated for use in NSTEMIs.

Question:

A 47-year-old woman presents with loin pain and haematuria. Urine dipstick demonstrates:

Blood ++++

Nitrites POS

Leucocytes +++

Protein ++

Urine culture shows a Proteus infection. An x-ray demonstrates a stag-horn calculus in the left renal pelvis. What is the most likely composition of the renal stone?

A.Xanthine

B.Calcium oxalate

C.Struvite

D.Cystine

E.Urate

Answer:Struvite

Explanation:

Stag-horn calculi are composed of struvite and form in alkaline urine (ammonia producing bacteria therefore predispose)

Important for meLess important

Question:

A 24-year old female presents to general practice with a few-weeks history of diarrhoea, passage of mucus, lethargy and abdominal discomfort relieved by defaection. A blood test is arranged showing the following:

Na+ 138 mmol/l

K+ 4.0 mmol/l

Urea 4.5 mmol/l

Creatinine 80 µmol/l

Hb 11 g/dl

Platelets 320 \* 109/l

WBC 4.0 \* 109/l

CRP 1.0 mg/l

Tissue transglutaminase antibody neg

Which one of the following agents would be most suitable for her?

A.Linaclotide

B.Codeine

C.Sertraline

D.Loperamide

E.Amitriptyline

Answer:Loperamide

Explanation:

This is a clinical diagnosis of irritable bowel syndrome, supported by relief on defaecation as well as a panel of normal blood tests. The first-line anti-motility agent for this presentation of diarrhoea would be loperamide, as recommended by NICE guidelines. Whilst codeine may be effective in minimising diarrhoea, it has no established roles in management of IBS.

Linaclotide is a laxative that is recommended in use of IBS if symptoms of constipation predominate, if the patient has had constipation for 12 months and if trial of the more conventional laxatives fail.

Sertraline and amitriptyline certainly is a second-line pharmacological treatment if anti-motility treatment, laxatives and antispasmodics have failed to improve symptoms.

Question:

You see a 60-year-old woman who recently had urea and electrolytes performed as part of a medication review. You also have previous from 4 months ago to compare with. She has a history of hypertension and takes ramipril. On examination, her blood pressure is 135/80mmHg.

Current blood results:

Na+ 135 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 6.0 mmol/L (2.0 - 7.0)

Creatinine 125 µmol/L (55 - 120)

eGFR 54 ml/min/1.73m2

Blood results from 4 months ago:

Na+ 136 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 122 µmol/L (55 - 120)

eGFR 55 ml/min/1.73m2

What additional medication should this woman be prescribed?

A.Aspirin

B.Atorvastatin

C.Clopidogrel

D.Losartan

E.Metformin

Answer:Atorvastatin

Explanation:

All patients with chronic kidney disease should be started on a statin

Important for meLess important

According to The National Institute for Health and Care Excellence (NICE) criteria, this patient has chronic kidney disease (CKD) as she has a persistent reduction in her renal function, with an eGFR of <60 on 2 occasions, on blood tests, performed more than 3 months apart. NICE recommend all patients with CKD should be prescribed a statin for the primary or secondary prevention of cardiovascular disease (CVD).

This patient does not have any conditions that meet the NICE criteria for antiplatelet treatment for the secondary prevention of CVD e.g. acute coronary syndrome or peripheral arterial disease. Aspirin and clopidogrel are not licensed for the primary prevention of CVD. Aspirin can be considered if a patient has a high risk of stroke or myocardial infarction but there is not enough information in the question to be able to assess this risk. Given the patient has CKD a statin is the only medication recommended by NICE.

Losartan is an angiotensin II receptor blocker used to treat hypertension. However, this patients' blood pressure is well controlled so this isn't required. Also, as the patient has CKD, a combination of renin-angiotensin system antagonists should not be prescribed to patients with CKD and this patient is already taking ramipril.

This patient is not diabetic and metformin has no role in the management of CKD alone.

Question:

You are reviewing the growth of a 4-week-old neonate. She has a length on the 35th percentile, weight on the 42nd percentile and a head circumference on the 4th percentile.

Which of the following is the most likely cause of her microcephaly?

A.Thalassaemia

B.Turner's syndrome

C.Achondroplasia

D.Foetal alcohol syndrome

E.Cerebral palsy

Answer:Foetal alcohol syndrome

Explanation:

Foetal alcohol syndrome - associated with microcephaly

Important for meLess important

Foetal alcohol syndrome is a common cause of microcephaly, with other physical features including: smooth philtrum, hypoplastic upper lip and epicanthic folds.

Thalassaemia, Turner's syndrome and cerebral palsy do not classically affect head size.

Achondroplasia is associated with macrocephaly and frontal bossing rather than microcephaly.

It is important to be able to identify the different physical features of congenital conditions for exam purposes and to aid diagnosis.

Question:

You are called to see a 91-year-old woman due to a skin rash. She has had a long admission following a fall and clavicular fracture. Her rehabilitation has been limited due to symptomatic postural hypotension and she is on day 5 of a course of pivmecillinam for a urinary tract infection.

On examination there are large, flaccid, blisters over her arms and trunk with an erythematous macular rash. There are purpuric areas over her chest. In some areas, there is desquamation of the blisters exposing red dermis. She has red, crusted lips with multiple deep ulcers inside her mouth.

What is the most likely diagnosis?

A.Erysipelas

B.Erythema multiforme

C.Pemphigus vulgaris

D.Septicaemia

E.Stevens-Johnson syndrome

Answer:Stevens-Johnson syndrome

Explanation:

Mucosal involvement is prominent and severe in Stevens-Johnson syndrome

Important for meLess important

The most likely diagnosis here is Stevens-Johnson syndrome (SJS). The patient has recently been started on pivmecillinam, a penicillin-based medication, and has subsequently developed a blistering skin rash in keeping with SJS. Often SJS is preceded by a 1-3 day history of flu-like illness before the eruption starts, most commonly on the chest and then spreading to the face and limbs. Sole and palms are usually spared.

Stevens-Johnson syndrome is the correct answer. There is a classic description of the SJS rash and newly started medication. The severe mucosal involvement is typical and genital and conjunctival involvement is also commonly seen. These patients require regular ophthalmological input to prevent ocular complications.

Erythema multiforme is another immune-mediated skin rash that can occur in response to an infection in 90% of cases (HSV, cytomegalovirus, Epstein Barr). Medications can also be the precipitant. The appearance is described as erythematous papules then becoming the typical 'target' lesions. It can affect the mucus membranes. In comparison to SJS, the lesions start peripherally and spread centrally.

Pemphigus vulgaris is a cause of blistering skin rash predominantly in the elderly population. Blisters are flaccid and commonly involve the oral mucosa. The course is usually chronic and it is rare. In this case, the onset is extreme and abrupt and so pemphigus is less likely.

Septicaemia can cause a purpuric rash, but the purpura in the stem are more likely a result of skin necrosis secondary to SJS. It would not explain the other examination findings including oro-mucosal involvement.

Erysipelas is an infection of the superficial layers of the skin. It is usually present in a well-defined area rather than the diffuse rash described in the stem.

Question:

A 24-year-old man presents to his local emergency department at 4 am. He reports that he took 32 x 500mg tablets of paracetamol at 4 pm the previous evening following an argument with his partner. He reports feeling well at present but wants 'to be checked out'.

On examination:

Heart rate: 72 beats per minute

Blood pressure: 126/83 mmHg

SpO2: 99% on room air

Respiratory rate: 12 breaths per minute

Temperature: 36.6ºC

Weight 75kg

The patient has an IV cannula in situ, and blood tests are taken in triage (including plasma-paracetamol concentration).

What is the most appropriate immediate course of action?

A.Administer activated charcoal

B.Await blood results and consider acetylcysteine infusion

C.Commence acetylcysteine infusion without waiting on blood results

D.Discharge home with worsening advice

E.Request a liaison psychiatry review then discharge home

Answer:Commence acetylcysteine infusion without waiting on blood results

Explanation:

Paracetamol overdose: if presentation 8-24 hours after ingestion of an overdose of more than 150 mg/kg start acetylcysteine even if the plasma-paracetamol concentration is not yet available

Important for meLess important

The correct answer is to commence acetylcysteine infusion without waiting on blood results . If a patient presents 8-24 hours after ingestion and has taken more than 150mg/kg of paracetamol then acetylcysteine should be commenced.

In this question, the patient has taken 16g of paracetamol. This is more than 150mg/kg- which given this patient's weight would amount to 11.25g of paracetamol (150mg x 75kg). This means that treatment with acetylcysteine should be commenced.

Administer activated charcoal is incorrect. This is sometimes used to reduce absorption should patients present within 1 hour of ingestion of the overdose.

Await blood results and consider acetylcysteine infusion is incorrect. Given how well the patient is, this could be a reasonable course of action if the patient had not met the above criteria for commencing acetylcysteine. Plotting the paracetamol concentration on the nomogram makes it easy to see if the patient is above or below the treatment line.

Discharge home with worsening advice is inappropriate as this patient meets the criteria for commencing acetylcysteine. In addition, we do not have his blood results back which may show massively deranged LFTs or clotting parameters despite the patient appearing well at present.

Request a liaison psychiatry review then discharge home is incorrect. This man will likely benefit from some psychiatry input, however, it is important that he is treated appropriately from a physical point of view too.

Question:

A 23-year-old male presents to the emergency department due to trauma to his right hand. He accidentally cut his hand with a knife when he was gardening. There was some bleeding which he controlled by compression with a cloth. He has had five doses of tetanus vaccine in the past, with the last dose at 14 years old. The wound is cleaned thoroughly.

What is the next step in management?

A.Benzodiazepine

B.Supportive management only

C.Tetanus immunoglobulins

D.Tetanus vaccine

E.Tetanus vaccine and immunoglobulins

Answer:Supportive management only

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

If a patient has had five 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. This patient already had five doses of the vaccine, and the last dose was less than ten years ago (i.e. nine years ago). Only supportive management with wound care is enough for this patient.

Benzodiazepine is needed for muscle spasm control in tetanus patients. Tetanus patients are hospitalised and also given antibiotics (metronidazole, penicillin). This patient has no tetanus. Current management step is prevention of tetanus.

A patient who had a full course of tetanus vaccines, with the last dose > 10 years ago, will need booster tetanus vaccine. Tetanus immunoglobulin is also suggested if the wound is high-risk tetanus prone wound.

Question:

This 60-year-old woman who is being treated for heartburn comes for review. She has developed some spots on her lips:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.CREST syndrome

B.Oesophageal cancer

C.Vitamin C deficiency

D.Peutz-Jeghers syndrome

E.Iron-deficiency anaemia

Answer:CREST syndrome

Explanation:

The heartburn may be explained by oesophageal dysmotility, a feature of CREST syndrome. The lesions on her lips are telangiectasia. She also has the typical tightening of the facial skin seen in patients with systemic sclerosis.

Question:

A 23-year-old woman is brought into the emergency department by her housemates. They explain that for the past 5 days, she has not slept or eaten, and she believes the government have given her a mission to stop global warming via television.

On examination, she is speaking very quickly and loudly. When asked how she feels, she explains what she heard through the television, including details such as the colour and size of the television, along with what day it was, the time and the weather, and then finally that she feels stressed.

What thought disorder does this woman have?

A.Circumstantiality

B.Echolalia

C.Flight of ideas

D.Knight's move thinking

E.Tangentiality

Answer:Circumstantiality

Explanation:

Circumstantiality is the inability to answer a question without giving excessive, unnecessary detail

Important for meLess important

Circumstantiality is correct. This patient is likely to be having a manic episode. The woman has had irrational thoughts for the past 5 days resulting in a lack of sleep and eating. If a mental state examination was done, speech could be described as loud with a pressure of speech. The belief that the government has given her a special mission to stop global warming is a delusion and upon her describing this delusion, she can be observed to have a formal thought disorder. She is providing excessively long answers, with unnecessary details, such as the colour of the television, before finally expressing that she feels stressed. This formal thought disorder is best described as circumstantiality, where patients cannot answer a question without giving excessive and unnecessary detail.

Echolalia is incorrect. This is the repetition of someone else's speech. This woman is not demonstrating echolalia as when asked a question, she is observed to answer the question with excessive detail, rather than repeat it back.

Flight of ideas is incorrect. Often seen in mania, this is an accelerated speech which results in the wandering of ideas that are connected to the previous topic. This woman is not changing topics making this incorrect.

Knight's move thinking is incorrect. This can be a feature of schizophrenia. It can be observed to involve leaps to different topics with poor associations to the previous topic, making the conversation very hard to follow. Knight's move thinking is not observed in this woman.

Tangentiality is incorrect. If a person starts a conversation and can be seen to wander or 'tangent' off to a new topic without returning, this is known as tangentiality. This woman is providing unnecessary details about the same topic and eventually answers the question, making this answer incorrect.

Question:

A 62-year-old gentleman with a background of myocardial infarction, congestive heart failure and chronic obstructive pulmonary disease attends for a diabetes review at his GP. He has recently been diagnosed with type 2 diabetes mellitus and despite a trial of lifestyle modifications his HbA1c is 56 mmol/mol. His GP decides to commence drug treatment.

Which of the following drugs would be contraindicated for this patient?

A.Metformin

B.Sitagliptin

C.Pioglitazone

D.Insulin

E.Gliclizide

Answer:Pioglitazone

Explanation:

Pioglitazone can cause fluid retention and is therefore contraindicated in patients with heart failure.

Question:

A 22-year-old woman requests emergency contraception the morning after an episode of unprotected sexual intercourse. She has a regular 28-day menstrual cycle and her last menstrual period started 8 days ago.

The woman has no gynaecological or other medical history and denies any gynaecological symptoms. She takes no regular medications, has no allergies and does not have any preference as to what type of emergency contraception she receives.

On examination, her BMI is 27kg/m².

What would the most effective method of emergency contraception be for this patient?

A.A copper intrauterine device

B.Advise emergency contraception is not required at this point in her cycle

C.An intrauterine system

D.Levonorgestrel

E.Ulipristal acetate (EllaOne)

Answer:A copper intrauterine device

Explanation:

A copper IUD is the most effective method of emergency contraception and should be offered to all women

Important for meLess important

A copper intrauterine device is the correct answer. According to NICE guidelines, it is the most effective form of emergency contraception (EC) and should be offered to all women seeking EC. It inhibits both fertilisation and implantation and has a pregnancy rate of under 0.1% if used correctly.

Advise emergency contraception is not required at this point in her cycle is incorrect. NICE advise women who request EC should receive it regardless of where they are in their cycle. According to the Faculty of Sexual and Reproductive Health, a woman's fertile period is considered to be the 6 consecutive days ending with (and including) the day of ovulation. This patient had unprotected sexual intercourse (UPSI) on day 7 and likely will not ovulate until day 14 due to her 28-day cycle. She is probably most fertile between and including days 9 and 14. However, theoretically, pregnancy is possible on most days in the cycle after UPSI and it can be difficult to determine if UPSI has occurred within the woman's fertile period. Therefore, EC should be given if requested no matter where the patient is in her cycle.

An intrauterine system (i.e. the 'hormonal coil') is incorrect. It is not currently recommended for EC as there is a lack of evidence regarding its effectiveness for this purpose.

Levonorgestrel is incorrect. This is because, although it would be suitable for this patient as she had UPSI within the last 24 hours and has likely not yet ovulated, it is not the most effective form of EC. It may be even less effective in those with a BMI over 26kg/m² as in this case.

Ulipristal acetate is incorrect. Although it would be suitable for this patient, as she has likely not yet ovulated and had UPSI within the last 24 hours, it is not the most effective form of EC.

Question:

Hannah is a 13-year-old who has presented to her GP complaining of having too many ‘spots’. On examination, she has a mix of open and closed comedones over her face. What is the first line management of her mild acne?

A.Topical benzoyl peroxide with clindamycin

B.Conservative management

C.Topical hydrocortisone

D.Topical benzoyl peroxide

E.Topical metronidazole

Answer:Topical benzoyl peroxide

Explanation:

Use non-antibiotic topical treatment first line for the management of acne

Important for meLess important

Use non-antibiotic topical treatment first line for the management of acne.

Benzoyl peroxide with clindamycin is the second line management option. Hydrocortisone is not used in the management of acne. Conservative management may be appropriate if the patient wishes to avoid treatment but is not routinely used in practice. Topical metronidazole is used in the management of acne rosacea.

Question:

A 5-month-old girl is brought to the paediatrics emergency department by her parents. Her parents report that she has had a fever for 2 days with reduced activity and feeding. On examination, she is not smiling, her respiratory rate is 49 breaths/minute (normal range: 30-60 breaths/minute) and her heart rate is 150 beats/minute (100-160 beats/minute). She also has reduced skin turgor and looks pale. A nurse looks up the NICE traffic light system to identify her risk of serious illness.

Which of the following symptom is most concerning in this patient?

A.Reduced activity and feeding

B.Reduced skin turgor

C.Age <6 months

D.Respiratory rate 49 breathes/minute

E.Heart rate 150 beats/minute

Answer:Reduced skin turgor

Explanation:

Reduced skin turgor is a red flag symptom in a child according to the NICE traffic light system

Important for meLess important

The correct answer is reduced skin turgor, which is a red flag symptom in a child according to the NICE traffic light system. This is used for identifying the risk of serious illness in children.

Decreased activity is an amber symptom.

Age <6 months is not a red flag symptom. Age 3-6 months with temperature >=39ºC is an amber flag symptom, while age <3 months with temperature >=38°C is a red flag symptom.

Respiratory rate >60 breaths/minute is a red flag symptom.

Heart rate >160 beats/minute, age <12 months is an amber flag symptom.

Question:

A 5-year-old female is brought to her general practice by her mother who is concerned that she may have an infection. She reports that for the past 4 days her daughter has been itching her anal and vaginal area, which seems to be particularly bad at night. She has also noticed some 'white threads' in her daughter's faeces which she is very concerned about.

Based on the likely diagnosis, what is the most appropriate management?

A.Hygiene advice only

B.Single dose of oral mebendazole for the daughter only and hygiene advice

C.Single dose of oral mebendazole for the entire household and hygiene advice

D.7 days of oral mebendazole for the daughter only and hygiene advice

E.7 days of oral mebendazole for the entire household and hygiene advice

Answer:Single dose of oral mebendazole for the entire household and hygiene advice

Explanation:

Mebendazole is first line therapy for treatment of threadworm

Important for meLess important

The likely diagnosis is threadworm infection. Threadworm most commonly affects young children and can cause anal itching and vulval itching in females. Threadworms are often visible in faeces and look like white pieces of thread, as described in this case. First-line treatment for threadworm infection is a single dose of mebendazole and NICE recommends that all household members are treated due to high transmissibility. Hygiene measures should be advised, such as good hand-washing, washing towels and bedding, and disinfecting surfaces.

Hygiene advice only is not recommended- mebendazole is required to eradicate the threadworm infection.

A single dose of oral mebendazole for the daughter only is incorrect - treatment should be given to all household members, not just the affected individual.

7 days of oral mebendazole for the daughter only is incorrect, as mebendazole is given as a one-off dose. If reinfection occurs, then a second dose may be required after 2 weeks. Furthermore, oral mebendazole should be given to the entire household, not just the affected individual.

7 days of oral mebendazole for the entire household is incorrect, as it should only be given as a one-off dose.

Question:

A 45-year-old male presents to the emergency department with retrosternal chest pain that is sharp in nature. The pain is constant and is worse when taking a deep breath in. These symptoms have been present for around 2 days and seem to be getting worse. He no past medical history but smokes 30 cigarettes per day.

An ECG is conducted and the results are shown below:

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

Based on the history and ECG, what is the most likely diagnosis?

A.Anteroseptal STEMI

B.Costochondritis

C.Inferior STEMI

D.Pericarditis

E.Pulmonary embolism

Answer:Pericarditis

Explanation:

The history and ECG point to a diagnosis of acute pericarditis. There is widespread ST elevation without reciprocal changes and marked PR depression. Pericarditis typically causes central pleuritic chest pain which is relieved when sitting up or leaning forwards. This patient should have an echocardiogram to confirm the diagnosis.

Anteroseptal STEMI would cause ST elevation within the territory of the left anterior descending artery (leads V1-V4), rather than widespread ST elevation as shown. Although it is important to consider acute coronary syndrome in this case, this typically causes central crushing chest pain rather than pleuritic chest pain.

Costochondritis can cause pleuritic chest pain, which is affected by positional changes. However, costochondritis does not cause any ECG changes.

Inferior STEMI would cause ST elevation in leads II, III, aVF only (the territory of the right coronary artery) rather than widespread ST elevation.

Pulmonary embolism (PE) is an important differential for pleuritic chest pain. This patient's smoking history also puts him at a higher risk of developing venous thromboembolism. However, a PE would not account for the widespread ST elevation and PR depression. The most common ECG finding in patients with PE is sinus tachycardia. It is important to differentiate between PE and pericarditis, as anticoagulation can precipitate cardiac tamponade in patients with pericarditis.

Question:

A 32-year-old primigravida woman attends her 20-week antenatal scan screening appointment. There have been no concerns up to this point of her pregnancy.

On examination, the midwife notes the woman's uterus to be 25cm. A subsequent ultrasound scan demonstrates polyhydramnios, ascites and fetal skin oedema.

What is the most common and likely underlying cause for this presentation?

A.Group B streptococcus

B.Parvovirus B19

C.Toxoplasma gondii

D.Varicella zoster virus

E.Zika virus

Answer:Parvovirus B19

Explanation:

Parvovirus is a common cause of fetal hydrops during pregnancy and can be treated with fetal transfusion

Important for meLess important

Parvovirus B19 is correct. It is the most common non-immune cause of foetal hydrops in pregnancy (the only immune cause is Rh disease). The virus causes foetal anaemia which results in fluid building up in the serous cavities of the foetal body. This leads to high-output cardiac failure, as the foetal body responds to the increased demands from the anaemia. This can be seen in the question by the polyhydramnios (increased amniotic fluid), ascites and foetal skin oedema. Untreated, this can lead to miscarriage or stillbirth. A treatment in-utero is foetal transfusion, whereby, red blood cells are injected into the fetus whilst in the womb.

Group B streptococcus is incorrect. This can result in neonatal sepsis if the woman is a carrier of group B Streptococcus during labour. However, tests done during pregnancy can detect its presence, and if a mother is found to be a carrier, antibiotics are given intrapartum.

Toxoplasma gondii is incorrect. It is not linked to causing foetal hydrops, however, it can result in premature birth if acquired during pregnancy, leading to congenital toxoplasmosis. This can present as hydrocephalus, microcephaly, intracranial calcifications, eye conditions, epilepsy, psychomotor and mental retardation, low platelets, and anaemia.

Varicella zoster virus is incorrect. This virus causes chickenpox. If the mother is infected with chickenpox in the first 20 weeks of pregnancy, the baby is at an increased risk of congenital varicella syndrome. This can cause the baby to have multiple conditions such as muscle hypoplasia, developmental delay and gastrointestinal abnormalities. It is not known to be associated with foetal hydrops.

Zika virus is incorrect. This can result in microcephaly (small head) and affects the baby's brain leading to decreased brain tissue and retinal damage. It does not result in fetal hydrops.

Question:

A 42-year-old man presents to the emergency department with a headache, sweating and palpitations. These symptoms have been ongoing for the last hour and he feels they are worsening.

On examination, his blood pressure is found to be 180/90 mmHg and a fine tremor is noted in both hands. His urine is sampled and shows raised levels of urinary metanephrines

Given this man's presentation, what is the most appropriate first-line treatment?

A.Amlodipine

B.Propranolol

C.Verapamil

D.Phenoxybenzamine

E.Surgery

Answer:Phenoxybenzamine

Explanation:

PHaeochromocytoma - give PHenoxybenzamine before beta-blockers

Important for meLess important

This question is asking about a young man presenting with palpitations, tremor and a headache. Given his presentation, his most likely underlying diagnosis is a phaeochromocytoma. This is confirmed by the raised blood pressure on examination and the raised levels of urinary metanephrines. The first-line treatment for a phaeochromocytoma is a non-selective alpha blocker, in this case, phenoxybenzamine.

Amlodipine is a calcium channel blocker, calcium channel blockers can be used in the treatment of phaeochromocytomas, however, they are often introduced second-line if blood pressure cannot be controlled.

Propranolol is a beta blocker, giving a beta blocker before an alpha-blocker in patients with a phaeochromocytoma can cause a hypertensive crisis and so is not the first line treatment in this case. However, it will be added after the alpha blocker has had time to work.

Verapamil is a non-dihydropyridine calcium channel blocker and thus this cannot be used in conjunction with a beta blocker due to synergistic effects. Therefore this would not be used in this case.

Surgery is the definitive treatment for a phaeochromocytoma as the tumour releasing the catecholamines needs to be removed. However, this will be done when the patient has been stabilised on alpha and beta blockers, normally around 10 days after treatment is started.

Question:

A 41-year-old female is scheduled for a laparoscopic cholecystectomy under general anaesthesia after stones are found in her gallbladder on abdominal ultrasound. All of her blood tests are within the normal limits and she is declared fit for surgery. Just before the induction of anaesthesia, she informs staff that she had a cup of fruit juice without pulp before coming to the theatre.

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

A.Proceed with the induction of anaesthesia immediately

B.Wait for one hour

C.Wait for 2 hours

D.Wait for 4 hours

E.Wait for 6 hours

Answer:Wait for 2 hours

Explanation:

Patients can drink clear fluids up to 2 hours before an operation

Important for meLess important

Preoperative management in elective procedures is different from emergency cases. Patients having elective procedures may drink clear fluids such as water, fruit juice without pulp, coffee or tea without milk and ice lollies until 2 hours before their operation. Drinking clear fluids before the operation can help reduce headaches, nausea and vomiting afterwards.

Proceeding with general anaesthesia immediately is not appropriate as the risk of aspiration is high which can be fatal.

Patients are generally advised to fast from non-clear liquids/food for at least 6 hours before surgery.

Question:

A 23-year-old female presents with a painful ankle following an inversion injury whilst playing tennis. Which one of the following findings is least relevant when deciding whether an x-ray is needed?

A.Swelling immediately after the injury and now

B.Pain in the malleolar zone

C.Tenderness at the medial malleolar zone

D.Tenderness at the lateral malleolar zone

E.Cannot walk 4 steps immediately after the injury and now

Answer:Swelling immediately after the injury and now

Explanation:

Question:

A 58-year-old woman presents with a vertebral fracture.

There is a past medical history of breast cancer, type 2 diabetes, and chronic kidney disease stage 3. She takes regular tamoxifen and sitagliptin. She regularly swims and runs and is a non-smoker. Her BMI is 31 kg/m².

What factor in her history puts this patient at increased risk of osteoporosis?

A.Activity level

B.BMI

C.Chronic kidney disease

D.Sitagliptin

E.Tamoxifen

Answer:Chronic kidney disease

Explanation:

Chronic kidney disease is a risk factor for osteoporosis

Important for meLess important

Chronic kidney disease (CKD) is correct. Osteoporosis is twice as common in those with eGFR <60 than in those with eGFR >60. Abnormalities of calcium, phosphate, and vitamin D metabolism in CKD lead to abnormal bone turnover and mineralization.

Activity level is incorrect. Reduced mobility, rather than increased mobility is a risk factor for osteoporosis. This patient has a high activity level from her history of regular swimming and running.

BMI is incorrect. Low BMI, rather than high BMI, is a risk factor for osteoporosis. This patient has a BMI of 31 which puts her in the obese category.

Sitagliptin is incorrect. Sitagliptin is an oral anti-diabetic drug. It has side effects of headache, constipation, dizziness, and pancreatitis, osteoporosis is not a side effect.

Tamoxifen is incorrect. Tamoxifen is a selective oestrogen receptor modulator, in the bone it is an agonist and is therefore protective against osteoporosis. Breast cancer hormonal therapies like letrozole, however, are risk factors for osteoporosis.

Question:

A 23-year-old woman presents to the emergency department with colicky abdominal pain and dark red urine for the past day. She reports stiffness preceding the onset of severe pain in her lower back and legs this morning. She has a known past medical history of porphyria and has recently started the combined oral contraceptive pill.

Bloods and a urine dip are sent. Observations show a heart rate of 112 beats/min, temperature of 36.9ºC, respiratory rate of 20/min, and blood pressure of 110/82 mmHg.

Considering the most likely diagnosis, what is the first-line intravenous medical management?

A.20% glucose

B.Co-amoxiclav

C.Haem arginate

D.Hypotonic fluids

E.Phenobarbital

Answer:Haem arginate

Explanation:

IV haem arginate can be used to treat flares of acute intermittent porphyria

Important for meLess important

This patient is presenting with symptoms consistent with acute intermittent porphyria and has a known past medical history of porphyria. Acute attacks most commonly occur in young women (it is uncommon in pre-pubescent or post-menopausal women). These can be precipitated by antibiotics, hormonal contraception, barbiturates, and seizure medications. The first line management for these patients is IV haem arginate which is a haem compound that acts to reduce the overproduction of delta-aminolevulinic acid (which is the compound that causes the symptoms in an acute attack).

20% glucose is an incorrect answer as there is no indication that the patient is suffering from hypoglycaemia. While high-carbohydrate ingestion (or 10% glucose infusions) can be helpful in aiding recovery, this is not the most effective method of stopping an acute attack and mitigating symptoms. Furthermore, 20% glucose would be inappropriate due to the irritant nature of the solution if it was only being used as a high-carbohydrate infusion.

Co-amoxiclav is more likely to be a potential precipitant for the onset of an acute intermittent porphyria attack than an appropriate management plan.

Hypotonic fluids are used in patients who have hypernatraemia - as acute intermittent porphyria is commonly associated with hyponatraemia, this would be an inappropriate management option.

Phenobarbital is a barbiturate which is linked to the onset of acute intermittent porphyria and is not an appropriate management option.

Question:

Which of these patients have an absolute contraindication for the combined oral contraceptive pill (COCP)?

A.38-year-old smoker, smoking 10 cigarettes/day

B.35-year-old with a body mass index (BMI) of 38kg/m²

C.30-year-old with a history of ectopic pregnancy

D.25-year-old breastfeeding at 4 weeks postpartum

E.30-year-old with recurrent carpal tunnel syndrome

Answer:25-year-old breastfeeding at 4 weeks postpartum

Explanation:

1: Smoking is an absolute contraindication when >35 years old and smoking >= 15 cigarettes/day.

2: BMI >35kg/m² requires expert clinical judgment, but is not a contraindication. There is no level of BMI stated as an absolute contraindication.

3: History of ectopic pregnancies has no restriction on COCP use.

4: Correct, the COCP is contraindicated <6 weeks postpartum.

5: The COCP is not associated with carpal tunnel syndrome.

See: Risk factors in carpal tunnel syndrome (Geoghagan et al, 2004) and NICE guideline: Contraception - combined hormonal methods.

Question:

A 72-year-old man is reviewed in the diabetes clinic. He has a history of heart failure and type 2 diabetes mellitus. His current medications include furosemide 40mg od, ramipril 10mg od and bisoprolol 5mg od. Clinical examination is unremarkable with no evidence of peripheral oedema, a clear chest and blood pressure of 130/76 mmHg. Recent renal and liver function tests are normal. Which one of the following medications is contraindicated?

A.Sitagliptin

B.Pioglitazone

C.Gliclazide

D.Exenatide

E.Metformin

Answer:Pioglitazone

Explanation:

Pioglitazone - contraindicated by: heart failure

Important for meLess important

Thiazolidinediones are absolutely contraindicated in heart failure

Question:

A 2-year-old boy with cerebral palsy presents to the GP with his mother for a review. On assessment, he has a global developmental delay. He is not yet walking nor crawling but is able to pincer grip and is happily playing with toys during the consultation. He is able to say a few words such as 'mum' and 'dad'. You note some bruises on his abdomen, right elbow, and left forearm. His mother says these are due to him falling due to his clumsiness and worries he will keep hurting himself. She once had bruising which required oral steroids and thinks he has developed the same condition.

What is the next step in management?

A.Coagulation screen and coagulopathy testing

B.Oral prednisolone

C.Reassure and discharge

D.Same-day paediatric assessment

E.Urgent full blood count within 48 hours

Answer:Same-day paediatric assessment

Explanation:

Bruising in a non-mobile infant should be referred for same day paediatric assessment

Important for meLess important

Same-day paediatric assessment is correct. This infant is non-mobile and has multiple bruises. This should be considered a red flag for potential non-accidental injury. Bruising in a non-mobile infant should be referred for same-day paediatric assessment. Bruising near the trunk and other locations such as the cheek, ears, or buttocks should also be considered red flags for non-accidental injury.

Coagulation screen and coagulopathy testing is incorrect. Although these may be performed down the line to investigate for any causes of the bruising, the history is more suggestive of non-accidental injury and needs immediate assessment.

Oral prednisolone is incorrect. Although this is used in immune thrombocytopenia (ITP) in adults, it is not first-line in children. The history is more suggestive of non-accidental injury and needs immediate assessment.

Reassure and discharge is incorrect. The history is more suggestive of non-accidental injury and needs immediate assessment.

Urgent full blood count within 48 hours is incorrect. Although this is performed in unexplained bruising to look for haematological malignancy, the history is more suggestive of non-accidental injury and needs immediate assessment.

Question:

A female enters the haemodialysis clinic for her routine session. A standard dose of unfractionated heparin is administered prior to the session.

What is the mechanism of action of this drug?

A.Activates antithrombin I

B.Activates antithrombin II

C.Activates antithrombin III

D.Deactivates antithrombin I

E.Deactivates antithrombin III

Answer:Activates antithrombin III

Explanation:

Unfractionated heparin - activates antithrombin III. Forms a complex that inhibits thrombin, factors Xa, Ixa, Xia and XIIa

Important for meLess important

Unfractionated heparin activates antithrombin III which in turn inhibits thrombin and factors Xa, Ixa, XIa and XIIa. This stops fibrin formation and thrombin from activating factors V, VIII, and XI. This process can be reversed with protamine sulphate.

Historically, antithrombin has been split into I, II, III and IV relating to different stages of the activity of thrombin. Clinically the most important is antithrombin III which is also simply referred to as 'antithrombin'.

Question:

Reshma is a 68-year-old with a history of type 2 diabetes who has presented with intermittent tingling of her left 4th and 5th fingers.

What is the most likely diagnosis?

A.Alcohol excess

B.Carpal tunnel syndrome

C.Cubital tunnel syndrome

D.Multiple sclerosis

E.B12 deficiency

Answer:Cubital tunnel syndrome

Explanation:

Cubital tunnel syndrome is caused by compression of the ulnar nerve and can present with tingling/numbness of the 4th and 5th finger

Important for meLess important

Cubital tunnel syndrome is caused by ulnar nerve entrapment at the elbow. It initially presents with sensory symptoms affecting the 4th and 5th fingers. Diabetes is a risk factor for peripheral neuropathies.

Carpal tunnel syndrome is caused by median nerve entrapment in the wrist. It affects the first, second and third fingers, plus the lateral side of the 4th finger.

It would be possible for multiple sclerosis to present like this but much less likely.

Alcohol excess and B12 deficiency are more likely to present with symmetrical neurological symptoms.

Question:

The lesion below started as a small red papule which grew in size before starting to ulcerate:

© Image used on license from DermNet NZ

Which one of the following conditions is most associated with this skin condition?

A.Rheumatoid arthritis

B.Sarcoidosis

C.Primary herpes simplex virus infection

D.Tuberculosis

E.Thyrotoxicosis

Answer:Rheumatoid arthritis

Explanation:

Question:

A 39-year-old G7P3 mother experiences a show and waters breaking at 34+1 weeks, on the back of fever and left flank pain for the past three days. She was hoping for a home birth, and it’s taken 3 hours for the midwife to convince her to go to the hospital.

Continuous cardiotocography is started and a foetal doppler finds foetal bradycardia. Abdominal exam finds the baby in footling breech, the uterus is non-tender and contracting. Speculum examination finds an exposed cord with a soft 8cm cervix and an exposed left foot.

What is the most appropriate first management for this patient and their baby?

A.Deliver the baby as breech immediately

B.IM corticosteroids

C.McRobert's manoeuvre

D.Put the patient on all fours and push the foot back into the uterus

E.Ventouse delivery

Answer:Put the patient on all fours and push the foot back into the uterus

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

The correct answer is put the patient on all fours and push the foot back into the uterus. This is a complex case that is designed to assess knowledge on degrees of obstetric emergency, and there are multiple aspects here which need treating; 1) cord prolapse, 2) premature rupture of membranes 3) likely pyelonephritis and 4) footling breech. Cord prolapse is the most significant emergency here as it is causing foetal bradycardia and limiting the oxygen supply to the baby - without immediate correction, there is a high chance of asphyxiation, mortality and long-term disability such as cerebral palsy. Immediate steps for cord prolapse management include limiting compression on the cord (push any presenting part of the baby back in, putting the mother on all fours, retrofilling the bladder with 500-700ml saline) and reducing any chance of cord vasospasm (limit cord handling as much as possible, place warm damp towels over it). In this scenario, the pathological CTG would ultimately demand a category 1 Caesarean section (cat 1. C-section). Prematurity and breech (especially footling) are both significant risk factors for cord prolapse. Intrapartum antibiotics would also be indicated to treat the likely pyelonephritis which has precipitated this premature rupture of membranes.

Deliver the baby as breech immediately in incorrect. In theory, this is an option, and with suitable expertise could be achieved in the time it takes to organise a cat. 1 C-section. However, this is an incredibly high-risk strategy, as the baby's life will be under threat throughout delivery, with a high risk of morbidity afterwards. Given the pathological CTG, concurrent infection and premature rupture of membranes, RCOG green-top guidance would indicate this baby should be delivered via a cat. 1 C-section immediately.

IM corticosteroids is incorrect. Whilst this is a case of premature rupture of membranes, and IM corticosteroids are therefore indicated from admission, your immediate priority should be to deal with the emergency, which is the cord prolapse.

McRobert's manoeuvre is incorrect. This manoeuvre is used to correct shoulder dystocia; it involves completely flexing the mother's hips as far as possible and applying suprapubic pressure to release the baby's shoulder from the pelvis. As this is a footing breech with umbilical prolapse, manoeuvres to correct dystocia would not be appropriate.

Ventouse delivery is incorrect in this case. The ventouse cup requires the infant to be in a longitudinal lie as the head is used as the point for suction. Furthermore, it is critical that the umbilical prolapse is dealt with first - a ventouse delivery would not help here, even if the infant was in a longitudinal lie.

Question:

Graham is a 70-year-old man who presents with chest pain. His chest pain came on acutely and he became significantly short of breath following this. He is a known smoker and had been diagnosed with COPD 20 years ago. He did not note any significant exertional chest pain before this.

He currently has a respiratory rate of 18 breaths/minute. His oxygen saturation is at 95% on room air. His breathlessness has settled since admission and denies any ongoing shortness of breath. His blood pressure is at 130/80 mmHg and his heart rate is at 80 beats/minute.

A chest X-ray was performed and this showed a 2.5cm pneumothorax along with his right lung. The left lung fields appear clear.

What is the most appropriate treatment option for his pneumothorax?

A.Aspiration of pneumothorax

B.Discharge with worsening advice

C.Immediate thoracic decompression with cannula in 2nd intercostal space midclavicular line

D.Chest drain insertion

E.Administer oxygen and monitor

Answer:Chest drain insertion

Explanation:

If a secondary pneumothorax > 2cm and/or the patient is short of breath then patient should be treated with chest drain (not aspiration) as first-line

Important for meLess important

This is a sizable pneumothorax in a patient with known lung disease, making this a secondary pneumothorax. Given the size of the pneumothorax, the British Thoracic Society recommends treatment with an insertion of a chest drain. An 8-14 French chest drain is recommended and the chest drain removed when bubbling within the drain canister stops. A chest drain is also indicated if aspiration of a secondary pneumothorax sized 1-2cm is unsuccessful.

Pneumothorax aspiration is performed in secondary pneumothorax when it is sized between 1-2cm without any breathlessness. Aspiration can also be done in primary pneumothorax if the pneumothorax is >2cm or if the patient is breathless.

High flow oxygen therapy is performed In patients with secondary pneumothorax <1cm. This would not be appropriate in this case given the size.

Discharge can be considered in patients with a primary pneumothorax who are not breathless and have a pneumothorax <2cm. This is not typically done in secondary pneumothorax as it is better to observe the patient for at least 24 hours before considering discharge.

Immediate decompression is performed as an emergency procedure when a tension pneumothorax is diagnosed. This is not the case here as the patient is otherwise haemodynamically stable and he is no longer breathless. A chest drain will provide a more controlled evacuation of the pneumothorax.

Question:

A 54-year-old man is referred by his GP to the dermatology outpatient department due to a facial rash which has persisted for the past 12 months. On examination there is a symmetrical rash consisting of extensive pustules and papules which affects his nose, cheeks and forehead. What is the most appropriate treatment?

A.Topical metronidazole

B.Oral isotretinoin

C.Oral doxycycline + topical ivermectin

D.Oral hydroxychloroquine

E.Oral prednisolone

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

As there is extensive involvement a combination of oral doxycycline + topical ivermectin should be used.

Question:

A 40-year-old man is investigated for diarrhoea which has persisted for around 3 months. Prior to this he was fit and well with no past medical history of note. He initially had some abdominal pain but this has now settled. He is now passing around 5 loose, non-bloody stools per day.

His past medical history includes lower back pain for which he takes regular ibuprofen.

A barium enema is requested:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Colon cancer

B.Perforated duodenal ulcer

C.Ulcerative colitis

D.Infective gastroenteritis

E.Crohn's disease

Answer:Ulcerative colitis

Explanation:

The whole colon, without skip lesions, is affected by an irregular mucosa with loss of normal haustral markings.

Question:

A 62-year-old man is commenced on finasteride for symptoms of bladder outflow obstruction. Which one of the following adverse effects is most associated with this treatment?

A.Alopecia

B.Gynaecomastia

C.Prostate cancer

D.Increased levels of serum prostate specific antigen

E.Postural hypotension

Answer:Gynaecomastia

Explanation:

Question:

A 76-year-old man with chronic lymphocytic leukaemia is admitted to the emergency department after a fall. Earlier today, he lost consciousness whilst making himself lunch. He is currently undergoing chemotherapy with his last dose 5 days ago.

On examination, he appears pale. His temperature is 37.2ºC, his heart rate is 94 bpm and regular and his blood pressure is 126/75 mmHg.

Blood tests show:

Hb 91 g/L Male: (135-180)

Platelets 171 \* 109/L (150 - 400)

Reticulocytes 8.9% 0.2-2.5%

WBC 7.3 \* 109/L (4.0 - 11.0)

Direct antiglobulin test positive -

Given the likely diagnosis, what is the first-line step in management?

A.Blood transfusion

B.Corticosteroids

C.Fluid replacement

D.Intravenous tazocin

E.Vitamin B12 and folate replacement

Answer:Corticosteroids

Explanation:

Autoimmune haemolytic anaemia is characterised by a positive direct antiglobulin test (Coombs' test)

Important for meLess important

Corticosteroids is the correct answer. This patient has autoimmune haemolytic anaemia, secondary to chronic lymphocytic leukaemia. The blood results see anaemia (supported by his pallor and syncope), reticulocytosis (the bone marrow's response to anaemia), and a positive direct anti-globulin test (also known as a Coombs test). A positive anti-globulin test should raise suspicion of autoimmune haemolytic anaemia. This is specifically a warm autoimmune haemolytic anaemia, meaning the anti-globulin test is positive at temperatures greater than or equal to 37ºC. The first-line treatment as per NICE guidelines in managing autoimmune haemolytic anaemia is the use of corticosteroids to reduce the amount of circulating antibodies causing haemolysis.

Blood transfusion is incorrect. Whilst this will temporarily increase the red blood cell count, it will not be a long-term fix as these replaced red blood cells will also be damaged by autoimmune haemolytic anaemia. Corticosteroids are required to dampen the autoimmune response.

Fluid replacement is incorrect. This will increase the peripheral circulating volume in the vessels but further dilate the remaining red blood cells. It in no way treats the anaemia or addresses the underlying cause which is an autoimmune attack on the red blood cells.

Intravenous tazocin is incorrect. This would be an appropriate response if the man had neutropenic sepsis. There is nothing in the stem to state that this man’s symptoms are due to sepsis, such as a fever. Furthermore, he has a normal white blood cell count and a positive direct anti-globulin test, supporting a diagnosis of autoimmune haemolytic anaemia, not sepsis.

Vitamin B12 and folate replacement is incorrect. The deficiency of these vitamins can cause macrocytic anaemia. However, the positive direct antiglobulin test is not a finding in macrocytic anaemia making this answer unlikely. Vitamin B12 and folate deficiency anaemia result from immature red blood cells being unable to mature, due to a deficiency of the vitamins required to complete the final steps of red blood cell production.

Question:

A 27-year-old pregnant woman (38+2, G1 P0) has been admitted to the labour ward after she began having vaginal bleeding and intense abdominal pain. She reports a small volume of vaginal bleeding. There is no past medical history and there have been no complications so far. She smokes 10 cigarettes a day. Cardiotocography shows late decelerations. On examination, her abdomen is tense and tender. Her respiratory rate is 22 breaths/min, oxygen saturations are 98%, heart rate 125 beats/min, blood pressure 89/56 mmHg, temperature 35.9 ºC.

What is the first-line management for the likely diagnosis?

A.Admit, administer corticosteroids, and observe

B.Category 1 caesarean section

C.Category 2 caesarean section

D.Category 4 caesarean section

E.Induce labour

Answer:Category 1 caesarean section

Explanation:

Examples indications for a category 1 caesarean section include: suspected uterine rupture, major placental abruption, cord prolapse, fetal hypoxia or persistent fetal bradycardia

Important for meLess important

Category 1 caesarean section is correct. This is where the caesarean section is done within 30 minutes of making the decision. The diagnosis in this question is most likely to be a major placental abruption due to a history of intense abdominal pain and haemodynamic shock out of proportion to visible blood loss. Guidelines state that if the foetus is alive and >36 weeks, and there is foetal distress (which is present due to the late decelerations on cardiotocography), a category 1 caesarean section should be carried out. This is because this presentation of placental abruption, haemodynamic shock, and late decelerations, indicates an immediate threat to the life of the mother and the baby.

Admit, administer corticosteroids, and observe is incorrect. This could be considered if the foetus is alive and < 36 weeks and there is no foetal distress. These are not applicable to this scenario as the foetus is >36 weeks and there is foetal distress present (cardiotocography shows late decelerations).

Category 2 caesarean section is incorrect. This is where the caesarean section is done within 75 minutes of making the decision. It is done where the maternal or foetal compromise is not immediately life-threatening. The presence of haemodynamic shock and late decelerations on cardiotocography suggest an immediate threat to the life of the mother and baby, making this option incorrect.

Category 4 caesarean section is incorrect. This is an elective caesarean section, which is inappropriate as the presence of haemodynamic shock and late decelerations on cardiotocography suggest an immediate threat to the life of the mother and baby.

Induce labour is incorrect. This would be an option if the foetus is not alive, which is not the case in this scenario.

Question:

A 54-year-old-man presents with a six day history of paraesthesia in his hands and feet. He reports that this has been getting steadily worse and he is now finding it difficult to walk. He denies any other symptoms but tells you that a couple of weeks ago he had a two day episode of diarrhoea, since completely resolved. He denies any ongoing bladder or bowel symptoms. He also tells you that he has had a difficult time at home recently as his wife has moved out and asked for a divorce. He denies any excessive alcohol use. He has no past medical history of note and takes no regular medications.

On examination he has a slow, unsteady gait, needing to hold onto the furniture as he walks. Examination shows he has 4/5 power in his finger abductors as well as 3/5 in both ankle dorsiflexion and plantarflexion. He reports loss of soft-touch sensation in both feet up to the ankles. Reflexes are normal in the upper limbs but you are unable to elicit either the knee jerk or ankle jerks; plantars are downgoing. Tone is normal throughout.

What is the most likely diagnosis?

A.Multiple sclerosis

B.Guillain–Barré syndrome

C.Cauda equina syndrome

D.Panic attack

E.B12 deficiency

Answer:Guillain–Barré syndrome

Explanation:

Progressive peripheral polyneuropathy with hyporeflexia suggests Guillain-Barre syndrome

Important for meLess important

This man has a rapidly progressive peripheral neuropathy with lower motor neurone signs (hyporeflexia), the most likely cause is Guillain–Barré syndrome (GBS). Always suspect this when a patient presents with symmetrical neurological signs following a diarrhoeal illness; campylobacter is particularly associated with GBS.

It is not uncommon for symmetrical paraesthesia to be attributed to anxiety or panic attacks however this man has objective neurological signs (weakness, hyporeflexia, abnormal gait) which require further investigation.

MS would not usually present with symmetrical peripheral symptoms affecting all four limbs and upper motor neurone signs would be prominent.

Cauda equina syndrome would present with only lower limb symptoms associated with back pain, sphincter disturbance and saddle anaesthesia.

B12 deficiency can cause sensory loss, paraesthesia and hyporeflexia however it would have a much slower onset and is relatively rare in developed countries.

Ultimately to definite diagnosis cannot be made in primary care. Full workup is needed including brain/spine MRI and lumbar puncture; referral to the local acute medical team is appropriate.

Question:

A 35-year-old man is brought in by ambulance to resus following a serious road traffic accident.

On examination, he is groaning in pain and can open his eyes when you apply supraorbital pressure. When performing the trapezius squeeze, the patient extends both arms.

What is this man's GCS score?

A.5

B.6

C.7

D.8

E.9

Answer:6

Explanation:

GCS: Motor (6 points) Verbal (5 points) Eye opening (4 points). Can remember as '654...MoVE'

Important for meLess important

This man opens his eyes to a painful stimulus (supraorbital pressure), which represents a score of two. Since groaning is his only verbal response, this counts as 'sounds' and also scores two. His extension response to pain gives him a motor score of two as well. Therefore six is the correct answer.

When assessing responses, remember to record their best response, so in this case, this man gets a score of two for an extension response to pain (his left side), rather than no response at all (his right side). This means a GCS score should never be recorded as '13/14', for example, since if the best responses are taken the score should simply be recorded as '14'.

Question:

A 44-year-old man was admitted to the medical unit with vomiting, drowsiness and headache. On examination he was febrile, squinting to bright lights and had severe pain when extending his knee when his hip was lifted off the bed. He was started on IV cefotaxime and IV dexamethasone and underwent a lumbar puncture.

What is the most common long-term complication of this condition?

A.Encephalitis

B.Hydrocephalus

C.Sensorineural hearing loss

D.Seizures

E.Cerebral abscess

Answer:Sensorineural hearing loss

Explanation:

Sensorineural hearing loss is the most common complication following meningitis

Important for meLess important

The correct answer is sensorineural hearing loss.

Question:

A 53-year-old businessman is referred to for an endoscopy by his GP after complaining of persistent dyspepsia which was not fully controlled with lansoprazole. His symptoms have been getting gradually worse for the past six months. He smokes around 20 cigarettes/day and drinks about 30 units of alcohol per week. There is no history of dysphagia or vomiting although he does describe some pain when swallowing foods such as meat. Clinical examination is unremarkable.

A photograph is taken of his lower oesophagus during endoscopy:

Biopsies are taken and are reported as follows:

Intestinal metaplasia with a villiform pattern noted. Multiple intermediate mucous cells and goblet cells noted. No dyplasia noted.

What is the most appropriate management?

A.Oral fluconazole

B.Oesophagogastrectomy

C.High dose proton pump inhibitor therapy

D.Endoscopic ablation

E.High dose proton pump inhibitor therapy + endoscopic surveillance

Answer:High dose proton pump inhibitor therapy + endoscopic surveillance

Explanation:

This is Barrett's oesophagus. The metaplastic mucosa needs to be monitored on a regular basis to check for any dysplastic or malignant changes. High dose proton pump inhibitor therapy is also recommended.

Question:

While working in psychiatry you are taking a history from a patient with a new diagnosis of generalised anxiety disorder (GAD). You take a thorough past medical history. Which of the following is a risk factor for GAD development.

A.Living with other people

B.Being under 20-years-old

C.Atrial fibrillation

D.Being divorced or separated

E.Hyperthyroid disease

Answer:Being divorced or separated

Explanation:

Being divorced or separated is a risk factor for generalised anxiety disorder

Important for meLess important

Risk factors for the development of GAD include;

Aged 35- 54

Being divorced or separated

Living alone

Being a lone parent

Protective factors include;

Aged 16 - 24

Being married or cohabiting

Having a hyperthyroid disease or atrial fibrillation may result in symptoms similar to GAD but are not a risk factor for its development.

Question:

A 62-year-old man is referred to neurology clinic for investigation due to worsening ataxia and paraesthesia in his feet. He describes losing his footing very easily and he has had multiple falls in the last few weeks. He has a past medical history of gout and hypertension. On examination, there is a loss of joint position and vibration sense. He has brisk knee reflexes and absent ankle jerks. There is no muscle weakness.

What is the most likely diagnosis?

A.Chronic inflammatory demyelinating polyneuropathy

B.Guillain-Barré syndrome

C.Motor neurone disease

D.Myasthenia gravis

E.Subacute combined degeneration of the cord

Answer:Subacute combined degeneration of the cord

Explanation:

In subacute combined degeneration of the spinal cord, the dorsal columns and lateral corticospinal tracts are affected

Important for meLess important

The loss of proprioception and vibration sense (dorsal columns) points towards subacute combined degeneration of the spinal cord. Lateral columns are also affected and would cause spasticity and brisk knee reflexes. Babinski sign is typically positive. This picture occurs as a result of B12 deficiency.

Chronic inflammatory demyelinating polyneuropathy is an acquired immune-mediated inflammatory disorder of the peripheral nervous system. It is often considered a chronic form of Guillain-Barré syndrome (GBS). It can present with numbness and tingling in extremities, but would not typically be associated with dorsal column symptoms.

Guillain-Barré may be associated with paraesthesia, but there is typically weakness involved.

Motor neurone disease would not cause sensory symptoms as it only affects motor functions.

Myasthenia gravis affects the neuromuscular junction and therefore would not be associated with sensory symptoms.

Question:

A 32-year-old women para 1+0 is 37+1 weeks pregnant and is being monitored and treated for pre-eclampsia. Her current treatment is with labetalol and her blood pressure has been well controlled. She attends the antenatal clinic complaining of a severe headache, one episode of vomiting, and blurred vision. Her blood pressure is currently 156/100 mmHg. On examination she has papilloedema. She is admitted to hospital. What is the appropriate management?

A.Start IV hydralazine

B.IV magnesium sulphate and plan immediate delivery

C.IV magnesium sulphate and intramuscular beclometasone

D.IV calcium gluconate

E.Plan immediate delivery

Answer:IV magnesium sulphate and plan immediate delivery

Explanation:

This woman has severe pre-eclampsia as she has presented with moderate hypertension and also has symptoms of headache and vomiting. NICE guidelines recommend delivery within 24-48 hours in those women who has pre-eclampsia with mild or moderate hypertension after 37 weeks. Magnesium sulphate is used to treat women with severe hypertension or severe pre-eclampsia that have already had a seizure. IV magnesium sulphate should also be considered if birth is planned within 24 hours or if there is concern that a woman may develop eclampsia.

IV hydralazine may lower her blood pressure but this woman requires immediate delivery and protection against eclampsia due to her presenting symptoms and signs. Intramuscular (IM) beclometasone is not required as the woman is past 36 weeks. IV calcium gluconate is used to treat magnesium toxicity and is not indicated. While delivery should be planned, this woman also requires protection against development of eclampsia and seizures.

Reference: BNF and NICE guideline https://www.nice.org.uk/guidance/cg107

Question:

You see a 24-year-old patient in the haematology clinic after referral by her general practitioner for thrombocytopaenia. She feels generally well in herself except for increased fatigue over the last 6 months, and more recently epistaxis. Her episodes of epistaxis often last hours at a time.

She's becoming increasingly frustrated with these episodes of epistaxis as she is a carpenter and it ruins her projects. On examination, there is no evidence of ongoing bleeding during the clinic appointment.

Her platelet count today is:

Platelets 46 \* 109/L (150 - 400)

Which treatment option is most appropriate?

A.Anti-D immunoglobulin

B.Platelet transfusion

C.Observation

D.Prednisolone

E.Splenectomy

Answer:Prednisolone

Explanation:

First-line treatment for ITP is oral prednisolone

Important for meLess important

This patient's history is highly consistent with immune thrombocytopenic purpura (ITP) in the absence of drug and infectious causes for thrombocytopenia.

In patients with a diagnosis of ITP first-line treatment varies depending on various factors, including platelet count on presentation and the presence of active bleeding.

Her platelets are over the commonly used cutoff for treatment of 30\*109/L, however, her frequent symptoms of prolonged bleeding, the impact on her life, and her injury-prone profession would warrant consideration to initiate treatment of the condition. In this scenario, due to the history of bleeding and high risk of bleeding, observation is an inappropriate answer.

The initial management of ITP is ordinarily high dose corticosteroids in the absence of contraindications. Consideration is later given to splenectomy and immunomodulatory drugs, such as mycophenolate if this fails. Usually, there is a response to steroids within 3 weeks of commencing corticosteroid therapy.

IVIg is an expensive and possibly risk-prone treatment and whilst it may be appropriate for some it is reserved for those in need of rapid improvement in platelet function or contraindications to corticosteroid therapy.

Anti-D immunoglobulin is also a possible therapy for ITP but is used less frequently than corticosteroids in the first instance due to its risk profile and the better availability and familiarity with corticosteroid use.

ITP is primarily a destructive pathology of platelets and as such platelet transfusion has little effect on disease course with short term (minutes to hours) benefits and significant risks involved, this is therefore not an appropriate option especially in haemodynamically stable patients.

Question:

A 23-year-old woman attends her antenatal booking appointment. She thinks that she is 10 weeks pregnant. This is her first pregnancy. Which one of the following is not routinely performed?

A.Assess body mass index

B.Pelvic examination

C.Urine culture if dipstick urine normal

D.Check for red cell alloantibodies

E.Hepatitis B testing

Answer:Pelvic examination

Explanation:

Question:

A 54-year-old man presents to the emergency department with shortness of breath. A chest x-ray is completed, and a sample of pleural fluid is aspirated. The pleural fluid results show:

Fluid Protein 58 g/L (10-20g/L)

Fluid LDH 1048 IU/L (<50% plasma concentration)

Fluid Glucose 1.2 mmol/L (4-11 mmol/L)

Fluid pH 7.23 (7.60-7.64)

Cell Cytology Normal cytology with benign reactive changes

His admission blood results are also shown:

Hb 145 g/L (135-180)

Platelets 376 \* 109/L (150-400)

Total Protein 73 g/L (60-83)

PT 11.2 s (11-13.5)

LDH 145 IU/L (135-225)

Glucose 5.8 mmol/L (4-8)

pH 7.38 (7.35-7.45)

What is the most appropriate management for this patient?

A.Insert a chest drain and commence antibiotic therapy

B.Refer for investigation under the oncology team

C.Refer to gastroenterology to investigate for liver cirrhosis

D.Start IV antibiotics

E.Start high dose intravenous diuretics

Answer:Insert a chest drain and commence antibiotic therapy

Explanation:

An empyema requires prompt drainage alongside antibiotic therapy

Important for meLess important

Insert a chest drain and commence antibiotic therapy is the correct answer. This patient has an empyema. We can confirm this using Light's criteria to diagnose an exudative effusion: the ratio of pleural fluid protein to serum protein is greater than 0.5 AND/OR the ratio of pleural fluid LDH to serum LDH is greater than 0.6. Pleural fluid LDH levels greater than 1000 IU/L are suggestive of empyema or malignancy. A very low pleural glucose concentration (<1.6 mmol/L) is indicative of empyema, as is a pleural fluid pH <7.3. The normal cell cytology makes malignancy unlikely, therefore we can diagnose a likely empyema. Management of empyema requires prompt drainage alongside antibiotic therapy. The blood results confirm that platelet and PT levels are appropriate for chest drain insertion.

Refer for investigation under the oncology team is incorrect. Whilst the effusion is an exudate according to Light's criteria, the cell cytology is normal and shows benign reactive changes only. This would not support a diagnosis of malignancy.

Refer to gastroenterology to investigate for liver cirrhosis is incorrect. Liver cirrhosis may cause a transudative pleural effusion.

Start IV antibiotics is incorrect. Whilst IV antibiotics will be required, they are insufficient alone to manage an empyema. The purulent material enclosed within the pleural space needs to be drained in order to give antibiotics the best chance of success.

Start high dose intravenous diuretics would be an appropriate management option in patients presenting with acute pulmonary oedema and transudative pleural effusions. However, this patient has an exudative effusion therefore this answer is incorrect.

Question:

A 45-year-old man presents to the emergency department with agitation, confusion, and tremors. Despite none being present, he is complaining of severe itching due to a termite infestation affecting his skin and is insistent on their presence. The patient admits to chronic excessive alcohol consumption.

His temperature is 38.1ºC, his heart rate is 132 bpm, and his blood pressure is 168/105 mmHg. On examination, he is jaundiced and has ascites, and a coarse tremor is noted.

How long has it most likely been since the patient's last drink?

A.4 hours ago

B.6 hours ago

C.12 hours ago

D.36 hours ago

E.72 hours ago

Answer:72 hours ago

Explanation:

Patient admitted to hospital - hallucinations, confusion, delusions 48-72 hours after admission → ?delirium tremens

Important for meLess important

This patient has a history of chronic excessive alcohol consumption along with signs of liver disease (jaundice and ascites). Given this history, the presence of tremors, agitation, fevers, tachycardia, and hypertension, it is likely this patient is experiencing acute alcohol withdrawal. The presence of a coarse tremor suggests severe acute alcohol withdrawal, and the presence of confusion and delusional parasitosis (where people believe they are infested by parasites such as fleas, worms etc.) suggests delirium tremens has arisen. The symptoms experienced by patients vary according to how long ago their last alcoholic drink was, progressing from agitation, tremors, and anxiety to seizures and life-threatening delirium tremens.

72 hours ago is correct as delirium tremens tends to occur 48-72 hours after acute alcohol withdrawal.

4 hours ago is incorrect. Symptoms of acute alcohol withdrawal typically occur 6-12 hours following the last drink. Since symptoms progress from agitation and tremors to seizures and delirium tremens, it is unlikely for this patient to have hallucinations and delirium tremens in such as short timeframe since their last drink.

6 hours ago is incorrect. In the first 6-12 hours following alcohol withdrawal, patients experience mild-moderate symptoms such as restlessness, tremors, insomnia, fatigue, and headaches. Delirium tremens does not occur within this timeframe.

12 hours ago is incorrect as patients experience mild to moderate symptoms of alcohol withdrawal as mentioned above. Delirium tremens does not occur within the first 6-12 hours.

36 hours ago is incorrect as delirium tremens does not tend to occur in the first 36 hours. Patients may, however, experience seizures.

Question:

You are called to see a 57-year-old gentleman on the ward who had an elective total hip replacement yesterday. He is complaining of tiredness and feels drained. He does not complain of any pain either in his chest or at the site of his wound. He has not mobilised since the operation.

He was well before the operation and mobilising without a stick, he was ASA grade 1.

His observations are: heart rate 87/min, respiratory rate 18/min, temperature 36.9º, Sats 99% on air.

Hb 91 g/l

Platelets 240 \* 109/l

WBC 6.0 \* 109/l

On examination, you note good chest expansion with no added sounds or reduced air entry. Heart sounds are normal.

You perform an ECG, chest x-ray which are within normal limits.

What is the most likely cause of his symptoms?

A.Pulmonary embolism

B.Pneumonia

C.Atelectasis

D.Post-operative anaemia

E.Acute respiratory distress syndrome (ARDS)

Answer:Post-operative anaemia

Explanation:

In this case, the whole clinical picture has to be taken into account. He is one-day post-op following a joint replacement. ARDS is unlikely in a patient who is clinically well with a normal chest x-ray. Pneumonia is also unlikely as his white cell count is in the normal range, his is apyrexial and has a normal chest x-ray.

Pulmonary embolism (PE) is a possibility in this setting although the timing, lack of chest pain and normal ECG makes this less likely. PE usually develops at around 10 days post operatively and risk is higher in those with additional risk factors. It is notoriously easy to miss and therefore a high index of suspicion is warranted as joint replacement surgery is one of the largest risk factors for venous thromboembolism. If you do suspect based on clinical symptoms, the investigation of choice is CT pulmonary angiogram. D-dimer is unreliable as it can be increased by surgery.

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. It is commonly associated with general anaesthetic and more common in abdominal and thoracic surgery. There is no mention of any signs of reduced air entry on examination making this diagnosis less likely.

In this case, the blood result shows a post-operative anaemia which should be managed according to local trust protocol as no national guidance exists. The Bone & Joint Journal suggests that treating with iron offers no additional benefit unless the patient was deficiency pre-operatively. If the haemoglobin is very low a transfusion may be warranted.

Question:

An 82-year-old woman is reviewed by the hospital at night team due to increasing confusion.

The nursing staff are concerned as she has not yet been to bed yet and it is now 4 am. She is a falls risk due to frailty and is attempting to leave the ward. They have tried relevant nursing interventions but to no avail.

She is being treated for community-acquired pneumonia with IV co-amoxiclav and is on day 2 of treatment. Her vital signs are stable. There are no other symptoms to report.

There is no relevant past medical history of note but she does currently have an adult with incapacity act in place.

What is the most appropriate management of this patient?

A.Prescribe oral haloperidol

B.Prescribe oral lorazepam

C.Prescribe oral melatonin

D.Prescribe oral zopiclone

E.Stop IV antibiotics

Answer:Prescribe oral haloperidol

Explanation:

Acute confusional state: if treating the underlying cause and environmental modification not working then haloperidol sometimes used

Important for meLess important

This woman presents with a picture of acute delirium, which is likely due to her community-acquired pneumonia. The first step in handling acute confusional states is to treat the underlying cause and perform environmental modifications, which are part of nursing interventions. Environmental modifications may include moving to a side room, having one-to-one nursing and provision of media or music amongst other things. Since this woman is both receiving antibiotic treatment, and nursing interventions have failed, the next most appropriate step is to give oral haloperidol. Haloperidol and olanzapine have both shown efficacy in handling agitation and delirium, however, haloperidol is usually the preference.

Prescribing oral lorazepam is inappropriate. Whilst this drug may be added to haloperidol for uncontrolled delirium or agitation, it should not be done so without a specialist. Additionally, lorazepam is known to increase the risk of falls, and this woman is at risk of falling.

Prescribing oral melatonin is inappropriate. This is used as a sleeping tablet but is normally avoided in the elderly due to a wide side effect profile. Additionally, whilst it may help with sleeping, melatonin has not been shown to affect the underlying delirium and therefore is not recommended for use in patients with acute confusional states.

Prescribing oral zopiclone is inappropriate. This drug may be used as a sleeping tablet, however, it may exacerbate delirium. Additionally, it is also a drug that should be avoided in patients who are at a high risk of falling.

Stopping IV antibiotics is inappropriate. This increase in confusion and agitation is likely due to underlying infection. Therefore, stopping the treatment would be inappropriate and may make the problem worse. Additionally, co-amoxiclav is not known to cause confusion as a side effect, and therefore it is unlikely caused by this drug.

Question:

Rachel is a 45-year-old who has routine bloods for a health check. Blood tests show the following:

Na+ 125 mmol/l

K+ 4.3 mmol/l

Urea 5.3 mmol/l

Creatinine 60 µmol/l

She takes the following medications: sertraline, carbimazole, amlodipine, metformin, aspirin. Which of her medications is likely to be the cause of her hyponatraemia?

A.Aspirin

B.Metformin

C.Amlodipine

D.Carbimazole

E.Sertraline

Answer:Sertraline

Explanation:

SSRIs are associated with hyponatraemia

Important for meLess important

Out of the list above sertraline is the medication known to cause hyponatraemia.

Other common drug causes of low sodium include: chlorpropramide, carbamazepine, selective serotonin reuptake inhibitor (SSRI) antidepressants, tricyclic antidepressants, lithium, MDMA/ecstasy, tramadol, haloperidol, vincristine, desmopressin, fluphenazine.

Question:

A 19-year-old man has a medical examination before joining the army. He denies any symptoms and has no family history of note. The ECG shows the following:

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

Based on the ECG, what is the most likely diagnosis?

A.Trifascicular block

B.Hypertrophic obstructive cardiomyopathy

C.Long QT syndrome

D.Arrhythmogenic right ventricular cardiomyopathy

E.Dextrocardia

Answer:Hypertrophic obstructive cardiomyopathy

Explanation:

Note the left ventricular hypertrophy and deep ST depression and T-wave inversions consistent with hypertrophic obstructive cardiomyopathy.

Question:

A 25-year-old man attends the cardiology clinic for a follow-up after a recent diagnosis. He initially presented with increasing breathlessness and syncope, particularly worse after exercise. His father died at a young age from a similar heart condition.

An ECG taken shows a slight left axis deviation with tall R waves and a deep S wave in V1.

What findings are likely to be seen on his examination?

A.Early diastolic 'blowing' in character

B.Ejection systolic murmur louder on performing a Valsalva and quieter on squatting

C.Ejection systolic murmur louder on performing a Valsalva and squatting

D.Ejection systolic murmur quieter performing a Valsalva and louder when squatting

E.Mid-late diastolic 'rumbling' in character

Answer:Ejection systolic murmur louder on performing a Valsalva and quieter on squatting

Explanation:

HOCM may present with ejection systolic murmur, louder on performing Valsalva and quieter on squatting

Important for meLess important

Ejection systolic murmur louder on performing a Valsalva and quieter on squatting is the correct answer. The patient in this scenario is presenting with features suggestive of hypertrophic obstructive cardiomyopathy. ECG will typically show evidence of left ventricular hypertrophy. An ejection systolic murmur can be heard on examination due to subaortic hypertrophy of the ventricular septum resulting in left ventricular outflow tract obstruction and functional aortic stenosis. This will be heard louder when performing the Valsalva as there is a lower ventricular blood volume from reduced preload and afterload, allowing for closer proximity of the mitral valve to the hypertrophied septal wall, causing more turbulent blood flow. This will be heart quieter on squatting, as the preload is increased and hence there is an increased amount of blood within the ventricles reducing the proximity of the mitral vale to the hypertrophies septal wall.

Early diastolic 'blowing' in character is incorrect. This is often seen in patients with aortic regurgitation. Common causes of aortic regurgitation include rheumatic fever and connective tissue diseases. This is unlikely in this presentation, given the ECG changes noted and the absence of other features such as fever, arthritis, weight loss, and skin disease.

Ejection systolic murmur louder on performing a Valsalva and squatting is incorrect. As stated above, although an ejection systolic murmur is heard louder on performing a Valsalva it is in fact quieter on squatting.

Ejection systolic murmur quieter performing a Valsalva and louder when squatting is incorrect. As stated above, the murmur is quieter on squatting and louder on performing a Valsalva.

Mid-late diastolic 'rumbling' in character is incorrect. This is seen in mitral stenosis. The most common cause of this is rheumatic fever, usually with a previous history of a streptococcal throat infection. This patient is otherwise well, making this unlikely. Furthermore, it is mitral regurgitation that can be seen in hypertrophic obstructive cardiomyopathy which classically presents with a pan-systolic murmur.

Question:

A 27-year-old lady presents to her general practitioner seven weeks post-partum, requesting contraception. She requests the combined oral contraceptive pill (COCP), as she has taken this previously. She has been having unprotected intercourse since week four post-partum and she is currently feeding the baby approximately 70% by breastfeeding and 30% with top-up formula feeds. Which one of the following should the GP advise the patient?

A.A pregnancy test is not required. Advise that contraception is not required whilst breastfeeding

B.A pregnancy test is not required. The COCP can be prescribed in this situation

C.A pregnancy test is required . The COCP is contraindicated in this situation, so discuss other forms of contraception.

D.A pregnancy test is required. The COCP can be prescribed in this situation

E.A pregnancy test is required. The progesterone only pill is the only suitable form of non-barrier contraception in this situation

Answer:A pregnancy test is required. The COCP can be prescribed in this situation

Explanation:

The combined oral contraceptive pill CAN be given if requested 6 weeks postpartum even if breastfeeding. BUT they can get pregnant from day 21 postpartum so if they have had unprotected intercourse from day 21 postpartum, a pregnancy test should be performed first

Important for meLess important

There are two components required to get this question correct. The first requires understanding the risk of pregnancy post-partum:

Firstly, it is important to assess her risk of pregnancy. She is having unprotected intercourse and will not be covered by the lactational amenorrhea method (LAM) as the baby is getting less than 85% of its feeds as breast milk (NICE CKS: Contraception - natural family planning). If not covered by the LAM, women are at risk of pregnancy from unprotected intercourse from day 21 postpartum. Since this lady has had unprotected intercourse after day 21 she is at risk of pregnancy and must have a pregnancy test before receiving any form of contraception.

The second component of this questions regards the safety of the COCP at 7 weeks postpartum.:

The COCP is absolutely contraindicated (UKMEC 4) for women who are breastfeeding less than 6 weeks post-partum. However, this lady is seven weeks postpartum meaning she falls into the 6 weeks - 6 months postpartum guidance, in which the COCP is categorised as UKMEC2 for breastfeeding women. This means that advantages of prescribing the COCP would generally outweigh the disadvantages and based on the FRSH advice regarding the COCP, NICE clinical knowledge summaries recommend 'After 6 weeks and before 6 months postpartum, start the COC as for postpartum women who are not breastfeeding.' Hence, since this lady has requested the COCP and the guidance allows for this, it would be suitable to prescribe this for her.

It would be incorrect to advise the patient that contraception is not required during breastfeeding, as even if she were exclusively breastfeeding, after 6 months the LAM is not considered effective.

The progesterone only pill is a good form of contraception and can be started at any time post-partum unlike the combined pill, however as the combined pill is also suitable at 7 weeks postpartum, this statement is incorrect.

Question:

A 25-year-old present 8 weeks after her last menstrual period. She complains of severe nausea, vomiting and vaginal spotting. Pregnancy test was positive and transvaginal ultrasound showed an abnormally enlarged uterus. Which of the following test results would be expected in this patient?

A.High beta hCG, high TSH, high thyroxine

B.High beta hCG, low TSH, high thyroxine

C.High beta hCG, high TSH, low thyroxine

D.Low beta hCG, low TSH, high thyroxine

E.Low beta hCG, high TSH, low thyroxine

Answer:High beta hCG, low TSH, high thyroxine

Explanation:

The clinical presentation in this question is consistent with that of a molar pregnancy. A basic understanding of physiology is needed to answer this question correctly. Molar pregnancies are characterised by significantly high levels of beta hCG for gestational age, and are therefore used as a tumour marker of gestational trophoblastic disease. The biochemical structure of beta hCG is very similar to that of luteinizing hormone (LH), follicle-stimulating hormone (FSH), and thyroid-stimulating hormone (TSH). That being said, high levels of beta hCG can stimulate the thyroid gland to produce thyroxine (T4), and then triiodothyronine (T3). This can result in signs and symptoms of thyrotoxicosis. High levels of T4 and T3 have a negative feedback effect on the pituitary gland to stop secretion of TSH, causing and overall reduction in TSH levels.

Sources:

Best Practice- Molar Pregnancy

Medscape- Hydatidiform Mole Workup

Question:

A 79-year-old man presents to his GP regarding arm weakness. He says that he was working in the garden 3 days ago when he experienced sudden onset left arm weakness. He does not recall any sensory changes but says he was unable to lift his arm for around 20 minutes. This has now resolved and he has not had any further episodes since. His regular medication includes ramipril for hypertension and paracetamol for osteoarthritis. The GP suspects a transient ischaemic attack (TIA).

What is the most appropriate management for the GP to initiate?

A.Refer for specialist review within 7 days

B.Refer for specialist review within 24 hours

C.Start 75mg aspirin daily

D.Give 300mg aspirin now and refer for specialist review in 7 days

E.Give 300mg aspirin now and refer for specialist review within 24 hours

Answer:Give 300mg aspirin now and refer for specialist review within 24 hours

Explanation:

A patient who presents to their GP within 7 days of a clinically suspected TIA should have 300mg aspirin immediately (and be referred for specialist review within 24h)

Important for meLess important

The correct answer is 'give 300mg aspirin now and refer for specialist review within 24 hours'.

This patient has had a suspected TIA, which has now resolved. As he has only had one episode he does not need emergency admission, but the fact that he has presented within 7 days of his symptoms means that he should be referred for a specialist review within 24 hours. As there is no contraindication he should also be given an immediate 300mg dose of aspirin. Haemorrhage does not need to be ruled out in this case as a TIA is ischaemic by definition and the patient is not taking any anticoagulant medication.

'Refer for specialist review within 7 days' and 'give 300mg aspirin now and refer for specialist review in 7 days' are incorrect. Patients who present more than 7 days after a suspected TIA should be referred for specialist assessment within 7 days. As this patient experienced his symptoms 3 days ago this option is incorrect.

'Refer for specialist review within 24 hours' is incorrect. This patient does need a referral to see a specialist within 24 hours, however, he also requires a 300mg dose of aspirin alongside this referral. This would be correct if the patient was already taking aspirin or there was a contraindication to aspirin.

'Start 75mg aspirin daily' is incorrect. This patient requires urgent assessment by a stroke specialist following which he may be started on medications such as aspirin to prevent further episodes.

Question:

A 34-year-old woman presents to her GP with less frequent periods for 5 months now, with no other symptoms. She eats a well-balanced diet and exercises infrequently. She has never had any problems with her periods before. She has never been sexually active, takes no regular medication, and has no significant past medical or family history. The doctor orders some blood tests that show the following:

Thyroid-stimulating hormone (TSH) 0.1 mU/L (0.5 - 5.5)

Free thyroxine (T4) 19 pmol/L (9.0 - 18)

The report from nuclear scintigraphy reveals multiple ill-defined foci of uptake, with irregular dispersal of hot and cold areas.

What is the most likely diagnosis?

A.Functional thyroid follicular cancer

B.Grave's disease

C.Subacute thyroiditis

D.Toxic adenoma

E.Toxic multinodular goitre

Answer:Toxic multinodular goitre

Explanation:

In toxic multinodular goitre, nuclear scintigraphy reveals patchy uptake

Important for meLess important

This woman presents with oligomenorrhea, which has a wide variety of differentials, including hyperthyroidism. Thyroid function tests show a mild hyperthyroid picture, where an increased T4 level has led to suppression of thyroid-stimulating hormone (TSH), making this the likely cause.

Nuclear scintigraphy is a test that shows radioactive iodine uptake in metabolically active areas of the thyroid. 'Hot areas' or 'areas of uptake' describe areas that are using the most iodine and show up black on imaging. 'Cold areas' or 'inactive areas' describes areas that are not using iodine as much, and show up white on imaging. The scintigraphy report shows some ill-defined hot areas and an overall irregular dispersal of hot and cold areas. This describes a 'patchy uptake' picture. Given this patchy uptake, along with a mild hyperthyroid picture which has resulted in only one symptom, the most likely diagnosis is toxic multinodular goitre. Those nodules increase the circulating amount of T4, causing the TSH to decrease.

Functional thyroid follicular cancer is incorrect. Thyroid cancers which are functionally active, producing T4 are very rare. Other symptoms would be expected, such as a mass, voice hoarseness or lymphadenopathy. Nuclear scintigraphy would reveal a focal uptake over the area of cancer.

Grave's disease is incorrect. This would normally present with more of a toxic picture, producing more symptoms of hyperthyroidism, with a greater T4 level. Symptoms expected may include anxiety, palpitations, tremor and difficulty sleeping. Nuclear scintigraphy would reveal diffuse uptake, given the appearance of a mostly 'hot' thyroid.

Subacute thyroiditis is incorrect. Whilst there may be a thyrotoxic phase of this process before hypothyroidism sets in, the length of symptoms would not be expected to be so long. Nuclear scintigraphy would normally show diffuse low uptake cold areas.

A toxic adenoma is incorrect. Whilst this would fit with the clinical picture, nuclear scintigraphy would show a solitary hot area, with surrounding cold areas.

Question:

A 70-year-old male patient with a background of non-alcoholic steatohepatitis (NASH) and cirrhosis presents to the emergency department with abdominal pain and fever.

His observations are as follows: heart rate 110/min, BP 104/88mmHg, oxygen saturation 97% on room air, respiratory rate 20/min, temperature 38ºC, and GCS 15.

He appears unwell and septic. On examination, he has a grossly distended abdomen and shifting dullness. There is no asterixis.

He undergoes a diagnostic ascitic tap, the results of which are below:

Neutrophil count > 250 cells/uL (<250 cells/uL)

Red blood cell count > 250 cells/uL (0 cells/uL)

Ascitic culture Escherichia coli

Given the most likely diagnosis, which prophylactic medication should the patient be prescribed on discharge?

A.Bisoprolol

B.Ciprofloxacin

C.Lactulose

D.Tazobactam

E.Ursodeoxycholic acid

Answer:Ciprofloxacin

Explanation:

Patients who have had an episode of SBP require antibiotic prophylaxis

Important for meLess important

The correct answer is ciprofloxacin. The most likely diagnosis based on the clinical presentation is spontaneous bacterial peritonitis (SBP), a form of peritonitis caused by an infection of ascitic fluid in the peritoneal cavity, common in patients with cirrhosis. The diagnosis is indicated by fever, abdominal pain, and a neutrophil count of >250 cells/ul on an ascitic tap. Patients who have ascites and a previous episode of SBP require prophylactic antibiotics. Ciprofloxacin or norfloxacin is the prophylactic antibiotic of choice.

Bisoprolol is incorrect. However, bisoprolol is used for patients with chronic liver failure who have concurrent oesophageal varices to reduce the risk of bleeding. This patient has no evidence or diagnosis of oesophageal varices.

Lactulose is incorrect. There are no clinical signs of hepatic encephalopathy, no liver flap, and their GCS is 15, therefore prophylactic lactulose on discharge is not required for this patient to prevent hepatic encephalopathy at this time.

Tazobactam is incorrect. Whilst this patient does require prophylactic antibiotics, this is incorrect as this is a broad-spectrum antibiotic not indicated for prophylaxis of SBP.

Ursodeoxycholic acid is incorrect. This is a medication used for patients who have primary biliary cholangitis (PBC). PBC is another disease that causes liver cirrhosis, this patient has NASH, therefore, does not require ursodeoxycholic acid.

Question:

A 45-year-old man with end-stage renal failure presents to the emergency department with abdominal pain. He has a background of poorly controlled hypertension. His renal failure is managed with continuous ambulatory peritoneal dialysis. He is on regular amlodipine, ramipril and doxazosin. He is unemployed and lives alone.

His observations are heart rate 101 beats per minute, blood pressure 174/75 mmHg, respiratory rate 21/minute, oxygen saturation 97% on room and his temperature is 37.4ºC.

On examination, he has a diffuse abdominal tenderness with some guarding. There is no focal tenderness. Cardiovascular and respiratory examinations are normal. The dialysis effluent is noted to be cloudy.

Given the likely diagnosis, what is the most common causative organism?

A.Escherichia coli

B.Klebsiella

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 clinical presentation is that of peritonitis associated with peritoneal dialysis as evidenced by the abdominal findings of diffuse tenderness and guarding and the cloudy dialysis effluent. Staphylococcus epidermidis is the most common cause of peritonitis associated with peritoneal dialysis.

All of the other organisms are also causes of peritonitis in those patients using the method of peritoneal dialysis but they are less common than coagulase-negative staphylococci. The organisms causing peritonitis in this context can be gram-negative or gram-positive and therefore empiric antibiotic choice must be broad enough to cover either scenario.

Question:

A 24-year-old man is seen in gastroenterology clinic with severe ulcerative colitis. It is recommended that he should commence azathioprine to improve his symptoms.

What should be ruled out prior to starting this medication?

A.Dihydropyrimidine dehydrogenase (DPD) deficiency

B.Folate deficiency

C.Thiopurine methyltransferase deficiency (TPMT)

D.Gal-1-put deficiency

E.Glucose-6-phosphate-dehydrogenase (G6PD) deficiency

Answer:Thiopurine methyltransferase deficiency (TPMT)

Explanation:

Azathioprine - check thiopurine methyltransferase deficiency (TPMT) before treatment

Important for meLess important

Thiopurine methyltransferase is the enzyme required to metabolism azathioprine, a small proportion of the population had reduced activity or deficiency of this enzyme putting them at risk of azathioprine toxicity. Accordingly. levels should be tested prior to commencing the drug with cautious dosing or an alternate therapy used if TPMT is found.

DPD deficiency means the body is unable to break down thiamine and uracil, in such cases, 5-fluorouracil should be avoided where possible, or used with extreme caution to avoid toxicity.

Folate deficiency is associated with methotrexate use. Folate levels are not affected by azathioprine and do not require checking prior to treatment.

Gal-1-put is deficient in galactosaemia, people with this condition should avoid galactose.

G6PD deficiency puts patients at risk of haemolytic crises in response to a number of triggers, including various medications including antimalarials and some anti-biotics. Azathioprine is not a common trigger for haemolysis in G6PD deficiency.

Question:

A 62-year-old man presents with nocturia, hesitancy and terminal dribbling. Prostate examination reveals a moderately enlarged prostate with no irregular features and a well defined median sulcus. Blood tests show:

PSA 1.3 ng/ml

What is the most appropriate management?

A.Alpha-1 antagonist

B.5 alpha-reductase inhibitor

C.Non-urgent referral for transurethral resection of prostate

D.Empirical treatment with ciprofloxacin for 2 weeks

E.Urgent referral to urology

Answer:Alpha-1 antagonist

Explanation:

Alpha-1 antagonists are first-line in patients with benign prostatic hyperplasia

Question:

A 19-year-old female is brought to the Emergency Department by her friends following a night out. Her friends state she has taken an unknown drug whilst out clubbing. Which one of the following features would most point towards the use of ecstasy?

A.Temperature of 39.5ºC

B.Respiratory depression

C.Hypernatraemia

D.Miosis

E.Urinary incontinence

Answer:Temperature of 39.5ºC

Explanation:

Question:

A 28-year-old woman is seen in the maternity unit at 12 weeks gestation and undergoes a screening test for Down's syndrome:

The results of her screening are as follows:

b-hCG increased

PAPP-A decreased

Ultrasound thickened nuchal translucency

Chance 1/50

She says that if she requires testing, she would like whichever option carries the least risk of harm to her and her baby. She has no past medical history.

What is the most appropriate next step?

A.Arrange quadruple test

B.Discuss decisions regarding continuing pregnancy

C.Down's syndrome unlikely - no further tests necessary

D.Offer amniocentesis

E.Offer non-invasive prenatal screening test (NIPT)

Answer:Offer non-invasive prenatal screening test (NIPT)

Explanation:

The sensitivity and specificity of NIPT for Down's syndrome is > 99%

Important for meLess important

This patient has undergone a combined test to screen for Down's syndrome, which involves measuring b-hCG, PAPP-A, and nuchal translucency via ultrasound. The increased b-hCG, decreased PAPP-A, and thickened nuchal translucency suggest an increased chance of Down's syndrome. Both the combined and quadruple tests either return with a 'lower' or 'higher' chance using 1 in 150 (1 person out of 150 will give birth to a child with Down's syndrome) as the threshold. This patient's chance is 1 in 50, meaning the chance of Down's syndrome being present is higher (1 person out of 50 will give birth to a child with Down's syndrome). The most appropriate next option is to offer either further screening via a non-invasive prenatal screening test (NIPT) or diagnostic tests such as amniocentesis or chorionic villous sampling (CVS) depending on preference and what week of gestation she is at.

Offer non-invasive prenatal screening test (NIPT) is correct. As mentioned above, when a patient has a 'higher chance' they may be offered a second screening test (such as NIPT) or diagnostic tests such as amniocentesis or CVS. This patient would like a test that carries the least risk of harm to her and her baby, therefore, NIPT would be the best option and is often preferred due to its extremely high sensitivity and specificity and non-invasive nature, as it requires a blood test and does not involve any needles inserted into the uterus, unlike CVS and amniocentesis.

Arrange quadruple test is incorrect. This is an initial screening test performed instead of the combined test (which this patient has had) in people who book later in pregnancy at 15-20 weeks. This would also place her in a 'low' or 'high' chance category in the same manner as the combined test, and she would still need further tests such as NIPT, amniocentesis, or CVS.

Discuss decisions regarding continuing pregnancy is incorrect. Although she is placed in a higher-risk category, this does not confirm that her baby will have Down's syndrome. Further testing to confirm the diagnosis of Down's syndrome should be offered. Initial screening tests (i.e. the combined and quadruple tests) alone do not rule in or rule out Down's syndrome and are only used to identify patients at higher risk. Further screening that is more sensitive and specific such as NIPT or a diagnostic test such as amniocentesis or CVS is more appropriate.

Down's syndrome unlikely - no further tests necessary is incorrect as this patient's risk puts them in a higher chance category. A cut-off of 1 in 150 is used, meaning 1 person out of 150 people will give birth to a child with Down's syndrome. This patient's chance is 1 in 50, meaning 1 person out of 50 will give birth to a child, placing her in the higher risk category. Therefore, further testing such as offering NIPT is appropriate.

Offer amniocentesis is incorrect. This is usually performed between weeks 15-20 due to its risks being higher if done earlier. It would be less appropriate to offer at this point. The patient also prefers any testing that carries the least risks to her and her baby, therefore making NIPT more appropriate.

Question:

A 73-year-old male attends the emergency department with progressive shortness of breath and fatigue. He finds that his shortness of breath is worse when lying flat, and denies any chest pain or loss of consciousness. He has a past medical history of hypertension for which he takes amlodipine, and he had rheumatic fever 30 years ago.

On examination, he has a displaced apex beat, collapsing pulse, and nailbed pulsation is visible. A murmur is audible on auscultation.

Based on the most likely underlying diagnosis, which type of murmur would you expect to hear?

A.Continuous, machine-like murmur

B.Early or mid-late diastolic murmur

C.Ejection systolic murmur

D.Late systolic murmur

E.Pansystolic murmur

Answer:Early or mid-late diastolic murmur

Explanation:

Quincke's sign (nailbed pulsation) is a clinical sign of aortic regurgitation

Important for meLess important

The likely diagnosis, in this case, is aortic regurgitation (AR). It is likely that this patient has developed chronic aortic regurgitation over many years due to a previous history of rheumatic fever, which is a strong risk factor for AR. There are several clinical examination findings that also point towards this diagnosis: the presence of a collapsing pulse, left ventricular hypertrophy leading to a displaced apex beat, Quincke's sign (visible nailbed pulsation) and an audible murmur. The murmur heard in aortic regurgitation is diastolic, and may be early or mid-late, depending on the severity. In mild AR, the murmur is typically early diastolic, and in severe AR, the murmur may be mid-late diastolic.

A continuous, machine-like murmur is the typical murmur associated with patent ductus arteriosus (PDA). This most commonly presents in infancy.

An ejection systolic murmur is most commonly associated with aortic stenosis (AS) or hypertrophic obstructive cardiomyopathy (HOCM) if louder on expiration, or pulmonary stenosis and atrial septal defect if louder on inspiration. It may also be present in tetralogy of Fallot. This patient's clinical symptoms and past medical history of rheumatic fever could fit with a diagnosis of AS, however, this would not explain the presence of Quincke's sign or collapsing pulse.

A late systolic murmur is typically associated with coarctation of the aorta and mitral valve prolapse.

A pansystolic murmur may be present in mitral or tricuspid regurgitation, and ventricular septal defects.

Question:

A 37-year-old man presents to his general practitioner with new-onset symptoms. He has been noticing inflamed veins bulging on both of his calves and non-healing ulcers forming on his legs. Additionally, he has been perceiving strong pain in his legs after walking long distances. He has a 20 pack-year history of smoking. He has a family history of systemic lupus erythematosus on his mother's side.

His heart rate is 77/min, respiratory rate 13/min, blood pressure 137/70 mmHg and temperature 36.7 ºC. A random blood glucose test shows a result of 7.4 mmol/L.

Which one of the following is the most likely diagnosis?

A.Buerger's disease

B.CREST syndrome

C.Deep vein thrombosis

D.Diabetes mellitus

E.Systemic lupus erythematosus

Answer:Buerger's disease

Explanation:

Young male smoker with symptoms similar to limb ischaemia - think Buerger's disease

Important for meLess important

The correct answer is Buerger's disease. This is an inflammatory vasculitis strongly associated with young people who smoke. It usually presents with symptoms similar to chronic limb ischaemia. In this case, the patient presents with ischaemic ulcers and superficial thrombophlebitis. Additionally, he has been experiencing intermittent claudication (burning pain in his leg after walking long distances). These symptoms together with his 20 pack-year history of smoking at a young age make this diagnosis likely.

CREST syndrome is a subtype of limited systemic sclerosis comprising calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerodactyly and telangiectasia. This patient does not complain of any of these symptoms. Buerger's disease can be associated with Raynaud's phenomenon, the exaggerated vasoconstrictive response of the digital arteries and cutaneous arteriole to the cold or emotional stress but this patient does not complain of this.

Deep vein thrombosis is defined as the formation of a clot in a deep vein. It is almost always unilateral and usually presents with swelling, redness, pitting oedema and pain. In this case, the patient presents with bilateral symptoms, making the diagnosis unlikely. Additionally, he lacks risk factors for the development of these conditions, such as female sex and active cancer.

Diabetes mellitus is a good differential for limb issues, but in this case, the patient random blood glucose is normal. To trigger a diagnosis or suspect diagnosis of diabetes random blood glucose test need to show greater than or equal to 11.1 mmol/L.

Systemic lupus erythematosus is an autoimmune condition known to be associated with HLA B8, DR2, DR3 mutations. It is much more common in females. It is a multisystemic disease that presents with generalised and system-specific symptoms. The symptoms of these patients are limited to the legs making this diagnosis unlikely.

Question:

A 78-year-old man presents to his general practitioner with a productive cough and dyspnoea. He denies any fever or chest pain. On auscultation, the doctor notices reduced breath sounds and bronchial breathing. His past medical history is unremarkable, except for a recent bout of flu. The doctor diagnoses him with suspected pneumonia.

Which one of the following organisms is more likely to have caused his disease?

A.Haemophilus influenzae

B.Klebsiella pneumoniae

C.Legionella pneumophila

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Staphylococcus aureus

Explanation:

Preceding influenza predisposes to Staphylococcus aureus pneumonia

Important for meLess important

The correct answer is Staphylococcus aureus. This organism is the most likely to cause bacterial pneumonia following influenza infection.

Haemophilus influenzae pneumonia is a common cause of pneumonia in patients with COPD.

Klebsiella pneumoniae pneumonia is typically associated with alcoholics and diabetics. It causes classic red-currant jelly sputum.

Legionella pneumophila pneumonia is classically secondary to infected air conditioning units. The patient has no recent exposure to such an environment, but it is always worth asking about recent travel. It commonly causes hyponatraemia and lymphopenia.

Streptococcus pneumoniae accounts for 80% of cases of community-acquired pneumonia. But in this cases the patient's previous influenza infection makes Staphylococcus aureus more likely.

Question:

A 34-year-old sewage worker presents with a 3 days history of lower back pain, fever, myalgia, fatigue, jaundice and a subconjunctival haemorrhage. He has no past medical history and has not been abroad in the last 6 months.

Na+ 135 mmol/l

K+ 5.2 mmol/l

Urea 10 mmol/l

Creatinine 180 µmol/l

What is the most likely diagnosis?

A.Leptospirosis

B.Cysticercosis

C.Glomerulonephritis

D.Hepatitis A

E.Hepatitis E

Answer:Leptospirosis

Explanation:

Sewage workers are at risk of leptospirosis which is transmitted through rat urine. It typically presents as above and can progress to renal failure. Cysticercosis would not cause jaundice or renal failure. Glomerulonephritis should not cause jaundice or subconjunctival haemorrhage and acute viral hepatitis would not normally cause renal failure and would be unlikely without any travel history.

Question:

A 25-year-old woman undergoes a vaginal delivery at 39 weeks gestation, followed by a physiological third stage of labour. Shortly after, she loses 600ml of blood. Help is called for, and an ABCDE assessment is made. IV access is obtained, and she is given warmed IV crystalloid fluids. She is catheterised, and the uterus has been compressed to stimulate contractions however, she continues to lose blood.

The patient's only medical history includes asthma, and she does not have any known coagulopathy.

What is the most appropriate next step in her management?

A.IM carboprost

B.IV carboprost

C.IV oxytocin

D.IV tocolytics

E.Intrauterine 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

This patient has lost >500 ml of blood shortly after delivery, meaning she is in postpartum haemorrhage (PPH), the most likely cause of which is uterine atony.

IV oxytocin is correct. The first steps in management are an ABCDE approach, gaining IV access, giving warm crystalloid, and palpating the uterine fundus ('rubbing up the uterus') to stimulate uterine contraction and catheterisation to prevent bladder distention. These measures have not been successful. Therefore, the next step is to initiate medical therapy, which involves IV oxytocin.

IM carboprost is incorrect. Although this is another medical therapy that may be used, it requires senior approval before being given and can exacerbate bronchoconstriction in patients with asthma and, therefore, should be avoided.

IV carboprost is incorrect. As mentioned above, this is avoided in patients with asthma and is not given intravenously, as this is associated with an increased risk of bronchospasm, hypertension, and fever. It also requires senior approval before administration and this can delay treatment.

IV tocolytics is incorrect as these suppress uterine contractions, which would worsen the problem in this case. This case of PPH is most likely to be due to uterine atony, therefore, agents are given to stimulate uterine contraction. Giving tocolytics in this case would do the opposite and worsen the patient's PPH.

Intrauterine balloon tamponade is incorrect. This is the first-line 'surgical' step in the management of PPH. Given that no medical treatment has been tried yet in this patient jumping to this step may unnecessary and inappropriate.

Question:

An 18-year-old girl attended her routine appointment at the hospital. At age 1, she had surgery to remove bilateral abdominal masses, which her parents noticed.

At 14, she had not had her first menstruation, and Tanner's staging was 1.

She was started on medical treatment, and during her recent follow-up, her Tanner staging was assessed as stage 2.

Given the likely diagnosis, what is the genotype?

A.45X0

B.46XX

C.46XY

D.47XX

E.47XXY

Answer:46XY

Explanation:

Primary amenorrhoea, little or no axillary and pubic hair, elevated testosterone → androgen insensitivity syndrome

Important for meLess important

The condition presented is androgen insensitivity syndrome; the child is genotypically male but presents as female phenotypically. This is due to a mutation in the gene encoding the androgen receptor causing resistance to testosterone. The abdominal masses removed were undescended testes. The absence of menstruation is contributed by the lack of development of internal female genitalia due to the anti-Mullerian hormone produced by the testes. She was started on estrogen hormone replacement to help with physical female characteristics development, which subsequently led to breast development described as Tanner stage 2.

46XY is the correct answer based on the explanation above.

45XO is incorrect in this case as it refers to Turner syndrome. Although patients with Turner syndrome present with primary amenorrhea, other physical features characteristic of Turner syndrome such as wide-spaced nipples and broad shoulders, are not described in this patient. Turner syndrome is due to a missing X chromosome and not due to any mutation in the chromosome.

46XX is incorrect in this case as it refers to a genetically female child. The normal genotype of a female child is 46XX.

47XX is incorrect in this case. It refers to a female with an additional chromosome. If the additional chromosome is at position 21, the child has Down syndrome. Down syndrome teenagers would get their periods as usual as the sex chromosomes are not affected.

47XXY is incorrect in this case. It refers to Klinefelter syndrome. These patients are males born with male external genitalia (hence phenotypically male). Still, as they have an extra X chromosome, they present with wider hips and gynaecomastia which are characteristics of females.

Question:

A 87-year-old woman attends the GP with her son. She was diagnosed with Alzheimer's dementia three years ago and has recently moved into his home so that he can look after her. Since moving in, she has been significantly withdrawn and has reported seeing animals running around the house when there are none there. She does not report any other symptoms. Observations are all within normal limits and physical examination is unremarkable.

What is the most likely explanation for her presentation?

A.Pneumonia

B.Delirium

C.Depression

D.Psychosis

E.Urinary tract infection

Answer:Delirium

Explanation:

New surroundings can cause delirium in cognitively impaired patients

Important for meLess important

This woman is experiencing delirium secondary to her new surroundings. People with dementia are more prone to becoming delirious, even with minor insults such as change of environment. Delirium can cause visual hallucinations.

Community-acquired pneumonia and urinary tract infections are common causes of delirium in the elderly but seem less likely with normal observations, examination and no other clues in the history.

Depression is a common differential for dementia in the elderly. However, we know this woman has a diagnosis of dementia, and the history is much more acute- pointing towards delirium. Be aware, however, that symptoms of depression in the elderly are usually very non-specific.

Psychosis would explain visual hallucinations, but you would expect other symptoms such as thought disturbance. The history is also too acute, again pointing towards delirium.

Question:

A 62-year-old man with chronic kidney disease stage 4 complains of recurrent foot pain. You suspect a diagnosis of gout.

Where on the foot is gout most likely to affect?

A.Marker A

B.Marker B

C.Marker C

D.Marker D

E.Marker E

Answer:Marker E

Explanation:

The most common joint that gout affects is the first metatarsophalangeal joint.

Question:

A 45-year-old builder presents to his GP with episodes of tremor, sweating and blurred vision following exercise. He says he thinks they happen because he has pushed himself too hard exercising, however he is now getting these episodes early in the morning soon after waking up. These episodes go away once he has eaten some food. He has a small parathyroid adenoma, but is normally fit and well.

What diagnosis most fits with this man's presentation?

A.Alcoholism

B.Anxiety

C.Factitious hypoglycaemia

D.Insulinoma

E.Phaeochromocytoma

Answer:Insulinoma

Explanation:

Whipple’s triad of symptoms of 1) hypoglycaemia with fasting or exercise, 2) reversal of symptoms with glucose, and 3) recorded low BMs at the time of symptoms is hallmark for an insulinoma

Important for meLess important

Phaeochromocytoma, alcoholism and anxiety are reasonable diagnoses to consider, however the episodes do not typically go away with food.

Factitious hypoglycaemia in non-diabetics is often found in those in healthcare jobs due to access to insulin and other hypoglycaemia-causing drugs. This man is a builder and there is no indication from the stem that he has access to these drugs.

Insulinoma is a rare, but an important-to-not-miss diagnosis. These tumours are associated with multiple endocrine neoplasia (MEN) type 1, which is characterised by the 3 P's; parathyroid adenoma, pituitary tumour and pancreatic tumour (e.g. insulinoma). This man should be tested for MEN-1.

Question:

A 45-year-old man presents to the emergency department with a productive cough and shortness of breath, on a background of chronic obstructive pulmonary disease. He has smoked 40 cigarettes per day since the age of 20.

How many pack years is this?

A.20

B.30

C.40

D.50

E.60

Answer:50

Explanation:

1 pack year is defined as 20 cigarettes per day for 1 year

Important for meLess important

He has smoked for 25 years. 40 cigarettes per day for 1 year is equivalent to 2 pack years. 2 pack years x 25 years = 50 pack years.

Question:

A 23-year-old woman presents to the GP. She is 7-weeks pregnant but today has a small amount of vaginal bleeding and mild abdominal pain. She otherwise feels well.

She is mildly tender in the right iliac fossa and, on speculum examination, there is a small amount of blood in the vaginal vault with a closed cervical os. There is no cervical excitation.

Observations are:

Blood pressure 125/80mmHg

Heart rate 75 bpm

Temperature 36.5ºC

Saturations 99% on air

Respiratory rate 13 breaths/minute

Urine dip is positive for blood only and urinary pregnancy test is positive.

What is the most appropriate management?

A.Arrange an outpatient transvaginal ultrasound

B.Diagnose a threatened miscarriage and reassure the patient

C.Refer for assessment at the Early Pregnancy Unit within the next 7 days

D.Refer for immediate assessment at the Early Pregnancy Unit

E.Send home for expectant management with strong safety-netting

Answer:Refer for immediate assessment at the Early Pregnancy 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

In a woman with a positive pregnancy test and vaginal bleeding, abdominal, pelvic or cervical motion tenderness are indications for an immediate secondary care assessment. This is because the patient may have an ectopic pregnancy; an undiagnosed ectopic pregnancy will rupture and lead to significant haemodynamic compromise. Refer for immediate assessment is the correct answer.

Arranging an outpatient transvaginal ultrasound is incorrect. The presence of abdominal pain and tenderness raises the suspicion of imminent rupture. The patient needs to be in a setting where she can be diagnosed as soon as possible, treated and resuscitated if required. Waiting for an outpatient appointment is not appropriate.

A threatened miscarriage may be diagnosed once ultrasound confirms a viable intrauterine presentation. However, it is not possible to exclude ectopic pregnancy in this patient, particularly given the presence of pain and abdominal tenderness. It would be inappropriate to reassure this patient; she requires urgent further investigation.

The guidelines are clear that a patient with a positive pregnancy test, bleeding and pain requires immediate assessment. Referring for assessment within 7 days risks the chance of a possible ectopic pregnancy rupturing.

If a woman presents with vaginal bleeding and is less than six weeks pregnant and has no pain or tenderness, expectant management with strong safety-netting may be appropriate due to the likely diagnosis of miscarriage. However, this is not appropriate in this patient who is both over 6 weeks pregnant and has pain and abdominal tenderness.

Question:

A 19-year-old woman presented with a gradual development of bilateral hearing loss which was accompanied by nausea and ringing in the ears but denied otalgia or otorrhoea. She reported a family history of hearing problems but was unsure what the exact condition was.

Otoscopic examination demonstrated a reddish blush visible on the cochlear promontory beyond an intact tympanic membrane.

What is the diagnosis in this case?

A.Adhesive otitis media

B.Cerumen impaction

C.Meniere's disease

D.Otosclerosis

E.Tympanosclerosis

Answer:Otosclerosis

Explanation:

Otosclerosis is characterised by conductive hearing loss, tinnitus and positive family history

Important for meLess important

Otosclerosis is characterised by conductive hearing loss, tinnitus and positive family history. It is a form of hearing loss that occurs due to abnormal bone growth in your middle ear. In about 10% of cases of otosclerosis, there is a redness of the promontory of the cochlea seen through the tympanic membrane due to prominent vascularity known as the Schwartz sign, which is seen in this case.

Cerumen impaction is an accumulation of cerumen that causes hearing loss but also results in fullness, otorrhoea and dizziness which is absent here.

Adhesive otitis media is a form of chronic otitis media where there is the adhesion of medial ear structures as a result of chronic inflammation. This results in the retraction of the thin and atrophic tympanic membrane to the medial wall of the middle ear, which is not seen in this case.

Tympanosclerosis is characterised by a chalky, white plaque on the tympanic membrane which is not visualised in this case. This finding is suggestive of a previous middle ear infection or trauma.

Meniere's disease produces a classic triad of symptoms (episodic vertigo, tinnitus, and hearing loss), likely caused by endolymphatic hydrops of the labyrinthine system of the inner ear. The absence of recurrent rotatory vertigo makes this diagnosis unlikely here.

Question:

A 34-year-old man visits his GP due to worsening weakness and pain in his arms and hands, and increasing fatigue, especially on exertion. On examination there are faint fine crackles audible in the lower-mid zones. The GP also notices thickened and cracked skin on the patient's hands, as well as difficulty when the patient moves up from the chair onto the examination couch.

Which blood marker is most associated with this condition?

A.Anti-MiL antibodies

B.Creatinine kinase

C.Anti-Jo1 antibodies

D.ESR

E.Aldolase

Answer:Anti-Jo1 antibodies

Explanation:

Myositis with +ve anti-Jo1 antibodies can predispose to lung fibrosis (antisynthetase syndrome)

Important for meLess important

This man appears to have a subtype of dermatomyositis called antisynthetase syndrome, which is characterised by a combination of myositis and interstitial lung disease. This syndrome is caused by antibodies against anti-Jo1, also known as tRNA synthetase. Hand symptoms are not uncommon here, especially arthralgia, mechanic's hands and Raynaud's.

With any patient with myositis and +ve anti-Jo1 antibodies, it is important to be aware of their increased future risk of developing interstitial lung disease.

All of the options can be raised in myositis, except ESR which is usually normal. Raised ESR can occur in many other autoimmune conditions, especially polymyalgia rheumatica which may cause a similar presentation.

Question:

A 62-year-old man presents to his GP complaining of a cough that has been ongoing for 5 weeks.

On further questioning, he describes coughing up “smelly, green phlegm” and has been experiencing sweats most nights, left-sided chest pain, and occasional fevers. He denies weight loss. On examination, the lower left lung is dull to percussion with low-pitched bronchial breath sounds and he has a temperature of 38.2°C.

The patient has no recent travel history or sick contacts. The GP notes that he was treated for pneumonia 6 weeks ago.

What is the most likely cause of this patient’s presentation?

A.Lung abscess

B.Lung cancer

C.Pulmonary fibrosis

D.Recurrent pneumonia

E.TB

Answer:Lung abscess

Explanation:

Subacute productive cough, foul-smelling sputum, night sweats → ?lung abscess

Important for meLess important

Lung abscess is the correct answer. This patient has presented with a subacute productive cough with foul-smelling sputum and night sweats. The time course of a cough may be broadly divided into three different categories - acute, lasting less than three weeks; subacute, lasting three to eight weeks; and chronic, lasting longer than eight weeks. Given that this patient has a history of recent aspiration pneumonia, which is associated with lung abscess, and the examination findings (dullness on percussion, bronchial breath sounds, and fever), a lung abscess is the most likely diagnosis.

Lung cancer is incorrect. While this should always be a differential in a patient of this age with non-acute cough. However, this patient denies weight loss and has a fever and bronchial breath sounds on examination on a background of recent pneumonia. These findings together make lung abscess more likely than cancer.

Pulmonary fibrosis is incorrect. Unilateral pulmonary fibrosis is very rare. Further, the findings do not support this diagnosis; one would expect to hear fine crackles.

Recurrent pneumonia is incorrect. It is a good differential but bronchial breath sounds should draw you away from this diagnosis and point you towards lung abscess, which is a complication of pneumonia. Further, night sweats are uncommon in pneumonia.

TB is incorrect. Given that this patient has no travel history and no sick contacts without a history of immunosuppression, TB would be unlikely.

Question:

A 45-year-old man who takes omeprazole 20mg for gastroesophageal reflux disease reports that he has noticed a worsening of his indigestion and has also had an unintentional weight loss of 5kg over 2 months. He is sent for a 2-week wait referral and listed for an endoscopy in 3 weeks time.

What advice should he be given regarding his omeprazole?

A.Stop taking omeprazole 1 week before endoscopy

B.Continue taking omeprazole 20mg until day of gastroscopy

C.Stop taking omeprazole 2 weeks before endoscopy

D.Increase omeprazole dose to 40mg for 2 weeks prior to the endoscopy

E.Decrease omeprazole dose to 10 mg 1 week before the endoscopy

Answer:Stop taking omeprazole 2 weeks before endoscopy

Explanation:

If a patient is taking a proton pump inhibitor or H2 receptor blocker then it should be stopped at least 2 weeks prior to the endoscopy as it could mask serious underlying pathology such as gastric cancer.

Question:

A 78-year-old gentleman presents to the emergency department complaining of a severe headache. His only medical condition is hypertension, for which he take Ramipril 10 mg and Amlodipine 10 mg. As part of the full work up fundoscopy is performed, with the following results bilaterally: Scattered cotton wool spots, tortuous vessels throughout, and AV nipping.

What stage of hypertensive retinopathy according the Keith-Wagener classification does this patient have?

A.Stage 1

B.Stage 2

C.Stage 3

D.Stage 4

E.No retinopathy present

Answer:Stage 3

Explanation:

Fundoscopy reveals end organ damage in hypertension

Important for meLess important

This describes stage 3 hypertensive retinopathy, as there are features of stages 1 to 3 described.

Hypertensive and diabetic retinopathy are both common finals questions.

Question:

A 35-year-old man with a known history of peanut allergy presents to the Emergency Department with a swollen face. On examination blood pressure is 85/60 mmHg, pulse 120 bpm and there is a bilateral expiratory wheeze. What is the most appropriate form of adrenaline to give?

A.10ml 1:10,000 IV

B.0.5ml 1:1,000 IM

C.0.5ml 1:10,000 IM

D.5ml 1:1,000 IM

E.Nebulised adrenaline

Answer:0.5ml 1:1,000 IM

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

Question:

An 18-year-old man is bitten by a frantic dog whilst taking a gap year in Ecuador. He is worried about rabies and phones for advice. He was not immunised against prior to travelling to Ecuador. What is the most appropriate advice after thorough cleansing of the wound?

A.Give human rabies immunoglobulin + full course of vaccination

B.Give human rabies immunoglobulin + oral penicillin for the next 2 weeks

C.Advise low risk but take oral co-amoxiclav for the dog bite

D.Give human rabies immunoglobulin

E.Give full course of vaccination

Answer:Give human rabies immunoglobulin + full course of vaccination

Explanation:

Rabies - following possible exposure give immunglobulin + vaccination

Important for meLess important

Question:

A 56-year-old obese male patient presents to the emergency department of his local district general hospital with sudden onset, heavy central chest pain. He is nauseated and clammy. He has a past medical history of hypertension, type two diabetes mellitus, and hyperlipidaemia. His observations were taken showing oxygen saturation of 98% on room air, respiratory rate 16/min, heart rate 117/min, blood pressure 131/68mmHg, temperature 36.8ºC. His ECG shows ST-segment depression in the inferior leads and tachycardia.

What is the most appropriate management choice for this patient?

A.Aspirin and fondaparinux

B.Aspirin and low molecular weight heparin (LMWH)

C.Aspirin only

D.Repeat ECG for any dynamic changes prior to medication administration

E.Withhold any medications and convey to a cardiac centre

Answer:Aspirin and fondaparinux

Explanation:

NSTEMI management: fondaparinux should be given in addition to aspirin to all patients unless high bleeding risk

Important for meLess important

This patient is presenting with symptoms consistent with non-ST elevated myocardial infarction (NSTEMI). He is presenting at his local district general hospital emergency department where there is unlikely to be a cardiac centre available to administer angiography immediately. Due to this, the most appropriate management is aspirin and fondaparinux .

If the patient were to have immediate angiography, the management would be aspirin and unfractionated heparin .

There is no indication in NICE guidelines for the use of low molecular weight heparin (LMWH). If the patient is having immediate angiography, unfractionated heparin is preferred due to the easier reversibility of it with protamine sulfate.

Aspirin is an antiplatelet drug, not an antithrombin treatment and is inadequate to be given exclusively in myocardial infarction.

Repeating an ECG may be beneficial to assess for further changes, however it should not delay administration of medical management as it is unlikely to affect outcome for the patient.

Withholding medication may lead to further ischaemic damage and may lead to worse outcomes, therefore this is an incorrect answer.

Question:

A 45-year-old man comes to see his GP complaining of erectile dysfunction. This has been going on for the last year and he is very embarrassed and anxious about it, especially as it has been causing some problems in his marriage.

The GP does not find any abnormalities on examination, other than that he is overweight with a body mass index (BMI) of 27 kg/m2. The GP arranges for HbA1c and lipids to be checked.

What else should the GP do at this stage?

A.Chlamydia and gonorrhoea NAAT

B.Morning testosterone

C.Prolactin and FSH/LH

D.Refer for counselling

E.Routine referral to endocrinology

Answer:Morning testosterone

Explanation:

All men with ED should have their testosterone level checked

Important for meLess important

The correct answer is morning testosterone. All men presenting with erectile dysfunction should have their morning testosterone checked.

Chlamydia and gonorrhoea NAAT - there is no suggestion that an STI screen needs to be done, so this is not the correct answer.

You would only check prolactin and FSH/LH if you first check the testosterone and it comes back as low.

Referring for counselling could be an option if you feel the ED may be due to psychological reasons, but it is not the next step you should take. Other tests should be done first.

In this case there is no need to refer to endocrinology yet. You could consider this if his testosterone comes back as reduced.

Question:

A 35-year-old obese gravida 3 para 2 has developed a swollen and tender left leg; she is currently at 32 weeks of gestation and started on the appropriate treatment regimen. Due to her weight, the clinician decides to monitor her treatment with a specific blood test. Which blood test is this?

A.Platelet count

B.Prothrombin time (PT)

C.Activated Partial Thromboplastin Time (APTT)

D.Anti-Xa activity

E.International Normalised Ratio (INR)

Answer:Anti-Xa activity

Explanation:

This lady has most likely developed deep vein thrombosis (DVT). The RCOG has provided guidance for managing thromboembolic disease in pregnancy (Green Top Guideline No. 37b).

The guidance states that: 'In clinically suspected DVT or PE, treatment with low-molecular-weight heparin (LMWH) should be commenced immediately until the diagnosis is excluded by objective testing, unless treatment is strongly contraindicated.'

The guidance also states that: 'Routine measurement of peak anti-Xa activity for patients on LMWH for treatment of acute VTE in pregnancy or postpartum is not recommended except in women at extremes of body weight (less than 50 kg and 90 kg or more) or with other complicating factors (for example, with renal impairment or recurrent VTE).' and that 'Routine platelet count monitoring should not be carried out.'

Note that APTT is used for monitoring treatment with unfractionated heparin within this guidance.

Question:

Which one of the following features is more common in Crohn's disease than ulcerative colitis?

A.Abdominal mass palpable in the right iliac fossa

B.Tenesmus

C.Bloody diarrhoea

D.Faecal incontinence

E.Abdominal pain in the left lower quadrant

Answer:Abdominal mass palpable in the right iliac fossa

Explanation:

Question:

A 61-year-old man presents with a chronic cough. His past medical history includes hypertension and gout. He is due to retire shortly from his job as a sewage worker. He drinks around 50 units of alcohol a week and smokes 20 cigarettes per day. A chest x-ray is ordered:

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What is the most likely diagnosis?

A.Lung cancer

B.Leptospirosis

C.Lung abscess

D.Tuberculosis

E.Aspiration pneumonia

Answer:Lung cancer

Explanation:

A large central tumour can be seen in the left lung.

Question:

You are working in general practice and see a 24-year-old male with a likely diagnosis of pityriasis rosea. What most commonly precedes this condition?

A.Bacterial infection

B.Viral infection

C.Antibiotics

D.Alcohol

E.Dermatophyte fungal infection

Answer:Viral infection

Explanation:

Pityriasis rosea often follows a viral infection

Important for meLess important

Pityriasis rosea often follows a viral infection. Streptococcal throat infection tends to trigger guttate psoriasis, dermatophyte fungal skin infection tends to result in pityriasis versicolor. Antibiotics are not a recognised trigger for pityriasis rosea. Acne rosacea is often triggered by sun exposure, hot drinks or exercise, there is a misconception it is triggered by alcohol which can be very distressing to those suffering.

Question:

You are working on a surgical ward. One of your patients is being treated for cholecystitis secondary to gallstones. Which condition is associated with gallstone development?

A.Myocarditis

B.Ulcerative colitis

C.Sudden weight gain

D.Hypothyroidism

E.Crohn's disease

Answer:Crohn's disease

Explanation:

Terminal ileitis (Crohn's) is associated with gallstones

Important for meLess important

Crohn's disease can result in terminal ileitis, this is the section of the bowel where bile salts are reabsorbed. When this area is inflamed and the bile salts are not absorbed and people are prone to development of gallstones.

Other risk factors for the development of gallstones include;

Increasing age

Family history.

Sudden weight loss - eg, after obesity surgery.

Loss of bile salts - eg, ileal resection, terminal ileitis.

Diabetes - as part of the metabolic syndrome.

Oral contraception - particularly in young women

All of the other conditions are not commonly associated with gallstone formation.

Question:

A 28-year-old woman presents the Emergency Department at 35-weeks gestation with lower abdominal pain and vaginal bleeding. She is alert and responsive. Physical examination revealed a heart rate of 115 bpm, blood pressure of 90/60 mmHg and O2 saturation of 99%. On neurological exam, her pupils were dilated and her reflexes were brisk.

Hb 115 g/l

Platelets 250 \* 109/l

WBC 5 \* 109/l

PT 12 seconds

APTT 30 seconds

Which of the following underlying conditions would most likely explain the findings on physical exam?

A.HELLP syndrome

B.Heroin abuse

C.Cocaine abuse

D.Disseminated intravascular coagulopathy

E.Pre-eclampsia

Answer:Cocaine abuse

Explanation:

The scenario described in this question is consistent with that of placental abruption. Cocaine abuse, pre-eclampsia and HELLP syndrome are known causes of placental abruption, which typically presents with hyperreflexia. HELLP syndrome can be ruled out since the full blood count shows no indication of anaemia or low platelets as would be expected in this condition. Dilated pupils + hyperreflexia seen on physical examination point towards cocaine abuse. Heroin abuse would often present with pinpointed pupils and has not been associated with an increased risk of placental abruption. Although pre-eclampsia in pregnancy is associated with an increased risk of placental abruption, the findings on physical exam are more consistent with that of cocaine abuse. Disseminated intravascular coagulopathy is a complication placental abruption, not an underlying cause. Additionally, the normal partial thromboplastin time (PTT) and activated partial thromboplastintime (APTT) decrease the likelihood of underlying DIC.

Question:

A 44-year-old woman with Hashimoto's thyroiditis reports ongoing fatigue despite taking 150 micrograms of levothyroxine daily.

Despite her last thyroid function test being in the normal range, she has decided to purchase liothyronine from an online pharmacy which she is taking in addition to her prescribed levothyroxine in order to manage her symptoms.

You arrange another blood test after 6 weeks which shows:

Thyroid stimulating hormone (TSH) 0.02 mU/L (0.5-5.5)

Free thyroxine (T4) 23 pmol/L (9.0 - 18)

You suggest that she stop liothyronine but she insists that she feels more energetic while taking both medications so is keen to continue.

What risk should she be informed of if she opts to continue with her current treatment regimen?

A.Dyslipidaemia

B.Exophthalmos

C.Hypoglycaemia

D.Menorrhagia

E.Osteoporosis

Answer:Osteoporosis

Explanation:

Over-replacement with thyroxine increases the risk for osteoporosis

Important for meLess important

This patient has biochemical evidence of thyrotoxicosis, most likely from over-replacement with exogenous thyroid hormone (in the form of levothyroxine and liothyronine).

It is important that she is counselled about the risks of over-replacement, especially reduced bone mineral density and osteoporosis. This is because excess thyroid hormone increases the rate of osteoclastic resorption compared to osteoblastic bone formation.

Dyslipidaemia is associated with hypothyroid states rather than thyrotoxicosis.

Exophthalmos (proptosis) is seen in thyrotoxicosis associated with Graves' disease, due to the autoantibody-mediated activation of orbital fibroblasts. This does not occur in Hashimoto's thyroiditis or with exogenous levothyroxine.

Thyrotoxicosis is more commonly associated with hyperglycaemia, rather than hypoglycaemia. This is due to increased hepatic glucose production as well as glycogenolysis.

Menorrhagia is associated with hypothyroidism rather than thyrotoxicosis.

Question:

A 47-year-old woman presents to the emergency department with a painful red left eye, which came on suddenly this morning. Visual acuity is significantly reduced in the left eye compared to the right. On slit-lamp examination, you notice the presence of pus within the anterior chamber.

Given the likely diagnosis, what is the most appropriate treatment?

A.Dorzolamide eye drops

B.Intravenous (IV) acetazolamide

C.Latanoprost eye drops

D.Review in one week

E.Steroid eye drops and cycloplegic eye drops

Answer:Steroid eye drops and cycloplegic eye drops

Explanation:

Anterior uveitis is most likely to be treated with a steroid + cycloplegic (mydriatic) drops

Important for meLess important

The correct answer is steroid eye drops and cycloplegic eye drops.

This patient is presenting with a classic history of anterior uveitis. Patients experience acutely painful red-eye and reduced visual acuity. They may also complain of photophobia. On examination, the affected pupil is likely to be small, and there may be pus in the anterior chamber. Anterior uveitis is generally treated with steroid eye drops and cycloplegic eye drops (e.g. atropine). If there is any concern about infective anterior uveitis, a discussion with ophthalmology would be required.

Dorzolamide is a carbonic anhydrase inhibitor that reduces aqueous production. It is typically used in the management of primary open-angle glaucoma.

IV acetazolamide would be the appropriate treatment for a patient presenting with acute angle-closure glaucoma.

Latanoprost is a prostaglandin analogue that increases uveoscleral outflow. It is also used in the management of primary open-angle glaucoma.

This patient should not leave without definitive treatment. Anterior uveitis is a serious condition that can result in permanent loss of vision if not treated promptly.

Question:

A 50-year-old man is reviewed in clinic. He has shortness of breath and chest discomfort on exertion relieved with rest. The discomfort is felt as chest squeezing that radiates to the left arm.

His symptoms initially resolved after starting a new medication but have now returned. He takes aspirin, atorvastatin, verapamil, and standard-release isosorbide mononitrate twice daily at midnight and when he wakes up at 6 am.

His heart rate is 95 bpm and his blood pressure is 134/85 mmHg. A cardiovascular examination is unremarkable and an ECG is normal.

What is the most appropriate next step in his management?

A.Change nitrate doses to 9 am and 8 pm

B.Change nitrate to atenolol

C.Change nitrate to ivabradine

D.Change nitrate to nicorandil

E.Increase nitrate dose

Answer:Change nitrate doses to 9 am and 8 pm

Explanation:

Asymmetric dosing regimes should be used for standard-release ISMN to prevent nitrate tolerance

Important for meLess important

Change nitrate doses to 9 am and 8 pm is correct. This patient has signs and symptoms of stable angina, characterised by his shortness of breath and chest discomfort on exertion, a normal cardiovascular examination, and a normal ECG. The medications he takes also support this diagnosis as all patients with stable angina are started on aspirin and atorvastatin, and verapamil (a rate-limiting calcium channel blocker) is one of the initial management steps.

This patient is taking standard-release isosorbide mononitrate, a 3rd-line option, and their symptoms initially resolved but have now returned. This is likely due to the development of nitrate tolerance whose mechanism is not fully understood. This phenomenon is not seen in patients taking modified-release isosorbide mononitrate. The most appropriate advice would be to change the doses to 9 am and 8 pm as this leaves a 13-hour time period following the 8 pm dose where nitrate levels decline, during which the patient is likely to be carrying out less activity or be asleep. This is known as an asymmetric dosing interval and should aim to keep a nitrate-free time of 10-14 hours to reduce the risk of nitrate tolerance developing. With how the patient is currently taking their medications, their nitrate-free time would be 6 hours. Modified-release formulations tend to be more expensive and it would be ideal to try to have the patient use an asymmetric dosing regime first.

Increase nitrate dose is incorrect. This would be unlikely to resolve his symptoms as his tolerance is occurring as a result of the timing of his doses, not the total dose he is taking. It would be more appropriate to change when he takes his isosorbide mononitrate rather than increase the dose, as this can carry an increased risk of the development of side effects (e.g. hypothyroidism that can manifest as dizziness and headaches).

Change nitrate to atenolol is incorrect. This would be inappropriate as the patient is taking verapamil, a rate-limiting calcium channel blocker, which should never be co-prescribed with a beta-blocker as it can cause severe bradycardia.

Change nitrate to ivabradine is incorrect. It would be more appropriate to try an asymmetric dosing regimen first as this may resolve his symptoms, rather than start another medication that may carry undesirable side effects and may not work.

Change nitrate to nicorandil is incorrect. It would be more appropriate to try an asymmetric dosing regimen first as this may resolve his symptoms, rather than start another medication that may carry undesirable side effects and may not work.

Question:

A 24-year-old female presents to her general practitioner with 3 days of diarrhoea. There is no blood in the stools or history of fever. She is opening her bowels three times a day with watery stool. She has a background of rheumatoid arthritis. She has well-controlled on methotrexate and adalimumab. She does not smoke or drink alcohol.

On examination, she has very mild abdominal tenderness. There is no guarding and her abdomen is soft. Bowel sounds are present.

Her general practitioner arranges a stool microscopy, which grows Campylobacter jejuni .

What is the most appropriate management?

A.Amoxicillin

B.Ciprofloxacin

C.Clarithromycin

D.Loperamide

E.Watchful waiting

Answer:Clarithromycin

Explanation:

Campylobacter infection is often self-limiting but if severe then treatment with clarithromycin may be indicated

Important for meLess important

Clarithromycin is the correct answer. She is immunocompromised due to her disease-modifying treatment for rheumatoid arthritis. Although her infection would not be classed as severe, current guidelines advocate treating such patients with antibiotics. The first choice would be clarithromycin.

Ciprofloxacin is incorrect. This would be the second line choice if clarithromycin was not tolerated or contraindicated.

Amoxicillin is incorrect. While this antibiotic has some activity against this organism, rates of resistance are generally too high for this to be an option.

Loperamide is incorrect. This immunosuppressed patient needs treatment aimed at cure rather than symptomatic relief of diarrhoea.

Watchful waiting is incorrect. This immunosuppressed patient needs antibiotic treatment.

Question:

A 28-year-old female in her first pregnancy presents to her GP at 12 weeks gestation with dysuria. She is otherwise well and pregnancy has been uncomplicated to date. Urine dip is positive for leucocytes, nitrates, blood and protein. Which is the most appropriate treatment?

A.Leave it as UTIs are common in pregnancy and you don't want to risk harming the baby

B.Trimethoprim

C.Nitrofurantoin

D.Ciprofloxacin

E.Sulfasalazine

Answer:Nitrofurantoin

Explanation:

UTI in pregnancy may be asymptomatic, but still requires prompt treatment to prevent the development of pyelonephritis. Nitrofurantoin and trimethoprim are frequently used to treat UTIs; nitrofurantoin may be used during pregnancy, but should be avoided at term, as it can cause neonatal haemolysis. Trimethoprim should be avoided in pregnancy, especially in the first trimester. Penicillins and cephalosporins are suitable for use during pregnancy, but sulfonamides (such as sulfasalazine) and quinolones (such as ciprofloxacin) should be avoided in pregnancy.

Question:

A 64-year-old female attends the GP practice with a headaches, dizziness and fatigue. She has a past medical history of hypertension and mild asthma. She currently takes bendroflumethiazide and occasionally uses a salbutamol inhaler. The patient is investigated and blood tests are performed.

Which of the following electrolyte abnormalities is most likely in this patient?

A.Hyperkalaemia

B.Hypermagnesemia

C.Hypocalcaemia

D.Hypoglycaemia

E.Hyponatraemia

Answer:Hyponatraemia

Explanation:

Hyponatremia is an adverse effect that is associated with thiazide diuretics.

Important for meLess important

The correct answer is hyponatraemia. Thiazide diuretics work by inhibiting sodium reabsorption in the distal convoluted tubule. They are not used as widely anymore for hypertension; thiazide-like diuretics are generally used in preference nowadays - this patient's use of bendroflumethiazide is likely historic.

Hyperkalaemia is incorrect. Thiazide diuretics result in hypokalaemia. This is due to increased sodium reaching the collecting duct, causing increased potassium loss.

Thiazide diuretics are also known to cause hypomagnesemia, rather than hypermagnesemia.

Hypocalcaemia is also incorrect. Thiazide diuretics result in hypercalcaemia. This also means that less calcium is being excreted in the urine (hypocalciuria), making thiazides somewhat useful in reducing the risk of calcium-type kidney stone formation.

Hypoglycaemia is incorrect. Thiazide diuretics are known to cause impaired glucose tolerance and hyperglycemia.

Question:

You are working in the surgical department. One of your patients is a 35-year-old woman who presents with a fractured femur and chest pain following a car crash. Her past medical history includes poorly controlled asthma. She is admitted for surgical repair and her pain relief includes general anesthesia, nitrous oxide, and an epidural. You notice she is becoming more breathless and is complaining of chest pain. Her observations are respiratory rate 30/min, BP 70/50mmHg, heart rate 150/min, and temperature 37ºC. On examination, her left chest is hyper-resonant.

What is the likely cause of her deterioration?

A.Allergy to epidural pain relief

B.Malignant hyperthermia

C.Nitrous oxide

D.Pulmonary embolus

E.Suxamethonium apnoea

Answer:Nitrous oxide

Explanation:

Nitrous oxide should be used with caution in patients with a pneumothorax

Important for meLess important

The patient has a pneumothorax, this is evidenced by patient being in a car accident as well as having chest pain and a hyperresonant chest

Nitrous oxide is correct. This patient has been in a car crash, a risk factor for developing a pneumothorax. If nitrous oxide is given to a patient with a pneumothorax, the patient is at risk of developing a tension pneumothorax. This is because the nitrous oxide may diffuse into gas-filled body compartments and increase in pressure. The patient is showing signs and symptoms of a tension pneumothorax. She has a high respiratory rate, low blood pressure and high heart rate. Additionally, she has increasing shortness of breath, chest pain and her chest is hyper-resonant.

Allergy to epidural pain relief is incorrect. Although anaphylaxis can have a similar presentation i.e. a high respiratory rate, low blood pressure, and high heart rate, this is not the most likely cause of this patient's deterioration. This is because of the examination findings i.e. a hyper-resonant left lung, which point us in the direction of a tension pneumothorax. Additionally, there is no mention of other signs of an allergic reaction e.g. oedema and rashes.

Malignant hyperthermia is incorrect. Malignant hyperthermia is an important reaction some patients get when they receive anaesthetics. The typical presentation is a very high body temperature, rigid muscles or spasms, and a rapid heart rate, none of which our patient has.

Pulmonary embolus is incorrect. Although pregnancy is an important risk factor for developing a pulmonary embolus, and the observations and presentation are fitting with a pulmonary embolus, this is not the most likely answer. This is because of the examination findings i.e. a hyper-resonant left lung, which point us in the direction of a tension pneumothorax. The past medical history of poorly controlled asthma, a risk factor for a pneumothorax, also points us to the most likely diagnosis.

Suxamethonium apnoea is incorrect. A rare side effect of the anaesthetic agent suxamethonium is suxamethonium apnoea. However, this would not be the most likely cause of this patient's deterioration as this is a rare side effect and the examination findings point us in the direction of a pneumothorax.

Question:

A 56-year-old man presents to the emergency department with sudden-onset visual loss. He denies any ocular trauma, eye redness, or headaches. The loss of vision was progressive, starting from the outside and moving inwards and there were preceding flashes and floaters. He wears corrective glasses and occasionally contact lenses, however, he cannot remember his prescription.

What feature increases the risk of this patient developing this condition?

A.Astigmatism

B.Contact lens use

C.Hypermetropia

D.Myopia

E.Presbyopia

Answer:Myopia

Explanation:

Myopia is a risk factor for retinal detachment

Important for meLess important

This patient's vision loss occurred progressively, starting peripherally and moving towards the centre, which should raise suspicion of retinal detachment (RD). Many patients may describe their vision loss as a curtain or veil coming down over their vision. The preceding flashes and floaters occur because the vitreous humour is tugging at the retina, which causes the flashes and floaters, and this eventually causes the retina to detach, leading to visual loss.

Myopia is correct. This is because the retina is being stretched as the eyeball is longer in patients with myopia, making it more prone to tearing and detachment.

Astigmatism is incorrect. This is a type of refractive error due to the eyeball being slightly different in shape, such as being rugby-ball shaped instead of spherical which can lead to slightly blurred vision. It is not associated with an increased risk of RD.

Contact lens use is incorrect as it has no association with an increased risk of RD. Patients who wear contact lenses are typically at an increased risk of infection, such as keratitis, which presents with a red, painful, and gritty eye.

Hypermetropia is incorrect. This is not associated with an increased risk of RD. It is, however, associated with an increased risk of acute angle-closure glaucoma, which presents with severe ocular pain, visual blurring, a hard and red eye, and systemic upset such as nausea and vomiting.

Presbyopia is incorrect. This describes the normal age-related decline of a patient's vision due to the eye lens being unable to change shape as effectively. It is not associated with an increased risk of RD.

Question:

A 73-year-old man who is currently on palliative treatment for advanced lung cancer presents to the emergency department with sudden onset bilateral leg swelling, which extends to his pelvic region.

Urinalysis is performed and the results are shown below:

Protein Positive

Blood Negative

Glucose Negative

Leucocytes Negative

Nitrites Negative

He is admitted to the ward, and a renal biopsy arranged. Relevant findings from this biopsy are shown below:

Light microscopy Thickened basement membrane

Silver staining Sub-epithelial spikes

Based on the above information, what is the most likely diagnosis?

A.Anti-GBM disease

B.Focal-segmental glomerulonephritis

C.IgA nephropathy

D.Membranous nephropathy

E.Minimal change disease

Answer:Membranous nephropathy

Explanation:

Membranous nephropathy is frequently associated with malignancy

Important for meLess important

Membranous nephropathy is the most common cause of nephrotic syndrome in adults. It can exist as a primary condition associated with anti-PLA2 antibodies, but also frequently occurs secondary to malignancy, especially lung, bowel and haematological malignancies. It presents with the features of nephrotic syndrome (proteinuria >3g/day, hypoalbuminemia and oedema), and can be definitively diagnosed by a renal biopsy. The biopsy will show a thickened basement membrane on light microscopy and sub-epithelial spikes on silver staining. Initial management is conservative, with ACE-inhibitors to reduce proteinuria, a statin and prophylactic anticoagulation.

Anti-GBM disease (previously Goodpasture's syndrome) is an autoimmune condition in which antibodies (anti-GBM) are produced against type 4 collagen in the lungs and glomeruli. It tends to cause a more nephritic state in the kidneys, and can also present with haemoptysis secondary to pulmonary haemorrhage. Renal biopsy would show linear deposits of IgG along the basement membrane.

Focal-segmental glomerulosclerosis is another cause of nephrotic syndrome that may present similarly. However, it does not have as strong an association with underlying malignancy. Furthermore, the renal biopsy in this condition would show focal and segmental sclerosis on light microscopy and foot process effacement under electron microscopy.

IgA nephropathy is also likely to present more towards the nephritic end of the spectrum, particularly with macroscopic haematuria in a young person following an upper respiratory tract infection. The renal biopsy in this disease (although not always necessary) would show mesangial proliferation and matrix accumulation.

Minimal change disease would present with nephrotic syndrome. However, it is much more common in children and is not typically associated with underlying malignancy. Renal biopsy is rarely performed in cases of minimal change disease.

Question:

A 31-year-old pregnant woman presents at 41 weeks gestation for an artificial rupture of the membranes. Shortly after this procedure, she undergoes an examination. During this, the umbilical cord is noted to be palpable vaginally.

What position should she be told to adopt?

A.Head-end of bed tilted downwards

B.Head-end of bed tilted downwards, with the legs separated

C.Legs hyperflexed tightly to abdomen

D.Legs separated, flexed and supported in stirrups

E.On all fours, on the knees and elbows

Answer:On all fours, on the knees and elbows

Explanation:

The correct position for women who have a cord prolapse is on all fours, on knees and elbows

Important for meLess important

The diagnosis here is cord prolapse, a risk factor for which is artificial rupture of the membranes. The presenting part of the fetus may be pushed back inside, but the cord itself should not be pushed back in - it should, however, be kept warm and moist. The patient should go 'on all fours' whilst preparations for a caesarian section are made.

Tilting the head-end of the bed downwards is the Trendelenburg position. This is used in laparoscopic and abdominal surgery to shift abdominal contents superiorly, using gravity.

Both tilting the head-end of the bed downwards and separating the legs is known as the Lloyd Davis position, or 'head-down lithotomy', since it is a combination of the two. It is used in rectal and pelvic surgery for access both perineally and abdominally.

Hyperflexing the legs tightly to the abdomen is McRoberts manoeuvre. This is used when shoulder dystocia is complicating the delivery. It would not be used for cord prolapse.

The legs being separated and raised in stirrups refers to lithotomy, used in obstetrics and gynaecology for many situations, including instrumental delivery and surgery. However, in the case of cord prolapse, it is not used.

Question:

A 55-year-old man presents to the emergency department of a tertiary hospital with central crushing chest pain which resolves after 60 minutes. His past medical history is significant for hypertension and hyperlipidaemia.

On examination, he appears well with stable vital signs and no evidence of fluid overload. An ECG taken on admission demonstrates new ST depression in leads II and III with no elevation elsewhere. He has a troponin rise to 0.9ng/mL and his GRACE score is calculated at a 4% risk of mortality at 6 months.

What is the most appropriate treatment option for this patient?

A.Continue conservative management as current

B.Coronary angiography within 72 hours of admission

C.Emergency cardiac catheterisation and PCI

D.Outpatient diagnostic angiography for consideration of coronary artery bypass grafting

E.Thrombolysis

Answer:Coronary angiography within 72 hours of admission

Explanation:

NSTEMI management: patients with a GRACE score > 3% should have coronary angiography within 72 hours of admission

Important for meLess important

This patient has typical cardiac chest pain and a positive troponin rise with no ST elevation on ECG, which is diagnostic for an NSTEMI. As part of NSTEMI management, patients with a GRACE score >3% should have coronary angiography within 72 hours of admission unless they are unstable. This patient has a GRACE score of 4% and is haemodynamically stable. Therefore, a coronary angiogram within 72 hours of admission is indicated. This allows for early diagnosis of coronary artery narrowing, and potential therapeutic intervention with percutaneous coronary intervention is required.

Due to this patient's risk of a significant coronary lesion that may need intervention, continuing conservative management is inappropriate and may lead to poorer outcomes.

Emergency cardiac catheterisation and PCI is reserved for patients with ST-elevated myocardial infarction or unstable NSTEMI patients with a GRACE score>3%. Although this patient has a GRACE score of 4%, haemodynamic instability is also required to justify emergent coronary intervention with PCI. Doing a semi-urgent angiogram within 72 hours is safer and more appropriate for this patient.

This patient requires admission to the hospital for monitoring of NSTEMI complications and semi-urgent angiography and, thus, does not warrant outpatient diagnostic angiography. Furthermore, coronary artery bypass grafting is reserved for severe triple vessel disease where PCI is not feasible.

This patient has presented to a tertiary centre; thus, thrombolysis is not appropriate and reserved for patients in rural settings where cardiac laboratories are not nearby. Furthermore, thrombolysis would be reserved for a STEMI patient, similar to emergency catheterisation.

Question:

You are teaching a man about how to use an EpiPen (adrenline auto-injector). What is the most appropriate advice about where to inject the pen?

A.Posterolateral aspect of the middle third of the thigh

B.Posterolateral aspect of the proximal third of the thigh

C.Upper, outer quadrant of the buttock

D.Deltoid muscle

E.Anterolateral aspect of the middle third of the thigh

Answer:Anterolateral aspect of the middle third of the thigh

Explanation:

IM adrenaline should be injected in the anterolateral aspect of the

middle third of the thigh

Important for meLess important

Question:

A 65-year-old man presents to the emergency department with a 4-hour history of right-sided loin to groin pain. He has never experienced pain like this before and regular analgesia has not relieved his symptoms. His past medical history includes hypertension for which he takes amlodipine and indapamide.

His observations are as follows:

Temperature 35.5ºC

Heart rate 110bpm

Blood pressure 99/55mmHg

Respiratory rate 24 breaths/min

Saturations 95% on air

On examination, he is clammy to touch. His chest is clear and heart sounds are normal. There is generalised abdominal tenderness and central guarding. Bowel sounds are present.

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

A.Blood cultures

B.Computed tomography kidneys, ureter and bladder (CTKUB)

C.Urgent vascular review

D.Urinalysis

E.X-ray abdomen

Answer:Urgent vascular review

Explanation:

Patients with a suspected ruptured AAA require an immediate vacular review with a view to emergency surgical repair

Important for meLess important

This patient has a ruptured abdominal aortic aneurysm (AAA). Symptoms of a ruptured AAA can present similarly to renal colic with loin to groin pain. However, it is a very important differential diagnosis, particularly in men aged above 50 years. This patient is displaying signs of shock including tachycardia and hypotension, which are additional factors that support a diagnosis of a ruptured AAA. Given the high mortality rate of a ruptured AAA, an immediate vascular review is indicated for this patient with the view for emergency surgical repair.

Whilst this patient is tachycardic and hypotensive, it is more likely that this is secondary to haemorrhagic shock rather than sepsis. Therefore, taking blood cultures would not be the most immediate next step in the management of this patient as they do not play a role in treating a ruptured AAA.

If a patient is suspected of having renal colic, a CTKUB is commonly requested as the best imaging modality to detect ureteric calculi and associated renal pathology. Although this patient is presented with loin to groin pain, the presence of shock in an older man with a history of hypertension points toward a diagnosis of a ruptured AAA.

Urinalysis is an initial investigation to request for patients with loin to groin pain in order to detect evidence of infection or blood (that may indicate renal calculi). However, it does not play a role in the management of a ruptured AAA.

An X-ray abdomen is an initial investigation for suspected bowel obstruction with common findings including dilated bowel loops. Although this patient has abdominal pain and guarding on examination, there is an absence of a history of constipation and vomiting that are often seen in bowel obstruction. Furthermore, the characteristic pattern of loin to groin pain with shock is more suggestive of a ruptured AAA for which an urgent vascular review is needed.

Question:

A 45-year-old male presents to the emergency department with increasing abdominal girth, yellowing sclera, and malaise. He reports drinking 70cl of whisky per day and has had multiple failed community detoxification programmes. He has a past medical history of liver cirrhosis. On examination, he has a severely distended abdomen with shifting dullness and an enlarged mass in the right upper quadrant.

Which of the following is most appropriate to prescribe for this patient?

A.Furosemide

B.Naproxen

C.Ramipril

D.Spironolactone

E.Fluid restrict with IV 1.9% NaCl

Answer:Spironolactone

Explanation:

Patients with ascites secondary to liver cirrhosis should be given an aldosterone antagonist

Important for meLess important

In ascites, aldosterone antagonists (such as spironolactone) are the preferred diuretic as they combat sodium retention. Due to this, patients should also be commenced on a low-salt diet.

Furosemide is a useful diuretic in combination with spironolactone, however, it is ineffective at blocking aldosterone (and its sodium retaining effects in the distal tubule and collecting duct). It is not the first choice diuretic to be used as a single agent in ascites secondary to liver cirrhosis.

Naproxen is a non-steroidal anti-inflammatory drug (NSAID) that should be avoided in ascites along with other nephrotoxic medications. It has no role in reducing ascitic accumulation.

ACE inhibitors (such as ramipril) can induce renal failure through arterial hypotension even in low doses in cirrhotic patients and should be used with careful blood pressure and renal function monitoring.

As mentioned above, a low sodium diet is recommended in ascitic patients to avoid water retention. Using high sodium concentration fluid restriction will not be beneficial.

Question:

A 62-year-old man with a background of chronic obstructive pulmonary disease (COPD) attends for his annual check-up. He is on 1 litre of home oxygen for 15 hours a day. His treatment for COPD includes salbutamol, Symbicort (budesonide/formoterol) and tiotropium inhaler.

On examination, you can hear scattered wheeze with no crackles. You also note pitting oedema in both legs. When you listen to his heart sound, you suspect that he may have pulmonary hypertension.

Which of the following features would support this diagnosis?

A.A loud second heart sound

B.Splitting of first heart sound

C.A soft second heart sound

D.A loud first heart sound

E.A soft first heart sound

Answer:A loud second heart sound

Explanation:

Pulmonary hypertension is a cause of a loud S2 (due to a loud P2)

Important for meLess important

The correct answer is a loud second heart sound. Second heart sound is produced by closure of the aortic and pulmonary valves. Pulmonary hypertension is a cause of a loud second heart sound. This patient is likely suffering from cor pulmonale which is a known complication of chronic obstructive pulmonary disease. This complication is due to increased vascular resistance in the pulmonary vessels which results in right-sided heart failure.

Splitting of first heart sound occurs when the mitral valve closes significantly before the tricuspid valve, producing two separate audible sounds. Inspiration is a common cause of this as it delays the closure of the tricuspid valve due to increased venous return. Hence, this answer is incorrect.

A soft second heart sound is normally found in patients with aortic stenosis, hence this answer is incorrect.

The first heart sound results from the closing of the mitral and tricuspid valves. A loud first heart sound can be found in patients with mild to moderate mitral stenosis, whereas a soft first sound is often found in patients with severe mitral stenosis. Hence, both of these answers are incorrect.

Question:

A 19-year-old female presents to the GP with her mother, she is reporting a growing breast lump that is causing her distress. You offer to examine her and ask if she would like a chaperone. She says that she doesn't want a stranger there so would rather have her mum as the chaperone, what do you do?

A.Explain that family members cannot be used for chaperones and reoffer the patient someone at the practice to chaperone

B.Accept the mother as a chaperone but ensure you have documented this in the notes

C.Explain that family members cannot be chaperones and ask her to re-book for 2 weeks time

D.Explain that family members cannot be chaperones and document this in her notes, continue with the examination on your own

E.Explain that is isn't her choice who the chaperone is, continue with the examination on your own

Answer:Explain that family members cannot be used for chaperones and reoffer the patient someone at the practice to chaperone

Explanation:

The GMC guidelines in Good Medical Practice Intimate examinations and chaperones states; 'When you carry out an intimate examination, you should offer the patient the option of having an impartial observer (a chaperone) present wherever possible. This applies whether or not you are the same gender as the patient. A chaperone should usually be a health professional and you must be satisfied that the chaperone will:

be sensitive and respect the patients dignity and confidentiality

reassure the patient if they show signs of distress or discomfort

be familiar with the procedures involved in a routine intimate examination

stay for the whole examination and be able to see what the doctor is doing, if practical

be prepared to raise concerns if they are concerned about the doctors behaviour or actions.'

'A relative or friend of the patient is not an impartial observer and so would not usually be a suitable chaperone, but you should comply with a reasonable request to have such a person present as well as a chaperone. 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. If you dont want to go ahead without a chaperone present but the patient has said no to having one, you must explain clearly why you want a chaperone present. Ultimately the patients clinical needs must take precedence. You may wish to consider referring the patient to a colleague who would be willing to examine them without a chaperone, as long as a delay would not adversely affect the patients health. You should record any discussion about chaperones and the outcome in the patients medical record. If a chaperone is present, you should record that fact and make a note of their identity. If the patient does not want a chaperone, you should record that the offer was made and declined.'

You should not preform this examination without a chaperone or with the mother as one, thus the only option is to reoffer the chaperone or ask her to come back at a time when someone can do this. Making a patient with a growing breast lump wait for 2 weeks would be unreasonable.

Question:

A 32-year-old woman presents with sudden onset hemiparesis affecting the right face, arm and leg. On examination you note right sided hemiparesis, aphasia, and a right homonymous hemianopia. She has a past medical history of recurrent deep vein thrombosis, pulmonary embolisms and recurrent miscarriages. Blood results reveal a prolonged APTT.

What is the most likely cause of the stroke?

A.Von Willebrand disease

B.Embolus from paroxysmal atrial fibrillation

C.Antiphospholipid syndrome

D.Systemic lupus erythematosus

E.Factor V Leiden

Answer:Antiphospholipid syndrome

Explanation:

The clinical features are suggestive of antiphospholipid syndrome. A positive anti-Cardiolipin antibody can assist in making the diagnosis.

It is important to remember that strokes can be caused by hypercoagulable states and hyperviscosity. Antiphospholipid syndrome is a type of thrombophilia disorder resulting in hypercoagulation and increased tendency to form clots - both arterial and venous. This thereby increases the risk of ischaemic strokes.

Question:

A patient is noted to have an absent triceps reflex. Which nerve root does this correspond to?

A.C7-C8

B.C5-C6

C.C3-C4

D.C6-C7

E.C5-C7

Answer:C7-C8

Explanation:

Question:

A 64-year-old man presents to ED with acute onset shortness of breath. He has a background of COPD and a previous myocardial infarction 2 years ago.

Upon examination, there is a wheeze and bibasal inspiratory crackles upon auscultation.

His observations are as below:

Heart rate is 110/min

Respiratory rate 18/min

Blood pressure 102/84mmHg.

His chest x-ray can be seen below.

© Image used on license from Radiopaedia

What is the best next step in the management of this patient?

A.Conservative management

B.IV dobutamine

C.IV furosemide

D.Oral amoxicillin

E.Oral prednisolone

Answer:IV furosemide

Explanation:

IV furosemide is the correct answer. The image demonstrates pulmonary oedema on a chest x-ray. The patient has presented with acute heart failure. This can also present with wheeze. There 3 main causes of crackles are infection, pulmonary oedema and lung fibrosis. As there are no consolidations (infection), and no expiratory crackles (lung fibrosis) pulmonary oedema is the most likely. The mnemonic ABCDE is useful to remember for pulmonary oedema. A is for alveolar oedema, which is widespread on this x-ray. B is for Kerley B lines, which can be seen on the lateral edges of both lungs. C is for cardiomegaly, which unfortunately cannot be assessed as there is no indication this is an anteroom-posterior (AP) x-ray. D is for dilated upper lobe vessels, which are not visible in this chest x-ray. E is for pleural effusion, here there is notching of the costophrenic angles, indicative of fluid pooling there. Furosemide is a loop diuretic used as the first line for acute heart failure to treat the fluid overload. It is important to administer it through a cannula as the bowel can be quite oedematous in these patients, therefore not absorbing it as effectively if given orally.

Conservative management is incorrect. Given the patient's acute symptoms and chest x-ray showing signs of pulmonary oedema, this patient should receive medical treatment first line.

IV dobutamine is incorrect. Dobutamine is an inotrope, usually used to manage haemodynamic shock. However, this patient has normal blood pressure and is therefore not in need of inotrope management.

Oral amoxicillin is incorrect. There is no mention of pyrexia for the patient and the x-ray does not show any consolidations, suggesting that a diagnosis of pneumonia is less likely. As the patient has COPD, it is worth considering an exacerbation of COPD (most commonly infective), nevertheless, there are no symptoms of cough or sputum. Therefore, antibiotics are not needed for this patient.

Oral prednisolone is incorrect. This is an important step in the management of an exacerbation of COPD (patients are usually given 30mg daily). However, there are no signs of infection (consolidation) on the chest x-ray suggesting that the cause of the shortness of breath is unlikely to be due to infection. If the exacerbation was non-infective then the chest x-ray would be expected to be clear, which is not the case here as alveolar oedema is evident.

Question:

A 6-month-old boy is brought into your practice by his adoptive parents, complaining of an unusual pattern of movements recently in their son. They were able to catch this on camera, and on watching the video you notice subtle symmetrical contracting of his neck and drawing up of his legs, followed by extending of his arms. He repeats this movement around 50 times before stopping.

What is the most likely diagnosis in this case?

A.Infantile colic

B.Tonic-clonic seizure

C.Focal aware seizure

D.Focal impaired awareness seizure

E.Infantile spasms

Answer:Infantile spasms

Explanation:

Infantile spasms - classically characterised by repeated flexion of head/arms/trunk followed by extension of arms

Important for meLess important

Although an easily missed diagnosis in clinical practice, this case illustrates a classic presentation of infantile spasms (West syndrome). This is a type of epilepsy presenting at 4-8 months, which typically has repeated flexion and extension movements (Salaam attacks) repeated up to 50 times. On EEG, this would show a dramatic hypsarrhythmia appearance. This diagnosis confers a poor prognosis.

Infantile colic can have drawing up of the legs, but this would not be in the repeated nature seen here.

Tonic-clonic seizures are characterised by a contracting of the musculature and then a rapid shaking of the muscles.

This description of spasms involves the entire body and therefore is not a focal seizure.

Question:

An 84-year-old male has come into hospital after being found unconscious on the floor by his son. The son does not know how long his father had been there. On examination, you notice suprapubic abdominal distention and some bruising on his left buttock that you suspect he developed after his fall. His past medical history includes type 2 diabetes mellitus, benign prostatic hyperplasia, and hypertension.

What would you most likely find on his ECG as a result of his current condition?

A.Tall tented T waves

B.ST-elevation

C.ST-depression

D.Complete heart block

E.Right axis deviation

Answer:Tall tented T waves

Explanation:

AKI may result in hyperkalemia

Important for meLess important

The man has developed an acute kidney injury, AKI, most likely due to his BPH. The abdominal distention in the suprapubic region hints at obstruction of his urethra.

The next thing to consider are the consequences of an AKI. Hyperkalemia is a common complication and it is very important to prioritise cardiac monitoring in these patients, especially if the ECG shows features of hyperkalemia. These include tall, tented T waves, diminished P waves, and widened QRS complexes. This is why the first answer is correct.

Please note that the question asks for the ECG findings that are associated with his current condition. It is possible that he's had an MI or a Stokes-Adams attack, but the clinical picture strongly suggests AKI resulting in cardiac rhythm abnormalities.

Question:

A 31-year-old man with general anxiety disorder (GAD) sees his GP for a medication review. He had been started on sertraline for his symptoms at the last appointment. He now explains that he does not feel that the medication has helped with his condition, as he still struggles with both the physical and psychological manifestations of anxiety most days. He does not report any recent worsening of his symptoms, however.

Which medication should be tried next?

A.Risperidone

B.Escitalopram

C.Clomipramine

D.Lorazepam

E.Haloperidol

Answer:Escitalopram

Explanation:

If a first line SSRI such as sertraline is ineffective or not tolerated, try another SSRI or an SNRI for GAD

Important for meLess important

The correct answer is escitalopram - another selective serotonin reuptake inhibitor (SSRI) used to treat GAD. Along with medication, patients with GAD should receive psychological interventions such as cognitive behavioural therapy.

Risperidone is an atypical antipsychotic used in the management of schizophrenia and bipolar disorder. It is not used for GAD.

Clomipramine is a tricyclic antidepressant which can be used for the treatment of depression and obsessive-compulsive disorder. It is not used for GAD.

Lorazepam is a benzodiazepine used for acute episodes of GAD. This patient is not having an acute episode.

Haloperidol is a typical antipsychotic used in the management of schizophrenia or bipolar disorder. It is not used for GAD.

Question:

A 23-year-old female with severe learning difficulties is brought into the emergency department by her parents following an accidental paracetamol overdose. She was found 30 minutes ago to have mistakenly ingested 16 grams of paracetamol after having been briefly unsupervised.

What is the best initial management of this patient?

A.Start N-acetylcysteine immediately

B.Start N-acetylcysteine if indicated by paracetamol levels

C.Give activated charcoal and then N-acetylcysteine if indicated by paracetamol levels

D.Gastric lavage followed by N-acetylcysteine if indicated by paracetamol levels

E.Gastric lavage only

Answer:Give activated charcoal and then N-acetylcysteine if indicated by paracetamol levels

Explanation:

Activated charcoal can be used within 1 hour of a paracetamol overdose

Important for meLess important

This patient presented within 1 hour of paracetamol ingestion and based on the clear collateral history this was not a staggered overdose. This means that activated charcoal should be used in this patient in order to prevent further paracetamol being absorbed into the circulation.

There is no indication for immediate N-acetylcysteine (NAC) in this scenario. NAC is used immediately if a paracetamol overdose is staggered or if there is doubt about the chronology of the overdose. However, this scenario has a very clear collateral history from concerned parents regarding the chronology of the overdose.

Although NAC may be required later, activated charcoal should be given immediately as there is a small window of opportunity to prevent further paracetamol absorption.

Gastric lavage and activated charcoal are mutually exclusive interventions and many studies have shown activated charcoal to be superior to gastric lavage. Therefore there is no role of gastric lavage in paracetamol overdose where activated charcoal is available.

Question:

A 25-year-old woman presents due to problems with her vision. Examination reveals a left inferior homonymous quadrantanopia. Where is the lesion most likely to be?

A.Left temporal lobe

B.Left parietal lobe

C.Right parietal lobe

D.Right optic nerve

E.Optic chiasm

Answer:Right parietal lobe

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 62-year-old male presents with right ear pain and a longstanding purulent discharge from his right ear. On examination you notice he has a facial nerve palsy. Which of the following is the biggest risk factor for malignant otitis externa?

A.Rheumatoid arthritis

B.Diabetes mellitus

C.Paget's disease of the bone

D.Hyperparathyroidism

E.Hypothyroidism

Answer:Diabetes mellitus

Explanation:

Malignant otitis externa is most common in patients with diabetes

Important for meLess important

The majority of cases of malignant otitis externa are in patients with diabetes. Immunodeficiency and immunosuppressive medications also increase the risk, but diabetes is the most significant risk factor. There is no significant difference in risk between type 1 and type 2 diabetes.

Question:

A 72-year-old female presents with irregular palpitations and feelings of light headedness for one month. Her pulse is regular at 84 beats per minute and her ECG is not indicative of any specific pathophysiology. On examination, you note a grade 3 diastolic murmur and when measuring her pulse you notice that her head nods subtly in time with her heart beat.

Her symptoms are most likely the result of which pathology?

A.Aortic regurgitation

B.Aortic stenosis

C.Mitral regurgitation

D.Mitral stenosis

E.Aortic sclerosis

Answer:Aortic regurgitation

Explanation:

De Musset's sign (head bobbing) is a clinical sign of aortic regurgitation

Important for meLess important

The patient in this question is most likely symptomatic due to aortic regurgitation.

Aortic regurgitation is often accompanied by an early diastolic murmur and the patient here is also demonstrating De Musset's sign (head nodding).

Aortic stenosis, aortic sclerosis and mitral regurgitation all feature systolic murmurs, rather than diastolic.

A mid-diastolic rumbling murmur is often described with mitral stenosis but De Musset's is not a feature of a stenosed mitral valve.

Eponymous signs of aortic regurgitation:

Corrigan's - exaggerated carotid pulse

Quinke's - nailbed pulsation

De Musset's - head nodding

Duroziez's - diastolic femoral murmur

Traube's - 'pistol shot' femorals

Question:

A 45-year-old man with alcoholism is admitted onto the gastroenterology ward with a distended abdomen, jaundice, and malaise. He does not have any infective symptoms. Full blood count shows:

Hb 130 g/L (135-180))

Platelets 160 \* 109/L (150 - 400)

WBC 4.4 \* 109/L (4.0 - 11.0)

The volume of ascitic fluid within the patient's abdominal cavity is estimated to be around 10 litres, a large volume paracentesis with an ascitic drain is therefore planned.

What must be prescribed when performing this procedure to reduce mortality risk?

A.IV 0.9% NaCl

B.IV human albumin solution

C.Oral metronidazole

D.Subcutaneous low molecular weight heparin

E.Subcutaneous unfractionated heparin

Answer:IV human albumin solution

Explanation:

Large-volume paracentesis for the treatment of ascites requires albumin 'cover'. Evidence suggests this reduces paracentesis-induced circulatory dysfunction and mortality

Important for meLess important

Albumin cover is important in large-volume paracentesis with IV human albumin solution (HAS) to avoid paracentesis-induced circulatory dysfunction (PICD). PICD leads to faster accumulation of ascites, hyponatraemia, and renal impairment. It can affect as many as 80% of patients who have large-volume paracentesis without any additional therapeutic management (with volume expanders such as HAS).

Paracentesis is the removal of ascitic fluid from the abdominal cavity using a needle, cannula, or Bonanno catheter. This patient has a significant volume of ascitic fluid in his abdomen and this may be due to liver failure, liver malignancy, or protein depletion. Removal of the ascitic fluid will improve symptoms such as breathlessness, abdominal distension which may cause pain, and early satiety. It is important to note that he has no infective symptoms as this could indicate the development of spontaneous bacterial peritonitis (SBP) - patients with SBP may be febrile, confused, in abdominal pain, vomiting, or suffer from diarrhoea. SBP is one of the most frequently encountered infections in patients with end-stage liver disease and requires urgent IV antibiotics.

IV 0.9% NaCl is a volume expander, however, studies have shown improved outcomes including reduced mortality with the use of albumin solution as a volume expander. As this question offers the option of albumin, it would be more appropriate to choose this answer. (Reference: Sola-Vera J et al, 2003).

Antibiotic prophylaxis is recommended in patients presenting with ascites due to cirrhosis (such as this patient) but this is typically with cefotaxime rather than oral metronidazole. This is to prevent the development of SBP.

Anticoagulation with subcutaneous low molecular weight heparin is often prescribed in hospital as deep vein thrombosis prevention. It would be inappropriate for this patient to be given this due to the aim of performing paracentesis as it should be held for 1 day (if possible) prior to large-volume paracentesis.

Anticoagulation with subcutaneous unfractionated heparin is less common but is useful for patients with very poor renal function. It may also be prescribed in hospital as deep vein thrombosis prevention - it should also be held for 1 day (if possible) prior to large-volume paracentesis. As the vignette shows a patient who is undergoing paracentesis imminently, it would be inappropriate to anticoagulate them at present.

Question:

A 60-year-old man presents with an incidental finding of a mass within the pituitary sella which is revealed by an MRI scan indicated for his cervical spine. Subsequent pituitary MRI shows a 1.2cm pituitary lesion that does not compress on the optic nerve and chiasm. He denies having headache or visual field defects. There are no symptoms of acromegaly, Cushing's disease or hypopituitarism.

On examination, his vital signs are normal. There are no stigmata of Cushing's disease and acromegaly. He is clinically euthyroid.

Which of the following should be done for this patient?

A.CT scan of the brain

B.Emergency transsphenoidal hypophysectomy

C.Fine needle biopsy of the mass

D.Laboratory evaluations screening for hormone hypersecretion and hypopituitarism

E.No actions are required as the lesion is too small to cause any problem

Answer:Laboratory evaluations screening for hormone hypersecretion and hypopituitarism

Explanation:

If a pituitary incidentaloma is found within the sellar, laboratory investigation must be done to determine if it is functional or non-functional

Important for meLess important

According to the Pituitary Incidentaloma: An Endocrine Society Clinical Practice Guideline\*:

It is recommended that all patients with a pituitary incidentaloma, including those without symptoms, undergo clinical and laboratory evaluations for hormone hypersecretion and hypopituitarism.

MRI scan is superior to CT scan as it is better in delineating the nature and extent of the incidentaloma.

The patient does not fulfil the criteria for surgical removal of a pituitary mass:

A visual field deficit due to the lesion.

Other visual abnormalities, such as ophthalmoplegia or neurological compromise due to compression by the lesion.

Lesion abutting or compressing the optic nerves or chiasm on MRI.

Pituitary apoplexy with visual disturbance.

Hypersecreting tumours other than prolactinomas

Biopsy of a pituitary mass is rarely needed as the hormone tests are usually very accurate.

\*Pamela U. Freda, Albert M. Beckers, Laurence Katznelson, Mark E. Molitch, Victor M. Montori, Kalmon D. Post, Mary Lee Vance, Pituitary Incidentaloma: An Endocrine Society Clinical Practice Guideline, The Journal of Clinical Endocrinology & Metabolism, Volume 96, Issue 4, 1 April 2011, Pages 894–904,

Question:

A diabetic mother gives birth at term to a healthy neonate, with no complications during pregnancy, nor the birth. A blood test at approximately 3 hours after birth yields the following result:

Blood glucose 2.2 mmol/L

On examination, the neonate appears well, with expected behaviour and no abnormal findings. The mother reported no problems with the first breastfeed.

Given the findings, what would be the most appropriate management plan?

A.Continue monitoring glucose and encourage normal feeding

B.Give intramuscular glucagon

C.Give oral glucose

D.Continue monitoring glucose and exclusively bottle-feed controlled amounts for the next 24 hours

E.Admit to neonatal unit and give intravenous infusion of 10% dextrose

Answer:Continue monitoring glucose and encourage normal feeding

Explanation:

Neonatal hypoglycaemia: if asymptomatic then encourage normal feeds and monitor glucose

Important for meLess important

The mother being diabetic predisposes the neonate to hypoglycaemia, as is the case here, but if asymptomatic and not strikingly low, the usual course of action is to continue monitoring blood glucose and encourage normal feeding.

Because of the above information, giving oral glucose would not be necessary at this stage.

Admission to the neonatal unit and an infusion of dextrose would be the course of action if the blood glucose level were to significantly drop, and/or the neonate developed symptoms of hypoglycaemia.

Intramuscular glucagon would be an option if the neonate were symptomatic and/or had very low blood glucose levels, and clinicians were unable to gain IV access to give dextrose. It would, however, play no role in this scenario.

Exclusively bottle-feeding for the next 24 hours is not part of the guidelines.

Question:

You review a 48-year-old woman who is taking methotrexate for rheumatoid arthritis. Concurrent prescription of which other medication should be avoided?

A.Erythromycin

B.Trimethoprim

C.Sumatriptan

D.Lansoprazole

E.Sodium valproate

Answer:Trimethoprim

Explanation:

The concurrent use of methotrexate and trimethoprim containing antibiotics may cause bone marrow suppression and severe or fatal pancytopaenia

Important for meLess important

There is an increased risk of haematological toxicity when trimethoprim is prescribed alongside methotrexate.

Question:

A 47-year-old male patient is referred to the medical assessment unit querying nephrotic syndrome after having presented to his general practice with generalized oedema of his legs. His medical records show that he is a diabetic.

His triage report shows a blood pressure of 160/97 mmHg and urine dipstick shows ++proteinuria. His biochemistry results show low albumin levels He has bilateral oedema in his lower limbs.

Which one of the following is a commonly recognised complication of his condition?

A.Obesity

B.High risk of venous thromboembolic disease

C.Growth retardation

D.Papilloedema

E.Haemorrhagic cystitis

Answer:High risk of venous thromboembolic disease

Explanation:

Increased risk of VTE in patients with nephrotic syndrome - prophylactic LMWH required

Important for meLess important

Increased risk of VTE is a direct complication of nephrotic syndrome. Other major complications include increased risk of infections, cardiovascular complications, anaemia, acute renal failure and hypovolaemic crisis.

Patients with nephrotic syndrome are at a higher risk of VTE due to the loss of anti-thrombin III. Anti-thrombin III inhibits antagonises the action of thrombin and therefore loss of anti-thrombin results in unopposed thrombin activity creating a pro-coagulant state and therefore prophylactic LMWH is recommended.

Obesity, growth retardation and papilloedema are complications of corticosteroids, which are commonly used in the management of nephrotic syndrome.

Haemorrhagic cystitis is a common complication of cyclophosphamide, another drug used in the management of nephrotic syndrome. However, haemorrhagic cystitis is not a recognised complication of nephrotic syndrome.

Question:

A 26-year-old male presents to the GP complaining of weight loss and non-bloody diarrhoea for the last couple of months. It is now severely affecting his quality of life. He is a smoker and occasionally drinks alcohol.

Stool tests show raised faecal calprotectin. Blood tests are as follows:

WBC 12 \* 109/L (4.0 - 11.0)

CRP 51 mg/L (< 5)

An ileocolonoscopy shows skip lesions and a biopsy is taken.

Based on the likely underlying diagnosis, what is the biopsy most likely to show?

A.Crypt abscesses

B.Crypt hypertrophy

C.Increased goblet cells

D.Subepithelial fibrosis

E.Villous atrophy

Answer:Increased goblet cells

Explanation:

Crohn's disease - increased goblet cells

Important for meLess important

The most likely diagnosis, in this case, is Crohn's disease, indicated by the clinical history of chronic non-bloody diarrhoea, symptoms of malabsorption, raised faecal calprotectin and skip lesions. Smoking is also a risk factor. Crohn's disease is a chronic inflammatory bowel disease that involves discrete parts of the gastrointestinal tract, anywhere from the mouth to the anus. The areas of inflammation involve the full thickness of the intestinal wall. Increased goblet cells are found in Crohn’s disease. Goblet cells are glandular cells that secrete mucus into the small and large intestines.

Crypt abscesses are a feature of ulcerative colitis and not of Crohn's disease. Ulcerative colitis is another type of inflammatory bowel disease and typically presents with bloody diarrhoea and is less likely to cause malabsorption compared to Crohn's disease. Smoking is also a protective factor for ulcerative colitis.

Crypt hypertrophy is a feature of coeliac disease rather than Crohn's disease. Coeliac disease is an autoimmune disease characterised by intestinal hypersensitivity to gluten. It presents with diarrhoea, steatorrhea, bloating and symptoms of malabsorption.

Subepithelial fibrosis is part of the pathophysiology of asthma and is not related to Crohn’s disease.

Villous atrophy is a feature of coeliac disease.

Question:

A 19-year-old woman is attending a follow-up GP appointment today for her acne. She has been experiencing symptoms for the past 6 years, but it has recently started getting worse and has now begun to cause scarring and she has extensive, widespread inflammatory lesions. In the past, she has tried benzoyl peroxide (BPO) alone and in combination with topical antibiotics, and more recently she was prescribed oral doxycycline 100mg OD for 3 months. Aside from her acne, the only other condition in her past medical history is migraines with aura.

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

A.Continue oral doxycycline for further 3 months at the same dose

B.Increase oral doxycycline to double the dose for 3 months

C.Prescribe combined oral contraceptive pill

D.Commence a 4 week trial of isotretinoin

E.Refer to dermatology specialists

Answer:Refer to dermatology specialists

Explanation:

Severe acne (scarring, hyperpigmentation and widespread pustules) requires specialist dermatology referral

Important for meLess important

This patient has symptoms associated with severe acne (scarring, widespread inflammatory lesions). She has been trialled on topical BPO, alone and in combination with topical antibiotics, and a 3-month course of oral antibiotics but has not reported any improvement. The next step in her management is to refer to dermatology specialists, where they can discuss and counsel the patient on the potential use of oral isotretinoin.

Doxycycline should not be continued for a further 3 months as it is only recommended to be used for a maximum of 3 months, and the patient has already had this.

The dose of doxycycline should not be increased to 200mg, the BNF states that for acne vulgaris dose should be 100mg OD.

Combined oral contraceptives can be considered as an alternative to oral antibiotics and can be used in combination with topical retinoids. As the patient has not responded to oral antibiotics it is unlikely to have much effect and scarring has occurred so the patient requires dermatology referral. As well as this the patient suffers from migraines with aura, which is a UKMEC5 contraindication to prescribing COCP.

Isotretinoin is likely the next step for the patient but this cannot be prescribed in this setting and requires input from a specialist dermatologist. When taken orally it can have many adverse side effects including suicidal ideation, mood changes, depression, GI upset and it is highly teratogenic.

Question:

A 64-year-old female with a history of COPD and hypertension presents with pain on swallowing. Current medication includes a salbutamol and beclomethasone inhaler, bendroflumethiazide and amlodipine. What is the most likely cause of the presentation?

A.Myasthenia gravis precipitated by bendroflumethiazide

B.Oesophageal web

C.Achalasia secondary to amlodipine

D.Oesophageal candidiasis

E.Oesophageal cancer

Answer:Oesophageal candidiasis

Explanation:

Pain on swallowing (odynophagia) is a typical of oesophageal candidiasis, a well documented complication of inhaled steroid therapy

Question:

A 42-year-old man has recently been diagnosed with Huntington disease and is concerned that he may have passed the condition on to his children. The children's mother is unaffected by the disease.

What is the percentage likelihood that each of the patient's children will have inherited the disease?

A.0%

B.10%

C.25%

D.50%

E.100% if male and 0% if female

Answer:50%

Explanation:

If one parent has an autosomal dominant disease and the other parent does not have the disease, any children of the couple have a 50% chance of inheriting the disease

Important for meLess important

Huntington disease is autosomal dominant, meaning that the affected patient has one faulty copy of the gene and one normal copy of the gene. The faulty copy is dominant, meaning that the patient suffers from the disease. When the affected patient has a child, the child has a 50 per cent likelihood of inheriting the faulty gene, meaning that they would have the condition themselves, and a 50 per cent likelihood of inheriting the normal gene, meaning that they would not inherit the condition.

Question:

A 48-year-old female with a history of Crohn's disease is admitted to hospital with abdominal pain and distension. This has been getting progressively worse over the past 24 hours.

Her Crohn's disease is now well controlled with azathioprine. In the past she has had a number of abdominal operations to treat complications including an ileal resection.

An abdominal film is requested:

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What is the most likely diagnosis?

A.Toxic megacolon

B.Vesicocolonic fistula

C.Faecal loading

D.Intussusception

E.Caecal volvulus

Answer:Caecal volvulus

Explanation:

The x-ray shows a large dilated loop of bowel centrally consistent with caecal volvulus. Adhesions secondary to Crohn's and previous surgery are a risk factor for caecal volvulus.

Toxic megacolon is seen in ulcerative colitis.

Question:

You are asked to review an 81-year-old man on your ward who was admitted 3 days ago with acute diverticulitis. Since admission, he has also developed stage 3 acute kidney injury (AKI).

The nurses report that over the past day he has become much more confused and lethargic. He has also been complaining of significant nausea. An ECG from earlier in the day is normal but a chest X-Ray showed right-sided consolidation.

His blood gas is shown below:

pH 7.34 (7.35-7.45)

pO2 10.9 kPa (10-14)

pCO2 5.1 kPa (4.5-6.0)

HCO3- 24 mEq/L (22-26)

Na+ 137 mmol/L (135-145)

K+ 5.2 mmol/L (3.5-5.0)

Cl- 105 mmol/L (95-105)

Urea 12.1 mmol/L (2.0-7.0)

Creatinine 312 umol/L (55-120)

Which of the following features in this patient, combined with his symptoms, would be an indication for dialysis?

A.pH level

B.Potassium level

C.Chest X-ray findings

D.Urea level

E.Creatinine

Answer:Urea level

Explanation:

Uraemia (encephalopathy or pericarditis) is an indication for dialysis

Important for meLess important

This patient is likely to be suffering from uraemic encephalopathy - as shown by their worsening symptoms of nausea, confusion, and lethargy. This would be a potential indication for dialysis, therefore, the urea level is the indication in this case.

Whilst refractory acidosis is an indication for dialysis in patients with AKI this patient only has a very mild acidosis (7.34) and therefore the pH level is not an indication for dialysis.

Hyperkalaemia that is not responding to treatment is also an indication for dialysis in patients with AKI, however, this patient's potassium is only very mildly raised, so the potassium level would not be an indication in this case.

Pulmonary oedema that is not responding to diuretic treatment is another indication for dialysis in patients with AKI. However, this patient is not complaining of any respiratory symptoms, and a chest X-Ray performed earlier in the day was consistent with consolidation rather than pulmonary oedema, so the chest X-ray is unlikely to be the indication in this patient.

This patient has stage 3 AKI, which by itself is not an indication for dialysis.

Question:

A 4-year-old boy presents to the GP with a pink spotted rash on his torso which has now spread to all limbs. On further questioning his mother states that he has had a high grade fever for 3 days prior, and in fact seemed to be getting better before the onset of this rash. He is now afebrile.

On examination there is a maculopapular red rash over his trunk and limbs. All other examinations are normal. Observations are stable.

What is the likely diagnosis?

A.Measles

B.Roseola infantum

C.Erythema multiforme

D.Chicken pox

E.Coxsackievirus A6

Answer:Roseola infantum

Explanation:

Roseola infantum typically starts with a high grade fever which resolves before the onset of the rash. The rash typically starts abruptly after the temperature subsides, and usually starts on the trunk before spreading to the limbs. It is a maculopapular rash and it not itchy.

Measles rash occurs alongside other systemic symptoms. It typically starts on the face before spreading to other parts of the body. The characteristic 'koplik spots' are classical of this illness.

Chicken pox typically starts as an itchy red papular rash which becomes vesicular in nature. This can occur on any part of the body.

The macules of erythema multiforme are typically larger than other rashes and can progress to plaque-like lesions. It is not caused by a virus but rather is a hypersensitivity reaction in response to herpes 7 virus.

Coxsackie A6 virus is responsible or hand foot and mouth disease which is characterised by sore vesicular lesions on the palms, soles and buccal mucosa.

Question:

Each one of the following is seen in amiodarone therapy, except:

A.Hyperthyroidism

B.Liver cirrhosis

C.Hypokalaemia

D.Hypothyroidism

E.Pulmonary fibrosis

Answer:Hypokalaemia

Explanation:

Question:

Which one of the following drugs is contra-indicated whilst breast feeding?

A.Heparin

B.Lithium

C.Penicillin

D.Warfarin

E.Carbamazepine

Answer:Lithium

Explanation:

Lithium in breastfeeding must be avoided

Important for meLess important

Question:

A mother brings her 3-month-old son to the emergency department concerned that he has started vomiting green liquid. Additionally, over the past day, he has been intermittently bringing his legs up and crying, then settling before crying again. She states he has always been difficult to feed, but has not fed at all over the past day, and has not had any bowel motions in 24 hours.

What condition is this child most likely to have?

A.Appendicitis

B.Hirschsprung disease

C.Intestinal malrotation

D.Mesenteric adenitis

E.Pyloric Stenosis

Answer:Intestinal malrotation

Explanation:

Infant with bilious vomiting & obstruction → ?intestinal malrotation

Important for meLess important

This child most likely has intestinal malrotation that has progressed to a volvulus - resulting in bilious vomiting, abdominal pain and cramping, lethargy, poor appetite and infrequent bowel movements. On examination, they would likely have a swollen, firm abdomen, and potentially a fever, with poor urine output.

Acute appendicitis is uncommon under 3 years old and would not cause bilious vomit.

Hirschsprung disease would be evident at birth, with delayed passage of meconium and abdominal distension.

Mesenteric adenitis is inflammation of the lymph nodes in the abdomen and is often preceded by an upper respiratory tract infection. It would not result in bilious vomiting but abdominal pain and fevers usually in an older child or teenager.

Pyloric Stenosis would typically present at 4-8 weeks old, with persistent projectile vomiting after every feed. The vomit would be milky and non bilious.

Question:

A 32-year-old woman presents to the emergency department at 10 am following an intentional paracetamol overdose the previous evening at 11 pm. She tells you that she took the entire contents of two packs of paracetamol (with each pack containing 16 500mg tablets), which she now regrets.

The patient is alert and her observations are within normal limits. Examination findings are unremarkable and she is not clinically jaundiced.

She has a past medical history of mixed anxiety and depression only. Her weight is 60kg.

Blood results are awaited.

What is the most appropriate step in her management?

A.Admit for monitoring and psychiatry assessment only

B.Commence acetylcysteine if LFTs are abnormal

C.Commence acetylcysteine if the plasma paracetamol concentration is above the treatment line

D.Commence acetylcysteine without awaiting blood results

E.Commence activated charcoal without awaiting blood results

Answer:Commence acetylcysteine without awaiting blood results

Explanation:

Paracetamol overdose: if presentation 8-24 hours after ingestion of an overdose of more than 150 mg/kg start acetylcysteine even if the plasma-paracetamol concentration is not yet available

Important for meLess important

Commence acetylcysteine without awaiting blood results is correct. Guidelines for the management of acute paracetamol overdose recommend that acetylcysteine should be given to patients presenting 8-24 hours following an overdose if the overdose was greater than 150 mg/kg, even if the plasma-paracetamol concentration is not yet known. In this case, the total overdose was 32 x 500 mg = 16 g after 11 hours. As she weighs 60 kg, 150 mg/kg equates to 150 x 60 = 9000 mg or 9 g. Therefore, treatment is indicated now, without needing to wait for blood results.

Admit for monitoring and psychiatry assessment only is incorrect. Although these are important in her management, she meets the criteria for acetylcysteine treatment as her paracetamol ingestion is more than 150 mg/kg.

Commence acetylcysteine if LFTs are abnormal is incorrect. The results of blood tests (including LFTs) will help to inform ongoing management but acetylcysteine should be commenced even if these are not available as her paracetamol ingestion is more than 150 mg/kg.

Commence acetylcysteine if the plasma paracetamol concentration is above the treatment line is incorrect. For a smaller overdose, the plasma paracetamol concentration should be compared to the paracetamol overdose treatment graph to guide management. In this case, however, the overdose is sufficient to start acetylcysteine without awaiting this as her ingestion is more than 150 mg/kg.

Commence activated charcoal without awaiting blood results is incorrect. Activated charcoal is only used in patients presenting very early following an acute overdose (usually within 1 hour), to reduce absorption. Given that she has presented 11 hours later, this is unlikely to be effective.

Question:

A 35-year-old female presents to her general practitioner complaining of a lump in her neck. On examination, you find a 2cm neck lump midway down her trachea and palpable enlarged lymph nodes on the right side.

You suspect a thyroid malignancy and send her for further imaging which confirms this, but fortunately, her prognosis is considered to be excellent.

What is the most likely diagnosis?

A.Anaplastic carcinoma

B.Follicular adenoma

C.Follicular carcinoma

D.Medullary carcinoma

E.Papillary carcinoma

Answer:Papillary carcinoma

Explanation:

Papillary thyroid cancer shows excellent prognosis, despite the tendency to spread to cervical lymph nodes early

Important for meLess important

The correct answer is papillary carcinoma. It is the most common type of thyroid cancer, accounting for 70% of the cases. It usually presents in young females with a neck lump with tendency to spread to cervical lymph nodes early and it has an excellent prognosis.

Anaplastic carcinoma presents with a rapidly growing neck mass that gives her pressure symptoms (difficulty swallowing). This type of cancer represents 1% of thyroid cancers, it is not responsive to treatment and has a very poor prognosis.

Follicular adenoma will usually present as a solitary thyroid nodule, with a firm to hard consistency and it is typically painless. It usually grows slowly.

Follicular carcinoma has a peak onset ages 40 through 60. The most common presentation of thyroid cancer is an asymptomatic thyroid mass or nodule that can be felt in the neck.

Medullary carcinoma arises from C cells derived from the neural crest and not thyroid tissue. As a consequence, serum calcitonin levels are often raised.

Question:

You are a junior doctor on placement in respiratory. Once a month you get the unique opportunity to run a junior lead respiratory clinic. Whilst seeing one patient the receptionist burst into your room saying a patient has collapsed in the waiting room. What do you do?

A.Ask the receptionist to call the consultant

B.Finish seeing the patient you are with and then urgently assess the collapsed patient

C.Ask the receptionist to call an ambulance

D.Leave the clinic immediately and go and assess the patient

E.Ask the receptionist to get some more details about the collapse

Answer:Leave the clinic immediately and go and assess the patient

Explanation:

As a doctor learning to prioritise patients according to clinical need is very important. The collapsed patient must become your priority over you 'well' patient in the clinic room. Thus leaving the clinic immediately and going to assess the collapsed patient is the most appropriate answer.

Calling the consultant would be inappropriate, they are likely to be more tied up than you, asking the receptionist to call an ambulance would be ridiculous, you are in a clinic with doctors. While asking the receptionist to gather more details may be helpful adds a delay to your assessment of the patient.

Question:

A 64-year-old man presents to the emergency department with palpitations and dizziness. He is known to have atrial fibrillation (AF) and according to his ECG, he is in fast AF with a heart rate of 150 beats per minute. His observations show that he is apyrexial, with a respiratory rate of 16 breaths per minute and blood pressure of 85/50mmHg.

What is the next appropriate course of management in view of the history above?

A.Rate control with a beta-blocker

B.Synchronised DC cardioversion

C.To give adenosine 6mg rapid intravenous bolus

D.To give amiodarone 300mg over 20 minutes

E.To give amiodarone 900mg over 24 hours

Answer:Synchronised DC cardioversion

Explanation:

In AF with decompensation the correct management is synchronised DC cardioversion

Important for meLess important

In this situation, you would need to look at the tachycardia (with a pulse) ALS algorithm if you need guidance. In this scenario, this patient has fast AF but is haemodynamically unstable. Therefore, synchronised DC cardioversion is required and is, therefore, the correct answer.

Rate control with a beta-blocker can be used if there is evidence of fast AF with no adverse features (syncope, heart failure, myocardial ischaemia, and shock) present.

Adenosine is typically used when there is supraventricular tachycardia (SVT) which is not the case here.

Giving amiodarone can be appropriate options in haemodynamically unstable fast AF patients, but is usually used after attempting a couple of rounds of synchronised DC cardioversion.

Question:

A 36-year-old man presents with progressive lower back pain for the past six months. The pain is worse in the mornings and tends to ease with exercise and the passage of the day. He has tried paracetamol but this does not fully controlled his pain. An x-ray of his spine is shown below:

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What is the most appropriate first-line treatment

A.Methotrexate

B.Sulfasalazine

C.Naproxen

D.Vitamin D supplementation

E.Infliximab

Answer:Naproxen

Explanation:

The x-ray shows syndesmophytes and squaring of vertebral bodies consistent with a diagnosis of ankylosing spondylitis.

NSAIDs are the first-line drug treatment in an ankylosing spondylitis. Regular exercise is also very important. The role of anti-TNF therapies is increasing but they are not currently first-line and the 2008 NICE guidelines specifically advise against using infliximab.

Question:

A 42-year-old patient presents to their GP practice after experiencing episodes of dizziness recently. These symptoms occur randomly throughout the day and last around 30 minutes. When the symptoms occur the patient says they have to lie down as it feels like the room is spinning. The patient also describes experiencing a strange ringing sound in their ear when the attacks occur as well as a reduced sense of hearing.

What type of hearing loss would this patient likely experience?

A.Bilateral conductive hearing loss

B.Bilateral sensorineural hearing loss

C.Mixed hearing loss

D.Unilateral conductive hearing loss

E.Unilateral sensorineural hearing loss

Answer:Unilateral sensorineural hearing loss

Explanation:

In Meniere’s disease, vertigo occurs spontaneously. Episodes last for minutes to hours, and are accompanied by unilateral hearing loss and tinnitus

Important for meLess important

Unilateral sensorineural hearing loss is correct. The most likely diagnosis is Ménière's disease, which presents with vertigo, tinnitus and unilateral hearing loss. It can occur bilaterally but this is very rare. Meniere's is a disease of the inner ear so the hearing loss is sensorineural.

Bilateral conductive hearing loss is incorrect. Meniere's disease causes unilateral sensorineural hearing loss, not conductive hearing loss. A common cause of this type of hearing loss is earwax impaction.

Bilateral sensorineural hearing loss is incorrect. Meniere's disease does cause sensorineural hearing loss but it is unilateral. Bilateral sensorineural hearing loss is commonly caused by noise exposure or presbycusis.

Mixed hearing loss is incorrect. This would lead to a combination of sensorineural and conductive hearing loss.

Unilateral conductive hearing loss is incorrect. Meniere's disease does cause unilateral hearing loss but it is sensorineural, not conductive. This hearing loss is usually found in conditions like otitis externa or otitis media.

Question:

Here is an arterial blood gas for a 28-year-old patient in the emergency department who has come in with abdominal pain.

pH 7.10 (7.35-7.45)

O2 12.8 kPa (11.0-14.4)

CO2 6.3 kPa (4.27-6.40)

Na+ 140 mmol/L (135 - 145)

K+ 2.6 mmol/L (3.5 - 5.0)

Bicarbonate 9.5 mmol/L (22 - 29)

Chloride 123 mmol/L (96-106)

Which pathology would most likely cause this particular arterial blood gas?

A.Diabetic ketoacidosis

B.Salicylate poisoning

C.Renal tubular acidosis

D.Methanol poisoning

E.Sepsis

Answer:Renal tubular acidosis

Explanation:

Renal tubular acidosis causes a normal anion gap

Important for meLess important

This arterial blood gas shows a metabolic acidosis with a normal anion gap (6 - 16 mmol/L). Renal tubular acidosis is the only cause listed that would give a hyperchloremic normal anion gap metabolic acidosis. The abdominal pain in this setting would most likely be caused by renal stone formation, a hallmark of the disease.

The remaining 4 choices would give a raised anion gap.

Diabetic ketoacidosis - ketones

Salicylate and methanol - exogenous acid poisons

Sepsis - lactate

Question:

A 32-year-old basketball player presents with difficulty mobilising after an injury whilst playing in a match. He reports hearing a 'popping' sound when the incident occurred and experienced a sudden onset of severe pain in the back of his left leg.

Clinical examination showed swelling of the left calf and no movement of his left foot whilst squeezing the corresponding calf, whilst lying face down on the examining bench.

Which is the best initial investigation to request for this patient?

A.CRP

B.MRI

C.US doppler

D.Ultrasound

E.X-ray

Answer:Ultrasound

Explanation:

Ultrasound is the initial imaging modality of choice for suspected Achilles tendon rupture

Important for meLess important

Taking into account this patient's clinical presentation and positive Thompson's test, it is likely that he has an achilles tendon rupture. Ultrasound is the initial imaging modality of choice for suspected Achilles tendon rupture. However it can not usually differentiate between a partial rupture or tendinitis.

CRP would show the level of inflammation in the blood, but it is not useful in the management of achilles tendon ruptures.

US Doppler is not indicated in this case, as it is mainly utilised to assess peripheral arterial supply.

MRI is a confirmatory test that should be utilised if an ultrasound is not available. It is able to differentiate a partial rupture from tendinitis.

An X-ray would help to identify any fractures of bony injuries. It is not diagnostic for this condition.

Question:

A 46-year-old man attends his GP with worsening vision.

He reports that his vision has recently become more blurry, especially when reading. He has no eye pain, redness, diplopia or systemic symptoms.

You measure his visual acuity on a Snellen chart and find it to be 6/12 bilaterally.

Which of the following steps is most suitable to investigate for a refractive error?

A.Cardiff Acuity Test

B.Dilation with 0.5% tropicamide

C.Slit lamp examination

D.Use of a LogMar chart

E.Use of a pin-hole occluder

Answer:Use of a pin-hole occluder

Explanation:

A pinhole occluder is useful to identify refractive errors as the cause of blurred vision

Important for meLess important

The correct answer is the use of a pin-hole occluder. If decreased visual acuity is caused by refractive error then pin-hole acuity will be better than unaided acuity.

The Cardiff Acuity Test and LogMar chart are alternative methods for testing visual acuity and will not identify the underlying cause of reduced visual acuity as being refractive error.

Slit lamp examination is useful for identifying a number of eye abnormalities including cataracts, retinal detachment, macular degeneration, corneal injury and vascular problems, but is not the best way to identify a refractive error.

Dilation with 0.5% tropicamide or lens decentration will not help to identify refractive error.

Question:

A 26-years-old man is brought to the emergency department by his roommate after he saw him convulsing on the floor of the bathroom. On arrival, he is found unresponsive to sternal rub. His vitals are:

Temperature: 37.5°C

Pulse: 120/min

Blood pressure: 100/60 mmHg

Respiratory rate: 14/min

Oxygen saturation: 96% on room air

Physical examination reveals hot and dry skin. The patient’s pupils are dilated and minimally responsive to light. ECG shows a QRS duration of 130ms. His past medical history is significant for depression, alcohol dependence, marijuana use, and occasional IV drug use.

Which of the following is the most appropriate treatment option for this patient?

A.Sodium bicarbonate

B.Thiamine

C.Flumazenil

D.Naloxone

E.Dialysis

Answer:Sodium bicarbonate

Explanation:

Widened QRS or arrhythmia in tricyclic overdose - give IV bicarbonate

Important for meLess important

This patient presents with signs and symptoms suggestive of tricyclic antidepressant (TCA) overdose. Hallmark features include convulsions, altered mental status and QRS widening on ECG. TCAs inhibit the reuptake of serotonin/norepinephrine in addition to blocking muscarinic and alpha-adrenergic receptors. Dry hot skin and dilated pupils are due to muscarinic blockade by the TCA. Suspect TCA intoxication in the presence of QRS widening even if there is no history of depression or clear TCA exposure. The most appropriate treatment option is sodium bicarbonate which is cardioprotective. The effect of sodium bicarbonate in TCA overdose is most likely due to an increase in serum pH and extracellular sodium. Alkalinisation promotes the drug's neutral form, lowering the amount of active cyclic antidepressants.

Thiamine can be used to treat a thiamine deficiency in alcoholics. Thiamine deficiency is the recognised cause of Wernicke–Korsakoff syndrome (WKS), an alcohol-related neurological condition. It also plays a role in other types of alcohol-induced brain injury, such as different degrees of cognitive dysfunction, including the most serious, alcohol-induced persistent dementia (i.e., 'alcoholic dementia').

Flumazenil is used to reverse the effects of benzodiazepine overdose. Benzodiazepine overdose is characterized by hypotension, bradycardia, respiratory depression and coma.

Naloxone is used to treat opioid intoxication. Unusual sleepiness, pinpoint pupils, or breathing difficulties (ranging from slow/shallow breathing to no breathing) are serious opioid overdose signs.

Dialysis is ineffective in removing tricyclics. Since tricyclic antidepressants are highly protein-bound and have a large distribution volume, removing them from the blood through haemodialysis is unlikely to be beneficial.

Question:

A man calls the local psychiatry crisis team, concerned that his sister - who has previously been diagnosed with schizophrenia - has become more withdrawn and suspicious of her neighbours. He states that she is increasingly worried about them listening to her through the walls. Her symptoms were previously well controlled on daily risperidone. Upon visiting his sister, he found unopened boxes of her medication on the side.

What would be an appropriate future treatment option for this patient?

A.Change to clozapine

B.Change to quetiapine

C.Cognitive behavioural therapy

D.Consider admission

E.Depot risperidone injections

Answer:Depot risperidone injections

Explanation:

Patients with poor oral compliance to antipsychotics should be considered for once monthly IM antipsychotic depot injections

Important for meLess important

This patient appears to be having increasing symptoms of psychosis. Giving they were previously well controlled on risperidone, this suggests non-compliance may be an issue. Patients with poor oral compliance to antipsychotics should be considered for once monthly IM antipsychotic depot injections. Their risperidone dose would have to be re-titrated up to their previous dose.

Clozapine can be used for treatment resistant psychosis following trials of two other antipsychotics. From the history, there is no evidence of multiple antipsychotics being trialled and it appears risperidone was controlling the patients symptoms.

If risperidone was not controlling this patients symptoms, another antipsychotic such as quetiapinecould be tried. Following this, if not successful, Clozapine may be trialled providing there are no contraindications.

Cognitive behavioural therapy (CBT) can be helpful in reducing the symptoms of psychosis but is less likely to solve the issue than monthly depot injections.

From the history the patient does not appear to be at risk to themselves or others to warrant admission and attempts should be made to manage them in the community.

Question:

A 75-year-old man is referred to the neurology clinic after a history of dropping objects. He was noted to have weakness and fasciculations in his arms and a diagnosis of motor neurone disease was suspected.

Which of the following would this patient be at increased risk of if he were to be diagnosed with this condition?

A.Frontotemporal dementia

B.Lewy body dementia

C.Vascular dementia

D.Creutzfeldt-Jakob disease.

E.Parkinson's disease

Answer:Frontotemporal dementia

Explanation:

Frontotemporal dementia is associated with motor neurone disease

Important for meLess important

This question is asking about the associations/complications of motor neurone disease. Of the options, motor neurone disease is most typically associated with frontotemporal dementia.

Lewy body dementia is another form of dementia most typically associated with Parkinson's disease.

Vascular dementia is a type of dementia that is most associated with cardiovascular risk factors such as a previous myocardial infarction or stroke.

Creutzfeldt-Jakob disease is a human prion disease that causes neurodegenerative illnesses, it is not associated with motor neurone disease.

Parkinson's disease is a differential for motor neurone disease, however, is not associated with it.

Question:

A 25-year-old man attends the emergency department after being involved in a road traffic accident. He was in the driver's seat when a lorry in front lost control and became trapped when the dashboard and footwell were pushed forward on impact.

He is currently stable but has significant pain in his right leg. His right leg is shortened, internally rotated, slightly flexed and adducted compared to the left.

What is the diagnosis?

A.Pelvic ramus fracture

B.Anterior hip dislocation

C.Femoral shaft fracture

D.Posterior hip dislocation

E.Neck of femur fracture

Answer:Posterior hip dislocation

Explanation:

Posterior hip dislocations present with a shortened and internally rotated leg

Important for meLess important

This gentleman has a posterior dislocation of his hip. These injuries are common in road traffic accidents, and particularly when drivers brake hard when recognising a potential collision. On braking the knee becomes locked, meaning that any force from an impact to the front of the car is translated along the leg and up to the hip joint itself. In a posterior dislocation, the femoral head is now behind to the acetabulum, causing the leg to rotate internally to accommodate.

Pelvic fractures typically present with pain on walking or palpation, instability, neurovascular deficits in the limb and signs of damage to pelvic organs e.g. haematuria or PR bleeding.

Anterior hip dislocations typically present as abducted and externally rotated. There may be a palpable bulge of the femoral head. They are less common than posterior dislocations but are classically associated with hip prostheses.

Signs of femoral shaft fractures include swelling, deformity and shortening of the leg. Given the force of impact required to fracture a femur, there will usually be significant soft tissue injury and bleeding.

Neck of femur fractures classically present after low-energy impacts in elderly patients. The leg is commonly shortened and externally rotated.

Question:

A 77-year-old man presents to his GP with a painful rash around his ear. He first noticed pain in his left ear 3 days ago and is now also complaining of vertigo and tinnitus. On examination, you note a vesicular rash around his left ear.

Given the most likely diagnosis, what is the most appropriate treatment for this patient?

A.Admit to hospital for 10 days intravenous (IV) aciclovir

B.Oral aciclovir for 7 days

C.Oral aciclovir for 7 days and oral prednisolone for 5 days

D.Oral prednisolone for 5 days

E.Topical capsaicin and oral prednisolone for 5 days

Answer:Oral aciclovir for 7 days and oral prednisolone for 5 days

Explanation:

Treatment of Ramsay Hunt syndrome consists of oral aciclovir and corticosteroids

Important for meLess important

The correct answer is oral aciclovir for 7 days and oral prednisolone for 5 days.

This patient is presenting with typical features of Ramsay Hunt syndrome (herpes zoster oticus). It generally begins with auricular pain and progresses to include a vesicular rash around the ear, tinnitus and vertigo. Facial nerve palsy may also occur. The most appropriate treatment for this is oral aciclovir and systemic corticosteroids such as prednisolone. Full recovery is likely if treatment is started within 72 hours of symptom onset.

IV aciclovir would not generally be required in the management of Ramsay Hunt syndrome.

Oral aciclovir would be the correct antiviral medication to prescribe, however it would also be prescribed alongside systemic steroids.

Oral prednisolone would form part of the management of Ramsay Hunt syndrome, however, antiviral medication would be required alongside it.

Topical capsaicin can be used for post-herpetic neuralgia but would not be used in the acute treatment of Ramsay Hunt syndrome.

Question:

A 22-year-old university student presents to his GP after having noticed yellowing of the skin and eyes. This came on after an intense week of revision, and resultant poor sleep, for an upcoming exam. He has no abdominal pain, nausea, vomiting, fatigue, nor pruritus. He feels well in himself and drinks 4-5 pints of beer per week.

Examination is unremarkable, except for obvious jaundice. Blood tests reveal the following:

Bilirubin 55 µmol/L (3 - 17)

ALP 42 u/L (30 - 100)

ALT 23 u/L (3 - 40)

γGT 32 u/L (8 - 60)

Albumin 45 g/L (35 - 50)

Given the likely diagnosis, which of the following is most appropriate?

A.Reassure the patient that no further investigations are required

B.Routine abdominal CT scan

C.Routine abdominal ultrasound scan

D.Routine magnetic resonance cholangio-pancreatography (MRCP) scan

E.Urgent abdominal ultrasound scan

Answer:Reassure the patient that no further investigations are required

Explanation:

An isolated rise in bilirubin in response to physiological stress is typical of Gilbert's syndrome

Important for meLess important

The diagnosis here is that of Gilbert's syndrome, given the isolated hyperbilirubinaemia in response to physiological stress - in this case, sleep deprivation whilst studying. The correct answer is therefore to reassure the patient that no further investigations are required - management of Gilbert's syndrome involves education and avoidance of triggering factors.

A routine CT scan would therefore be inappropriate. This may aid the diagnosis of other conditions causing a raised bilirubin but is unnecessary in Gilbert's syndrome.

A routine ultrasound scan is also unnecessary - this would be useful to investigate gallbladder-related causes of raised bilirubin, but again here is not needed.

For the same reason, MRCP scanning is not needed here - Gilbert's syndrome is diagnosed from the clinical picture and blood tests.

An urgent ultrasound scan is therefore unnecessary too. This may be useful if the patient were unwell and a gallbladder-related cause were suspected.

Question:

A 2-year-old child has a history of chronic constipation for the past year and chronic abdominal distention with vomiting for three months. It is suspected that the child may have Hirschsprung's disease. Which investigation from the list below offers the most definitive diagnosis for this condition?

A.Rectal biopsy

B.Anorectal manometry

C.Barium enema

D.Colonoscopy

E.Faecal elastase

Answer:Rectal biopsy

Explanation:

Rectal biopsy is the gold standard for diagnosis of Hirschsprung's disease

Important for meLess important

Anorectal manometry can be helpful in the diagnosis of Hirschsprung's though rectal biopsy remains the gold standard. This is because microscopic examination shows a lack of ganglionic nerve cells in the affected segment.

Question:

You are asked to review a potassium result whilst on-call:

Na+ 141 mmol/l

K+ 6.4 mmol/l

Bicarbonate 16 mmol/l

Urea 13.1 mmol/l

Creatinine 195 µmol/l

You are unsure whether to give calcium gluconate so you contact your senior. She asks you to only give calcium gluconate if there are ECG changes. Which of the following ECG changes are most consistent with hyperkalaemia?

A.T wave inversion

B.Widening of the QRS complex

C.Prolonged QT interval

D.U waves

E.Peaked P waves

Answer:Widening of the QRS complex

Explanation:

Prolonged QT interval, prolonged PR interval and U waves are ECG features of hypokalaemia.

Question:

A 65-year-old man presents to the emergency department with acute severe pain in his foot over the last 2 hours. He has a past medical history of knee osteoarthritis, migraines, and a duodenal ulcer, and he has smoked 30 cigarettes daily for the past 30 years.

His pulse is 85 bpm, his blood pressure is 143/72 mmHg, and he is afebrile. His right first metatarsophalangeal joint is erythematous, red, hot, and swollen. An immediate joint aspiration is performed which shows no bacteria.

Given the likely diagnosis, what is the most appropriate treatment option?

A.Allopurinol

B.Colchicine

C.Indomethacin

D.Naproxen

E.Prednisolone

Answer:Colchicine

Explanation:

1st metatarsophalangeal (MTP) joint pain and swelling → ? gout

Important for meLess important

An acutely swollen first metatarsophalangeal (MTP) joint in the absence of fever and bacteria in the joint aspirate suggests a diagnosis of gout, as the majority of first presentations occur at this location.

Colchicine is correct. The first-line options for managing an acute gout attack include NSAIDs or colchicine. Since this patient has a peptic ulcer (a duodenal ulcer), NSAIDs are contraindicated, therefore colchicine should be used first in this patient.

Allopurinol is incorrect as this is not started in an acute attack as this can worsen the acute attack as crystals become smaller and lodge in the affected joint and precipitate another attack. If a patient is already taking allopurinol for gout, this can be continued. This patient is not already taking gout, therefore, it should not be initiated until after this acute episode resolves.

Indomethacin and oral naproxen are incorrect. Although NSAIDs may be used first-line in gout, this patient has a duodenal ulcer (a type of peptic ulcer), contraindicating the use of NSAIDs.

Prednisolone is incorrect as this is considered if both NSAIDs and colchicine are contraindicated, such as in severe renal failure. This patient does not have any history of renal failure and although NSAIDs are contraindicated due to his duodenal ulcer, he has no contraindications to colchicine.

Question:

A 72-year-old man presents to the emergency department with severe constipation and abdominal pain. He has vomited five times in the last three days and has not passed air or faeces for the two.

On examination, his abdomen is very distended with diffused tenderness and tinkling bowel sounds are heard on auscultation.

He underwent surgery for a perforated peptic ulcer two years ago. His past medical history comprises of asthma and type two diabetes.

Given the most likely diagnosis, what investigation is considered the gold standard for confirming it?

A.Abdominal ultrasound

B.CT abdomen

C.Endoscopy

D.Erect abdominal x-ray

E.Lipase

Answer:CT abdomen

Explanation:

CT abdo is the definitive diagnostic investigation for small bowel obstruction

Important for meLess important

The correct answer is CT abdomen. This patient is presenting with the classical features of small bowel obstruction: absolute constipation (no air nor faeces), vomiting and abdominal distention. Additionally, on examination, he has a distended abdomen and tinkling bowel sounds. Most likely the obstruction has been caused by adhesion from his previous surgery for peptic ulcer perforation. The gold-standard investigation in these cases is a CT abdomen as it is more sensitive than other investigations.

Abdominal ultrasound can be a useful investigation in cases of biliary pathology, which would present with upper right quadrant pain, rather than with obstruction.

Endoscopy is rarely used in acute settings, but it can be used in cases of severe acute upper gastrointestinal (GI) bleeding. This patient does not complain of acute bleeding, making the option incorrect.

An erect abdominal x-ray is usually performed as first-line imaging for suspected small bowel obstruction. It can show the dilated bowel loops and whether perforation has happened, but it is not considered the gold standard investigation as a CT abdomen as it is more sensitive.

Lipase levels are used to investigate suspected cases of acute pancreatitis. This would present with severe epigastric pain, often accompanied by vomit and fever. In this case, the patient complains of constipation, rather than these symptoms.

Question:

A 59-year-old Caucasian man comes in for a routine health check. His past medical history includes asthma and type 2 diabetes mellitus. His latest HbA1c 56 mmol/mol (7.3%).

A routine health check is done and his blood pressure is found to be 160/80mmHg. Following this ambulatory blood pressure monitoring is done which reveals an average daytime blood pressure of 150/90mmHg.

Which one of the following describes the next step in management?

A.Losartan

B.No treatment

C.Ramipril

D.Amlodipine

E.Indapamide

Answer:Ramipril

Explanation:

ACE inhibitors eg. ramipril should be used first-line for treating hypertension in diabetics, exceptions to this are people of Afro-Caribbean origin and women for whom there is a possibility of becoming pregnant. If the patient develops a cough with ACE inhibitors then they should be given an angiotensin-II receptor antagonist eg. losartan.

If this patient was not diabetic then they would have been started on a calcium channel blocker eg. amlodipine or a diuretic eg. indapamide.

Beta blockers eg. propranolol are not usually used as first-line agents for hypertension. They may be used if the patient is young and unable to tolerate ace inhibitors or if it is a woman who is trying to fall pregnant.

Question:

A 75-year-old woman in the surgical ward develops weakness, nausea and vomiting. She has a temperature of 38.2ºC with a heart rate of 112 beats/min and blood pressure of 90/40 mmHg.

Investigations:

Hb 110 g/L (115 - 160)

WBC 4.7 \* 109/L (4.0 - 11.0)

Na+ 130 mmol/L (135 - 145)

K+ 5.7 mmol/L (3.5 - 5.0)

Creatinine 190 µmol/L (55 - 120)

Her past medical history is significant for a previous myocardial infarction, chronic kidney disease stage 3, and polymyalgia rheumatica.

For five days, several of her regular medications have been missed off her drug chart due to a prescribing error.

What IV medication should be given immediately?

A.Adenosine

B.Hydrocortisone

C.Naloxone

D.Propranolol

E.Tazocin

Answer:Hydrocortisone

Explanation:

Longer-term systemic corticosteroids suppress the natural production of endogenous steroids. They should therefore not be withdrawn abruptly, as this may precipitate an Addisonian crisis

Important for meLess important

This patient requires hydrocortisone. She has polymyalgia rheumatica and, therefore, is likely on long-term corticosteroids, which have been missed off her drug chart. This, combined with the physical insult from her surgery/surgical issue, has precipitated an Addisonian crisis. This can also be diagnosed based on her symptoms, and the hyponatraemia/hyperkalaemia on the blood results. Her fever is not due to an infection but instead occurs due to adrenal insufficiency.

Tazocin is not necessary. She does not require further antibiotics - her co-amoxiclav is sufficient and her blood results are not convincing for sepsis.

Adenosine is not necessary. Although she is tachycardic, there is no indication that this is a supraventricular tachycardia for which adenosine might be used. Given the missed steroid prescription, an Addisonian crisis is far more likely.

Propranolol may be used for thyrotoxic crises, but here would only exacerbate her hypotension.

Naloxone is useful in opioid overdose, which is not the case here as her symptoms are not typical for opioid toxicity (e.g. respiratory suppression, decreased GCS, pinpoint pupils).

Question:

A 31-year-old female is admitted to the Emergency Department following a paracetamol overdose. Which one of the following features in the medical history would increase the risk that the patient developed liver failure?

A.Hypothyroidism

B.Anorexia nervosa

C.Previous paracetamol overdose

D.Combined overdose with codeine

E.Long-term sodium valproate use

Answer:Anorexia nervosa

Explanation:

Paracetamol overdose - high risk if chronic alcohol, HIV, anorexia or P450 inducers

Important for meLess important

Whilst the guidelines for managing paracetamol overdose have changed (no longer differentiate between high-risk and normal-risk patients) the science behind the recommendations has not. Anorexic patients have depleted glutathione stores and are therefore more at risk from liver injury.

Question:

A 23-year-old presents for review. For the past 3 months or so he has been having problems with frequent headaches. These are now occuring on an almost daily basis and can be severe at times. In this patient, which one of the following features should prompt investigation for a secondary cause of headaches?

A.Photophobia during the headache

B.Feeling of nausea during the headache

C.Severe unilateral eye pain

D.Headache triggered by coughing

E.Numbness lasting 30 minutes before the headache

Answer:Headache triggered by coughing

Explanation:

If the patient was older, severe unilateral eye pain should also prompt you to exclude a condition such as glaucoma. In a 23-year-old patient, however, this would not be a prime consideration. Unilateral eye pain is common in migraine and cluster headaches. Patients with sinusitis often complain of pain 'behind' an eye as well.

Question:

A 59-year-old man attends the emergency department complaining of transient darkening of his vision in his right eye. It has happened twice today, lasts for two minutes and then returns to normal. There are no other symptoms.

Current medication includes amlodipine, ramipril, metformin and atorvastatin.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Acute open angle glaucoma

C.Posterior cerebral artery stroke

D.Retinal artery stroke

E.Vitreous haemorrhage

Answer:Retinal artery stroke

Explanation:

Amaurosis fugax is a form of stroke that affects the retinal/ophthalmic artery

Important for meLess important

Retinal artery stroke, or amaurosis fugax, is the correct answer. The patient's current medications are suggestive of several risk factors for amaurosis fugax, which can include:

Male sex

Increasing age

Hyperlipidaemia

Hypertension

Heart disease, e.g. valvular disease, arrhythmias

Smoking

Acute angle closure glaucoma is caused by a sudden blockage of aqueous drainage from the eye, which can cause rapid intraocular pressure increase. The angle between the iris and cornea becomes smaller, occluding the outflow tracts. Acute angle closure glaucoma often presents as sudden visual loss and is more common in patients with diabetes. However, a key differentiating factor here is that acute angle closure glaucoma is painful and usually accompanied by headache, nausea, redness of the eye and seeing haloes.

Acute open-angle glaucoma is the result of blockage of the trabecular meshwork in the eye. The angle between the iris and cornea remains unchanged but the outflow blockage causes a slower rise in intraocular pressure than acute angle closure glaucoma. Symptoms can include redness of the eye and nausea. On examination, the cornea may be bulging and the pupil may be dilated and/or unresponsive to light. Symptoms tend to be milder than in acute angle closure glaucoma as the pressure increase is more gradual. This patient is experiencing no other symptoms than transient visual loss, thus it is unlikely that he is suffering from acute open angle glaucoma.

Posterior cerebral artery stroke can cause visual symptoms but this usually presents as contralateral homonymous hemianopia due to infarction of the occipital cortex. If the thalamus becomes infarcted, there may be hemisensory loss and/or burning pain affecting one side of the body. If the central territory is affected, the patient may have oculomotor palsy.

Vitreous haemorrhage occurs when there is bleeding into the vitreous humour, which is in between the retina and the lens. Patients usually describe a painless blurring or haziness of their vision, which is sometimes tinged with a red hue. There may be a new onset of floaters or 'cobwebs' in their vision. This patient's symptoms are transient and only last a few minutes at a time before resolving completely, thus vitreous haemorrhage is not the most likely diagnosis.

Question:

A patient attends the urgent care centre with a four-day history of right calf pain, erythema and swelling. Two weeks ago they returned from a holiday in Brazil. They have no pleuritic chest pain or respiratory symptoms. An US doppler confirms a right leg above knee DVT. They opt to be commenced on warfarin as it is deemed a NOAC would not be suitable due to a history of poorly controlled epilepsy with frequent tonic-clonic seizures.

Which food group is it important to counsel the patient to avoid in excess?

A.Broccoli, spinach, kale and sprouts

B.Butter, oils and saturated fats

C.Caffeine, cured meats and dark chocolate

D.Dried apricots, avocado, butternut squash and bananas

E.Unpasteurised milk and dairy products

Answer:Broccoli, spinach, kale and sprouts

Explanation:

Patients taking warfarin should avoid foods high in vitamin K, such as sprouts, spinach, kale and broccoli

Important for meLess important

Broccoli, spinach, kale and sprouts are all high in vitamin K so should be avoided in excess by patients taking warfarin. Regarding the others - butter, oils and saturated fats should be avoided in excess by everyone; caffeine, cured meats and dark chocolate are common migraine triggers; dried apricots, avocado, butternut squash and bananas are foods high in potassium; unpasteurised milk and dairy products should be avoided by pregnant women.

Question:

A 45-year-old female is referred to rheumatology having presented to her GP with fatigue and joint pain in the fingers of both hands. She has a past medical history of mild asthma, controlled by a salbutamol reliever inhaler, and a documented allergy to co-trimoxazole.

Blood tests were reported as:

Rheumatoid factor positive

Anti-CCP antibody 150u/ml (< 20u/ml)

Which drug might cause an allergic reaction in this patient?

A.Hydroxychloroquine

B.Leflunomide

C.Methotrexate

D.Sarilumab

E.Sulfasalazine

Answer:Sulfasalazine

Explanation:

Patients with a documented allergy to a sulfa drug (i.e. co-trimoxazole) should not take sulfasalazine

Important for meLess important

Hydroxychloroquine is not contraindicated in this patient. Hydroxychloroquine might be offered as one of the first line disease-modifying anti-rheumatic drugs for rheumatoid arthritis.

Leflunomide is not contraindicated in this patient. Leflunomide might be offered as one of the first line disease-modifying anti-rheumatic drugs for rheumatoid arthritis.

Methotrexate would not be contraindicated in this patient. Methotrexate might be offered as one of the first line disease-modifying anti-rheumatic drugs for rheumatoid arthritis.

Sarilumab is not contraindicated in this patient. However, in order to receive sarilumab, the patient must have an inadequate response to polypharmacy with disease-modifying anti-rheumatic drugs and a disease activity score of greater than 5.1.

Although sulfasalazine is one of the first line disease-modifying anti-rheumatic drugs for rheumatoid arthritis, patients with a documented allergy to a sulfa drug, such as co-trimoxazole, should not take sulfasalazine.

Question:

A 10-year-old child is undergoing screening, as dyslipidaemia runs in his family. His father, who is accompanying him to the appointment, has multiple tendon xanthomata on the back of his hands, as well as xanthelasma around the eyes.

The child's lipid profile contains the following results (paediatric ranges given for appropriate age and sex) :

Total cholesterol 7.6 mmol/L (<6.7 mmol/l)

LDL 6.4 (<4.0 mmol/l)

The gene encoding which protein is mutated in this inherited condition?

A.Low-density lipoprotein (LDL) receptor

B.HMG-CoA reductase

C.High-density lipoprotein (HDL) receptor

D.Oestrogen receptor

E.Peroxisome proliferator-activated receptor gamma (PPAR-γ)

Answer:Low-density lipoprotein (LDL) receptor

Explanation:

The gene encoding the low-density lipoprotein (LDL) receptor is mutated in familial hypercholesterolaemia

Important for meLess important

Familial hypercholesterolaemia (FH) is an autosomal dominant inherited disorder caused by a mutation in the gene coding the low-density lipoprotein (LDL) receptor. It causes early-onset hypercholesterolaemia and hyperlipidaemia, leading to cardiovascular disease in young patients.

FH can present with xanthelasma (cholesterol deposits around the eyes), tendon xanthomata (cholesterol deposits on tendons, which appear as smooth masses), and corneal arcus (a white ring around the iris), as well as raised cholesterol and LDL levels. First-degree relatives of patients diagnosed with FH should be screened for the disease using a lipid profile, particularly looking at cholesterol levels, and genetic screening looking for an LDL receptor mutation.

None of the other options are proteins which are mutated in FH.

HMG-CoA reductase is an enzyme targeted by statins, which is involved in the production of cholesterol.

Both LDLs and high-density lipoproteins (HDLs) are involved in transporting lipids around the body. HDLs are involved in transporting cholesterol from cells to the hepatic system for excretion - because of this property, HDLs are thought to help reduce atherosclerosis. This is in contrast to LDLs, high levels of which are associated with increased atherosclerosis.

One of the many actions of the hormone oestrogen is to modulate lipid metabolism, increasing levels of HDLs and reducing levels of LDLs. For this reason, the production of endogenous oestrogen is thought to help prevent cardiovascular disease in pre-menopausal women.

The peroxisome proliferator-activated receptor gamma (PPAR-γ) is a nuclear receptor which acts to stimulate the uptake of lipids and glucose into cells, making it a useful target in the treatment of type 2 diabetes mellitus. PPAR-γ is the target of the thiazolidinedione class of antidiabetic drugs, also known as the 'glitazones'.

Question:

A 19-year-old female presents to the emergency department with chest tightness and shortness of breath. She is drowsy and confused and is unable to give a clear history, but from her records, you can see she has a history of asthma for which she has salbutamol and beclometasone inhalers.

On auscultation, there is a widespread wheeze. Oxygen saturations are 94% on room air, respiratory rate 28/min, heart rate 120 bpm and regular, temperature 37.1ºC and blood pressure 115/87mmHg.

Her peak expiratory flow rate (PEFR) is 35% of predicted.

An arterial blood gas is taken, which shows:

pH 7.38 kPa (7.35- 7.45)

pCO2 5.3 kPa (4.5-6.0 kPa)

pO2 12 kPa (10-14 kPa)

How should this asthma attack be classified?

A.Mild

B.Moderate

C.Severe

D.Life-threatening

E.Near-fatal

Answer:Life-threatening

Explanation:

Confusion in an asthma attack is a life-threatening feature

Important for meLess important

If any of the criteria for life-threatening asthma is met, then it should be classified as such. As this patient has two features of life-threatening asthma (confusion and normocapnia) she is having a life-threatening asthma attack.

Mild is not a severity classification recognised by BTS.

She has no features of moderate asthma attack.

She has some features of severe asthma attack, for example her PEFR is 33-55%, respiratory rate >25/min and heart rate >100bpm. However, as she has two life-threatening features (confusion and normocapnia), it must be classified as such.

Near-fatal asthma attack is not the correct answer as her pCO2 is normal.

Question:

A 73-year-old gentleman presents for assessment for the use of home oxygen. His arterial blood gas results are as follows:

Normal range

pH: 7.35 (7.35 - 7.45)

pO2: 7.9 (10 - 14)kPa

pCO2: 7.7 (4.5 - 6.0)kPa

HCO3: 32 (22 - 26)mmol/l

BE: +6 (-2 to +2)mmol/l

Based on this information provided, what does the arterial blood gas show?

A.Compensation for acute respiratory acidosis secondary to acute pulmonary disease

B.Compensation for a chronic respiratory acidosis secondary to chronic pulmonary disease

C.Compensation for chronic metabolic acidosis secondary to chronic pulmonary disease

D.Compensation for acute metabolic acidosis secondary to acute pulmonary disease

E.Type 2 respiratory failure with no compensation

Answer:Compensation for a chronic respiratory acidosis secondary to chronic pulmonary disease

Explanation:

This result shows a compensated respiratory acidosis. This does not represent acute pathology. It reflects a compensation for a chronic respiratory acidosis secondary to chronic pulmonary disease. This patient may have chronic obstructive pulmonary disease.

Question:

A 22-year-old female presents to the Emergency Department with sudden-onset, right-sided lower abdominal pain over the past few hours. She has associated nausea and vomiting. The pain has now reached the point of being unbearable. She denies any fever, vaginal bleeding, dysuria or altered bowel habits. She has no significant past medical history. She does not take any regular medications.

On examination, she appears to be in significant pain, clutching at her right lower abdomen, which is tender on palpation. Normal bowel sounds are present. There is a palpable adnexal mass on pelvic examination. She is slightly tachycardic. A pregnancy test is negative and urinalysis is normal.

What finding on ultrasound would be characteristic of the likely diagnosis?

A.Beads-on-a-string sign

B.Hypoechoic mass

C.Normal ultrasound

D.Snow-storm appearance

E.Whirlpool sign

Answer:Whirlpool sign

Explanation:

Ovarian torsion may be associated with a whirlpool sign on ultrasound imaging

Important for meLess important

The history and examination is strongly suggestive of ovarian torsion. This is classically associated with a 'whirlpool sign' being demonstrated on ultrasound scanning.

'Beads-on-a-string' sign refers to a finding in chronic salpingitis, with mural nodules appearing as 'beads' and the relatively-thin wall appearing as 'string'.

Fibroids will often appear as hypoechoic masses.

A snow-storm appearance is classic of a complete hydatidiform mole.

Question:

A 63-year-old man is being reviewed in a COPD clinic. He has had 4 non-infective exacerbations in the past month, requiring steroid treatment.

He has a regular LABA/LAMA/ICS inhaler and a SABA inhaler for as required use. He is a non-smoker and lives alone.

An arterial blood gas taken today shows the following:

pH 7.34 (7.35 - 7.45)

pO2 7.9 kPa (10.3 - 13.3)

pCO2 6.2 kPa (4.7 - 6.0)

Bicarbonate 32 mmol/L (22 - 28)

Base Excess +3 (-2 - +2)

A chest x-ray shows hyperinflated lung fields and bullous changes in the right upper lobe.

Examination reveals bibasilar crackles and sacral oedema.

What is the most appropriate additional treatment?

A.Prescribe montelukast

B.Refer for chest physiotherapy

C.Refer for consideration of long term oxygen therapy

D.Refer for lung volume reduction surgery

E.Switch SAMA inhaler to regular use

Answer:Refer for consideration of long term oxygen therapy

Explanation:

COPD - LTOT if pO2 of 7.3 - 8 kPa AND one of the following:

secondary polycythaemia

peripheral oedema

pulmonary hypertension

Important for meLess important

This man has COPD which is clearly not being controlled well at an appropriate level of medical treatment. His arterial blood gas shows a mild level of type 2 respiratory failure, with hypoxia and compensated hypercapnia. His chest x-ray is what would be expected from a patient with advanced COPD. Of note, is his peripheral oedema on his sacrum, suggesting a level of COPD-related right heart failure. This, alongside the hypoxia, is an indication for long-term oxygen therapy (LTOT). This should reduce the work of the heart pumping against hypertensive lungs, decreasing right-heart strain. It should be noted, that LTOT is appropriate in hypercapnia patients, as long as an arterial blood gas is taken regularly to check for further acidosis.

Prescribing montelukast is incorrect. This may be appropriate in COPD with steroid-responsiveness features. It is useful in incidences of mild COPD, and should only be initiated by a specialist. However, this man has what appears to be severe COPD.

Referral for chest physiotherapy is incorrect. This is particularly useful for patients needing help with sputum clearance, or deep breathing exercises. There is no evidence here that this is what the patient is struggling with, it appears more to be a progression of his underlying disease.

Referral for lung volume reduction surgery is incorrect. Lung volume reduction surgery can be useful when there is severe emphysema that does not respond to conservative management first. Therefore, it would be appropriate to consider LTOT before referral for consideration of surgery.

Switching the SAMA inhaler to regular use is incorrect. SAMA and SABA inhalers should be used for symptom reduction, not regular use. The regular LAMA inhaler achieves what regular SAMA would, but with more efficacy.

Question:

A 75-year-old Afro-Caribbean male with a known diagnosis of heart failure attends a cardiology clinic for specialist review. He is struggling with breathlessness after minimal activity as well as ankle oedema. His temperature was 37ºC, oxygen saturation 96% on air, heart rate 64 beats per minute, respiratory rate of 18 breaths per minute and blood pressure 145/85 mmHg.

His current medications include ramipril, bisoprolol and spironolactone.

What other medications may be prescribed to improve the patient's symptoms?

A.Amiodarone

B.Amlodipine

C.Eplerenone

D.Hydralazine and nitrate

E.Ivabradine

Answer:Hydralazine and nitrate

Explanation:

Hydrazine and nitrate should be considered for Afro-Caribbean patients with heart failure who are not responding to ACE-inhibitor, beta-blocker and aldosterone antagonist therapy

Important for meLess important

Hydralazine and nitrate should be considered in patients with heart failure as third-line therapy if the patient has not responded to first-line (ACEi + beta-blocker) or second-line (aldosterone) therapy. This combination is more effective in Afro-Caribbean patients.

Amiodarone is an antiarrhythmic agent therefore is not indicated in this case.

Amlodipine is a calcium-channel blocker. Calcium channel blockers (CCBs) can worsen heart failure and may increase the risk of cardiovascular events, so they should be avoided.

Eplerenone is an aldosterone antagonist. As the patient is already taking one aldosterone antagonising medication (spironolactone), another one should not be added. This would also risk hyperkalemia as the patient is already taking an ACEi and spironolactone.

Ivabradine is a heart-rate-lowering agent which may be used as third-line therapy. However, the patient must have a heart rate above 75, to reduce the risk of sinus bradycardia. As this patient has a heart rate of 64, ivabradine is not appropriate.

Question:

A two-day-old baby who has not passed meconium now has a distended abdomen and is vomiting green bile. It is suspected that he may have a congenital condition affecting the rectum. Which of the following tests is diagnostic?

A.Abdominal ultrasound

B.Abdominal x-ray

C.Rectal biopsy

D.Contrast enema

E.Colonoscopy

Answer:Rectal biopsy

Explanation:

This baby has Hirschsprung's disease, a congenital abnormality causing the absence of ganglionic cells in the myenteric and submucosal plexuses. The condition occurs in 1/5000 births. Symptoms include delayed passage of meconium (> 2 days after birth), abdominal distension and bilious vomiting. Treatment is usually with rectal washouts initially, followed by an anorectal 'pull-through procedure'. This involves removing the affected section of bowel and forming an anastomosis with the healthy colon.

Hirschsprungs disease could be suggested on abdominal x-ray, abdominal ultrasound and contrast enema. Some sections of the bowel may look very dilated and the affected section narrow. However, definitive diagnosis is with a rectal biopsy, where the tissue can be analysed under the microscope for the absence of ganglionic cells.

Question:

A 57-year-old female attends the emergency department with a sudden onset of a severe occipital headache and two episodes of vomiting in the past hour. An urgent CT scan finds no abnormalities, however, a lumbar puncture taken 12 hours later is positive for xanthochromia, and subarachnoid haemorrhage (SAH) is diagnosed. Urgent neurosurgical review is requested and a CT cerebral angiography indicates a posterior communicating artery aneurysm as the cause of the SAH. The patient is otherwise fit and well.

Which option is most likely to be the optimal treatment for the aneurysm?

A.Insertion of an extraventricular drain

B.Extracranial-intracranial bypass

C.Coiling by an interventional neuroradiologist

D.Nimodipine only

E.Surgical clipping

Answer:Coiling by an interventional neuroradiologist

Explanation:

Following a subarachnoid haemorrhage, most intracranial aneurysms are now treated with a coil by an interventional neuroradiologist

Important for meLess important

The management of spontaneous SAH is based on the underlying pathology. Intracranial aneurysms have the risk of rebleeding and therefore need urgent intervention, ideally within 24 hours.

Coiling by an interventional neuroradiologist is the correct answer, as this is the most common treatment for intracranial aneurysms following a SAH. This works on the concept of excluding the aneurysm from intracranial circulation and involves the insertion of soft metallic coils within the lumen. These are detached once in place and this is much less invasive than surgical clipping.

Nimodipine is used to reduce vasospasm following a SAH, but intervention would additionally be needed. It is usually given for 21 days. This is a calcium channel inhibitor that targets the brain vasculature.

Surgical clipping is an alternative intervention measure, working on the same concept of excluding the aneurysm from intracranial circulation. However, as this involves a craniotomy, this is a more invasive procedure.

Insertion of extraventricular drains may be done if hydrocephalus occurs as a complication of SAH.

Extracranial-intracranial bypass can be considered if a clip application or coiling procedure cannot be performed, but this is not the primary treatment usually.

Question:

A 78-year-old man visits his GP with his wife.

She tells you he has been very forgetful over the past 2 months and is concerned about some inappropriate comments he has made, which is out of character.

He has also had multiple falls and two admissions to hospital recently with falls.

He has a background of hypertension and usually takes ramipril 10mg.

The GP measures lying blood pressure at 160/78 mmHg and standing blood pressure at 117/60 mmHg.

On examination, you note he has bradykinesia of movement, a pill-rolling left-sided tremor and cogwheel rigidity of his left arm. His pupils are equal and reactive to light but he can't look upwards.

What is the most likely diagnosis?

A.Drug-induced Parkinsonism

B.Lewy-body dementia

C.Motor neurone disease

D.Multiple system atrophy

E.Progressive supranuclear palsy

Answer:Progressive supranuclear palsy

Explanation:

Progressive supranuclear palsy: postural instability, impairment of vertical gaze, parkinsonism, frontal lobe dysfunction

Important for meLess important

The correct answer is progressive supranuclear palsy (PSP) .

This is a classic presentation of PSP. The typical symptoms are postural instability, impairment of vertical gaze, parkinsonism and frontal lobe dysfunction.

The patient has postural instability, with a marked difference in lying and standing blood pressure and a history of recurrent falls; they have classic features of unilateral Parkinsonism on examination and the concerns raised by his wife about memory and out of character behaviour suggest frontal lobe dysfunction.

Drug-induced Parkinsonism is incorrect. This would usually present with bilateral symptoms and would not account for the patient’s other symptoms. In addition, the patient is not on any medication which can cause Parkinsonism.

Lewy Body dementia (LBD) is incorrect . This is a dementia caused by deposits of Lewy bodies in the brain. It can present similarly to this, with memory dysfunction, cognitive impairment and often movement disorders such as Parkinsonism. However visual hallucinations are common in LBD and the patients physical symptoms such as impairment of upwards gaze and autonomic instability would not be found in LBD.

Motor neurone disease is incorrect. MND would not typically present with the above features and Parkinsonism, but usually motor weakness, loss of fine motor skills and voice changes.

Multiple system atrophy Is incorrect, this is a condition where autonomic dysfunction is a more significant feature such as tachycardia, fainting, erectile dysfunction although it can present similarly to both Parkinson’s disease and PSP and can be challenging to differentiate the two. The main differentiating feature here is the upwards gaze impairment.

Question:

A 23-year-old woman, gravidity 2 and parity 1, at 37 weeks gestation presents after fainting and has severe abdominal pain. Blood pressure = 92/58 mmHg and heart rate = 132/min. On examination she is cold and her fundal height is 37 cm; the cervical os is closed and there is no vaginal bleeding. Which is the most appropriate diagnosis?

A.Septic shock

B.Placenta praevia

C.Amniotic fluid embolism

D.Pre-eclampsia

E.Placental abruption

Answer:Placental abruption

Explanation:

Placental abruption

Presents with sudden abdominal pain in the third trimester.

On examination the mother can be seen to be in extreme pain and cold to touch.

Bleeding is present in 80% of cases.

Absence of visible bleeding does not rule out this diagnosis.

Risk factors include: maternal hypertension (common), cocaine, trauma, uterine overdistension, tobacco and previous placental abruption.

Question:

A 25-year-old woman is being treated on a general medical ward with intravenous (IV) steroids for a severe exacerbation of ulcerative colitis lasting 4 days. During the morning ward round she has some bloods taken to assess her illness.

Na+ 136 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 112 µmol/L (55 - 120)

Magnesium 0.38 mmol/L (0.8 - 1.1)

CRP 32 (<5)

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

A.IV antibiotics

B.IV magnesium

C.No action needed

D.Oral loperamide

E.Oral magnesium salts

Answer:IV magnesium

Explanation:

Hypomagnesaemia: IV magnesium is usually given if <0.4 mmol/L or tetany, arrhythmias, or seizures

Important for meLess important

The correct answer is 'IV magnesium'.

This patient has hypomagnesaemia, likely due to the diarrhoea they are experiencing with their ulcerative colitis. As their magnesium is below 0.4 mmol/L it should be replaced with IV magnesium.

IV antibiotics are not required currently as there is nothing to suggest the presence of infection. Their CRP is raised as they are experiencing a severe exacerbation of their ulcerative colitis.

No action needed is incorrect as the patient's magnesium is low. This needs to be corrected as hypomagnesaemia can lead to arrhythmias and seizures if not treated.

Oral loperamide may help to treat diarrhoea in patients without infection. However, it would not generally form a part of the management of an exacerbation of ulcerative colitis and would not correct the abnormality on her blood results.

Oral magnesium salts would be inappropriate in this case as they are only used if the magnesium is above 0.4 mmol/L. Additionally, they can cause diarrhoea, which may make this patient worse as they are already experiencing diarrhoea.

Question:

A 25-year-old male presents to the emergency department (ED) having twisted his ankle playing football. On arrival at the ED, he cannot walk more than 2 steps and has bony tenderness at the lateral malleolus. An x-ray is performed showing an undisplaced fracture of the fibula, just distal to the syndesmosis.

How should this patient be treated?

A.Analgesia and non-weight-bearing for 2 weeks, then weight bear as tolerated

B.Analgesia and encourage to weight bear immediately

C.Analgesia and encourage to weight-bear as tolerated with a controlled ankle motion (CAM) boot

D.Below knee back slab and advised to be non-weight-bearing for six weeks

E.Open reduction and internal fixation (ORIF)

Answer:Analgesia and encourage to weight-bear as tolerated with a controlled ankle motion (CAM) boot

Explanation:

Weber A fractures -- patients with minimally displaced, stable fractures may weight bear as tolerated in a CAM boot

Important for meLess important

The correct answer is to provide analgesia, a controlled ankle motion (CAM) boot and encourage to weight bear as tolerated. The weight-bearing is a key part of the healing process as it encourages the strengthening of ligaments.

Analgesia and weight-bearing immediately is not correct as the patient should be encouraged to wear a CAM boot.

This is not an unstable fracture so open reduction and internal fixation is not required.

A plaster cast / backslab is not a recommended treatment. A cast is used to maintain reduction of a displaced fracture, and this is not a displaced fracture.

To send the patient home without some form of ankle support is not recommended.

This question addresses three topics:

1. The Ottawa Ankle Rules

2. Classification of ankle fractures

3. Management of ankle fractures.

The Ottawa Ankle Rules are a screening tool used to assess the need for an x-ray. They are as follows:

1. Bone tenderness at the posterior edge or tip of the lateral malleolus, OR

2. Bone tenderness at the posterior edge or tip of the medial malleolus, OR

3. An inability to bear weight both immediately and in the emergency department for four steps

The Weber Classification of ankle fractures classifies fractures of the lateral malleolus, using the syndesmosis as the main reference point. This syndesmosis is made up of the anterior inferior tibiofibular ligament (AITFL), posterior inferior tibiofibular ligament (PITFL), and the intra-osseous membrane. These connect the distal tibia and fibula. A fracture distal to the syndesmosis is Weber A. Weber B is a fracture at the level of the syndesmosis. A Weber C fracture is proximal to the syndesmosis and is therefore inherently unstable.

Question:

A 65-year-old woman visits her GP after being in hospital for a fall and fractured neck of femur. She is now stable and well and is asking how to reduce her risk of breaking bones. You advised her to attend strength and balance classes and started her on medication to increase her bone density. Her diet includes yoghurt and milk daily.

Before doing so, you take a blood test, as shown below.

Vitamin D 36 ng/L (20 - 50)

Calcium 4.9 mg/dL (4.8 - 5.6)

Phosphate 3.0 mg/dL (2.8 - 4.5)

What advice should now be given to the patient?

A.No vitamin or mineral supplementation is required

B.The patient should start calcium supplementation

C.The patient should start vitamin D supplementation

D.The patient should take her new medication after her morning meal

E.The patient should take her new medication prior to sleeping at night

Answer:No vitamin or mineral supplementation is required

Explanation:

When starting bisphosphonate treatment for osteoporosis, calcium should only be prescribed if dietary intake is inadequate

Important for meLess important

Before commencing a bisphosphonate (such as alendronate) for osteoporosis, calcium and vitamin D levels are replete to prevent hypocalcaemia. This patient has adequate dietary intake of calcium and replete calcium and vitamin D levels; therefore, neither calcium nor vitamin D supplementation is required before commencing a bisphosphonate medication.

As previously mentioned, calcium supplementation is not indicated in this patient with replete calcium levels and adequate dietary intake.

Furthermore, vitamin D supplementation is not required in this patient as their vitamin D levels are replete. If their vitamin D levels were low, it would be appropriate to prescribe vitamin D and ensure it is replete before commencing bisphosphonates to reduce the risk of hypocalcaemia.

Bisphosphonates have the potential to cause oesophageal irritation. To reduce the risk of this, patients are advised to remain upright for 30 minutes after administration; therefore, taking the medication before sleeping at night is not appropriate advice, as it could increase the risk of oesophageal irritation.

Furthermore, bisphosphonates must be taken 30 minutes before meals in the morning to ensure adequate absorption, so it is not appropriate to advise the patient to take bisphosphonates with meals in the morning.

Question:

A 27-year-old woman presents to the general practitioner with a burning sensation across the outside of her left thigh. It is causing her pain when she moves, especially whilst standing at work. The pain does not radiate anywhere else.

She has never experienced this previously. She has no previous medical history. There is little information in her records except for a recent blood pressure, recorded as 128/92mmHg, and a BMI of 41kg/m².

What is the most likely diagnosis in this case?

A.Fibromyalgia

B.L3 lumbar radiculopathy

C.Meralgia parasthetica

D.Osteoarthritis

E.Sciatica

Answer:Meralgia parasthetica

Explanation:

Meralgia parasthetica causes pain in the lateral cutaneous nerve of the thigh distribution

Important for meLess important

Meralgia parasthetica causes pain in the lateral cutaneous nerve of the thigh distribution. This pain is usually aggravated by standing and relieved by sitting and is associated with an altered sensation over the anterolateral aspect of the thigh.

Meralgia parasthetica can occur in pregnancy, obesity, tense ascites, trauma, or surgery. It occurs more in those with diabetes than the rest of the population.

Fibromyalgia typically presents with pain across the neck and shoulders. It is associated with other symptoms such as fatigue, muscle stiffness, difficulty sleeping, and brain fog. Fibromyalgia pain does not typically affect the lateral thigh.

L3 lumbar radiculopathy causes pain in the lower back and hip which radiates down into the leg. Lumbar radiculopathy typically presents with muscle weakness.

Osteoarthritis typically presents with joint pain and stiffness of the hips or knees. It is more common with obesity, females, and the older population. It does not cause a change in sensation across the thigh.

Sciatica describes pain along the sciatic nerve pathway. The pain is typically described as shooting or shock-like and radiates from the back to the posterior leg and buttock. Sciatica may be associated with muscle weakness and other neurological signs.

Question:

A 56-year-old man with a history of rectal cancer presents to the Emergency Department. He has noticed that the contents of his colostomy bag is darker than usual and is quite sticky. He thinks that this has been the case since last week, but he isn't sure exactly how long ago it was that he first noticed it. He feels otherwise well, although he was prescribed naproxen approximately two months ago for pain associated with his arthritis.

On examination he looks pale but otherwise well. His observations are stable. His haemoglobin is 80g/L. A previous Hb level taken six months ago was 125g/L. You suspect an acute upper gastrointestinal bleed.

Your registrar asks you to arrange further investigations.

Which of the following actions is most appropriate in this scenario?

A.Arrange for gastroenterologist to perform endoscopy in the Emergency Department immediately

B.Arrange endoscopy as outpatient in 2 weeks time

C.Book endoscopy within 24 hours of hospital admission

D.No endoscopy required

E.Arrange urgent outpatient endoscopy

Answer:Book endoscopy within 24 hours of hospital admission

Explanation:

All patients with suspected upper GI bleed require an endoscopy within 24 hours of admission

Important for meLess important

The 'Acute upper gastrointestinal bleeding in over 16s: management' NICE guideline states that immediate endoscopy should be offered to 'unstable patients with severe upper gastrointestinal bleeding immediately after resuscitation'. It then goes on to say that endoscopy should be offered 'within 24 hours of admission to all other patients with upper gastrointestinal bleeding'.

This gentleman has had a significant drop in his Hb, but is not currently unstable and therefore does not meet the criteria for immediate endoscopy. He should receive an endoscopy within 24 hours of hospital admission in order to comply with NICE guidelines.

Question:

A 74-year-old male with a 30 pack year smoking history is admitted to the medical assessment unit with shortness of breath, production of pink frothy sputum and swollen ankles. His past medical history includes two myocardial infarctions in the last 5 years.

On examination, he has bilateral pitting oedema up to his mid-shins, bi-basal crackles and oxygen saturations of 89%.

Which of the following is most likely to be identified by auscultating the chest?

A.Ejection systolic murmur

B.Fourth heart sound

C.Splitting of the second heart sound

D.Summation gallop

E.Third heart sound

Answer:Third heart sound

Explanation:

A third heart sound is one of the possible features of left-sided heart failure

Important for meLess important

This patient is suffering from acute heart failure, likely due to his history of IHD.

An ejection systolic murmur and splitting of the second heart sound are both signs of aortic stenosis.

Although it is possible for a fourth heart sound to be present in acute heart failure, a third heart sound is much more likely and is, therefore, the correct answer.

A summation gallop is the combination of the third and fourth heart sounds and is rare.

Question:

A 40-year-old male presents to the neurology clinic with complaints of high fever, vomiting, and headache for five days. He also complains of the blurring of vision since today. There is a history of sinusitis that was resolved two weeks ago. On examination, his temperature is 39ºC, the respiratory rate is 22/min, the pulse rate is 90/min, and the blood pressure is 130/90 mmHg. A computed tomography scan shows a ring enhancing lesion on the right frontal lobe, suggesting brain abscess.

Which of the following is the best treatment for this patient?

A.Intravenous ceftriaxone and metronidazole

B.Intravenous dexamethasone and paracetamol

C.Intravenous itraconazole

D.Intravenous ondansetron

E.Intravenous pyrimethamine and sulfadiazine

Answer:Intravenous ceftriaxone and metronidazole

Explanation:

Brain abscess: IV 3rd-generation cephalosporin + metronidazole

Important for meLess important

Brain abscesses may result from several causes including, an extension of sepsis from middle ear or sinuses, trauma or surgery to the scalp, penetrating head injuries and embolic events from endocarditis. Fever, headache and features of raised intracranial pressure (vomiting, blurring of vision) are highly suggestive of a brain abscess. The presenting symptoms will depend upon the site of the abscess (those in critical areas e.g. motor cortex). Management includes empirical antibiotics (intravenous third-generation cephalosporin + metronidazole) and intracranial pressure management (dexamethasone).

Dexamethasone and paracetamol may be used in brain abscesses but are not definite treatment.

Intravenous itraconazole is used for fungal infections.

Intravenous ondansetron may be used for managing vomiting, but not the definite treatment for abscess.

Intravenous pyrimethamine and sulfadiazine are used for cerebral toxoplasmosis.

Question:

A 34-year-old pregnant woman presents at 30 weeks gestation for a routine check. On examination she has a symphysis-fundal height of 25 cm. What is the next most important investigation to confirm the examination findings?

A.Ultrasound

B.Cardiotocography

C.Biophysical profile

D.Umbilical artery Doppler

E.Urinalysis

Answer:Ultrasound

Explanation:

The measurement of the symphysis-fundal height in centimetres should closely match the foetal gestational age in weeks within 1 or 2 cm from 20 weeks gestation. Therefore it can be inferred that the woman in this case is small for dates. It is therefore important to perform an ultrasound to confirm whether or not the foetus is small for gestational age.

Question:

A 6-year-old boy is brought to the GP by his mother. He has been experiencing coryza accompanied by a fever of 37.8C for the last 3 days. This morning his mother noticed a red rash on both cheeks and pallor surrounding his mouth. Which one of the following is the most likely causative organism?

A.Staphylococcus aureus

B.Parvovirus B19

C.Herpes simplex virus type 1

D.Coxsackie virus A16

E.Rubella virus

Answer:Parvovirus B19

Explanation:

This question focuses on organisms causing common childhood infections. In this scenario, the boy presents with slapped-cheek syndrome, also known as erythema infectiosum. He has a typical presentation of coryza and fever followed by a red rash. This infection is caused by parvovirus b19 and so option 2 is the correct answer.

The content of this question could be examined in a single best answer format so it would be advisable to learn the table below of the most common infection causing organisms.

Question:

A 64-year-old man with a history of ischaemic heart disease and poor left ventricular function presents with a broad complex tachycardia of 140 bpm. On examination blood pressure is 110/74 mmHg. Fusion and capture beats are seen on the 12 lead ECG. What is the first line drug management?

A.Sotalol

B.Amiodarone

C.Adenosine

D.Flecainide

E.Lidocaine

Answer:Amiodarone

Explanation:

The history of ischaemic heart disease combined with the presence of fusion and capture beats strongly suggests a diagnosis of ventricular tachycardia (VT). Whilst lidocaine can also be used in VT, amiodarone would be preferred given his history of poor left ventricular function. In the 2010 joint European Resuscitation Council and Resuscitation Council (UK) guidelines amiodarone is also considered first-line in a peri-arrest situation

Question:

You are bleeped to assess a 66-year-old man with a declining urine output. He was initially admitted with community-acquired pneumonia a week ago and was recovering well until last night. His urine output is 0.2ml/kg/hr for the last 6 hours. The patient reports feeling generally unwell but with no pain.

Urinalysis shows + protein but nil else. His heart rate is 87bpm, respiratory rate 20/min, blood pressure 140/100 mmHg, and temperature 37.8ºC.

Recent bloods show:

Na+ 134 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Bicarbonate 22 mmol/L (22 - 29)

Urea 8.7. mmol/L (2.0 - 7.0)

Creatinine 131 µmol/L (55 - 120)

What is the most appropriate investigation?

A.CT KUB

B.Cystoscopy

C.Renal tract ultrasound within 24 hours

D.Repeat bloods

E.Urinary sodium

Answer:Renal tract ultrasound within 24 hours

Explanation:

An ultrasound is required in the investigation of all patients presenting with an AKI of unknown aetiology

Important for meLess important

The correct answer is renal tract ultrasound within 24hrs. This patient is presenting with signs and symptoms of acute kidney injury (AKI). This patient has a urine output of <0.5ml/kg/hr which is diagnostic for stage 1 AKI. There are no signs in the history, observations or blood tests that this patient is suffering from a pre-renal aetiology. Therefore it is appropriate to investigate for an intrarenal or post-renal (obstructive) cause using ultrasound. Guidelines state that a renal tract ultrasound should be carried out within 24 hours of diagnosing AKI when the cause is unclear.

CT KUB is incorrect. This patient is presenting with signs and symptoms of an AKI of uncertain aetiology. CT KUB is the gold standard for the identification of ureteric calculi. However in this case ultrasound is a quicker way to identify hydronephrosis which can be a sign of post-renal AKI, as well as to assess the bladder. Therefore ultrasound is more appropriate.

Cystoscopy is incorrect. This patient is presenting with signs and symptoms of an AKI of uncertain aetiology. The first investigation to consider would be an ultrasound of the renal tract as it is quick and non-invasive. Cystoscopy can be considered later on in specific aetiologies (bladder cancer, urethral strictures etc).

Repeat bloods is incorrect. This patient is presenting with signs and symptoms of an AKI of uncertain aetiology. Repeating the blood tests will not add anything to this patient's management and so would not be recommended.

Urinary sodium is incorrect. This patient is presenting with signs and symptoms of an AKI of uncertain aetiology. In this case, it is unlikely that this is a pre-renal AKI as the patient is haemodynamically and clinically stable, and so urinary sodium would not be useful in confirming aetiology.

Question:

A 64-year-old man developed a polymicrobial wound infection following an emergency operation for a ruptured abdominal aortic aneurysm. He was placed on antibiotic treatment, and 5 days later, he reported developing bad breath and a metallic taste in his mouth. On examination, the patient had a black discolouration of the tongue and hairy appearance of the tongue.

What class of antibiotics can lead to this presentation?

A.Macrolides

B.Aminoglycosides

C.Tetracyclines

D.Penicillins

E.Cephalosporins

Answer:Tetracyclines

Explanation:

Tetracyclines can cause black hairy tongue

Important for meLess important

Black hairy tongue is a temporary, harmless oral condition relatively common condition which results from defective desquamation of the filiform papillae. Despite the name, the tongue may be brown, green, pink or another colour. Predisposing factors include poor oral hygiene, tobacco use, intravenous drug use, and antibiotics (particularly tetracyclines).

Question:

A 43-year-old male with a history of Leber's optic atrophy, presents to his GP. He and his wife have decided they would like to have children and he wants to know what chance his offspring have of inheriting his condition. He remembers his geneticist telling him 'something about mitochondria' but he can't recall any more details about the inheritance pattern.

Assuming his wife does not carry the same gene defect, what is the probability that a child of his will inherit the condition?

A.0%

B.25%

C.50%

D.75%

E.100%

Answer:0%

Explanation:

For a man with mitochondrial disease, none of his children will inherit the condition

Important for meLess important

Leber's optic atrophy is a mitochondrially inherited disease that can lead to a loss of vision.

Mitochondrial DNA is always passed down the maternal line. Mitochondrial genetic diseases are never transmitted from males to their offspring. Therefore the only answer that can be correct is '0%'.

Other examples of mitochondrial disorders include leigh syndrome, mitochondrial diabetes, MELAS syndrome, and MERFF syndrome.

Question:

You are asked to review a neonate born pre-term at 35 weeks, 36-hours after delivery with no complications.

On examination, you find a left subclavicular thrill and notice a continuous 'machinery-like' murmur. You also discover a bounding pulse and note a widened pulse pressure.

There is no evidence of cyanosis, nor crackles on auscultation.

Upon reviewing the notes and history with the mother, there were no problems during the pregnancy, nor any abnormal findings on antenatal scans or screening. There is no family history of any significant disease.

Given the likely diagnosis, what would be the most appropriate management option?

A.Give indomethacin to the mother

B.Give indomethacin to the neonate

C.Reassure the mother and monitor over the coming months

D.Request a review from the surgical team

E.Give prostaglandin E1 to the neonate

Answer:Give indomethacin to the neonate

Explanation:

Indomethacin or ibuprofen is used in patent ductus arteriosus to promote duct closure

Important for meLess important

Giving indomethacin to the neonate is the correct answer, as the examination findings point toward a diagnosis of patent ductus arteriosus (PDA). The ductus arteriosus usually closes with the first breaths, which clear the prostaglandins keeping it open. When this does not occur, indomethacin or ibuprofen can be given, as these inhibit prostaglandin synthesis.

Giving indomethacin to the mother would not achieve this - it needs to be given to the neonate.

Prostaglandin would have the opposite effect, and would maintain the PDA's patency. This would be useful if surgical repair was warranted - if a congenital heart disease was also discovered upon investigation. The lack of family history, and normal screening/scans during pregnancy make that unlikely in this scenario.

The same applies to the option of getting the surgeons involved.

Reassuring the mother and monitoring over the coming months would not be appropriate. For now, the baby is acyanotic, but if left untreated, can lead to pulmonary hypertension, or Eisenmenger's syndrome - reversal of the shunt from left-to-right (acyanotic), to right-to-left (cyanotic).

Question:

In 2010 NICE published guidelines on the prevention of venous thromboembolism (VTE) in patients admitted to hospital. Which one of the following would be classified as a risk factor for VTE?

A.Dehydration

B.Taking a progesterone-only contraceptive pill

C.Being 57-years-old

D.Taking aspirin 75mg od

E.Being of Asian ethnicity

Answer:Dehydration

Explanation:

Question:

A 34-year-old male with rheumatoid arthritis attends his GP practice as he wants counselling regarding starting a family. His wife does not have any medical conditions and has been taking folic acid for the past four weeks. They are keen to start trying for a baby as soon as possible. He has no other medical history and his regular medications are methotrexate, paracetamol, ibuprofen, and lansoprazole. He is aware that his sister had to stop some of her medications for rheumatoid arthritis prior to conceiving and wants to know if he needs to do the same.

What is the appropriate management advice for this patient?

A.No need to stop methotrexate as he is male

B.No need to stop methotrexate in males or females attempting conception

C.Stop methotrexate at least one month before conception

D.Stop methotrexate at least six months before conception

E.Stop methotrexate at least three months before conception

Answer:Stop methotrexate at least six months before conception

Explanation:

Methotrexate: must be stopped at least 6 months before conception in both men and women

Important for meLess important

This question assesses the knowledge regarding discontinuation of the dihydrofolate reductase inhibitor methotrexate prior to conception. There is a risk that methotrexate can damage the sperm in males and can cause spontaneous early abortion in females. In order to allow full 'wash-out' of the drug and to improve sperm quality, it is advised that methotrexate is stopped at least six months prior to conception.

Methotrexate should be stopped in both male and female patients prior to attempting conception to ensure that both gametes have minimised risk of DNA changes.

While there is some evidence that paternal exposure to methotrexate within 90 days before pregnancy was not associated with congenital malformation/stillbirth/preterm birth (a 2017 study by Eck et al.), the current guidance is to avoid the drug for six months to allow repletion of folic acid. This means that stopping methotrexate for three months before conception is an incorrect answer. Stopping it for only a month is also clearly an incorrect option.

Question:

A 32-year-old Afro-Caribbean woman presents to accident and emergency following an episode of loss of consciousness with 'jerking activity' reported by her partner. She saw the community midwife 2 days previously and reporting feeling hot and sweaty, lethargic, and having intermittent confusion and headache episodes, they had organised a general practice appointment for her later in the week.

She is usually fit and well. Her past medical history is a spontaneous vaginal delivery 3 weeks ago and an uncomplicated urinary tract infection 2 weeks ago which resolved with nitrofurantoin.

Her observations show temperature of 38ºC, respiratory rate of 18/min, heart rate of 85bpm, blood pressure of 136/86mmHg, 99% oxygen saturations on room air.

Her bloods show:

Hb 98 g/L Male: (135-180)

Female: (115 - 160)

Platelets 130 \* 109/L (150 - 400)

WBC 10 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 8.0 mmol/L (2.0 - 7.0)

Creatinine 126 µmol/L (55 - 120)

CRP 15 mg/L (< 5)

A blood film is sent which is reported as showing schistocytes.

Out of the options listed, what is the likely diagnosis?

A.Beta-thalassemia intermedia

B.Glucose-6-phosphate dehydrogenase (G6PD) deficiency

C.Kawasaki disease

D.Sickle cell disease

E.Thrombotic thrombocytopenic purpura

Answer:Thrombotic thrombocytopenic purpura

Explanation:

TTP presents with a pentad of fever, neuro signs, thrombocytopenia, haemolytic anaemia and renal failure

Important for meLess important

This patient is presenting with the typical characteristics of thrombotic thrombocytic purpura (TTP):

Fever (T: 38ºC)

Altered mental state (headache, confusion, excess tiredness, seizure)

Thrombocytopenia (platelets: 130 \* 109/L)

Haemolytic anaemia (haemoglobin: 98 g/L)

Reduced renal function (creatinine: 126 µmol/L)

Hypertension (this does not form part of the pentad of symptoms but may be present)

Thrombotic thrombocytopenic purpura (TTP) is a microangiopathic haemolytic anaemia which is typically characterised by the pentad of symptoms described above. It results from either congenital or acquired decrease or absence of the enzyme 'a disintegrin and metalloproteinase with a thrombospondin type 1 motif member 13' (ADAMTS13). Low levels of this enzyme leads to microthrombus formation causing end-organ damage and ischaemia. Epidemiologically, there is reported to be an overrepresentation of Black African and Caribbean people in TTP registries (Martino, 2016. doi: 10.1371/journal.pone.0156679).

Beta-thalassemia intermedia is an inherited haemoglobinopathy most commonly seen in people of Mediterranean descent. Patients will have a mild homozygous beta-thalassemia mutation (ß+/ ß+ or co-inheritance of beta-thalassemia with another haemoglobinopathy trait). They will have a moderate microcytic hypochromic anaemia on full blood count, blood film will show target cells, tear drop cells, and poikilocytosis. On examination, there may be splenomegaly.

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is an autosomal recessive enzymopathy where reduced ATP causes rigid red cells. Homozygotes present with haemolytic anaemia (jaundice is usually evident in neonatal period) and splenomegaly. Crises can occur due to reduced glutathione production (precipitated by fava beans, infection, aspirin, antimalarial drugs). Bloods will show a rapid anaemia, pyruvate kinase deficiency and jaundice, blood film will show bite cells, blister cells and Heinz bodies.

Kawasaki disease is a medium-vessel vasculitis which is common in children. Its presentation can be remembered with the mnemonic 'CRASH and burn' (conjunctivitis, rash, adenopathy, strawberry tongue, hands (palmar erythema), and a fever lasting > 5 days with poor response to antipyretics.

Sickle cell disease is an inherited haemoglobinopathy caused by point mutations in the beta chain of haemoglobin leading to glutaminic acid being substituted with valine which changes the shape and structure of haemoglobin. Abnormal shaped erythrocytes form when haemoglobin polymerizes due to deoxygenation.

Question:

A 70-year-old man presents to the emergency department with a 2 hour history of sudden onset shortness of breath. He has had a 1 week history of fever and fatigue.

Observations are as follows:

BP = 94/66 mmHg, heart rate = 112 beats per minute, temperature = 38.9ºC, oxygen saturations = 92% on room air, respiratory rate = 24 breaths/min.

Examination reveals bibasal inspiratory crackles with decreased air entry bilaterally. A new murmur was documented: a pan-systolic, 4/6 murmur loudest in the axilla.

Repeat blood cultures identify Staphylococcus aureus on 2 tests.

Chest X-ray revealed marked interstitial oedema. Echocardiography revealed mitral valvular insufficiency with multiple mitral valve vegetations, with an ejection fraction of 35%.

What is the definitive management in this patient?

A.Continuous positive airway pressure

B.IV antibiotics and fluids

C.Furosemide

D.Elective outpatient surgical valvular replacement

E.Urgent surgical valvular replacement

Answer:Urgent surgical valvular replacement

Explanation:

Infective endocarditis causing congestive cardiac failure is an indication for emergency valve replacement surgery

Important for meLess important

This patient is suffering from mitral valve endocarditis with regurgitation, resulting in acute heart failure. Endocarditis was positively diagnosed by 2 major Duke's criteria being fulfilled (2 separate blood cultures + echocardiographic evidence of endocardial lesions). Heart failure is implied by the clinical symptoms and signs, as well as chest X-ray and definitive echocardiographic findings.

The criteria for urgent valvular replacement are as follows:

Severe congestive cardiac failure

Overwhelming sepsis despite antibiotic therapy (+/- perivalvular abscess, fistulae, perforation)

Recurrent embolic episodes despite antibiotic therapy

Pregnancy

Option 1: incorrect - while continuous positive airway pressure (CPAP) is an appropriate intervention in the setting of acute heart failure, it would not resolve the underlying endocarditis and the patient would continue to deteriorate.

Option 2: incorrect - empirical antibiotic therapy should be started in all patients with suspected infective endocarditis. However, in the setting of acute heart failure, the definitive management is valvular surgery. Given the time it takes for antibiotics to clear septic foci, it is likely the patient would not survive without emergency intervention.

Option 3: incorrect - furosemide is another intervention used in the management of acute heart failure and pulmonary oedema, however is not appropriate as the definitive management in this patient as it does not address the underlying cause of cardiac dysfunction - the septic valvular focus.

Option 4: incorrect - elective outpatient valve replacement would be indicated in the setting of chronic mitral regurgitation, specifically symptomatic mitral regurgitation or asymptomatic regurgitation with evidence of left ventricular dysfunction.

Option 5: correct - in the setting of acute decompensated heart failure, this option is the most appropriate one to completely remove infected tissue and restore normal valvular function.

Source: BMJ best practice.

Question:

A 22-year-old male presents to his GP with a two-day history of natal cleft pain and purulent and bloody discharge from his natal cleft. He also has a fever.

He has had these symptoms many times before over the past 3 years, which tend to self-resolve without treatment and return following a period of being asymptomatic. However, he had incision and drainage for his condition six months ago, and his symptoms returned.

What is the best treatment option for this man?

A.Antibiotics

B.Incision and drainage

C.No treatment necessary

D.Pilonidal cystectomy

E.Supportive management with focus on local hygiene

Answer:Pilonidal cystectomy

Explanation:

Recurrent episodes of natal cleft pain with discharge → ?pilonidal disease

Important for meLess important

This patient has most likely got a pilonidal disease which has become infected after a period of chronic recurrence. Pilonidal sinus disease is where there is an enlarged follicle in the natal cleft, and hair can irritate the surrounding tissue causing infection. It can often be asymptomatic, with the patient's only noticing it when the sinus becomes infected, causing discharge, swelling, and pain. This is managed depending on the level of symptoms and previous management. In severe or recurrent disease where incision and drainage has previously failed, surgery is the definitive management, where the cavity is emptied to remove any abnormal tissue and hair (pilonidal cystectomy). In this case, this patient has recurrent symptoms, not resolved by incision and drainage, and needs definitive management with surgical intervention.

Antibiotics will be useful if the pilonidal disease has led to infection; however, this is not the definitive management in this case.

Incision and drainage can help with symptom relief if a cyst has formed at the pilonidal sinus, but will not be definitive management here.

Asymptomatic patients do not require any treatment, although future recurrences can be prevented by maintaining high levels of personal hygiene.

Maintaining a high level of personal hygiene, alongside regular hair removal in the area is recommended to prevent a recurrence.

Question:

A 27-year-old man presents to the emergency department with a severe head injury following a high-speed motor vehicle collision. He is assessed to be GCS 4 at the scene. A CT head upon arrival to the emergency department reveals an intracranial haemorrhage with contusion and diffuse oedema. An urgent external ventricular drain surgery is planned. Appropriate resuscitation is initiated, and the patient is intubated and ventilated. Neuroprotective measures are initiated.

What is the most appropriate management while awaiting theatre?

A.Acetazolamide

B.Hydralazine

C.IV dexamethasone

D.IV mannitol

E.Urgent lumbar puncture

Answer:IV mannitol

Explanation:

IV mannitol is an osmotic diuretic that may be used in patients with raised ICP

Important for meLess important

IV mannitol is a hypertonic agent which increases systemic osmolality, causing an osmotic shift of water out of the brain parenchyma. This medication is used in patients with raised intracranial pressure (ICP) secondary to traumatic brain injury to reduce the pressure and increase diuresis. This step needs to be performed before CSF drainage using an external ventricular drain and is the most appropriate of the options here.

Acetazolamide is a carbonic anhydrase inhibitor commonly used to treat altitude sickness. It has no role in reducing intracranial pressures in traumatic brain injury, though it does reduce cerebrospinal fluid production. This patient would likely not benefit from this medication in this scenario.

Hydralazine is not an appropriate option for this patient. It is associated with increased intracranial pressure due to the mechanism of action as a venous vasodilator. This patient already has elevated intracranial pressure, so hydralazine would likely worsen their outcomes.

IV dexamethasone is commonly used to treat raised ICP secondary to vasogenic oedema from central nervous system infections or neoplasms. It has no role in treating raised ICP in traumatic brain injury and hence would not be appropriate in this patient.

An urgent lumbar puncture is not indicated, as this patient is already planned for urgent insertion of an extraventricular drain for cerebrospinal fluid drainage. The goal is to lower ICP initially with osmotherapy using IV mannitol before the patient is taken to theatre.

Question:

A 2-month-old girl is brought in by her mother. She was breastfed for the first two weeks of life before being switched to formula. For the past six weeks she has experienced a number of problems including regurgitation, vomiting, diarrhoea and eczema. Despite these problems she has kept to the 50th centile for weight. Clinical examination is unremarkable other than some dry skin on her torso. What is the most likely diagnosis?

A.Coeliac disease

B.Lactose intolerance

C.Cow's milk protein intolerance

D.Gastro-oesophageal reflux disease

E.Cystic fibrosis

Answer:Cow's milk protein intolerance

Explanation:

The emergence of symptoms following the introduction of formula is very suggestive of cow's milk protein intolerance.

Question:

A 74-year-old man has had a recent change to his epilepsy medication since having an increased seizure frequency following a stroke. He has a mechanical heart valve for which he takes warfarin. An INR taken 3 days after commencing treatment comes back at 2.3.

What anti-epileptic medication has likely been started for this patient?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Sodium valproate

Answer:Carbamazepine

Explanation:

Carbamazepine is a P450 enzyme inductor

Important for meLess important

Carbamazepine is a potent cytochrome P450 enzyme inductor. This induction increases the metabolism of warfarin causing a reduction in its effects which subsequently decreases the INR.

Ethosuximide is generally used for childhood absence seizures and has not been shown to impact the cytochrome p450 system significantly and therefore will not likely affect the warfarin and subsequently the INR.

Lamotrigine has not been shown to impact the cytochrome p450 system significantly and therefore will not likely affect the warfarin and subsequently the INR.

Levetiracetam is not metabolised by the cytochrome P450 system and thus does not have significant drug interactions and as such would not impact his warfarin and the subsequent INR.

Sodium valproate inhibits the cytochrome p450 system. This inhibition reduces the metabolism of warfarin causing a prolongation of its effects which subsequently increases the INR.

Question:

A 45-year-old female presents to the GP complaining of the sudden onset of pain around her anus. On examination, a purplish, oedematous, tender subcutaneous perianal mass is observed.

What is the most likely diagnosis?

A.Anal cancer

B.Anal fissure

C.Genital warts

D.Thrombosed haemorrhoids

E.Pilonidal sinus

Answer:Thrombosed haemorrhoids

Explanation:

Thrombosed haemorrhoids are characterised by anorectal pain and a tender lump on the anal margin

Important for meLess important

This is a typical presentation of thrombosed haemorrhoids with anorectal pain and a purplish, oedematous, tender subcutaneous perianal mass on examination.

Anal cancer typically presents with a subacute onset of perianal pain and bleeding, faecal incontinence and a palpable lesion on examination. The sudden onset and appearance of the perianal mass make this a less likely diagnosis.

Anal fissures typically present with painful, bright red, rectal bleeding. Approximately 90% are found in the posterior midline.

Genital warts are small (2-5mm) fleshy protuberances that are slightly pigmented and may itch or bleed. They are typically caused by HPV types 6 & 11.

A pilonidal sinus typically presents with cycles of being asymptomatic and periods of pain and discharge from the sinus. It occurs as a result of hair debris creating sinuses in the skin. If they are close to the anus, they may cause anal pain.

Question:

A 24-year-old woman books a routine appointment. She has recently started a sexual relationship and would like to start long term contraception as they have no intentions to have children for the foreseeable future. Her mother was diagnosed with breast cancer 10 years ago, the patient along with the rest of her family was tested at the time and she was found to have a BRCA1 mutation.

According to the Faculty of Sexual and Reproductive Health (FSRH) guidelines which is the safest method of contraception?

A.Mirena coil

B.Copper coil

C.Combined oral contraceptive

D.Progesterone only oral contraceptive

E.Progesterone only implant

Answer:Copper coil

Explanation:

Suspected/personal history of breast cancer or confirmed BRCA mutation - copper coil is the safest form of contraception

Important for meLess important

The FSRH issue guidelines for the choice of contraception known as the UK Medical Eligibility Criteria for Contraceptive Use (UKMEC). All types of non-barrier contraceptives are graded on a scale of 1-4 based on a woman's personal circumstances. Knowledge of these guidelines is commonly tested in the AKT so it is wise to be familiar with common restrictions. The four grades are detailed below:

Category Description

1 A condition for which there is no restriction for the use of the method

2 A condition where the advantages of using the method generally outweigh the theoretical or proven risks

3 A condition where the theoretical or proven risks usually outweigh the advantages of using the method. The provision of a method requires expert clinical judgement and/or referral to a specialist contraceptive provider since use of the method is not usually recommended unless other more appropriate methods are not available or not acceptable

4 A condition which represents an unacceptable health risk if the method is used

As a general rule a form of contraception should only be offered in primary care if it is considered category 1 or 2.

In this case the patient could be safely offered any form of contraception except the combined pill (category 3). All the others are category 2 except the copper coil, which is category 1.

Question:

A 55-year-old woman presents to the emergency department with sudden onset left-sided groin pain. The groin pain is severe and she has a past medical history of hypertension controlled with amlodipine.

She is afebrile, her pulse is 95 bpm, and her blood pressure is 127/85 mmHg. On examination, an irreducible lump is present that is inferior and lateral to the pubic tubercle on the left side which is extremely tender to the touch.

What is the most likely diagnosis?

A.Incarcerated femoral hernia

B.Incarcerated inguinal hernia

C.Incarcerated obturator hernia

D.Strangulated femoral hernia

E.Strangulated inguinal hernia

Answer:Strangulated femoral hernia

Explanation:

Femoral hernias are inferolateral to the pubic tubercle

Important for meLess important

Strangulated femoral hernia is correct. The presence of a lump that is inferior and lateral to the pubic tubercle suggests the presence of a femoral hernia. Hernias can be incarcerated (where they are irreducible, but no pain or any other symptoms are present), which predisposes them to become strangulated (where the blood supply to the herniated tissue becomes compromised risking ischaemia and necrosis). Since this patient has an extremely painful irreducible hernia, this suggests that it is strangulated.

Incarcerated femoral hernia is incorrect. Although the type of hernia is correct, this patient is experiencing severe pain, suggesting that the blood supply to the herniated tissue has been cut off, therefore making it a strangulated hernia. If this patient were to only have an irreducible lump without any other symptoms, this would be the case.

Incarcerated inguinal hernia is incorrect. As mentioned above, this would be an incarcerated hernia if the lump was only irreducible with no other symptoms such as pain. An inguinal hernia would be likely if the lump was superior and medial to the pubic tubercle, which is not the case here.

Incarcerated obturator hernia is incorrect. Obturator hernias pass through the obturator foramen, which is not the case here. Furthermore, an incarcerated hernia would only be irreducible with no pain or other symptoms.

Strangulated inguinal hernia is incorrect. Although this hernia is strangulated due to the presence of severe pain, an inguinal hernia is superior and medial to the pubic tubercle, which is not the case here.

Question:

A mother notices that her newborn boy has small eye openings, a small body and low-set ears. On examination the paediatrician also notes a flat philtrum, a sunken nasal bridge, short palpebral fissures and a thin upper lip. What is the most likely cause?

A.Diabetes

B.Maternal alcohol abuse

C.Group B Streptococcal infection

D.Maternal Listeria

E.Maternal opioid abuse

Answer:Maternal alcohol abuse

Explanation:

Fetal alcohol syndrome

Maternal alcohol abuse during pregnancy.

Presentation: IUGR, microcephaly, midfacial hypoplasia, micrognathia, smooth philtrum, microphthalmia, short palpebral fissures, thin upper lip, irritability, ADHD.

Question:

A 32-year-old male is receiving a blood transfusion after being involved in a road traffic accident. A few minutes after the transfusion he complains of loin pain. His observations show temperature 39 oC, HR 130bpm and blood pressure is 95/40mmHg. What is the best test to confirm his diagnosis?

A.USS abdomen

B.Direct Coomb's test

C.Blood cultures

D.Blood film

E.Sickle cell test

Answer:Direct Coomb's test

Explanation:

Mnemonic for transfusion reactions:

Got a bad unit

G raft vs. Host disease

O verload

T hrombocytopaenia

A lloimmunization

B lood pressure unstable

A cute haemolytic reaction

D elayed haemolytic reaction

U rticaria

N eutrophilia

I nfection

T ransfusion associated lung injury

Important for meLess important

The diagnosis is of an acute haemolytic transfusion reaction, normally due to ABO incompatibility. Haemolysis of the transfused cells occurs causing the combination of shock, haemoglobinaemia and loin pain. This may subsequently lead to disseminated intravascular coagulation. A Coomb's test should confirm haemolysis. Other tests for haemolysis include: unconjugated bilirubin, haptoglobin, serum and urine free haemoglobin.

Note that delayed haemolytic reactions are normally associated with antibodies to the Rh system and occur 5-10 days after transfusion.

Question:

A 38-year-old gentleman presents with right upper quadrant pain, fever, and profusely bloody diarrhoea. This came on 3 weeks after returning from India. He was working in rural India for a year and returned to the UK when his contract finished. On examination, he appears dehydrated and he has conjunctival pallor. On abdominal examination, you detect a mass on palpation. You refer him for a CT scan which shows an abscess on the liver. The patient undergoes drainage of the abscess and the surgeon describes the consistency of the contents as 'anchovy sauce'. What organism causes this clinical picture?

A.Entamoeba histolytica

B.Echinococcus granulosus

C.Staphylococcus aureus

D.Streptococcus mutans

E.Clostridium difficile

Answer:Entamoeba histolytica

Explanation:

A description of the contents for amoebic liver abscesses is described as 'anchovy sauce' - E. histolytica is known to digest hepatic tissue

Important for meLess important

This patient has returned with bloody diarrhoea, right upper quadrant pain and a fever. He has returned from a tropical country. Due to the incubation period being 3 weeks, the causative organism has to be a parasite of some sort as they usually have longer incubation periods. Since there is bloody diarrhoea, the diagnosis is an amoebic liver abscess caused by E.histolytica.

Echinococcus is a parasite however they form cysts not abscesses and there would be more than one cyst, furthermore, this is a disease that usually affects those who have been around farm animals. Secondly, dysentery makes this disease unlikely.

Staph. aureus is unlikely as it is too long of an incubation period

Strep. mutans is unlikely as it causes tooth decay and not dysentery

C.diff does not cause liver abscesses and no history of antibiotic use. Bloody diarrhoea is not a feature of this infection, pseudomembrane formation is. (Pseudomembranous colitis)

Question:

A 70-year-old woman attends your GP surgery having fallen in her kitchen last week. After the fall, she attended the emergency department and was found to have some bruising, but no fractures. She is worried that she might fall again, and is worried about a fracture occurring in the future. You suggest an assessment of the patient's fracture risk. Which of the following would be most appropriate in assessing the patient's fracture risk?

A.DEXA scan

B.X-ray of the carpal bones

C.X-ray of the head of the humerus

D.FRAX tool

E.Bone scan

Answer:FRAX tool

Explanation:

FRAX is an acronym for Fracture Risk Assessment tool. It was developed by the World Health Organisation (WHO) to evaluate fracture risk in patients. It can be used in people between the ages of 40 and 90 years old, with or without a bone mineral density (BMD) value.

NICE recommends the use of the FRAX or QFRACTURE tools in the assessing the risk of fragility fractures. As FRAX is the only option available above, this is the correct answer.

Dual energy X-ray absorptiometry (DEXA) is used to measure bone mineral density (BMD). In this case, FRAX should be used to assess the patient's risk initially. As explained below, the results of FRAX may then warrant further investigation with a DEXA scan.

Performing an X-ray of the carpal bones, or the head of the humerus, would not be appropriate here.

Performing a bone scan (bone scintigraphy) would be inappropriate here, as this will show areas of increased metabolic activity in the bone (e.g. inflammation, malignancy), but will give no information as to the patient's risk of fracture.

References:

NICE (2012). Osteoporosis: assessing the risk of fragility fracture.

Question:

A 56-year-old man is recovering on the medical ward following a pulmonary embolism. He suffers from stage-5 chronic kidney disease (CKD), and was deemed a high bleeding risk. Therefore, it was decided that unfractionated heparin was the safest choice of anti-coagulant.

6-days after commencing anti-coagulant treatment, he is noticed to have a bruise-like rash forming on his right arm, which is also red and appears swollen. He reports the area is itchy.

It is concluded that this patient is experiencing heparin-induced thrombocytopenia (HIT).

With regards to this patient's anticoagulation, what is the most appropriate management option?

A.Reduce the dose of heparin

B.Stop heparin and monitor blood results

C.Switch to a direct thrombin inhibitor (argatroban)

D.Switch to low-molecular weight heparin (LMWH)

E.Switch to warfarin

Answer:Switch to a direct thrombin inhibitor (argatroban)

Explanation:

Heparin-induced thrombocytopenia: anticoagulation can be provided by direct thrombin inhibitor e.g. argatroban

Important for meLess important

Heparin-induced thrombocytopenia occurs due to the production of auto-antibodies against heparin and platelet factor IV. It tends to start at 5-10 days into treatment, with the typical presentation being blood clots forming in the context of recently started heparin and low platelets. This patient still needs anticoagulation, which can be provided in the form of a direct thrombin inhibitor (e.g. argatroban).

Reducing the dose of heparin is not adequate management to stop the autoimmune condition.

Stopping heparin without starting another anticoagulant will not solve the problem. This patient has recently suffered a pulmonary embolism and HIT creates a hypercoagulable state. Therefore, anticoagulation is essential in this patient.

Switching to LMWH still runs the risk of the formation of auto-antibodies and the continuation of this auto-immune condition.

Switching to warfarin is not ideal in this patient. Despite a recent blood clot, he has been deemed at risk of bleeding, and warfarin will only increase this risk.

Question:

A 40-year-old woman presents with a 2-week history of a new rash on her right leg. During this time she has had associated malaise and joint pain affecting the wrists and ankles and a recent episode of haemoptysis. She has a past medical history of chronic sinusitis.

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 275\* 109/L (150 - 400)

WBC 12.1\* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.7mmol/L (2.0 - 7.0)

Creatinine 89µmol/L (55 - 120)

CRP 56mg/L (< 5)

An examination of her skin is performed which shows the following:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Anti-glomerular basement membrane antibody disease (Goodpasture's syndrome)

B.Eosinophilic granulomatosis with polyangiitis (Churg-Strauss syndrome)

C.Granulomatosis with polyangiitis (Wegener's granulomatosis)

D.Henoch-Schonlein purpura (IgA vasculitis)

E.Polyarteritis nodosa

Answer:Granulomatosis with polyangiitis (Wegener's granulomatosis)

Explanation:

Granulomatosis with polyangiitis (Wegener's granulomatosis) is correct. This is a type of systemic vasculitis affecting small and medium-sized vessels. Its cause is poorly understood. This patient has non-specific systemic symptoms, polyarthritis, and haemoptysis. This should raise suspicion of granulomatosis with polyangiitis (GPA, Wegener's granulomatosis) and the presence of chronic sinusitis supports this diagnosis. The rash in the image shows a vasculitic rash, characterised by purpura (flat red and purple blotches that look like bruises) and blistering (on the right image that shows a pocket of fluid under the skin and the overlying skin being elevated), which is associated with vasculitis. Of the types of vasculitis in question, the only one that fits this patient's symptom profile is GPA, as it is classically characterised by haemoptysis, sinusitis and nasal discharge, malaise, joint pain, and a vasculitic rash. The patient has normal renal function in this scenario, however, it can also cause glomerulonephritis and impaired renal function if the disease involves the renal vasculature.

Anti-glomerular basement membrane antibody disease (Goodpasture's syndrome) is incorrect. This is an autoimmune condition that affects type IV collagen, which is found in the lungs and kidneys. Therefore, it is characterised by a rapid deterioration in kidney function, glomerulonephritis and pulmonary haemorrhages (manifesting as haemoptysis). It can also present with a vasculitis rash seen in the image, however, the patient does not have any renal impairment.

Eosinophilic granulomatosis with polyangiitis (Churg-Strauss syndrome) is incorrect. This is an autoimmune systemic vasculitis which is characterised by eosinophilia, granuloma formation and vasculitis. Although this can present with sinusitis and a vasculitic rash, one of the key features of eosinophilic granulomatosis with polyangiitis (EGPA) is the presence of asthma and eosinophilia, which are not mentioned here.

Henoch-Schonlein purpura (IgA vasculitis) is incorrect. Although this can present with polyarthritis and a vasculitic rash, this is usually seen in children following infection and is not associated with haemoptysis, sinusitis, and nasal discharge. Classical features of Henoch-Schonlein purpura are palpable purpuric rashes over the buttocks and extensor surfaces of the legs, along with abdominal pain and polyarthritis. These features do not apply to this patient.

Polyarteritis nodosa (PAN) is incorrect. Although this can present with a vasculitic rash and malaise, it is not associated with haemoptysis, sinusitis, and nasal discharge. PAN is more commonly seen in middle-aged men and is associated with hepatitis B infection, with many patients having positive hepatitis B serology results. Features are often non-specific with fever, malaise, weight loss, and joint pain. The classical features that help distinguish PAN in exams are a history of hepatitis B infection or positive hepatitis serology.

Question:

A 30-year-old female presents in the emergency department. She is anxious that her waters broke this morning and describes a sudden 'gush' which soaked her trousers.

She is 30 weeks gestation and has had an uncomplicated pregnancy so far.

What is the most appropriate investigation to perform initially?

A.Digital examination

B.Serum beta-HCG

C.Speculum examination

D.Ultrasound

E.Urinalysis

Answer:Speculum examination

Explanation:

Careful speculum examination to look for pooling of amniotic fluid in the posterior vaginal vault is the first-line investigation for preterm prelabour rupture of the membranes

Important for meLess important

This patient's description of events is in keeping with preterm prelabour rupture of membranes (PPROM) which occurs in around 2% of pregnancies.

Sterile speculum examination should be performed to assess for pooling of amniotic fluid in the posterior vaginal vault.

Digital examination should be avoided due to risk of infection.

Serum beta-HCG is unlikely to be of use and the patient should have had previous ultrasound scans and have booked her pregnancy by this gestation.

Ultrasound is the investigation indicated if there is no pooling of amniotic fluid in the posterior vaginal vault.

Urinalysis will not be helpful in assessing if there has been PPROM.

Question:

A 70-year-old man presents with a sudden onset of central chest pain, radiating to his jaw and left shoulder. The chest pain occurred an hour ago when he was sitting on a chair after his dinner. He has a past history of hypertension.

On examination, he is alert but appears to be sweaty, nauseous and short of breath. His pulse rate is 120 bpm and his blood pressure is 150/100 mmHg. ECG shows a T-wave inversion and an ST-segment depression in the anterior leads. Troponin levels, which were taken at 3 hours and at 6 hours after the symptom onset were not elevated.

Which of the following is the most likely diagnosis?

A.Stable angina

B.Unstable angina

C.Prinzmetal (variant) angina

D.Non-ST elevation myocardial infarction (NSTEMI)

E.ST-elevation myocardial infarction (STEMI)

Answer:Unstable angina

Explanation:

Unstable angina or NSTEMI? Elevation in troponin points towards NSTEMI

Important for meLess important

Unstable angina and NSTEMI have similar clinical features. The best way to differentiate between these two conditions is to perform serial high-sensitivity troponin tests and to observe for any rise or fall in troponin level. Elevation in troponin level points towards an NSTEMI as this confirms the diagnosis of an infarction. Prinzmetal angina is unlikely in this patient as it normally occurs in the younger population and in smokers. It also tends to occur early in the morning or at sleep. ECG will normally show an ST-elevation in Prinzmetal angina. Stable angina occurs during exertion and is relieved after resting.

Question:

A 38-year-old man presents with increasing shortness of breath and ankle swelling. He reports he is more short of breath, especially on exertion, which is not being relieved by the use of his salbutamol inhaler. He has also noticed his ankles are swollen by the end of the day.

His past medical history includes asthma, which is usually well controlled, and lymphoma, which was treated with chemotherapy several years ago. His only medications are his beclometasone and salbutamol inhalers. The results of his blood tests are shown below:

Hb 140 g/L (135-180)

Platelets 359 \* 109/L (150 - 400)

WBC 7.2 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 5.9 mmol/L (2.0 - 7.0)

Creatinine 119 µmol/L (55 - 120)

His ECG showed sinus rhythm with left axis deviation. An echocardiogram was done which showed dilation of all four chambers of the heart and a left ventricular ejection fraction of 40%.

Which drug can be attributed to causing this man's presentation?

A.Cyclophosphamide

B.Vincristine

C.Doxorubicin

D.Docetaxel

E.Bleomycin

Answer:Doxorubicin

Explanation:

Anthracyclines (e.g. doxorubicin) may cause cardiomyopathy

Important for meLess important

This man is presenting with features of heart failure and the echocardiogram results would be in keeping with a diagnosis of dilated cardiomyopathy. Doxorubicin (an anthracycline) is used in the treatment of lymphoma and is known to be cardiotoxic.

Cyclophosphamide can also be used to treat lymphoma and other haematological conditions such as leukaemia. A well-known side effect is haemorrhagic cystitis.

Vincristine can be used with doxorubicin to treat lymphoma and is associated with peripheral neuropathy.

Docetaxel is often used in the management of breast and lung cancers and can cause neutropenia.

Bleomycin can be used as part of lymphoma management and is associated with the development of pulmonary fibrosis.

Question:

A 49-year-old woman with type 2 diabetes mellitus is being considered for exenatide therapy. Which one of the following is not part of the NICE criteria for starting or continuing this drug?

A.BMI > 35 kg/m^2

B.Greater than 1.0 percentage point HbA1c reduction after 6 months

C.Has failed with insulin therapy

D.Has type 2 diabetes mellitus

E.Weight loss > 3% at 6 months

Answer:Has failed with insulin therapy

Explanation:

Patients do not need to have been on insulin prior to using exenatide

Question:

A 30-year-old woman visits her GP with a 1-day history of dysuria and offensive-smelling urine. She is currently 37 weeks pregnant with her first child. There are no other symptoms and the patient feels systemically well.

On examination, a gravid uterus is present. There is no abdominal or flank tenderness. The patient's temperature is 36.5ºC, her heart rate is 90 beats per minute and her blood pressure is 115/75mmHg.

A urine dip is performed:

Blood -

Leucocytes ++

Nitrites ++

The patient has no past medical history, takes no medications and has no allergies.

What is the most appropriate management?

A.Arrange urgent assessment in secondary care

B.Await urine culture results before prescribing antibiotics

C.Prescribe amoxicillin

D.Prescribe nitrofurantoin

E.Prescribe trimethoprim

Answer:Prescribe amoxicillin

Explanation:

UTI in a pregnant woman in the third trimester - use amoxicillin or cefalexin

Important for meLess important

Prescribe amoxicillin is correct as per NICE guidelines, this is an appropriate antibiotic to use for a pregnant woman who is at term and has symptoms of a lower urinary tract infection (UTI).

Arrange urgent assessment in secondary care is incorrect as there are no features of systemic illness such as pyelonephritis (e.g. back pain, fever or nausea) or sepsis. There are also no features of complicated UTIs such as recurrent infection, treatment failure or underlying co-morbidities or structural anomalies.

Await urine culture results before prescribing antibiotics is incorrect. NICE recommends an immediate antibiotic prescription is given to prevent the risk of complications such as pyelonephritis developing. This antibiotic can then be changed if necessary depending on the results of the urine culture.

Prescribe nitrofurantoin is incorrect. Although this is usually an appropriate antibiotic to use for a lower UTI in a pregnant woman, it should not be used at term as it may cause neonatal haemolysis.

Prescribe trimethoprim is incorrect. Trimethoprim is teratogenic in the first trimester as it is a folate antagonist (therefore increasing the risk of spinal tube defects). NICE advises that is avoided throughout pregnancy.

Question:

A 58-year-old man goes to see his GP reporting that his face has a 'lopsided' appearance. The patient's past medical history includes T2DM, hypertension, and kidney stones, for which he has recently had lithotripsy. His most recent HbA1c reading, taken three months ago, was 75 mmol/mol. On examination, the GP finds right-sided ptosis and impaired adduction of the right eye. The patient reports some double vision during the assessment of eye movements. Both pupils are equal and reactive to light. The rest of the examination is normal.

A defect in which cranial nerve will cause this presentation?

A.Abducens nerve (CN VI)

B.Oculomotor nerve (CN III)

C.Optic nerve (CN II)

D.Trigeminal nerve (CN V)

E.Trochlear nerve (CN IV)

Answer:Oculomotor nerve (CN III)

Explanation:

Ptosis - CN III

Important for meLess important

The patient has ptosis: drooping of the upper eyelid. One possible cause of ptosis is a palsy of cranial nerve III (oculomotor nerve). The oculomotor nerve innervates the levator palpebrae superioris muscle and the superior tarsal muscle, which lifts the upper eyelid.

Cranial nerve III also controls four of the eye's six oculomotor muscles (the superior rectus, inferior rectus, medial rectus, and inferior oblique). A palsy of CN III can therefore also lead to a 'down-and-out' eye position, hence the patient's difficulty with eye adduction. Cranial nerve III also controls pupil constriction, so a complete palsy would cause a dilated pupil. In diabetic CN III palsy, as in this case, the pupils are unaffected.

In this example, the CN III palsy is due to damage to the small blood vessels supplying the nerve as a result of poorly controlled diabetes. Microvascular damage is the most common cause of CN III palsies. Other causes include compression from neoplasm, cranial artery aneurysms, and trauma.

A palsy of the abducens nerve (CN VI), which controls the lateral rectus muscle, may result in horizontal diplopia.

Defects in the optic nerve (CN II), which transmits signals from the retina to the visual cortex, would affect the patient's vision.

Palsy in the trochlear nerve (CN IV), which controls the superior oblique muscle, may result in vertical or torsional diplopia.

A palsy of the trigeminal nerve (CN V) might lead to loss of facial sensation or weakness of the muscles of mastication.

Question:

A 71-year-old man is under the ophthalmology clinic for bilateral primary open-angle glaucoma.

He has been using latanoprost eye drops but despite this, his intraocular pressures remain elevated.

The ophthalmologist has to add in a second topical agent to try to reduce intraocular pressure further by decreasing the rate of aqueous humour production.

Which class of drug should be offered next?

A.Antimuscarinic

B.Beta-blocker

C.Carbonic anhydrase analogue

D.Corticosteroids

E.Prostaglandin analogue

Answer:Beta-blocker

Explanation:

Beta blockers such as timolol work in primary open-angle glaucoma by reducing aqueous production

Important for meLess important

Topical beta-blockers are commonly used in the management of primary open-angle glaucoma. They reduce intraocular pressure (IOP) by decreasing the rate of production of aqueous humour. Examples include timolol, betaxolol and levobunolol.

It is sometimes used as first-line pharmacological therapy or may be added to a prostaglandin analogue (as in this patient) as second-line treatment if monotherapy is unsuccessful.

Topical antimuscarinics have no role in the management of primary open-angle glaucoma. In fact, they can obstruct the outflow of aqueous humour and raise IOP further. Conversely, pilocarpine (a muscarinic agonist) can be used to reduce IOP in primary open-angle glaucoma.

Carbonic anhydrase inhibitors (e.g. brinzolamide, dorzolamide) are available to treat glaucoma, rather than carbonic anhydrase analogues.

Topical corticosteroids are used in other eye conditions such as uveitis and post-cataract surgery, but not for glaucoma.

This patient is already using latanoprost with insufficient benefit, so it would be incorrect to combine with a second prostaglandin analogue. Patients are sometimes tried on a different drug in the same class if one is poorly tolerated. However, guidelines recommend that a drug from another therapeutic class should be used if current treatment is not sufficiently reducing IOP.

Question:

A 45-year-old woman attends the emergency department after she woke up 6 hours ago and noticed that her speech sounded slurred and half of her face was drooping.

On examination, there is a loss of motor function to the forehead and lower portions of the left face as well as the inability to close the left eye. She has full power and sensation in her upper and lower limbs bilaterally.

Given this information, what is the most appropriate initial management?

A.Administer alteplase

B.Non-contrast CT head

C.Offer reassurance and safety netting advice

D.Prescribe prednisolone

E.Prescribe sodium valproate

Answer:Prescribe prednisolone

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

Prescribe prednisolone is correct. This is a presentation of Bell's palsy. Both upper and lower portions of the face being affected suggest a lower motor neuron pathology. Bell's palsy is often caused by inflammation leading to compression of the facial nerve. Corticosteroids used within the first 72 hours of symptom onset improve recovery time and long-term outcomes.

Administer alteplase is incorrect as it could be used for an ischaemic stroke. An ischaemic event would cause unilateral upper motor neuron paralysis, which would spare the forehead. Additionally, other symptoms such as limb weakness or hyperreflexia could be seen.

Non-contrast CT head is incorrect. It is indicated if the diagnosis is unclear, or if there is suspicion for stroke or tumour. This presentation is very typical of Bell's palsy and would not require imaging. Concerning features that would warrant imaging is paralysis that is forehead sparing, limb weakness, or any other neurological signs.

Offer reassurance and safety netting advice is incorrect. Bell's palsy is usually a self-limiting condition that will slowly improve over the following weeks. Corticosteroids should be offered to most patients, as they can reduce the duration of the disease process.

Prescribe sodium valproate is incorrect. It is an anti-epileptic medication used in many seizure disorders. This is a very unusual presentation for a seizure and would be considered far down the differentials. Antiepileptics have no role in treating Bell's palsy.

Question:

A 44-year-old man comes to see you as he noticed pain in his left ear which started three days ago while he was cleaning his ears out with cotton buds. He reports that his left ear has been hurting since and he thinks his hearing is also affected. On examination, you note a perforated left eardrum.

Which one of the following best describes the management of this condition?

A.Watch and wait -if persists beyond 12 months for ENT referral

B.Urgent ENT referral to be seen within 2 weeks

C.Watch and wait -if persists beyond 6 weeks for ENT referral

D.Immediate referral to the emergency department

E.Watch and wait -if persists beyond 3 weeks for ENT referral

Answer:Watch and wait -if persists beyond 6 weeks for ENT referral

Explanation:

A perforated eardrum will usually heal by itself within 6-8 weeks. Patients with a perforation should be advised that the eardrum is a skin-like structure and therefore it heals in the same way as a cut on the skin. They should avoid getting water into the ear as this can impair healing and increase the chance of infection.

It would be inappropriate to refer to ENT either urgently or routinely before 6 weeks as this would be an inappropriate use of NHS resources. Leaving it beyond 12 months to refer would also be inappropriate as it could cause long-term complications.

For more information visit https://patient.info/health/perforated-eardrum

Question:

A 60-year-old female presents to GP for review. She is currently on an extensive polypharmacy. Her recent blood test shows that her INR has decreased below the required therapeutic range. You look at a number of her medications.

Which of the following is a likely culprit for her reduced INR?

A.Sodium valproate

B.Phenytoin

C.Ciprofloxacin

D.Omeprazole

E.Fluoxetine

Answer:Phenytoin

Explanation:

Phenytoin is a P450 enzyme inducer

Important for meLess important

The cytochrome P450 isoenzyme system are involved in the metabolism of many exogenous substances. Phenytoin is an inducer of CYP3A4 and CYP2C9 which are families of the cytochrome P450 enzymes. Conversely sodium valproate, ciprofloxacin, omeprazole and fluoxetine and all P450 inhibitors. Warfarin is metabolised mainly by CYP1A2, CYP2C9 and CYP3A4, therefore, phenytoin can induce metabolism causing a decrease in INR.

Question:

A 32-year-old woman has been diagnosed with breast cancer, and has been treated surgically and with radiotherapy. She is HER2 -ve and ER -ve, however her TNM stage is T2N2M0.

Which of the following is the most appropriate management due to her staging as node positive?

A.Aromatase inhibitors

B.FEC-D Chemotherapy

C.Herceptin

D.Oestrogen supplementation

E.Tamoxifen

Answer:FEC-D Chemotherapy

Explanation:

FEC-D chemotherapy is used in breast cancer patients who are node +ve

Important for meLess important

For exams, you rarely need to know chemotherapy regimes however, for breast cancer, you should know that FEC-D chemotherapy is used for breast cancer that is node +ve, and that FEC chemotherapy is used for node -ve breast cancer that requires chemotherapy. Aromatase inhibitors and tamoxifen are used in women who are ER +ve, and herceptin is used in women who are HER2 +ve. Oestrogen has no role in breast cancer management.

Question:

A 69-year-old man presents to the emergency department with severe headache and visual disturbance. He reports that he noticed sudden onset pain while watching television last night with the lights off. Painkillers have not helped and he has vomited twice since the pain began. He has no significant medical history and wears glasses for reading.

Which of the following medications should be given as part of the initial management?

A.Intravenous (IV) acetazolamide

B.Oral amitriptyline

C.Oral oxybutynin

D.Topical dorzolamide

E.Topical latanoprost

Answer:Intravenous (IV) acetazolamide

Explanation:

Alongside eye drops, IV acetazolamide is used in the initial emergency medical management of acute angle-closure glaucoma

Important for meLess important

The correct answer is IV acetazolamide.

This patient is likely to be suffering from acute angle-closure glaucoma. This is suggested by the presentation of severe headache and visual disturbance, accompanied by vomiting. The fact that the pain was worse while watching television in a dark room suggests mydriasis. Additionally reading glasses suggest that he has hypermetropia, which is a risk factor for developing acute angle-closure glaucoma. The initial management would consist of various eye drops and IV acetazolamide.

Oral amitriptyline is a tricyclic antidepressant that has anticholinergic effects. As such it can actually precipitate or worsen acute angle-closure glaucoma and should never be used in the management of it.

Similarly oral oxybutynin is an anticholinergic medication and may precipitate or worsen acute angle-closure glaucoma.

Topical dorzolamide is a carbonic anhydrase inhibitor that reduces aqueous production. It is normally used in the management of primary open-angle glaucoma.

Topical latanoprost is a prostaglandin analogue that increases uveoscleral outflow. It is also used in the management of primary open-angle glaucoma.

Question:

A 33-year-old female has presented to your clinic with a red rash on her scalp, elbows and knees. This rash is mildly itchy and has been troubling her for the last 2 months.

On examination you note symmetrical erythematous, scaly plaques with well-defined edges affecting the scalp and extensor surfaces. The plaques appear to be a white colour, and there is also evidence of lichenification. She was also reviewed by her doctor recently who prescribed a course of topical hydrocortisone. This finished two days ago.

According to the NICE guidelines, how long should you wait before starting a second course of the same treatment?

A.1 week

B.2 weeks

C.4 weeks

D.6 weeks

E.8 weeks

Answer:4 weeks

Explanation:

Aim for a 4 week break in between courses of topical corticosteroids in patients with psoriasis

Important for meLess important

A patient presenting with symmetrical erythematous, scaly plaques with well-defined edges are highly suggestive of psoriasis.

NICE recommends that treatment of psoriasis should involve a 4-week course of topical steroids as first-line in combination with vitamin D analogues and regular emollients. If this does not succeed, the guidelines recommend that there should be a a 4-week break in between steroid courses to reduce the likelihood of complications, such as skin atrophy.

Question:

A 7-year-old boy is brought in to the GP surgery with an exacerbation of asthma. On examination he has a bilateral expiratory wheeze but there are no signs of respiratory distress. His respiratory rate is 24 / min and PEF around 60% of normal. What is the most appropriate action with regards to steroid therapy?

A.Oral prednisolone for 3 days

B.Admit for intravenous steroids

C.Give a stat dose of oral dexamethasone

D.Double his usual beclometasone dose

E.Do not give steroids

Answer:Oral prednisolone for 3 days

Explanation:

The 2016 British Thoracic Society guidelines state the following with respect to steroid treatment in children:

Use a dose of 10 mg prednisolone for children under 2 years of age, 20 mg for children aged 2-5 years and 30-40 mg for children >5 years. Those already receiving maintenance steroid tablets

should receive 2 mg/kg prednisolone up to a maximum dose of 60 mg.

Repeat the dose of prednisolone in children who vomit and consider intravenous steroids in those who are unable to retain orally ingested medication.

Treatment for up to three days is usually sufficient, but the length of course should be tailored to the number of days necessary to bring about recovery. Tapering is unnecessary unless the course of steroids exceeds 14 days.

Question:

A 50-year-old diabetic woman presents to her general practitioner with a three-month history of an aching, heavy right lower leg. She reports waking at night due to calf cramps and finds that propping her leg up on the bath helps to alleviate these. On examination, the right lower leg shows some non-pitting oedema, some areas of hyperpigmentation, and a slightly painful, 2cm ulcer proximal and posterior to the right medial malleolus. She is a heavy smoker (with a 25-year pack history) and takes metformin for management of her type 2 diabetes.

What is the most likely diagnosis?

A.Arterial ulcer

B.Neuropathic ulcer

C.Pressure ulcer

D.Pyoderma gangrenosum

E.Venous ulcer

Answer:Venous ulcer

Explanation:

Venous ulcers usually occur around the medial malleolus (gaiter region)

Important for meLess important

This patient is presenting with symptoms consistent with venous ulceration and chronic venous insufficiency:

Aching lower limb.

Ulceration in the 'gaiter region'.

Night cramps/cramps that occur after sitting or active standing.

Symptom relief from leg elevation.

Skin discolouration with haemosiderin deposition and stasis eczema.

An arterial ulcer would present with burning pain in the leg, ulceration over bony prominences, and a deep, dry, punched out ulcer appearance. While this patient has a risk factor for arterial ulceration (diabetes), this condition is associated with arterial, venous and neuropathic ulcers. It is important to note that although she is a smoker (another risk factor for arterial ulceration), the description of the ulcer and its location should guide the student away from this answer.

A neuropathic ulcer is associated with tingling and numbness over the area. These occur on bony prominences and peripheries. These appear as deep, calloused, and punched out ulcers and are prevalent in poorly controlled diabetic patients.

A pyoderma gangrenosum is an ulcerative skin condition where a minor trauma causes a painful pustular lesion. These are rapidly enlarging and have a purple border with a necrotic core. These are often seen in patients with histories of chronic inflammatory diseases (such as inflammatory bowel disease and inflammatory arthritis). The vignette does not have a characteristic description of this and, as such, is the incorrect answer.

Question:

A 54-year-old man is due to undergo the elective extraction of three teeth due to dental decay. He has a past medical history of type 2 diabetes mellitus and a mechanical aortic valve replacement for aortic stenosis.

What should he receive as prophylaxis against infective endocarditis before his procedure?

A.Benzylpenicillin

B.Benzylpenicillin + gentamicin

C.Flucloxacillin

D.No prophylaxis

E.Vancomycin + gentamicin

Answer:No prophylaxis

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

The correct answer is no prophylaxis. As per the latest NICE guidelines on this topic (Clinical Guideline 64 - Prophylaxis against infective endocarditis), antibiotic prophylaxis for infective endocarditis is not routinely recommended for dental and most other procedures. This is due to an absence of prospective randomised control trial evidence suggesting that antibiotic prophylaxis reduces the incidence of infective endocarditis. This is not affected by the patient's history of aortic valve replacement and type 2 diabetes.

Benzylpenicillin therapy may be appropriate as treatment of infective endocarditis of a native valve caused by Streptococci that are fully sensitive to penicillin.

Benzylpenicillin + gentamicin would be an appropriate treatment option for confirmed infective endocarditis of a native valve caused by Streptococci only moderately sensitive to penicillin.

Flucloxacillin would be appropriate therapy for confirmed methicillin-sensitive Staphylococcus aureus (MSSA) infective endocarditis of a native valve.

Vancomycin + gentamicin would be an acceptable initial 'blind' therapeutic strategy for suspected infective endocarditis of a native valve in a patient with a severe penicillin allergy.

Question:

A 77-year-old man presents to the liver clinic for a routine appointment. He is a long-term patient of the clinic due to his long-standing liver cirrhosis caused by alcohol abuse. On examination, he looks jaundiced and cachexic. Closer abdominal examination shows a distended abdomen and the shifting dullness test indicates the presence of free fluid in the abdomen. A fluid sample is collected showing 17g/l of fluid protein.

Which one of the following medications is the most appropriate to prescribe?

A.Azathioprine

B.Ciprofloxacin

C.Prednisolone

D.Spironolactone

E.Terlipressin

Answer:Spironolactone

Explanation:

Ascites - use spironolactone

Important for meLess important

The correct answer is spironolactone. This patient has a longstanding history of liver cirrhosis. On examination, ascites is noticed, with abdominal distention and positive shifting dullness. Spironolactone is an aldosterone antagonist, used to counterbalance the secondary hyperaldosteronism that develops in patients with hepatic cirrhosis, causing fluid overload.

Azathioprine is an immunosuppressive drug used to treat autoimmune hepatitis. This would present with signs of chronic liver disease, but in this case, the patient has already been diagnosed with secondary cirrhosis due to alcohol excess.

Ciprofloxacin can be prescribed following an episode of spontaneous ascites in patients with chronic liver conditions, but the NICE guidelines indicate that the prescription is indicated only if the patient has an ascitic protein of 15 g/litre or less. In this case, the patient has 17g/l of fluid protein, making this option incorrect.

Prednisolone is used to treat cases of acute liver failure. This condition would present with a much more acute picture than this one.

Terlipressin is used to treat hepatorenal syndrome, a disease with unknown aetiology that is associated with vasodilation. Vasopressin analogues work by causing vasoconstriction of the splanchnic circulation.

Question:

A patient is referred due to the development of a third nerve palsy associated with a headache. On examination meningism is present. Which one of the following diagnoses needs to be urgently excluded?

A.Weber's syndrome

B.Internal carotid artery aneurysm

C.Multiple sclerosis

D.Posterior communicating artery aneurysm

E.Anterior communicating artery aneurysm

Answer:Posterior communicating artery aneurysm

Explanation:

Painful third nerve palsy = posterior communicating artery aneurysm

Important for meLess important

Given the combination of a headache and third nerve palsy it is important to exclude a posterior communicating artery aneurysm

Question:

A 30-year-old woman presents to the Emergency Department with abdominal pain. She is currently being investigated by her GP for recurrent episodes of abdominal and back pain that have been ongoing for the past year or so. There is no pattern to when the pain comes on but it is often severe and usually lasts several hours. Her past medical history includes psoriasis for which she uses topical calcipotriol on a daily basis. She is a non-smoker and used to drink excess amounts of alcohol but stopped 6 months ago as it was exacerbating her psoriasis. Her bowels have been looser than normal for the past few months. She has lost around 3kg in the past year but thinks this is due to careful eating.

On examination her abdomen is soft and not distended. There is mild tenderness in the epigastrium but no guarding. Blood pressure, pulse and temperature are normal.

An abdominal x-ray is requested:

© Image used on license from Radiopaedia

What is the most likely underlying diagnosis?

A.Pancreatic cancer

B.Bony metastates

C.Chronic pancreatitis

D.Crohn's disease

E.Colorectal cancer

Answer:Chronic pancreatitis

Explanation:

Multiple small calcific foci can be seen in the pancreas consistent with a background of chronic pancreatitis. The history of alcohol excess with recurrent abdominal pain is also in keeping with this diagnosis.

Question:

A 2-month-old boy is brought to the afternoon surgery by his mother. Since the morning he has been taking reduced feeds and has been 'not his usual self'. On examination the baby appears well but has a temperature of 38.7ºC. What is the most appropriate management?

A.Advise regarding antipyretics, to see if not settling

B.IM benzylpenicillin

C.Advise regarding antipyretics, booked appointment for next day

D.Admit to hospital

E.Empirical amoxicillin for 7 days

Answer:Admit to hospital

Explanation:

Any child less than 3 months old with a temperature > 38ºC is regarded as a 'red' feature in the new NICE guidelines, warranting urgent referral to a paediatrician. Although many experienced GPs may choose not to strictly follow such advice it is important to be aware of recent guidelines for the exam

Question:

A 27-year-old patient is being reviewed at her general practice for a 6-monthly check-up. Two years ago, she was started on lithium for bipolar disorder. She states she has recently been experiencing a new symptom. Lithium toxicity is suspected.

Given the suspicion, what is the patient likely experiencing?

A.Abdominal discomfort

B.Fatigue

C.Fine tremor

D.Polyuria

E.Weight gain

Answer:Polyuria

Explanation:

Polyuria is a feature of lithium toxicity

Important for meLess important

Polyuria is the correct answer. Lithium intoxication can result in renal dysfunction, which presents with polyuria and polydipsia. Other signs of toxicity to be aware of are hypothyroidism and benign intracranial hypertension (BIH). BIH presents with persistent headaches and visual disturbances. Lithium has a very narrow therapeutic window and it is therefore advised to test lithium serum levels every week after initiation/ dose change, then 3-monthly for the first year, and 6-monthly thereafter. Every 6 months during treatment, it is advised to monitor renal function, thyroid function, calcium levels and body weight.

Abdominal discomfort is incorrect. This is a common side-effect of the drug but does not imply toxicity.

Fatigue is incorrect. This is common in people taking lithium. It is uncertain as to whether this is due to the underlying diagnosis of bipolar disorder as patients with this condition can often have high energy levels and restlessness during manic levels resulting in fatigue. Either way, it is not a reported symptom of lithium toxicity.

Fine tremor is incorrect. This is an expected finding on examination in people taking lithium. A fine tremor is a common side effect experienced by patients taking lithium and is not a worrying sign. If a fine tremor progresses to a 'coarse' tremor, then suspicion of toxicity should be high and lithium-serum levels should be taken.

Weight gain is incorrect. This is a reported side effect of taking lithium. It is thought to be due to lithium resulting in increased thirst. Patients, therefore, attempt to quench their thirst with calorific drinks that promote weight gain. This is a gradual side effect and therefore not a symptom of toxicity.

Question:

A 47-year-old Nigerian patient is worked up for suspected malignancy after presenting with a 3-month history of jaundiced sclera, weight loss, and pale stools. Pancreatic protocol CT shows a ‘low attenuating mass within the pancreatic body and neck, distension of the pancreatic duct within the pancreatic tail and non-opacification of the portal confluence. Peritoneal nodular thickening and masses are noted. A right hepatic lobe focal lesion is noted in the arterial phase’. MDT discussion reveals that the extent of the disease is unresectable.

What is the most appropriate management option that should be offered to this patient?

A.Biliary stenting

B.Choledochoduodenostomy

C.Pancreatic resection

D.Pancreaticoduodenectomy

E.Percutaneous biliary drainage via transhepatic route

Answer:Biliary stenting

Explanation:

Biliary stenting is the intervention of choice in patients with malignant distal obstructive jaundice due to unresectable pancreatic carcinoma

Important for meLess important

The patient has significant jaundice and this should be addressed as it can improve the patient's quality of life. It is not a curative treatment but will help manage symptoms and can reduce short-term morbidity and mortality. The first choice option in this instance is biliary stenting. If this fails, it may be appropriate to consider percutaneous biliary drainage via transhepatic route, however, this is not a first option for relieving the patient's jaundice. Due to the peritoneal seeding and liver metastases, it would be a highly complex procedure and would require significant consideration before being undertaken.

A choledochoduodenostomy is an anastomosis between the common bile duct (CBD) and jejunum - specifically obstruction distal to the junction of the hepatic duct and the cystic duct. It is used to relieve biliary obstruction. While one of the indications for this procedure is chronic pancreatitis, it is contraindicated in many patients with pancreatic head malignancies as these tumours can prevent proper repositioning of the duodenum to allow a good tension-free anastomosis with the bile duct (leading to a tension-filled surgical anastomosis which can cause bile leakage). As the patient has unresectable pancreatic cancer, this is an incorrect answer.

The CT report for this patient indicates that there is a significant pancreatic malignancy with metastases in the right liver lobe and peritoneum. Pancreatic cancer to this extent is unresectable and, as such, the option of pancreaticoduodenectomy (otherwise known as pancreatic resection) would be inappropriate. As such, the answers of pancreatic resection and pancreaticoduodenectomy are inappropriate.

Percutaneous biliary drainage via transhepatic route may be an option in some pancreatic malignancy patients however it is likely to be unfavourable in this specific patient. While percutaneous biliary drainage is sometimes the alternative for patients who are unsuccessful with biliary stenting, it must be ensured that there is no nearby malignant tissue to ensure no further seeding occurs. As the patient's CT report indicates liver involvement ('right hepatic lobe focal lesion'), it would be inappropriate to perform a transhepatic percutaneous biliary drainage.

Question:

A 45-year-old female is being seen in the endocrinology clinic. She was referred following complaints over the past month of always feeling very hot, sweating constantly and experiencing palpitations. The endocrinologist had requested blood tests to investigate the underlying cause.

Thyroid stimulating hormone (TSH) 0.2 mU/L (0.5-5.5)

Free thyroxine (T4) 34 pmol/L (9.0 - 18)

TSH receptor stimulating antibodies Positive

What further finding would support the likely diagnosis?

A.Multinodular goitre

B.Pretibial myxoedema

C.Smooth enlarged tender goitre

D.Thinning of hair

E.Weight gain

Answer:Pretibial myxoedema

Explanation:

Pretibial myxoedema is an uncommon but specific feature in Grave's disease that is not seen in hyperthyroidism secondary to other causes

Important for meLess important

The patient presents with a cluster of symptoms classically associated with hyperthyroidism. Positive TSH receptor stimulating antibodies indicates that Graves' disease is the underlying cause of this patient's hyperthyroidism.

Pretibial myxoedema is a feature specific to Graves' disease that is not seen in other causes of hyperthyroidism, thus this is the correct answer.

Graves' disease causes a smooth enlarged goitre, hence multinodular goitre is incorrect.

Although Graves' disease does cause a cause a smooth enlarged goitre, it is non-tender. Therefore smooth enlarged tender goitre is incorrect and more characteristic of viral thyroiditis.

Thinning of hair is a feature of hypothyroidism and so is not correct.

Weight gain is also caused by hypothyroidism as opposed to hyperthyroidism and so is also incorrect.

Question:

A 16-year-old female presents to the emergency department after having ingested 2 packs of paracetamol. She is admitted and given acetylcysteine. The following day she starts showing signs of acute liver failure including hepatic encephalopathy. The doctor decides to order some blood tests that show the following:

Hb 148 g/L Male: (135-180) Female: (115 - 160)

Platelets 367 \* 109/L (150 - 400)

WBC 8.7 \* 109/L (4.0 - 11.0)

Urea 7.0 mmol/L (2.0 - 7.0)

Creatinine 354 µmol/L (55 - 120)

Prothrombin time (PT) 52 secs (10-14 secs)

Bilirubin 55 µmol/L (3 - 17)

ALP 35 u/L (30 - 100)

ALT 68 u/L (3 - 40)

AST 48 u/L (1-45)

γGT 58 u/L (8 - 60)

Albumin 48 g/L (35 - 50)

Which one of the following blood tests is more likely to monitor the function of the affected organ?

A.Alanine transaminase (ALT)

B.Aspartate aminotransferase (AST)

C.Bilirubin

D.Gamma-glutamyltransferase (γGT)

E.Prothrombin time

Answer:Prothrombin time

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

The correct answer is prothrombin time. This patient is presenting with acute liver failure due to paracetamol poisoning. In those cases, liver enzymes are a poor way to look at liver function as they remain normal for a long time, whilst coagulation and albumin are better measures.

Alanine transaminase (ALT) is a commonly tested liver enzyme. It is specific for hepatic damage and increases with hepatocellular death. Liver enzymes are a poor way to look at liver function in acute liver failure cases as they remain normal for a long time, whilst coagulation and albumin are better measures.

Aspartate aminotransferase (AST) is a commonly tested liver enzyme. It is found in the liver, heart (cardiac muscle), skeletal muscle, kidneys, brain, and red blood cells. This makes it less specific than ALT. However, liver enzymes are a poor way to look at the liver function in acute liver failure cases as they remain normal for a long time, whilst coagulation and albumin are better measures.

Bilirubin is a byproduct of heme breakdown. High levels can indicate that the liver is not functioning properly, and they can cause jaundice, as in this case. But it has no role in the evaluation of liver function.

Gamma-glutamyltransferase (γGT) is predominantly used as a diagnostic marker for liver disease. Elevations are typically seen in patients with chronic viral hepatitis infections often taking 12 months or more to present.

Question:

A 40-year-old man presents to his GP with dysuria and urinary frequency since yesterday. He has also noticed his urine is cloudy and foul-smelling. He has no flank pain and is systemically well. He has never experienced similar symptoms before.

His urinalysis is positive for nitrites and leucocytes.

What is the most appropriate first-line treatment?

A.Nitrofurantoin for 3 days

B.Trimethoprim for 3 days

C.Gentamicin for 5 days

D.Trimethoprim for 5 days

E.Nitrofurantoin for 7 days

Answer:Nitrofurantoin for 7 days

Explanation:

Men with lower UTIs should be treated with either trimethoprim or nitrofurantoin unless prostatitis is suspected

Important for meLess important

This man has classical symptoms of a lower UTI (dysuria, urinary frequency) and has signs on urinalysis consistent with this diagnosis (nitrates and leucocytes). There is no suggestion of an upper UTI (he is systemically well with no flank pain) or prostatitis (again he is systemically well with no lower back/rectal pain reported).

Trimethoprim or nitrofurantoin are both appropriate first-line antibiotics for suspected lower urinary tract infections. However, whilst a 3-day course is acceptable in women, men must be treated for 7 days and may need to be referred to a Urologist if they get a recurrence.

Question:

A 31-year-old female is undergoing cardiotocography (CTG) monitoring during labour. Which of the following would be considered an 'abnormal' feature of the CTG tracings?

A.Baseline heart rate of 160 beats/minute

B.Baseline variability of 5 or more beats/minute

C.Fetal heart rate accelerations

D.A single prolonged deceleration lasting 3 minutes or more

E.Variable decelerations occurring with over 50% of contractions with response to conservative management

Answer:A single prolonged deceleration lasting 3 minutes or more

Explanation:

There are three categories: normal, non-reassuring and abnormal. Note the question asks for an abnormal feature.

A single prolonged deceleration lasting 3 minutes or more is considered abnormal.

A heart rate of 160 is in the range of normal/reassuring (100-160).

Variable decelerations occurring with over 50% of contractions may be non-reassuring or abnormal depending on their response to conservative treatment.

Source: NICE guidelines (https:www.nice.org.uk/guidance/cg190/chapter/1-recommendations#initial-assessment)

Question:

A 27-year-old woman complains of recurrent ear discharge. Otoscopy is as follows:

What is the most likely diagnosis?

A.Otitis externa

B.Chronic suppurative otitis media

C.Mastoiditis

D.Cholesteatoma

E.Acute otitis media

Answer:Cholesteatoma

Explanation:

Question:

A 60-year-old man presents to the emergency department with persistent vertigo over the last 2 days and associated vomiting. He reports feeling unsteady on his feet and has an ataxic gait and he has vomited several times and finds lying still provides relief. There is a past medical history of type 2 diabetes and hyperlipidaemia and takes metformin and atorvastatin. During the last week, he had muscle aches and a fever, and there has not been any trauma to the head. There is horizontal nystagmus.

What is the most appropriate step to help with differentiating the likely diagnosis from other causes?

A.Dix-Hallpike manoeuvre

B.Epley manoeuvre

C.HiNTS exam

D.Romberg test

E.Unterberger test

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. Vertigo is a common presentation in primary and secondary care, and it is essential to differentiate between peripheral causes (problems with the vestibulocochlear nerve) and central causes (such as posterior circulation strokes, trauma, multiple sclerosis, or brain tumours) of vertigo. Often vestibular neuronitis (a peripheral cause of vertigo) can present similarly to a posterior circulation stroke (a central cause of vertigo), as seen by this patient's sudden-onset vertigo and ataxia. To differentiate between the two, a detailed history and the use of the HiNTs exam is helpful, as it has a high sensitivity and specificity for a central cause of vertigo.

Dix-Hallpike manoeuvre is incorrect. This is used to diagnose benign paroxysmal positional vertigo. Benign paroxysmal positional vertigo usually presents as intermittent episodes of vertigo lasting for a couple of seconds precipitated by the sudden change in head movement. In this scenario, the vertigo is not episodic, and there is no mention of a trigger (such as turning the head in bed during sleep).

Epley manoeuvre is incorrect. This is used for the treatment of benign paroxysmal positional vertigo, which is not likely to be what this patient has due to the fact that the vertigo is not episodic, and there is no mention of a trigger (such as turning the head in bed during sleep).

Romberg test is incorrect. Although this tests balance, it is composed of visual, vestibular and proprioceptive inputs. It can diagnose sensory ataxia but may also be positive in both central and peripheral causes of vertigo and cannot differentiate between the two. It is essential that a central cause is ruled out, as the presence of features suggestive of a central cause necessitates urgent investigations and management.

Unterberger test is incorrect. This is used to look for peripheral causes of vertigo but is of no value in central causes of vertigo. The patient closes their eyes and marches on the spot with their arm outstretched. If they turn 45 degrees towards a single side, this indicates this side is affected. A more appropriate test would be the HiNTs exam.

Question:

A 5-year-old girl is admitted to the paediatric ward with a cough and lethargy. Her mum is worried as her breathing is fast and she has had a high temperature which hasn't improved with paracetamol. She is normally fit and well and up to date with all her vaccinations.

On examination, she is tachypnoeic with a temperature of 39.2ºC. She has crackles in the right lower zone on auscultation.

Bloods are taken and results shown below:

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 352\* 109/L (150 - 400)

WBC 17.9 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 98 µmol/L (55 - 120)

CRP 79 mg/L (< 5)

Chest radiograph shows a right lower lobe consolidation.

What is the most likely causative agent of her pneumonia?

A.Respiratory syncytial virus (RSV)

B.Haemophilus influenza

C.Bordetella pertussis

D.Legionella pneumophila

E.Streptococcus pneumoniae

Answer:Streptococcus pneumoniae

Explanation:

S .pneumoniae is the most likely causative agent of a bacterial pneumonia in children

Important for meLess important

This presentation is most suggestive of a bacterial infection with raised inflammatory markers and lobar consolidation on chest x-ray. She is unwell with persistent temperature and tachypnoea. The most likely causative agent of bacterial pneumonia in a child of this age is S. pneumoniae. Other common causes would be Mycoplasma pneumonia or Chlamydia pneumoniae .

Although RSV is a common cause of respiratory symptoms in children, bronchiolitis usually affects children before the age of 2.

Haemophilus influenza and Bordetella pertussis are less likely causative agents in children who are immunised and not immunocompromised.

Legionella pneumophila can cause significant pneumonia it is unlikely to be found in a child of this age.

Question:

A 50-year-old male presents with severe epigastric pain that radiates to his back. He has a background of alcoholism. On examination, the epigastrium is tender to palpation. There is also evidence of bruising at the flanks.

Given the likely diagnosis, which of the following would be an indicator of a severe illness?

A.Calcium of 1.98 mmol/L

B.PaO2 of 8.0 kPa

C.White cell count of 14.8 x 109/L

D.Urea of 15.7 mmol/L

E.Albumin of 33 g/L

Answer:Calcium of 1.98 mmol/L

Explanation:

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity

Important for meLess important

This patient is presenting with acute pancreatitis as evidenced by his epigastric tenderness and bruising at the flanks (Grey-Turner's sign). He also has a history of alcoholism, which points towards a potential cause for pancreatitis.

The Glasgow score is used to identify cases of severe pancreatitis. Calcium is used as part of the scoring system with hypocalcaemia (calcium < 2 mmol/L) being an indicator of severe pancreatitis. All of the other answers do not meet the criteria for severe pancreatitis by the Glasgow score.

There is a useful mnemonic that can be used to remember the criteria.

P - PaO2 (< 7.9 kPa).

A - age (>55).

N - neutrophils (white cell count > 15x 109/L).

C - calcium (calcium < 2 mmol/L).

R - renal function (urea > 16 mmol/L).

E - enzymes (lactate dehydrogenase > 600 IU/L).

A - albumin (albumin < 32 g/L).

S - sugar (blood glucose > 10 mmol/L).

3 points and above suggests a high risk for severe pancreatitis.

Question:

An 80-year-old woman is admitted from a nursing home with a one day history of severe abdominal pain. She has a background of chronic obstructive pulmonary disease and recently completed a course of amoxicillin and prednisolone for an exacerbation.

On examination she is tender over her whole abdomen. Blood pressure is 98/66 mmHg and her pulse is 110/min.

The abdominal radiograph is shown below:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Intestinal perforation

B.Sigmoid volvulus

C.Leaking abdominal aortic aneurysm

D.Chronic pancreatitis

E.Clostridium difficile infection

Answer:Intestinal perforation

Explanation:

This lady had evidence of free air in the abdomen, caused by an intestinal perforation. Please see the annotated radiograph below for more details.

Question:

An 82-year-old woman was admitted with gradually progressive headaches, nausea, and receptive and expressive aphasias. Papilloedema was seen on examination. Her clinical frailty score is 8. Imaging of the brain showed an oedematous left temporal lobe with loss of normal architecture and a 4x4cm heterogeneous mass. She appears to be in distress and paracetamol with morphine sulphate modified-release 10mg twice daily, with immediate-release morphine 5mg, is no longer providing adequate analgesia.

What is the appropriate analgesic strategy for this situation?

A.Dexamethasone

B.Fentanyl patch

C.Increased dose of oral morphine

D.Referral to palliative care

E.Referral to the pain team

Answer:Dexamethasone

Explanation:

Headache caused by raised intracranial pressure due to brain cancer (or metastases) can be palliated with dexamethasone

Important for meLess important

Dexamethasone can reduce cerebral oedema, and therefore, reduce intracranial pressure, help alleviate symptoms of headaches and improve associated neurological deficits. Once satisfactory improvements have been achieved, the dose should be weaned to the lowest effective dose.

Fentanyl patch would not improve the raised intracranial pressure, and can take up to 72 hours to reach peak serum concentrations. Thus, it is not a logical option when analgesia is desired swiftly.

Increased dose of oral morphine would not improve the raised intracranial pressure, therefore, not best placed to manage this patient's headache.

Referral to palliative care may be required for this patient, and they would be well-placed to guide pain management. However, it may be some time before the referral is received, processed and a member of their team is available to review the patient. As the attending medical team, it would be appropriate to try to provide optimal analgesia whilst the palliative review is awaited.

Referral to the pain team would also take some time before the patient can be reviewed. However, given this patient's severe frailty it is likely the palliative care team would be involved, and they would be best placed to guide pain management.

Question:

A mother presents to the Emergency Department with a two-week history of perianal itching and discomfort. Her 2-year-old and 4-year-old sons have also experienced the same symptoms for a similar time period. She has no diarrhoea, bloating, or weight loss and has not seen any blood in the stool and is systemically well. She has a past medical history of coeliac disease.

What organism is the most likely cause?

A.Ancylostoma duodenale

B.Ascaris lumbricoides

C.Enterobius vermicularis

D.Necator americanus

E.Trichuris trichuria

Answer:Enterobius vermicularis

Explanation:

Perianal itching in children, possibly affecting other family members → Enterobius vermicularis (threadworms)

Important for meLess important

The correct answer is Enterobius vermicularis, which is commonly called threadworm or pinworm. This is a small nematode which lives in the large bowel. It causes perianal itching because the female worms migrate out of the anus at night to lay eggs in the perianal region. The eggs are then passed on to other hosts on people's hands via the faecal-oral route. It is common for this infection to occur in children and multiple family members may be infected.

All of the other common gastrointestinal nematodes pass their eggs via the human faeces. They do not show this behaviour of laying eggs around the anus, so they do not generally cause perianal itching.

Ascaris lumbricoides is incorrect. This is a roundworm. Eggs are passed in the faeces. Transmission is through the ingestion of eggs via the faecal-oral route. It is larger than the other common GI nematodes at 15 - 35 cm in length.

Necator americanus is incorrect. This is a type of hookworm. Eggs are passed in the faeces. Transmission is also via skin penetration. Both hookworm species are found worldwide but Necator americanus is more prevalent in the Americas, Australia, sub-Saharan Africa, South Asia and the Pacific.

Ancylostoma duodenale is incorrect. This is another type of hookworm. Eggs are passed via the faeces and then hatch in the soil into larvae. Transmission occurs when larvae from the soil penetrate the skin. The main impact of hookworm infection is chronic blood loss, resulting in anaemia, growth stunting and impaired intellectual development in children. Ancylostoma duodenale is more prevalent in the Middle East, Northern Africa, southern Europe, northern India and northern China.

Trichuris trichura is incorrect. This is the whipworm. Eggs are passed in the faeces and are then ingested by another person via the faecal-oral route. The anterior whip-like portion embeds in the gut mucosa and the short posterior end stays free in the lumen.

Question:

A 68-year-old Caucasian man presents with a lesion on his scalp for the last 6 weeks. It has gradually increased in size and is associated with discomfort and some bleeding.

He has a history of a renal transplant 10 years ago, type 2 diabetes mellitus and hypertension. There is no family history of skin cancer.

On examination, there is a non-pigmented indurated plaque on the scalp with surrounding inflammation.

What is the most likely diagnosis?

A.Actinic keratosis

B.Amelanotic melanoma

C.Basal cell carcinoma

D.Seborrhoeic keratosis

E.Squamous cell carcinoma

Answer:Squamous cell carcinoma

Explanation:

Renal transplant patients - skin cancer (particularly squamous cell) is the most common malignancy secondary to immunosuppression

Important for meLess important

Renal transplant patients are particularly susceptible to skin malignancy secondary to immunosuppression, of which squamous cell carcinoma (SCC) is by far the most common type. This is in contrast to immunocompetent individuals, where basal cell carcinomas are more common. SCCs in organ transplant recipients have a higher tendency to give local recurrences and distant metastases. SCCs predominantly arise on sun-exposed sites, such as the dorsum of hands and forearms, the upper part of the face, the lower lip and pinna.

The description of the lesion in this scenario is fairly typical of an SCC. They are usually indurated (firm), unlike actinic keratoses, which tend to be soft. They may be nodular or plaque-like, and frequently ulcerate. The surrounding tissue is often inflamed.

Actinic keratoses are also found on sun-exposed sites and have a scaly surface but without induration.

Amelanotic melanoma would be an appropriate differential diagnosis to consider but is much less common than SCCs in renal transplant patients.

Basal cell carcinomas tend to appear as translucent or shiny nodules with pearly rolled edges and peripheral telangiectasia.

Seborrhoeic keratoses are benign pigmented skin lesions which have a characteristic warty 'stuck-on' appearance.

Question:

Which one of the following may be used to monitor patients with colorectal cancer?

A.CA-125

B.Carcinoembryonic antigen

C.Alpha-fetoprotein

D.CA 19-9

E.CA 15-3

Answer:Carcinoembryonic antigen

Explanation:

Carcinoembryonic antigen may be used to monitor for recurrence in patients post-operatively or to assess response to treatment in patients with metastatic disease

Question:

A 66-year-old man presents with shortness-of-breath on exertion. On examination his blood pressure is 128/76 mmHg, pulse 78 / min and regular. Auscultation of his chest reveals an early diastolic murmur. Which one of the following conditions is most associated with this kind of murmur?

A.Atrial septal defect

B.Mitral stenosis

C.Hypertrophic obstructive cardiomyopathy

D.Aortic regurgitation

E.Mitral regurgitation

Answer:Aortic regurgitation

Explanation:

Aortic regurgitation - early diastolic murmur, high-pitched and 'blowing' in character

Important for meLess important

Question:

A 15-year-old girl comes to see you as she has noticed that her hands become very sweaty. She says that this can become quite awkward in social situations for example if she has to shake hands with someone. She is also worried about how this may affect her upcoming GCSE exams.

Which one of the following is most suitable for first line management of this condition?

A.Botulinum toxin injections

B.Nifedipine

C.Clobetasol propionate 0.05%

D.Aluminium chloride

E.Topical glycopyrrolate

Answer:Aluminium chloride

Explanation:

Topical aluminium chloride preparations are first-line for hyperhidrosis

Important for meLess important

This patient has hyperhidrosis. The first line management of this condition is aluminium chloride which can be given in the form of roll-ons applied at nighttime. Underlying anxiety should also be treated.

Botulinum toxin injections and topical glycopyrrolate (an antimuscarinic agent) can be used in secondary care for the management of hyperhidrosis.

Steroid medication such as Clobetasol propionate 0.05% and calcium channel blockers such as nifedipine are not used in the treatment of hyperhidrosis.

Question:

A 64-year-old woman was referred to ophthalmology with a vesicular rash around her right upper eyelid. The right eye is red and painful.

Based on the most likely diagnosis, what treatment should be given?

A.Aciclovir eyedrops

B.Oral aciclovir

C.Oral corticosteroids + aciclovir eye drops

D.Topical chloramphenicol

E.Topical corticosteroids + aciclovir eye drops

Answer:Oral aciclovir

Explanation:

Herpes zoster ophthalmicus requires urgent ophthalmological review and 7-10 days of oral antivirals

Important for meLess important

This woman has signs that are strongly suggestive of herpes zoster ophthalmicus (HZO). HZO is characterized by a unilateral painful skin rash in one or more dermatome distributions of the trigeminal nerve.

Oral aciclovir should be given early (within 72 hours after rash onset) to reduce the percentage of eye disorders in ophthalmic zoster patients.

Aciclovir eye drops is not the best answer because its usage for this indication is off-license.

Oral corticosteroids + aciclovir eye drops is incorrect as explained above. This answer would have been appropriate if aciclovir was given systemically. Corticosteroids can sometimes be used in the case of pain control or inflammation. This is not the best option, however, as the main course of treatment is oral aciclovir.

Topical chloramphenicol is incorrect as it is typically used to treat superficial bacterial eye infections.

Topical corticosteroids + aciclovir eye drops is incorrect as explained above.

Question:

A 26-year-old male presents with nausea, malaise and jaundice. He returned 3 weeks ago from a holiday to India. On examination he has a moderate hepatosplenomegaly and yellowing of the sclera. He also has dark urine and pale stools.

What is the most likely diagnosis?

A.Hepatitis A infection

B.Hepatitis B infection

C.Hepatitis C infection

D.Hepatitis D infection

E.Hepatitis E infection

Answer:Hepatitis A infection

Explanation:

Hepatitis A is an RNA virus that is spread by the faecal-oral route. It is very common and particularly associated with travellers. Treatment is supportive because the condition is usually self-limiting. Hepatitis A infection has a short incubation period of 15 to 50 days which would also fit with this scenario.

Hepatitis E is also spread by the faecal-oral route and should be suspected if the disease is more severe in pregnant women, or if hepatitis A has been excluded. In this patient, this is a less likely answer as hepatitis A infection is much more common.

Transmission of hepatitis B and C virus results from exposure to infectious blood or body fluids containing blood. Possible forms of transmission include sexual contact, blood transfusions and transfusion with other human blood products, re-use of contaminated needles and syringes, and vertical transmission from mother to child during childbirth. There are no risk factors for hepatitis B or C infection stated in this question.

The hepatitis D virus is considered to be a subviral satellite because it can propagate only in the presence of the hepatitis B virus (HBV).

Question:

A 66-year-old male presents to the general practitioner for an annual health check. He has a past medical history of type 2 diabetes mellitus, which was diagnosed 3 years ago and is currently managed with metformin. A clinic blood pressure reading is 144/96 mmHg and subsequent ambulatory blood pressure monitoring (ABPM) is arranged. ABPM reports an average daytime blood pressure of 138/92 mmHg.

What is the most appropriate management of this patient?

A.Commence amlodipine

B.Commence amlodipine and ramipril

C.Commence candesartan

D.Commence ramipril

E.No anti-hypertensive treatment necessary

Answer:Commence ramipril

Explanation:

For a person < 80, with stage 1 hypertension, only treat medically if: diabetic, renal disease, QRISK2 >10%, established coronary vascular disease, or end organ damage

Important for meLess important

This patient has confirmed stage 1 hypertension (blood pressure 135/90 - 149/99mmHg). As this patient has a past medical history of type 2 diabetes mellitus, he requires treatment for his hypertension. According to the hypertension management algorithm, all patients with type 2 diabetes mellitus should receive an angiotensin converting enzyme (ACE) inhibitor as first-line management, regardless of age. Thus making ramipril the correct answer.

Amlodipine is incorrect as this is indicated in patients requiring anti-hypertensive treatment who are either over the age of 55 or of Afro-Caribbean origin and do not have a history of type 2 diabetes mellitus.

Amlodipine and ramipril are incorrect as this is a second-line management strategy in patients who do not achieve adequate blood pressure control with monotherapy.

Candesartan is incorrect as this is an angiotensin II receptor antagonist, which should be given instead of an ACE inhibitor if this cannot be tolerated by the patient.

No anti-hypertensive treatment necessary is incorrect as this patient has diagnosed stage 1 hypertension, which, given his co-morbid type 2 diabetes mellitus, requires management with anti-hypertensive medication.

Question:

A 62-year-old woman is admitted to the hospital with symptoms of fluid overload. She has pitting oedema up to her mid-thigh, which has developed over the course of a week. She is otherwise asymptomatic. Also of note, she is known to be HIV positive, and a previous heroin addict, but is currently receiving antiretroviral therapy, is on the methadone program and is receiving help from addiction services.

A urine sample is seen to be foamy and shows 3+ protein on a urine dipstick, but no other abnormalities are noted. A blood test is done and the results are below.

Na+ 136 mmol/L (135 - 145)

K+ 2.7 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 9.0 mmol/L (2.0 - 7.0)

Creatinine 300 µmol/L (55 - 120)

Albumin 28 g/L (34 - 54)

What is the most likely diagnosis?

A.Focal segmental glomerulosclerosis

B.IgA nephropathy

C.Minimal change disease

D.Membranoproliferative glomerulonephritis

E.Membranous nephropathy

Answer:Focal segmental glomerulosclerosis

Explanation:

HIV infection is a cause of focal segmental glomerulosclerosis

Important for meLess important

This woman presents with a picture of a nephrotic syndrome, with the characteristic triad of oedema, proteinuria and hypoalbuminaemia. The foamy urine is due to lipiduria, and the elevated creatine and urea are due to renal dysfunction.

Focal segmental glomerulosclerosis is the most likely cause of her nephrotic syndrome, due to her past medical history. HIV and heroin misuse are 2 independent risk factors for the development of the disease. Whilst it normally presents in young adults, the risk factors here make this diagnosis most likely.

IgA nephropathy more commonly presents with a nephritic picture (i.e. haematuria), with less than 10% of cases presenting with nephrotic symptoms.

Minimal change disease is the most common cause of nephrotic syndrome in children, however, the age of the patient and associated risk factors make focal segmental glomerulonephritis more likely.

Membranoproliferative glomerulonephritis is a less common cause of nephrotic syndrome in both children and adults and is not the most likely given the clinical scenario.

Membranous nephropathy is the most common cause of nephrotic syndrome in adults, however, the risk factors here point more towards focal segmental glomerulonephritis despite her age.

Question:

A 63-year-old man is being seen in the ophthalmology clinic with a presenting complaint of gradual loss of vision. Tonometry reveals an intraocular pressure of 25mmHg and optic disc cupping can be seen on fundoscopy. Examination of the man's visual fields shows a visual loss in peripheral areas. He is prescribed timolol eye drops to be used twice daily.

What is the mechanism of action of this drug?

A.Decrease production of aqueous fluid

B.Decrease production of aqueous fluid and increase uveoscleral outflow

C.Decrease uveoscleral outflow

D.Increase production of aqueous fluid

E.Increase uveoscleral outflow

Answer:Decrease production of aqueous fluid

Explanation:

Beta blockers such as timolol work in primary open-angle glaucoma by reducing aqueous production

Important for meLess important

This patient is presenting with symptoms of primary open-angle glaucoma, gradual visual loss (especially in peripheral fields), and raised intraocular pressure. Glaucoma is a progressive optic neuropathy due to an increase in intraocular pressure. In open-angle glaucoma the trabecular meshwork becomes less efficient at draining the aqueous humour in the eye, leading to a chronic build-up of fluid and an increase in pressure. Timolol (a beta-blocker) is given as eye drops, which are used twice daily and their mechanism of action is to decrease the production of aqueous fluid, thus reducing the pressure.

Brimonidine (an alpha-adrenergic agonist) works by decreasing the production of aqueous fluid and increasing the uveoscleral outflow.

Decreasing the uveoscleral outflow would exacerbate this patient's symptoms and further worsen the problem. Glucocorticoids can be implicated in causing open-angle glaucoma, a side effect is reduced drainage of aqueous humour.

Increasing the production of aqueous fluid would also exacerbate this patient's condition as the build-up of excess aqueous fluid is the main feature of the presentation.

Drugs that have a stimulatory effect on beta-adrenergic receptors can cause an increase in the production of aqueous fluids (e.g. beta-agonists).

Latanoprost (a prostaglandin analogue) increases the uveoscleral outflow.

Question:

A 55-year old-man comes to see you saying that his father recently died of an abdominal aortic aneurysm.

He asks whether he will be screened for this condition and at what age?

A.No current screening programme in place

B.Single abdominal ultrasound at 65

C.Abdominal ultrasound at 65 and then every 5 years

D.Abdominal CT at 65 and then every 3 years

E.Single abdominal CT at 65

Answer:Single abdominal ultrasound at 65

Explanation:

In the UK, all men aged 65 years are offered aneurysm screening with a single abdominal ultrasound. Screening has shown to decrease death from abdominal aortic aneurysm by 44% over 4 years.

For more information visit http://www.nhs.uk/Conditions/repairofabdominalaneurysm/Pages/Introduction.aspx

Question:

A 67-year-old man presents with progressive exertional dyspnoea. These symptoms have been getting progressively worse over the past nine months and are associated with a dry cough. He gave up smoking 20 cigarettes/day around 30 years ago. On examination his oxygen saturations are 97% on room air, respiratory rate is 14/min and there are some fine bibasal crackles. Finger clubbing is noted. Investigations show the following:

B-type natriuretic peptide 88 pg/ml (< 100pg/ml)

ECG: sinus rhythm, 72/min

Spirometry

FEV1 1.57 L (50% of predicted)

FVC 1.63 L (39% of predicted)

FEV1/FVC 96%

What is the most likely diagnosis?

A.Primary pulmonary hypertension

B.Heart failure

C.Chronic obstructive pulmonary disease

D.Idiopathic pulmonary fibrosis

E.Lung cancer

Answer:Idiopathic pulmonary fibrosis

Explanation:

This is a typical history of idiopathic pulmonary fibrosis: a male patient aged 50-70 years presenting with progressive exertional dyspnoea associated with clubbing and a restrictive picture on spirometry,

The normal B-type natriuretic peptide makes heart failure extremely unlikely.

Question:

A 54-year-old woman presents to her GP with ongoing neuropathic pain in the left leg. Serious underlying causes have been ruled out and she is keen to try medication to alleviate the pain as over the counter analgesia has not been effective.

Given the nature of the pain, the GP starts the patient on amitriptyline. One month later, the patient contacts the GP again, explaining that the medication has had no benefit.

Which of the following would be an appropriate option to try next?

A.Add duloxetine

B.Add gabapentin

C.Add pregabalin

D.Switch to pregabalin

E.Switch to tramadol

Answer:Switch to pregabalin

Explanation:

Drugs for neuropathic pain are typically used as monotherapy, i.e. if not working then drugs should be switched, not added

Important for meLess important

The correct answer is to switch to pregabalin. Neuropathic analgesic drugs are usually used as monotherapy. If one has been tried and is not effective, a switch should be made to an alternative drug rather than using both at once.

Adding duloxetine would therefore not be appropriate. It is a suitable neuropathic analgesic drug to trial, but amitriptyline should be stopped first.

Similarly, gabapentin would be an appropriate drug to try, but amitriptyline should be stopped - the two would not typically be used together.

Pregabalin is a common neuropathic analgesic drug that should be used as monotherapy.

Switching to tramadol would not be appropriate. Tramadol should not be used as a regular neuropathic agent. It is sometimes used as rescue therapy for acute exacerbations of neuropathic pain.

Question:

An 81-year-old woman is admitted to hospital following a fall from standing. She is unable to weight bear and complains of severe pain in her left hip.

An initial X-ray shows a neck of femur fracture and she undergoes hemiarthroplasty. She is recovering well and beginning to weight bear. Her consultant explains that her fracture is likely a result of osteoporosis and that she would benefit from long-term treatment.

What is the most appropriate ongoing management for this patient?

A.Bisphosphonate therapy immediately

B.DEXA scan with bisphosphonates if indicated

C.FRAX score with bisphosphonates if indicated

D.Hormone replacement therapy

E.No long-term treatment required

Answer:Bisphosphonate therapy immediately

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

Bisphosphonate therapy immediately is the correct answer. This female patient is over 75 years of age and has presented with a fragility fracture (a fracture out of keeping with the mode of injury) likely secondary to osteoporosis. Women 75 years or over can be commenced on bisphosphonates following fragility fractures without needing a DEXA scan as osteoporosis is common in this patient group. As her consultant feels that she would benefit from treatment, a DEXA scan is not necessary and she can be started on therapy immediately.

DEXA scan with bisphosphonates if indicated is incorrect. A DEXA scan is not required to diagnose osteoporosis in women 75 years or over who present with a fragility fracture. Instead, bisphosphonates can be started immediately based on a clinical diagnosis as in this patient.

FRAX score with bisphosphonates if indicated is incorrect. FRAX score is used to determine fracture risk in patients with suspected osteoporosis and to guide management. However, NICE recommends that FRAX be used with caution in patients over 80 years old as it often underestimates the risk. Further, in female patients 75 years or over who present with fragility fracture, scoring is not required to diagnose osteoporosis and initiate treatment where a diagnosis is clinically likely.

Hormone replacement therapy (HRT) is incorrect. HRT is typically reserved for younger postmenopausal women to reduce the risk of osteoporosis and control symptoms. Given this patient's age, HRT would not be indicated.

No long-term treatment required is incorrect. This patient has presented with a fragility fracture, likely as a result of osteoporosis. Osteoporosis almost always requires medical therapy as it puts patients at a greatly increased risk of fractures.

Question:

A 62-year-old heavy smoker presents with shortness of breath and a morning cough. A chest x-ray shows hyperinflated lung fields. Spirometry is organized. Which one of the following set of results would be most consistent with a diagnosis of chronic obstructive pulmonary disease?

FEV1: forced expiratory volume in 1 second

FVC: forced vital capacity

A.FEV1 - reduced, FEV1/FVC - normal

B.FEV1 - increased, FEV1/FVC - reduced

C.FEV1 - reduced, FEV1/FVC - reduced

D.FEV1 - normal, FEV1/FVC - reduced

E.FEV1 - reduced, FEV1/FVC - increased

Answer:FEV1 - reduced, FEV1/FVC - reduced

Explanation:

The history is highly suggestive of chronic obstructive pulmonary disease (COPD), which results in an obstructive pattern on spirometry.

Airflow obstruction is defined as a ratio of FEV1/FVC of less than 0.7.

NICE uses the FEV1 (compared to the predicted for age/height/gender) to categorise the severity of COPD.

Question:

The police approach you about information on a patient investigated for benefit and tax fraud. What do you do?

A.Tell them you cannot break confidentiality

B.Give them the patient's notes

C.Give them the patient's address and number but nothing about their medical history

D.Tell the patient you must disclose their information before disclosing it

E.Do not break confidentiality and warn the patient about the investigation

Answer:Tell them you cannot break confidentiality

Explanation:

'Disclosure of personal information about a patient without consent may be justified in the public interest if failure to disclose may expose others to a risk of death or serious harm'

This crime will not result in a risk of death or serious harm and so you should not break confidentiality.

GMC ethical guidance (2013): Confidentiality guidance: Disclosures to protect others. Paragraphs 53-56.

Question:

A 22-year-old man is investigated for weight loss and diarrhoea. A rectal biopsy is taken and reported as follows:

Deep inflammatory infiltrate from the mucosa to the muscularis externa

Numerous granulomata noted

What is the most likely diagnosis?

A.Crohn's disease

B.Rectal carcinoma-in-situ

C.Tuberculosis

D.Laxative abuse

E.Ulcerative colitis

Answer:Crohn's disease

Explanation:

Inflammation in ulcerative colitis is usually limited to the mucosa and submucosa.

Question:

A 30-year-old woman presents with a white, malodorous vaginal discharge. There is no associated itch or dyspareunia. A diagnosis of bacterial vaginosis is suspected.

Overgrowth of which one of the following organisms is most likely to cause this presentation?

A.Lactobacilli

B.Trichomonas

C.Candida

D.Mycoplasma hominis

E.Gardnerella

Answer:Gardnerella

Explanation:

Bacterial vaginosis - overgrowth of predominately Gardnerella vaginalis

Important for meLess important

Question:

A 35-year-old man has a 6-month history of thoracic back pain. During this time, he has had associated pyrexia and rigours. He is currently on methadone maintenance therapy for withdrawal from 3 years of heroin use.

On examination, there is tenderness at the T9/T10 level. His heart rate is 85 bpm, his respiratory rate is 22 /min, and his temperature is 37.8ºC.

Initial blood tests show:

Hb 160 g/L (135-180

Platelets 350 \* 109/L (150 - 400)

WBC 13.5\* 109/L (4.0 - 11.0)

CRP 50 mg/L (< 5)

An MRI of the spine is ordered:

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What is the most likely diagnosis?

A.Bony metastases

B.Discitis

C.Inflammatory spondyloarthropathy

D.Lumbar disc herniation

E.Spinal fracture

Answer:Discitis

Explanation:

Discitis is the correct answer. The T2 weighted MRI spine in this scenario shows increased contrast enhancement of the disc and adjacent bone marrow. There is also a high signal intensity mass anterior to the thoracic vertebrae. These findings along with the infective clinical picture (evidenced by the low-grade fever, elevated WBC and CRP) are most consistent with a diagnosis of discitis. In this case, this patient most likely has discitis secondary to IV drug use, which is a known risk factor. The most common causative organism associated with discitis is Staphylococcus aureus .

Bony metastases is incorrect. It is a possible differential in this scenario. However, this does not explain the patient's infective profile and metastatic disease rarely involves the intramedullary space. Metastatic disease can have virtually any appearance on MRI depending on their primary, however, you would typically expect multi-level involvement with/without symptoms of the primary site of cancer itself.

Inflammatory spondyloarthropathy is incorrect. The patient may present with thoracic back pain and a raised CRP. However, inflammatory arthritis is much more likely to affect multiple joints in a symmetrical/asymmetrical pattern as opposed to presenting in a single joint. The patient would also have joint pain and stiffness that is worse in the morning and improves throughout the day. Aseptic discitis is associated with certain arthropathies, however, there is no evidence of this in history.

Lumbar disc herniation is incorrect. This is typically associated with acute-onset back pain following strenuous activity and may be associated with focal neurological deficits at the associated spinal level. Furthermore, this diagnosis is not associated with infection as seen in this scenario.

Spinal fracture is incorrect. This is typically associated with some form of trauma or osteoporosis, neither of which is evident in this history. The MRI findings would also show characteristic discontinuation of the vertebral outline or a change in vertebral shape. This condition would also not account for the patient's infective profile. Therefore this option is incorrect.

Question:

A 45-year-old woman presents to her GP with 2 weeks history of feeling constantly weak. She has noticed that she now struggles with climbing stairs and combing her hair.

Her past medical history includes poorly controlled type-2 diabetes and a recent admission for severe pneumonia, in which she was started on a reducing course of steroids.

Observations are normal. Examination reveals bilateral reduced power of the shoulders, biceps and hip flexors/extensors. Tone, sensation, reflexes and cranial nerves are normal, with no fatiguability of speech.

What is the most likely cause of her weakness?

A.Diabetic neuropathy

B.Duchenne muscular dystrophy

C.Guillain-Barré syndrome

D.Myasthenia gravis

E.Proximal myopathy

Answer:Proximal myopathy

Explanation:

Corticosteroids may cause proximal myopathy

Important for meLess important

Proximal myopathy is correct. This patient is complaining of a proximal muscle weakness that matches a proximal myopathy. The prolonged course of steroids could be causing this.

Diabetic neuropathy is incorrect. The normal neurological examination makes this unlikely. This would be more likely if examination found absent ankle jerk reflexes or loss of distal sensation in a glove and stocking distribution.

Duchenne muscular dystrophy is incorrect. This affects males and presents in childhood, and would present as progressive muscle atrophy and weakness.

Guillain-Barré syndrome is incorrect. Although this could also cause a proximal myopathy-type picture, the lack of cranial nerve signs and lack of autonomic dysfunction makes this less likely.

Myasthenia gravis is incorrect. This would present with increasing muscular fatigue with use. The lack of fatiguability on examination makes this less likely.

Question:

A 65-year-old lady trips over the carpet and falls. She presents to the emergency department with an externally rotated right leg which is shorter than the left.She has a past medical history of heart failure and hypertension. She takes ramipril, simvastatin, nifedipine, indapamide and furosemide. A DEXA scan confirms osteoporosis and serum calcium is low. She is treated under the orthopaedic department. Which of the following drugs is most likely responsible for the deterioration in bone health?

A.Ramipril

B.Nifedipine

C.Furosemide

D.Indapamide

E.Simvastatin

Answer:Furosemide

Explanation:

Hypocalcemia is a side effect of loop diuretics

Important for meLess important

The ACE inhibitors most troubling side effect is a dry cough. Biochemical abnormalities include hyperkalemia amongst many others. It is not known to affect bone health.

Indapamide spares calcium.

Simvastatin is not known to affect calcium. Muscle ache and rhabdomyolysis are important side effects to look out for.

Furosemide causes hypocalcemia, this would most likely result in excess PTH secretion and will cause more calcium to be released from bones weakening their structure.

Question:

A 23-year-old woman presents to the GP with a widespread rash and a fever. She has had multiple sexual partners over the last 6 months. Syphilis serology is positive. What stage of syphilis does she have?

A.Primary

B.Secondary

C.Early latent

D.Late latent

E.Tertiary

Answer:Secondary

Explanation:

Systemic symptoms are associated with secondary syphilis

Important for meLess important

Other symptoms of secondary syphilis include patchy hair loss and condylomata lata (which may look similar to genital warts).

Question:

A 45-year-old gentleman presents to the emergency department with nausea, sweating and severe central crushing chest pain which radiates to his left arm. His ECG shows widespread ST depression with T wave inversion. His blood tests identify a haemoglobin level of 75g/L. Which one of the following would be appropriate to treat his anaemia?

A.Oral iron

B.Transfusion of packed red cells

C.Intravenous iron

D.Delay treatment until his ECG returns to normal

E.Intravenous Hartmann's solution

Answer:Transfusion of packed red cells

Explanation:

The transfusion threshold for patients with ACS is 80 g/L

Important for meLess important

This patient has presented with symptoms of ACS and his ECG changes confirm this (NSTEMI or unstable angina). His haemoglobin level is below the threshold of 80g/L for transfusion of red blood cells for patients with ACS. Hence it would be appropriate to give him an immediate transfusion. Anaemia can worsen ischaemia in ACS as there is less haemoglobin to carry oxygen, meaning the heart has to work harder and also receives less oxygen. Hence, it is important to provide immediate relief of severe anaemia in an ACS and the guidelines recommend aiming for a haemoglobin concentration target of 80–100 g/litre after transfusion.

Oral iron and IV iron would not provide immediate enough resolution of his anaemia. IV Hartmann's solution is not a treatment for anaemia, and his ECG might never return to normal making this option inappropriate.

NICE guideline [NG24]

Question:

A patient reports feeling unwell after suddenly stopping paroxetine. Which one of the following symptoms is most consistent with selective serotonin reuptake inhibitor discontinuation syndrome?

A.Postural hypotension

B.Diarrhoea

C.Myoclonic jerks

D.Hallucinations

E.Seizures

Answer:Diarrhoea

Explanation:

Gastrointestinal side-effects such as diarrhoea are seen in SSRI discontinuation syndrome

Important for meLess important

Selective serotonin reuptake inhibitor discontinuation syndrome can present with a wide variety of symptoms including diarrhoea, vomiting and abdominal pain.

Question:

A 52-year-old woman is admitted with worsening lethargy and breathlessness. She has a past medical history of myasthenia gravis which is usually well controlled. Her forced vital capacity deteriorates on the ward and she is intubated and transferred to the intensive care unit.

Whilst checking the patient's notes, you see a recent admission under cardiology. The patient was admitted with acute coronary syndrome. During admission, she was diagnosed with atrial fibrillation.

What medication may have contributed to the current presentation?

A.Aspirin

B.Atorvastatin

C.Bisoprolol

D.Diltiazem

E.Edoxaban

Answer:Bisoprolol

Explanation:

Beta-blockers should be avoided if possible in patients with myasthenia gravis

Important for meLess important

The correct answer is bisoprolol. Beta-blockers are known to cause worsening of myasthenia gravis and should be avoided where possible. These are commonly used both for rate control of atrial fibrillation and also as an anti-anginal agent. Several commonly used drugs can worsen myasthenia so it is important to maintain awareness when prescribing.

Aspirin is incorrect. This is used in ischaemic heart disease for its anti-platelet effect. It is safe to give to patients with myasthenia gravis. Caution should be taken in patients with peptic ulcer disease and proton pump inhibitor cover may be required in such cases.

Atorvastatin is incorrect. This is used to lower cholesterol in primary and secondary prevention of cardiovascular disease. It is not known to cause the worsening of myasthenia. Risks do include deranged liver function and myopathy, especially in the case of interactions with other drugs such as macrolides.

Diltiazem is incorrect. This is a rate-limiting calcium channel blocker that can be used as an anti-anginal or for rate control in atrial fibrillation. It does not cause worsening myasthenia symptoms. Risks include bradycardia and postural hypotension.

Edoxaban is incorrect. This is a direct oral anticoagulant used to reduce mural thrombus and stroke risk in atrial fibrillation. Risks relate to bleeding such as prolonged bleeding time and increased risk of major haemorrhage. It does not worsen myasthenia.

Question:

A 79-year-old man is admitted to the elderly care ward following a fall at home after getting up to use the toilet. His wife says that he has been more unsteady on his feet for the last few weeks. Of note, his wife also explains that her husband’s memory has been deteriorating over the last 9 months. She tells you she is concerned as he has episodes of confusion followed by periods of lucidness. Recently, she has seen him appearing to have a conversation with himself.

On examination, his chest is clear and heart sounds are normal. His abdomen is soft and non-tender with no palpable masses. He has a new resting tremor in his left arm and increased rigidity in his left upper and lower limb.

What is the most likely diagnosis?

A.Frontotemporal dementia

B.Lewy body dementia

C.Normal pressure hydrocephalus

D.Parkinson's disease 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 a type of dementia associated with fluctuating confusion and hallucinations. It may be also be seen in association with sleep disturbance such as REM sleep behaviour disorder. Features of Parkinsonism tend to manifest at the same time or after the onset of dementia, in contrast to Parkinson’s disease dementia which presents after 1 year of parkinsonian symptoms.

Frontotemporal dementia or “Pick’s disease” is a type of dementia caused by localised atrophy of the frontal and temporal lobes. The frontal lobe has a key role in regulating inhibition, behaviour and personality and frontotemporal dementia typically presents with personality changes and loss of inhibition.

Normal-pressure hydrocephalus is the presence of excessive cerebrospinal fluid (CSF) in the ventricles of the brain with a normal intracranial pressure. As the CSF continues to accumulate it can exert a pressure effect on the brain and cause compression of brain parenchyma with typical symptoms including a triad of dementia, gait apraxia and urinary or faecal incontinence.

Parkinson’s disease dementia is a type of dementia that presents in the later stages of Parkinson’s disease. Features of Parkinson’s disease will also be seen including bradykinesia, rigidity and tremor. However, the criteria for Parkinson’s disease dementia is onset after 1 year of parkinsonian symptoms. The question describes a patient who has initially experienced cognitive fluctuations which are now followed by motor symptoms.

Vascular dementia is more commonly seen (although not exclusively) in patients with a history of cerebrovascular disease or atherosclerosis. Rather than a progressive deterioration such as that seen in Alzheimer’s disease, it typically has a step-wise progression with periods of stability. Vascular dementia does not explain this patient’s motor symptoms making an alternative diagnosis more likely.

Question:

A 23-year-old man presents to his general practitioner with a 4-day history of pain in the rectal area.

He describes it as sharp shooting pain which is worse when defecating and having anal sex.

His medical history is significant for several periods of constipation.

On examination, he has a small tear visible on the posterior aspect of the anal margin.

He is offered appropriate analgesia.

What is the most appropriate initial management?

A.Bulk-forming laxatives

B.Insertion of a single dissolvable suture

C.Loperamide

D.Topical glyceryl trinitrate

E.Topical steroids

Answer:Bulk-forming laxatives

Explanation:

Acute anal fissure (< 1 week): soften stool, dietary fibre, analgesia and topical anaesthetic cream if necessary

Important for meLess important

This man presents with an anal fissure in the most common location- the posterior midline. There is a clear causative event (constipation), and the hallmark symptom of pain on defecation. The treatment of an acute anal fissure is conservative management. There should be pain relief offered using systemic or topical analgesia. Alongside this, laxatives should be used to help soften the stool which reduces straining to allow the fissure time to heal properly without it being stretched open again. Bulk-forming laxatives.

Insertion of a single dissolvable suture is incorrect. 50% of fissures will resolve with conservative management, and this should be attempted first. Lateral partial internal sphincterotomy is the surgical treatment of choice.

Loperamide is incorrect. This is an anti-motility agent used in the treatment of diarrhoea. This has the potential to make the fissure worse by increasing constipation and straining.

Topical glyceryl trinitrate is incorrect. This is indicated in the treatment of a chronic anal fissure, as it relaxes the musculature and helps expand the blood vessels around the anus, it can be effective at reducing pain. It is not used first-line in the treatment of an acute anal fissure.

Topical steroids are incorrect. These do not have a place in the management of anal fissures. They can be used in the treatment of haemorrhoids, for their anti-inflammatory properties but there is little evidence to support this.

Question:

A 9-year-old boy is reviewed after falling off his skateboard two hours ago. He fell forward, breaking his fall with his right arm. On examination he has minor abrasions on his right forearm but no sign of a fracture. His nose is erythematous with some abrasions. Examination of the nostrils reveals a bilateral red swelling arising from the midline, which is slightly boggy. No other signs of a head injury are seen. What is the most appropriate management?

A.Reassure that the swelling should subside over the next week and give standard head injury advice

B.Prescribe topical chlorhexidine + neomycin cream (Naseptin) and give standard head injury advice

C.Arrange a review with ENT for 2 weeks time when the swelling has settled

D.Arrange an urgent ENT review

E.Prescribe a 7-day course of co-amoxiclav and give standard head injury advice

Answer:Arrange an urgent ENT review

Explanation:

Question:

A 14-year-old rugby player presents complaining of a lesion he has noticed for 2 weeks on his back. On examination of his back, there is a round red ring lesion of approximately 1.5cm in diameter with a central area of clearing. The edge of the rash is elevated and scaly on palpation. Which of the following organisms is the likely cause of this lesion?

A.Fungus

B.Internal parasite

C.Virus

D.Bacteria

E.External parasite

Answer:Fungus

Explanation:

Ringworm is caused by a fungal infection

Important for meLess important

This is the typical presentation of tinea corporis. Despite being called 'ringworm', these lesions are actually caused by a group of fungus called dermatophytes .

Question:

A 30-year-old lady is brought into the emergency department after being assaulted with a brick.

She reports abdominal pain and being hit with a brick over the front of her abdomen and across her back.

Clinical examination finds bruising across the left costal margin and flank. Her abdomen is not distended. Her Glasgow coma scale (GCS) is reported to be 15/15.

Her most recent observations are listed below:

Blood pressure 132/88mmHg

Heart rate 78/min

Respiratory rate 13/min

Temperature 37.6ºC

Her most recent investigation results are listed below:

CT abdomen minimal free fluid in the abdomen and small splenic haematoma

Focused assessment with sonography for trauma (FAST) minimal free fluid around the left kidney

CT head normal

Pregnancy test negative

What is the single best approach to the management of this patient?

A.Conservative management with analgesia and frequent observations

B.Emergency laparotomy

C.Urgent laparotomy scheduled for tomorrow

D.Discharge from the emergency department

E.Repeat CT abdomen

Answer:Conservative management with analgesia and frequent observations

Explanation:

Minimal intra-abdominal bleeding without haemodynamic compromise does not warrant a laparotomy

Important for meLess important

From the patient's observations and investigation findings, it is clear that she is haemodynamically stable and there is minimal free fluid (in this case bleeding) into the abdomen. Therefore, the patient should be managed conservatively with frequent monitoring of observations. By this point, the patient should be cannulated and catheterised.

The small splenic haematoma in combination with minimal free fluid in the abdomen should be managed conservatively. Only the more severe splenic injuries and haemodynamic instability warrant exploratory laparotomy.

A repeat CT abdomen is not indicated. Discharge is not appropriate, and the patient should be monitored for any changes in her vitals or level of consciousness.

Question:

A 24-year-old woman is brought into the emergency department after collapsing at home. She is drowsy and confused and cannot give a history. Her medical history includes menorrhagia for which she uses several tampons and sanitary pads per cycle.

On examination, she is confused with a temperature of 39.2ºC and a blood pressure of 88/45mmHg. There is a widespread erythematous rash that is desquamating at the edges.

Blood tests show:

Hb 122 g/L (115 - 160)

Platelets 78 \* 109/L (150 - 400)

WBC 17.1 \* 109/L (4.0 - 11.0)

Urea 12.7 mmol/L (2.0 - 7.0)

Creatinine 255 µmol/L (55 - 120)

CRP 199 mg/L (< 5)

What is the most appropriate investigation to consider?

A.Autoantibody screen

B.Blood film

C.ESR

D.Skin biopsy

E.Speculum examination

Answer:Speculum examination

Explanation:

Tampon use is a risk factor for staphylococcal toxic shock syndrome

Important for meLess important

Speculum examination is correct. This patient has a diagnosis of staphylococcal toxic shock syndrome given the features of acute systemic upset with fever, hypotension and a desquamating erythematous rash. A risk factor for the condition in women includes a retained tampon. Therefore, it is always important to consider a speculum examination to potentially retrieve any necrotic and offending tampons.

Autoantibody screen is incorrect. Autoantibody screens are useful for the diagnosis of vasculitic diseases and rheumatological diseases that also can present with dermatological manifestations. However, the presence of fever, hypotension, collapse and in association with erythematous skin changes is much more likely to be an alternative diagnosis.

Blood film is incorrect. This is an important investigation to consider given the presence of thrombocytopenia. However, there is no role for a blood film in diagnosing toxic shock syndrome. Given the history of tampon use and signs of shock, this patient should receive a speculum examination to look for and remove any retained foreign bodies.

ESR is incorrect. This is likely to be raised due to the inflammatory processes underlying this condition. However, it is not specific to diagnose toxic shock syndrome, which is the likely diagnosis in this patient who has presented with fever, hypotension, and rash on a background of multiple tampon use.

Skin biopsy is incorrect. A skin biopsy is often used to diagnose dermatological malignancies but is not used in the diagnosis of toxic shock syndrome, which is this patient's most likely diagnosis given fever, hypotension, and desquamating rash on a history of tampon use.

Question:

A 32-year-old woman with established rheumatoid arthritis presents to her general practitioner as she is wishing to get pregnant. She is concerned regarding the medications she takes for her rheumatoid arthritis as she remembers her rheumatologist mentioning that she may need to alter her management during pregnancy. She takes methotrexate and hydroxychloroquine.

What advice should be given regarding her medications and pregnancy?

A.Continue both methotrexate and hydroxychloroquine when attempting to become pregnant

B.She can continue both medications, but must take a larger dose of folic acid throughout her pregnancy

C.Cease both methotrexate and hydroxychloroquine at least 6 months before attempting to become pregnant

D.Cease methotrexate and change hydroxychloroquine to sulfasalazine at least 6 months prior to attempting to become pregnant

E.Cease methotrexate only at least 6 months prior to attempting to become pregnant

Answer:Cease methotrexate only at least 6 months prior to attempting to become pregnant

Explanation:

Hydroxychloroquine can be safely used during pregnancy in rheumatoid arthritis

Important for meLess important

Methotrexate is well known to be teratogenic, and is even used to manage early ectopic pregnancy. Therefore, it is imperative that women who take methotrexate and wish to become pregnant cease methotrexate at least 6 months prior to attempting to become pregnant. Hydroxychloroquine is safe to use in pregnancy, and should be continued throughout.

Continuing both methotrexate and hydroxychloroquine is incorrect as methotrexate must be ceased.

Continuing both methotrexate and hydroxychloroquine is incorrect as methotrexate must be ceased. Neither rheumatoid arthritis nor hydroxychloroquine use are an indication to take a higher dose of folic acid in pregnancy.

Ceasing hydroxychloroquine is unnecessary as it is safe to use during pregnancy.

As with many autoimmune inflammatory diseases, many women with rheumatoid arthritis experience a decrease in symptoms during pregnancy. Some women even go into remission in pregnancy.

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. What is the most likely diagnosis?

A.Botulism food poisoning

B.Guillain-Barre syndrome

C.Cauda equina syndrome

D.Myasthenia gravis

E.Lyme disease

Answer:Guillain-Barre syndrome

Explanation:

Question:

A 4-year-old boy who is being investigated for development delay is noted to have a number of skin lesions similar to the one below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Vitiligo

B.Down's syndrome

C.Tuberous sclerosis

D.Edward's syndrome

E.Neurofibromatosis

Answer:Tuberous sclerosis

Explanation:

Tuberous sclerosis - depigmented 'ash-leaf' spots

Important for meLess important

Question:

A 75-year-old man has episodes of passing blood in his stool and unexplained weight loss over the last 3 months. He undergoes investigations including a CT scan which demonstrates a tumour that is graded T2N0M0 just under the rectosigmoid junction. He has no other past medical history and is deemed fit for surgery.

What is the most appropriate management plan?

A.Abdominoperineal excision of the 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

Anterior resection is correct. When deciding what surgery to perform on colorectal cancer, it is important to localise tumour location, grading, and whether the operation is feasible or not. This tumour is just under the rectosigmoid junction (where the rectum and sigmoid colon meet) and is therefore in the upper rectum. Knowing this, there can only be two possible answers: an anterior resection or abdominoperineal excision of the rectum. Abdominoperineal resection is indicated if the tumour invades the pelvic floor, anal canal, or anal sphincter, which is not where the tumour is. Offering an anterior resection would be more appropriate, which involves resection followed by anastomosis. A temporary defunctioning ileostomy is created which can later be reversed to allow the bowel to heal.

Abdominoperineal excision of the rectum is incorrect. Abdominoperineal resection is indicated if the tumour invades the pelvic floor, anal canal, or anal sphincter, which is not where the tumour is. This involves removal of the anus, rectum, and a section of the sigmoid colon, which is comparatively more extreme than an anterior resection, which would be more appropriate. As well as this, an abdominoperineal excision of the rectum would lead to the requirement of a lifelong stoma, whereas an anterior resection does not.

Hartmann's procedure is incorrect. This is usually performed in emergency settings such as bowel perforation or obstruction. This involves complete resection of the rectum and sigmoid colon with the formation of an end colostomy which can later be versed. Since this tumour is below the rectosigmoid junction, it would not be appropriate to offer Hartmann's procedure, and an anterior resection would be more appropriate.

Left hemicolectomy is incorrect. A left hemicolectomy is indicated if the tumour is in the distal transverse or descending colon, neither of which is where the tumour is. Offering an anterior resection would be more appropriate, which involves resection followed by anastomosis. A temporary defunctioning ileostomy is created which can later be reversed to allow the bowel to heal.

Right hemicolectomy is incorrect. A right hemicolectomy is indicated if the tumour is in the caecal, ascending, or proximal transverse colon, none of which is where the tumour is. Offering an anterior resection would be more appropriate, which involves resection followed by anastomosis. A temporary defunctioning ileostomy is created which can later be reversed to allow the bowel to heal.

Question:

A child attends the GP with his father who is worried he is not growing as fast a the other kids in his nursery class. The GP plots the child's height onto a growth chart and finds him to be in the 0.4th centile. When he was born he was in the 25th centile, however, all the child's developmental stages are on track and he seems happy in himself

Which of the following is the best next step in the management of this child?

A.Make a referral to the the paediatric outpatients clinic

B.Make a urgent referral to the the paediatric admissions unit

C.Review the child in the GP clinic in 3 months

D.Reassure the father that this can be normal and do not arrange a review

E.Review the child in the GP clinic in 2 years

Answer:Make a referral to the the paediatric outpatients clinic

Explanation:

Children below 0.4th centile for height should be reviewed by a paediatrician

Important for meLess important

All children who are below the 0.4th centile require a review from a paediatric specialist. Therefore the only answers that could be correct are option 1 and 2. As this is not an emergency option 1 is the most correct.

You would likely order the thyroid function tests and insulin-like growth factor in this child while awaiting the review.

Question:

A 43-year-old homeless man presents to the emergency department complaining of a fever and 'yellow skin'. He states that these symptoms have been present for roughly one week and are accompanied by muscle and joint pains, along with mild abdominal discomfort. He has been an intravenous drug user for 2 years and drinks 15 units of alcohol per week.

On examination, he appears clinically jaundiced and has visible needle track marks on both arms. His temperature reads 38.2ºC and he has mild hepatomegaly.

Blood test show markedly elevated liver transaminases and tests for hepatitis B serology are sent to the lab. The results are obtained as follows:

HBsAg positive

Anti-HBs negative

IgM anti-HBc positive

What is the most likely cause of this presentation?

A.Hepatitis C infection

B.Alcoholic liver disease

C.Chronic hepatitis B infection

D.Previous hepatitis B vaccination

E.Acute hepatitis B infection

Answer:Acute hepatitis B infection

Explanation:

HBsAg positive, anti-HBs negative, IgM anti-HBc positive - acute infection

Important for meLess important

This patient has presented with signs and symptoms suggestive of serious liver pathology. He is an intravenous drug user, which is a major risk factor for the development of blood-borne diseases such as viral hepatitis. The combination of results from his hepatitis B serology suggests an acute infection.

A - no results are available to suggest hepatitis C infection, and this is less common than hepatitis B.

B - the patient's alcohol intake is only mild raised, and the sub-acute nature of his presentation, along with the fever, indicates an infective process.

C - chronic infection would result in IgG anti-HBc positive status. The patient has positive IgM, indicating an acute infection, rather than chronic.

D - previous vaccination would result in the following results: HBsAg negative, anti-HBs positive and anti-HBc negative. Furthermore, previous vaccination would not explain the current illness.

E - acute infection is the correct answer, providing an explanation for the patient presentation and the positive serology tests in this case.

Question:

A mother brings in her 4-year-old girl, (Lily), who has been drowsy and irritable all day. Lily has a raised temperature and has recently developed a reddish-purple rash on her legs and bum, which mum says doesn't go away under a glass. On examination, you find her to be withdrawn and persistently crying despite Mum's attempts to soothe, she is hypertensive with a low-normal heart rate of 70 bpm. You suspect a diagnosis of meningitis

What is the next step to confirm the diagnosis in this case?

A.Full blood count

B.Fundoscopy

C.Lumbar puncture (LP)

D.MRI

E.Whole blood PCR and blood cultures

Answer:Whole blood PCR and blood cultures

Explanation:

Meningitis- no LP if signs of raised ICP

Important for meLess important

This is a difficult question requiring the application of knowledge. Lily has typical signs of meningococcal septicaemia, she has developed a petechial rash. The 'glass test' is a simple way to check to see if the rash is blanching, if it doesn't disappear under glass it is likely non-blanching. Lily is also showing signs of Cushing's reflex, a sign of raised intracranial pressure (ICP). Cushing's reflex is bradycardia and hypertension in response to compression of the cerebrum. The fact that this has also developed to be meningococcal sepsis as indicated by the purpuric rash is a second contraindication to LP.

While an LP is the gold standard for diagnosis of meningitis, raised ICP is an absolute contraindication to this. Therefore to diagnose in this instance whole blood PCR and blood cultures is the best answer. Whole blood PCR will show if N.meningitides is present and blood cultures will likely also show this but may take a few days to get a result.

Fundoscopy is helpful to show possible raised ICP however ophthalmoscopy is a difficult skill and will not always show a clear result. In this instance, we have enough suspicion of raised ICP to contraindicate LP.

A full blood count is likely to show raised white cell count and neutrophils, however, it is not a diagnostic test, but this should also be conducted at the same time.

Antibiotics are an essential part of management and should not be delayed in this case, but, this is also not going to confirm a diagnosis.

Question:

A 68-year-old woman is admitted to the Emergency Department with shortness of breath. A chest x-ray is taken as part of the initial investigations.

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Based on the chest x-ray, what is the most likely diagnosis?

A.Multiple pulmonary emboli

B.Tuberculosis

C.Multiple lung abscesses

D.Bronchiectasis

E.Lung metastases

Answer:Lung metastases

Explanation:

The multiple rounded lesions are highly suggestive of lung metastases.

Question:

You deliver a baby on the maternity ward. At 2 minutes, the baby's heart rate is 110bpm, the baby is crying loudly with stimulation and moving all four limbs. The baby is coughing and sneezing. The body is pink but hands and feet are slightly blue and feel cold to the touch. What is the APGAR score?

A.5

B.7

C.8

D.9

E.10

Answer:9

Explanation:

In this case, the baby scores a 9 as the only point he/she misses is the fact his extremities are blue and cold to the touch. This is not unusual in babies. .

Question:

During your ward round on the paediatric unit you review a 5-year-old Caucasian male who has been admitted for chemotherapy as he has recently been diagnosed with acute lymphoblastic leukaemia (ALL). His mother worriedly asks you what his chance of survival is and how you work this out.

On reviewing the patient notes, you see he is on the 95th percentile for weight and the 60th for height. His white cell count at diagnosis was 12 \* 10^9/l and there were no noted T or B cell markers on his blood film.

Which feature from this case is a poor prognostic factor?

A.Caucasian

B.Male sex

C.Presentation under the age of 5

D.White cell count over 11 \* 10^9/l at diagnosis

E.Obesity

Answer:Male sex

Explanation:

ALL: male sex is poor prognostic factor

Important for meLess important

It is male sex that is the poor prognostic factor here. Being Caucasian is not a poor prognostic factor.

Other poor prognostic factors are: presenting <2 years or >10 years; having B or T cell surface markers; and having a WCC > 20 \* 10^9/l at diagnosis.

Question:

A 25 year-old lady with no significant past medical history presents with 2 days of right ear discomfort, discharge and reduced hearing. She is systemically well and has not had a recent cold. On examination the auditory canal appears inflamed and there is a small amount of debris, but you can still see the tympanic membrane. What is the best management from the options below?

A.Start topical acetic acid 2% spray

B.Start oral amoxicillin

C.Refer to ENT

D.Take an ear swab and start a topical antibiotic

E.Start a combination topical antibiotic and steroid

Answer:Start a combination topical antibiotic and steroid

Explanation:

This lady likely has acute otitis externa.

The NICE Clinical Knowledge summary suggests that inflammation is more likely to be severe if there is:

a red, oedematous ear canal which is narrowed and obscured by debris

conductive hearing loss

discharge

regional lymphadenopathy

cellulitis spreading beyond the ear

fever

This lady has some features of inflammation with a red swollen ear canal and reduced hearing.

NICE recommend that for mild cases (mild discomfort and/or pruritus; no deafness or discharge), consider prescribing topical acetic acid 2% spray.

When features of more severe inflammation are present, such as in this case, they advise 7 days of a topical antibiotic with or without a topical steroid.

Taking swabs from the ear is not useful routinely as virtually all bacteria detected are sensitive to the high concentrations of antibiotic in topical medications. However, this should be done if there is no response to an initial course of treatment or infections are recurrent.

All patients should be advised to use simple analgesia if needed and to avoid getting water into the ear until the infection has resolved.

Further reading: http://cks.nice.org.uk/otitis-externa#!scenario

Question:

A 42-year-old man with a past medical history of schizophrenia is started on clozapine after being previously trialled on two other anti-psychotics which have had minimal effect. 3 days after starting treatment with clozapine, the patient presents to the emergency department feeling extremely unwell. On examination, he is confused and has a glasgow coma scale score of 12/15. His temperature is 37.9ºC His heart rate is 128 bpm, respiratory rate 22 breaths/minute, blood pressure 80/50mmHg, SpO2 96%. His arms are rigid and stiff. What is the most likely diagnosis?

A.Paracetamol overdose

B.Neuroleptic malignant syndrome

C.Poor compliance

D.Neutropenic sepsis

E.Anaphylaxis

Answer:Neuroleptic malignant syndrome

Explanation:

Neuroleptic malignant syndrome tetrad - hyperthermia, muscle rigidity, autonomic instability, altered mental status

Important for meLess important

1 - Incorrect. A patient who has overdosed on paracetamol would present with non-specific abdominal symptoms such as right upper quadrant pain, jaundice, nausea and vomiting, and their liver function tests would show raised liver transaminases.

2 - Correct. The fact that he was very recently started on a anti-psychotic medication and has the tetrad of hyperthermia, muscle rigidity, autonomic instability, altered mental status makes neuroleptic malignant syndrome the most likely diagnosis in this scenario.

3 - Incorrect. Poor compliance and not taking the anti-psychotic medication would cause worsening of the schizophreia symptoms i.e. delusions and hallucinations.

4 - Incorrect. Although the clinical observations may be in keeping with sepsis, sepsis would not explain the rigidity and stiffness of the arms.

5 - Incorrect. Anaphylaxis reaction would be more acute whereas in this scenario the symptoms started after 3 days.

Question:

A 56-year-old female enters the pre-operative assessment clinic. She has worsening chronic kidney disease secondary to diabetes and will require dialysis in the near future. An elective arteriovenous (AV) fistula insertion is planned in the next few days.

From now, how long will it take for the fistula to be fully functioning?

A.Within a week of surgery

B.1 months time

C.2 months time

D.4 months time

E.6 months time

Answer:2 months time

Explanation:

The time taken for an arteriovenous fistula to develop is 6 to 8 weeks

Important for meLess important

The AV fistula is the preferred method of haemodialysis as it has the best long-term primary patency rate with the least complications.

The AV fistula causes arterialisation of the vein due to the high pressure of the artery. The shunted blood flow causes an increase in growth factors and further hypertrophy of the venous wall. It takes 6 to 8 weeks post-surgery to allow full maturation to take place where the fistula can withstand a dialysis flow rate of 500ml/min.

Question:

A 64-year-old man attends the emergency department with central crushing chest pain, which came on one hour ago. The pain radiates to his left arm. He has a past medical history of type two diabetes, and a 50 pack year smoking history.

An ECG is performed which demonstrates ST-elevation in leads V2-4.

You decide to commence treatment for an ST-elevation myocardial infarction (STEMI) and administer 300mg aspirin orally.

What is the mechanism of action of this medication?

A.GP IIb/IIIa receptor inhibitor

B.Phosphodiesterase inhibitor

C.Non-reversible COX 1 and 2 inhibitor

D.P2Y12-ADP receptor antagonist

E.Selective COX 2 inhibitor

Answer:Non-reversible COX 1 and 2 inhibitor

Explanation:

Aspirin is a non reversible COX 1 and 2 inhibitor

Important for meLess important

Aspirin is a non-reversible inhibitor of COX 1 and COX 2. It inhibits the conversion of arachidonic acid to prostaglandin, prostacyclin and thromboxane. Thromboxane A2 promotes platelet aggregation and vasoconstriction. High dose aspirin is given acutely in acute coronary syndrome to prevent enlargement of the coronary thrombus.

Selective COX 2 inhibitors (such as celecoxib and meloxicam) act exclusively on the COX 2 pathway to prevent the production of prostaglandin and prostacyclin in order to produce anti-inflammatory and analgesic properties. As they do not act on COX 1, they are not associated with the side effects of gastrointestinal ulceration and bleeding seen in traditional non-selective NSAIDs. However, they promote platelet aggregation, and therefore a key side effect is cardiovascular events.

Phosphodiesterase inhibitors block the action of phosphodiesterase, resulting in reduced production of intracellular cyclic AMP and cyclic GMP. There are several classes of this drug, depending on the location of action. Dipyridamole is a PDE3 inhibitor, which acts to reduce platelet aggregation. It is used in the secondary prevention of stroke and TIA.

P2Y12-ADP receptor antagonists (such as clopidogrel and ticagrelor) act to prevent platelet activation and aggregation. They are used acutely in acute coronary syndrome (in combination with aspirin), and for the secondary prevention of acute coronary syndrome and stroke/TIA.

GP IIb/IIIa receptor inhibitors (such as abciximab, eptifibatide, tirofiban) block the GP IIb/IIIa receptor, and therefore prevent platelets aggregating with fibrinogen. They are used in the acute management of NSTEMI and STEMI.

Question:

A 27-year-old woman presents to the Emergency Department with a one-day history of headache and feeling generally unwell. She is pyrexial at 38.7ºC and has neck stiffness.

Serum glucose 5.1 mmol/l

Lumbar puncture reveals:

Appearance Cloudy

Glucose 1.3 mmol/l

Protein 1.7 g/l

White cells 250 / mm³ (85% polymorphs)

What is the most likely diagnosis?

A.Guillain-Barre syndrome

B.Viral meningitis

C.Bacterial meningitis

D.Cerebral malaria

E.Tuberculous meningitis

Answer:Bacterial meningitis

Explanation:

Question:

A 51-year-old woman is being investigated in the endocrinology clinic for abnormal thyroid function. Over the past five months, she describes experiencing flushing, weight loss, and palpitations.

On examination, she has a palpable goitre.

Thyroid-stimulating hormone (TSH) 0.2 mu/L

Free thyroxine (T4) 27 pmol/L

Total thyroxine (T4) 159 nmol/L

These are the results of her radioactive iodine uptake (RAIU) scan:

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What is the most appropriate definitive treatment for this patient's condition?

A.Hydrocortisone

B.Levothyroxine

C.Partial thyroidectomy

D.Propranolol

E.Radioactive iodine therapy

Answer:Radioactive iodine therapy

Explanation:

Radioactive iodine therapy is the correct answer. The patient in the vignette has features of hyperthyroidism (flushing, weight loss, palpitations). The rough lump in her neck and the patchy uptake seen on nuclear scintigraphy point to a toxic multi-nodular goitre (TMN) diagnosis, for which radioiodine therapy is the appropriate treatment. Radioiodine is taken up by and ablates any autonomous nodules, leaving healthy tissue intact.

Hydrocortisone is incorrect. Hydrocortisone may be used with anti-thyroid medication (propylthiouracil, methimazole) and beta-blockers (propranolol) in patients with hyperthyroidism who have a thyroid storm (fever, tachycardia, altered mental state, diaphoresis). However, the patient in the vignette is currently stable and does not have any features of a thyroid storm.

Levothyroxine is incorrect. Levothyroxine is the appropriate treatment for patients with hypothyroidism. The thyroid profile and the patient's symptoms in the vignette are consistent with hyperthyroidism.

Partial thyroidectomy is incorrect. A total thyroidectomy, rather than a partial thyroidectomy, can be considered as a definitive management choice, although it is not the most appropriate for the patient in the vignette. In TMN, Radioiodine therapy is less invasive and provides a high efficacy rate with quick symptom resolution. Furthermore, there are many risks associated with thyroid surgery (bleeding, potential airway compression, damage to the parathyroid gland, and recurrent laryngeal nerve injury). Thus, it may be considered further down the line if radioiodine therapy fails. Furthermore, additional thyroxine supplementation would be required to prevent subsequent hypothyroidism.

Propranolol is incorrect. Propranolol will only alleviate the symptoms and will not definitively treat the root cause of the TMN as radioactive iodine therapy will. Carbimazole can be used as adjunctive therapy for TMN. However, its effect is transient and would not be a definitive therapy.

Question:

A 54-year-old female with multiple morbidities attends the GP practice for a prescription review. She has experienced several attacks of a swollen, red, extremely painful great toe on her right foot. Which of the following medications should be changed to reduce the likelihood of these attacks in the future?

A.Atorvastatin 10mg daily

B.Bendroflumethiazide 2.5mg daily

C.Naproxen 500mg twice daily

D.Levothyroxine 100 micrograms daily

E.Methotrexate 20mg once weekly

Answer:Bendroflumethiazide 2.5mg daily

Explanation:

Thiazide diuretics reduce uric acid excretion from the kidneys

Important for meLess important

This patient is describing gout, which is a common side effect of thiazide diuretics. Thiazides can cause hyperuricaemia due to increased renal reabsorption of uric acid. Hyperuricaemia is a known risk factor for gout.

Statins act within the liver to alter lipid levels, which does not affect uric acid production.

Naproxen is used to treat acute gout attacks.

Levothyroxine is a synthetic form of the thyroid hormone T4. Thyroid hormones do not affect uric acid levels.

Methotrexate has no association with gout.

Question:

A 2-year-old boy is presented with multiple petechiae and excessive bruising on his shins. He was previously fit and well apart from a an illness two weeks ago which was diagnosed by the general practitioner as a viral upper respiratory tract infection and for which he was only given paracetamol. His symptoms today were only noticed by his mother half an hour ago. He is apyrexial. Investigations including blood smears reveal thrombocytopaenia with all other parameters reported as normal.

Which of the following is the most likely diagnosis?

A.Thrombotic thrombocytopaenic purpura (TTP)

B.Chronic myelogenous leukaemia (CML)

C.Child abuse

D.Essential thrombocythaemia

E.Idiopathic thrombocytopaenic purpura (ITP)

Answer:Idiopathic thrombocytopaenic purpura (ITP)

Explanation:

ITP is often preceded by a viral illness and the presence of an isolated thrombocytopaenia is typical of ITP. In TTP, schistocytes are often seen on blood smears.

Although essential thrombocythaemia may cause bleeding, the typical patient is an adult above the age of 40.

Question:

A 60-year-old man asks you to have a look at a skin lesion:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Malignant melanoma

B.Seborrhoeic keratosis

C.Bowen's disease

D.Dermatosis papulosa nigra

E.Actinic keratosis

Answer:Seborrhoeic keratosis

Explanation:

Question:

A 33-year-old woman is prescribed varenicline to help her quit smoking. What is the mechanism of action of varenicline?

A.Norepinephrine and dopamine reuptake inhibitor, and nicotinic antagonist

B.Dopamine agonist

C.Dopamine antagonist

D.Selective serotonin reuptake inhibitor

E.Nicotinic receptor partial agonist

Answer:Nicotinic receptor partial agonist

Explanation:

Question:

What is the most common clinical pattern seen in motor neuron disease?

A.Progressive muscular atrophy

B.Progressive bulbar palsy

C.Spinocerebellar ataxia

D.Relapsing-remitting

E.Amyotrophic lateral sclerosis

Answer:Amyotrophic lateral sclerosis

Explanation:

Question:

A 69-year-old woman presents to the Emergency Department with a one month history of gradually worsening breathlessness. She is generally fit and well but last year was diagnosed with chronic obstructive pulmonary disease (COPD) after a 50-pack-year history of smoking. Around 10 years ago she retired from the local car production plant. On examination she is breathless at rest with a respiratory rate of 18/min and oxygen saturations of 93% on room air.

A chest x-ray is performed:

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What is the most likely diagnosis?

A.Pneumonectomy

B.Mesothelioma

C.Lung collapse

D.Massive pleural effusion

E.Ewing sarcoma

Answer:Massive pleural effusion

Explanation:

The chest x-ray shows that the the trachea (blue) is pushed away the side of the white-out. The other signs of a positive mass effect include leftward bowing of the azygo-oesophageal recess (yellow) and splaying of the ribs on the right.

© Image used on license from Radiopaedia

In this case there was an underlying lung cancer.

Question:

A 4-year-old girl is brought to surgery by her mother who has noticed a number of small 'spots' and 'bruises' on her legs that have developed over the past 2-3 days. She initially thought this was due to an allergy but it has not gone away. Her daughter is described as being well apart from a cough she's had for the past 2 weeks.

On examination, she is apyrexial with a heart rate of 96/min. Examination of her ears, throat and chest is normal. There is no neck stiffness or abdominal masses. A number of petechiae are seen around her chest area as well as purpura on her lower legs and arms.

What is the most appropriate action?

A.Arrange a full blood count on the paediatric ward within the next 2 days

B.Reassure petechiae are commonly seen with viral illnesses

C.Sensitively ask about the possibility of non-accidental injury

D.Prescribe an emollient

E.Admit immediately to paediatrics

Answer:Admit immediately to paediatrics

Explanation:

Children with new-onset purpura should be referred immediately for investigations to exclude ALL and meningococcal disease

Important for meLess important

Whilst petechiae can be seen in a viral illness or with increased superior vena cava pressure (e.g. following a cough) purpura are never a normal finding in children. She needs to be immediately admitted to exclude a serious underlying condition.

If there is any suspicion of meningococcal septicaemia (not present in this case) parenteral antibiotics should be given, as long as this doesn't delay transfer.

Question:

A 16-year-old woman is brought into the emergency department following a road traffic collision in which she was a pedestrian struck by a car. Physical examination shows bruising on the right chest wall and flank, reduced chest wall movement on the right-hand side as well as tenderness in the right upper quadrant of the abdomen. FAST scan demonstrates free fluid in the right upper quadrant of the abdomen as well as in the right pleural space. You diagnose haemothorax and intraabdominal bleed and decide to give tranexamic acid.

How should this drug be given?

A.IM injection

B.IV bolus only

C.IV bolus followed by rapid IV infusion

D.IV bolus followed by slow infusion

E.SC injection

Answer:IV bolus followed by slow infusion

Explanation:

Tranexamic acid is given as an IV bolus followed by an infusion in cases of major haemorrhage

Important for meLess important

Tranexamic is an antifibrinolytic and is given in major haemorrhage to reduce blood loss after survival benefit was demonstrated by the CRASH2 trial.

In the case of haemorrhage, tranexamic acid should be given as an IV bolus of 1g followed by a further 1g given as a slow infusion over 8h.

Question:

Pamela is a 43-year-old female who has been brought in by the ambulance because of crushing chest pain that started an hour ago. It is central and non-radiating, currently 7/10 in severity. She has hypertension, diabetes and high cholesterol. She is on ramipril, metformin and atorvastatin. She has a 25 pack year history and consumes approximately 5 bottles of wine each week.

Her ECG shows normal rate and rhythm, with the ST segment in leads I, V5 and V6 tracing below the isoelectric line. Her observations are as followed: heart rate 92 beats per minute, blood pressure 159/100mmHg, temperature 38.3ºC, oxygen saturation 98% on 4L and a respiratory rate of 18 breaths per minute. Her troponin was raised.

What is the most appropriate initial management?

A.Coronary angiogram

B.Coronary artery bypass graft (CABG)

C.Defibrillation

D.Propranolol

E.Aspirin

Answer:Aspirin

Explanation:

All patients with non-ST elevation myocardial infarction should receive 300mg aspirin

Important for meLess important

Pamela is having an NSTEMI, which we can diagnose from the ECG, with leads I, V5 and V6 showing ST depression. She should therefore be given 300mg of aspirin as a therapeutic measure to increase vasodilation and prevent progression to a STEMI.

The patient is not in cardiac arrest so defibrillation is not necessary.

A coronary angiogram may be considered further down the line to assess flow through the left circumflex, which appears to be affected in this patient, but it is not an urgent requirement.

CABG is indicated in severe stenosis of one or more of the major arteries, or severe triple vessel disease. As the patient is having a NSTEMI, the disease is not severe enough to warrant this invasive surgery.

Propranolol can be given prophylactically in patients who have had a STEMI to reduce the likelihood of reinfarction.

Question:

A 35-year-old lady on the labour ward developed a primary postpartum haemorrhage (PPH) 4 hours after giving birth. After appropriate resuscitation, she was examined and uterine atony identified as the cause. Pharmacological management was thus commenced, but without success. What is the most appropriate initial surgical intervention?

A.Bilateral ligation of uterine arteries

B.Haemostatic brace suturing

C.Hysterectomy

D.Intrauterine balloon tamponade

E.Selective arterial embolization

Answer:Intrauterine balloon tamponade

Explanation:

Postpartum haemorrhage: intrauterine balloon tamponade is the first-line 'surgical' intervention if other measures fail

Important for meLess important

A primary postpartum haemorrhage (PPH) is the loss of >500mL of blood <24 hours after delivery. It occurs in about 10% of women and is a major cause of maternal mortality. 80-90% of cases are due to uterine atony, with trauma, retained placenta and coagulopathy accounting for the remainder.

The 2009 RCOG guidelines on Prevention and Management of Postpartum Haemorrhage state that where uterine atony is perceived to be the cause and pharmacological management has failed to stop bleeding, surgical intervention should be attempted sooner rather than later. Intrauterine balloon tamponade is an appropriate first-line measure for most women. However, other interventions may also be attempted, depending on clinical circumstances and available expertise. These include haemostatic brace suturing, bilateral ligation of uterine arteries, bilateral ligation of internal iliac (hypogastric) arteries, selective arterial embolization and hysterectomy.

Question:

You review a 24-year-old man who has recently presented with large psoriatic plaques on his elbows and knees. He has no history of skin problems although his mother has psoriasis. You recommend that he uses an emollient to help control the scaling. What is the most appropriate further prescription to use as a first-line treatment on his plaques?

A.Topical steroid

B.Topical steroid + topical calcipotriol

C.Topical coal tar

D.Topical calcipotriol

E.Topical dithranol

Answer:Topical steroid + topical calcipotriol

Explanation:

NICE recommend a potent corticosteroid applied once daily plus vitamin D analogue applied once daily (applied separately, one in the morning and the other in the evening) for up to 4 weeks as initial treatment.

Question:

A 45-year-old woman presents to the Emergency Department with sudden onset weakness on the right side of her body. It started without warning half an hour ago. Her vision is unaffected but her speech is confused and slurred. This has never happened before. She felt well until the weakness started.

She has no significant past medical history. Her only medication is the combined oral contraceptive pill. She has a 40 pack-year smoking history and drinks two bottles of wine per week.

She works as a receptionist and returned from Thailand four days ago.

On examination, she is clinically stable. Neurological examination reveals 2/5 power down her right side. Examination of the cardiovascular system reveals peripheral cyanosis and clubbing with an ejection systolic murmur at the left upper sternal edge radiating through to the back and fixed splitting of the second heart sound. There is also erythematous tender enlargement of the right calf.

Which of the following is the patient most likely to have?

A.Toxoplasmosis

B.Cerebral malignancy

C.Carotid stenosis

D.Atrial septal defect

E.Left ventricular mural thrombus

Answer:Atrial septal defect

Explanation:

An atrial septal defect allows a 'paradoxical' stroke where an embolism from peripheral veins may bypass pulmonary circulation

Important for meLess important

This lady presents with symptoms consistent with a stroke. She also has several risk factors for clots and has clinical signs consistent with deep vein thrombosis. Further, there is a clinical suggestion of cyanotic heart disease. In this particular case, there is a source of an embolism that would usually not explain the cranial involvement. Typically, peripheral embolisms lodge in the pulmonary circulation.

However, there are some circumstances where a paradoxical embolisation can occur. One of these is an atrial septal defect (ASD) which is suggested here by the systolic murmur radiating through to the back with fixed S2 splitting. Even in the presence of an ASD, there must be a right-left shunt to allow paradoxical embolisation to occur. This can occur transiently with Valsalva manoeuvre or coughing. It can also occur more permanently in Eisenmenger's syndrome where the pressure in the right ventricle has raised sufficiently over time. Eisenmenger's is a cyanotic condition and can cause clubbing.

Other options:

1) Toxoplasmosis: can cause some cerebral symptoms but typically would not cause stroke-like symptoms. It also causes multiple small lesions so deficits tend to be less noticeable and wide-ranging

2) Cerebral malignancy: whilst bleed into a cancer might present with similar symptoms to an ischaemic stroke, there would be symptoms beforehand. It is important to remember when answering questions in an exam that all the relevant information will be given to you. Do not assume that the question is trying to trick you by leaving out some vital information

3) Carotid stenosis: this can present with ischaemic stroke-like symptoms. However, it would not explain the majority of the findings on examination

4) Left ventricular mural thrombus: this would cause an ischaemic stroke. However, this generally only forms after myocardial infarction and there is no indication that this has occurred

Question:

A 62-year-old lady presented with chest pain. She was known to have stable angina. However, she did not think that this discomfort was due to angina. She described her pain as being present at rest. She found leaning forward to help reduce the pain slightly. Her electrocardiogram showed saddle-shaped ST elevation in most leads and PR depression.

Given the most likely diagnosis, which of the following is the most appropriate treatment?

A.Coronary stenting

B.Thrombolysis

C.Paracetamol

D.Naproxen

E.Adenosine

Answer:Naproxen

Explanation:

First line management of acute pericarditis involves combination of NSAID and colchicine

Important for meLess important

The chest pain and ECG finding are indicative of acute pericarditis.

Coronary stenting and thrombolysis may be appropriate for ST-elevation myocardial infarction. However, widespread saddle-shaped ST elevation is more indicative of acute pericarditis than acute coronary syndrome STEMI.

Naproxen is preferred first-line treatment for acute pericarditis. Other NSAIDs such as ibuprofen and indomethacin may be used. NSAIDs are used to reduce the inflammation at the pericardium. Colchicine has also been used in certain cases.

Paracetamol is typically used to alleviate pericarditic chest pain.

Adenosine is not used in acute pericarditis. Adenosine is used for narrow complex tachycardia.

Question:

A 28-year-old man and his girlfriend present to the GP. The man complains of a 4 day history of moderate left-sided testicular pain. On examination, the left testicle is erythematous and swollen, and the pain is relieved through elevating the testicle. There are no palpable masses or penile discharge. Examination of the right testicle is unremarkable.

Which organism is most likely to have caused this man's underlying condition?

A.Enterococcus faecalis

B.Chlamydia trachomatis

C.Escherichia coli

D.Pseudomonas aeruginosa

E.Staphylococcus aureus

Answer:Chlamydia trachomatis

Explanation:

Acute epididymo-orchitis in sexually active younger adults is most commonly caused by Chlamydia

Important for meLess important

This man has epididymo-orchitis. In sexually active men, this condition is most commonly caused by Chlamydia trachomatis.

Escherichia coli and Enterococcus faecalis commonly cause epididymo-orchitis in men >35 years or men that have anal sex. It is therefore unlikely to have caused it in this man.

Staphylococcus aureus and Pseudomonas aeruginosa generally do not cause epididymo-orchitis.

Question:

A 4-year-old boy is found collapsed and not breathing. They have no visible airway obstruction. A paramedic performs 5 rescue breaths with a bag-valve-mask attached to 100% oxygen. They have a pulse of 30 beats per minute and they are peripherally cold. They are making no respiratory effort despite the rescue breaths.

What is the most correct course of action?

A.Continue to support breathing but do not start CPR as the patient has a pulse

B.Place in the recovery position

C.Start cardiopulmonary resuscitation with a rate of 15 chest compressions to 2 breaths

D.Start cardiopulmonary resuscitation with a rate of 30 chest compressions to 2 breaths

E.Start cardiopulmonary resuscitation with continuous chest compressions

Answer:Start cardiopulmonary resuscitation with a rate of 15 chest compressions to 2 breaths

Explanation:

In paediatric basic life support, the ratio of compressions to breaths is 15:2

Important for meLess important

This is a cardiac arrest scenario. The patient is unconscious and not breathing. They have a pulse of 30 beats per minute which is inadequate for a child and is an indication to start cardiopulmonary resuscitation (CPR). Resus guidelines state: 'importantly, also start CPR in children who become bradycardic (heart rate < 60 min-1) with signs of inadequate perfusion despite adequate respiratory support'. The correct course of action, other than getting more help and attaching defibrillator pads would be to start CPR with a rate of 15 chest compressions to 2 breaths.

Continue to support breathing but do not start CPR as the patient has a pulse is the incorrect answer as this paediatric patient has a pulse rate below 60 beats per minute with cold peripheries, a sign of inadequate perfusion.

Place in the recovery position would be inappropriate as this patient is in cardio-respiratory arrest. They need chest compressions to aid cardiac output and therefore perfusion to the brain and other vital organs.

Start cardiopulmonary resuscitation with a rate of 30 chest compressions to 2 breaths is the incorrect answer as this is a paediatric patient. 30:2 would be the correct ratio in the adult cardiac arrest algorithm.

Start cardiopulmonary resuscitation with continuous chest compressions is incorrect as ventilations are vital for paediatric patients as the cause of the cardio-respiratory arrest is most likely to be hypoxia. If there were inadequate rescuers, uninterrupted chest compressions after 5 initial bag-valve-mask ventilations would be the most appropriate course of action.

Question:

A 38-year-old patient is brought to resus following a high-speed road-traffic collision in which he was an unrestrained passenger. His Glasgow Coma Scale (GCS) score is 7 (E1V2M4) but the patient is otherwise relatively haemodynamically stable and so the experienced anaesthetist present decides to intubate and ventilate the patient before you continue with the primary survey. When you return to your B and C assessment you realise that the patient has begun deteriorating with falling blood pressure and oxygen saturation and increasing tachycardia. There are reduced breath sounds on the left chest.

What is the likely cause of this sudden deterioration?

A.Failure of monitoring equipment

B.Pain response

C.Splenic laceration

D.Tension pneumothorax

E.Wrongly sited endotracheal tube

Answer:Tension pneumothorax

Explanation:

Sudden deterioration with ventilation suggests tension pneumothorax

Important for meLess important

This patient is going into worsening shock. This is most likely due to a tension pneumothorax worsened by ventilation through an endotracheal tube. This is evidenced by the sudden change and also the reduced breath sounds on the left chest. Tension pneumothorax should always be considered in acute deterioration following ventilation.

It is unlikely that monitoring equipment failure would result in these changes especially due to the reduced breath sounds on one side.

While it is likely that this patient is in pain this would not likely cause a sudden deterioration at this point.

A splenic laceration may cause a patient to go into haemorrhagic shock but this is unlikely to be this rapid a change and is unlikely to be accompanied by reduced breath sounds.

A wrongly sited tube would result in uneven breath sounds but is unlikely to cause the dramatic change in the patient's condition seen here.

Question:

Claire, a 12-year-old girl presents to a paediatric clinic after being referred by her GP. On examination, her height is in the 90th centile for her age. Her fingers seem long and 'spidery' and she is able to the wrap her thumb and little finger around her wrist easily. Her father died of an aortic dissection at the age of 40. Given the most likely diagnosis, which of the following features may be found on clinical examination?

A.Talipes equinovarus

B.Hallux valgus

C.Cleft palate

D.Pectus excavatum

E.Positive Schober's test

Answer:Pectus excavatum

Explanation:

Pectus excavatum and pes planus are features of Marfan's syndrome

Important for meLess important

Hypermobility, tall stature, long fingers are all features of Marfan's disease, especially given the family history of aortic dissection. While a diagnosis will require an echocardiogram to look for aortic problems as well as a full family history, the question is asking for other features of physical examination.

In this case, the correct answer is pectus excavatum, with both pectus carinatum and excavatum being associated with Marfan's disease

A high-arched palate is associated with Marfan's, not a cleft palate

Pes planus (flat foot) is associated with Marfan's, not talipes equinovarus (clubfoot) or hallux valgus

A positive Schober's test is associated with ankylosing spondylitis and has nothing to do with Marfan's

Question:

A 23-year-old-woman attends her GP with a history of right-sided knee pain. She is a keen runner, and notices the pain most after exercise. There has been no redness or swelling of the joint, and the knee has not been locking.

On examination, there is a full range of movement of the knee. There is sharp pain on palpation over the lateral epicondyle of the femur, particularly with the knee at 30 degrees of flexion.

Which of the following is the most likely diagnosis?

A.Iliotibial band syndrome

B.Osgood-Schlatter disease

C.Osteochondritis dissecans

D.Patellar tendonitis

E.Patellofemoral pain syndrome

Answer:Iliotibial band syndrome

Explanation:

Iliotibial band syndrome is a common cause of knee pain, particularly in runners

Important for meLess important

This is a classic history and examination for iliotibial band syndrome, a common cause of lateral knee pain in keen runners.

Osgood-Schlatter disease, also known as tibial apophysitis, would typically cause pain and swelling over the tibial tubercle.

Osteochondritis dissecans would typically cause locking and swelling of the joint as well as tenderness.

Patellar tendonitis would also cause pain after exercise, but this would normally be located at the lower aspect of the patella.

Patellofemoral pain syndrome, previously known as chondromalacia patellae, would classically cause anterior knee pain worsened by going up or down stairs.

Question:

A 30-year-old woman with known polycystic ovary syndrome presents with excessive hair growth of the chest, back and face. She reports her symptoms first developed around the time of puberty, with the hair continuing to remain prominent, growing back despite removal via waxing and shaving.

The underlying skin is normal and the patient is otherwise well with no other medical conditions.

What topical agent is the treatment of choice for the facial features of this patient’s condition?

A.Benzoyl peroxide

B.Clobetasone

C.Eflornithine

D.Ethinylestradiol

E.Retinoid

Answer:Eflornithine

Explanation:

Topical eflornithine is the treatment of choice for facial hirsutism

Important for meLess important

This woman has presented with the endocrine condition hirsutism. Excessive hair growth, on body areas where it is normally minimal or absent, is due to an increased level of androgen hormones. This imbalance in hormones can be due to several conditions, the most common of which is polycystic ovarian syndrome. Topical eflornithine is the treatment of choice for facial hirsutism, blocking putrescine, an organic compound required for hair follicle growth and inhibiting cellular proliferation.

Benzoyl peroxide is one of the first-line treatments for the common dermatological condition acne. It is thought to reduce the production of sebum from the skin sebaceous glands, reducing the formation of comedo (clogged hair follicles) and inhibiting Cutibacterium acnes, the main bacterium associated with acne. Benzoyl peroxide plays no role in the management of facial hirsutism.

Clobetasone is a topical corticosteroid used in the management of several dermatological inflammatory conditions such as eczema, psoriasis and other forms of dermatitis. Corticosteroids do not play a significant role in the management of hirsutism.

Ethinylestradiol is an oestrogen medication used in several combined oral contraceptive pills (OCP). Although OCPs are used in the management of hirsutism, ethinylestradiol is an oral medication, not topical, and it must be used in a combined formula with a progestin medication.

Retinoids are a form of vitamin A and is used in inflammatory skin disorders, mainly severe acne when first-line medications have failed. Retinoids inhibit inflammatory pathways and specific cell proliferation involved in dermatological conditions but again it has no role in the management of facial hirsutism.

Question:

A 24-year-old woman presents to the GP out-of-hours service concerned about her vision in her right eye. She states that over the last couple of hours her vision has worsened in the right eye. She also mentions that colours have started to appear less bright.

On examination, there is reduced visual acuity in the right eye and a relative afferent pupillary defect.

Given the likely diagnosis, which investigation is the gold-standard for confirming the diagnosis?

A.Contrast CT of whole body

B.Contrast MRI of brain and orbits

C.Non-contrast CT whole body

D.Non-contrast MRI of brain and orbits

E.Non-contrast MRI whole body

Answer:Contrast MRI of brain and orbits

Explanation:

Suspected optic neuritis: MRI of the brain and orbits with gadolinium contrast is the investigation of choice

Important for meLess important

This patient is presenting with a likely diagnosis of optic neuritis. The subacute history of worsening visual acuity in one eye, colour desaturation (colours appearing duller) and the examination findings are highly indicative of optic neuritis.

Therefore, contrast MRI of brain and orbits is correct. The gold-standard investigation for a patient with suspected optic neuritis is an MRI of the brain and orbits with gadolinium contrast. This is because studies have shown that contrast-enhanced MRI scans are the best form of imaging to identify abnormal enhancement of the optic nerve to demonstrate optic neuritis.

Contrast CT of whole body and non-contrast CT whole body are incorrect. Research shows that CT scans have very little role in identifying optic neuritis. They are not as specific as MRI scans at identifying optic neuritis. Furthermore, a whole body scan would be inappropriate and inflict a large amount of unnecessary radiation on the patient.

Non-contrast MRI of brain and orbits and non-contrast MRI whole body are incorrect. An MRI with gadolinium contrast is required for the diagnosis of optic neuritis as the contrast allows the enhancement of the optic nerve and allows for more specific imaging. Therefore, both of these answers are incorrect as neither includes contrast. Secondly, a full-body MRI would be unnecessary as only the brain and orbits are needing to be imaged.

Question:

A 58-year-old female presents to general practice complaining of weakness in her legs. She reports increasing difficulty climbing stairs and getting up from sitting positions.

On taking a history, you note she has no significant past medical history but has smoked for most of her adult life.

On examination, you note a waddling gait, reduced strength in proximal muscles of all limbs and reduced tendon reflexes. there is no wasting, fasciculations, sensory abnormalities or ocular symptoms. On repetitive movements, her weakness appears to initially improve.

Given the likely diagnosis, the presence of which of the following antibodies in the blood would be diagnostic?

A.ACh receptor antibodies

B.Anti-Mi-2 antibodies

C.Antinuclear antibody

D.Rheumatoid factor

E.Voltage-gated calcium-channel antibodies

Answer:Voltage-gated calcium-channel antibodies

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

ACh receptor antibodies are associated with Myasthenia Gravis (MG). MG can present with isolated proximal muscle weakness, however, more commonly presents with ocular symptoms i.e. ptosis. MG is characterized by increased fatigability with exercise, unlike this patient whose weakness initially improves with exercise.

Anti-Mi-2 antibodies are associated with dermatomyositis. Another differential for proximal muscle weakness, but usually also presents with systemic upset and rash.

Antinuclear antibody is used in the diagnosis of various autoimmune conditions, in particular, systemic lupus erythema which would present differently.

Rheumatoid factor (RF) is used as a marker of inflammatory and autoimmune activity. RF is commonly used alongside other tests to aid the diagnosis of rheumatoid arthritis. Rheumatoid factor has no role in the diagnosis of Lambert-Eaton Myasthenic Syndrome (LEMS). This patient has no joint symptoms, which makes the diagnosis of rheumatoid disease less likely.

Voltage-gated calcium-channel antibodies are suggestive of Lambert-Eaton Myasthenic Syndrome (LEMS). LEMS is characterized by weakness, particularly of the proximal muscles, which improves (initially) with exercise. This condition generally presents in later life, unlike MG which has peaks in the 3rd and 6th decades. LEMS is often associated with an underlying malignancy, most commonly small cell lung cancer. This patients smoking history gives another clue in favour of this diagnosis.

Question:

A 23-year-old woman who is 10 weeks pregnant presents with severe vomiting. She is now having difficulty keeping down fluids and a dipstick of her urine shows ketones ++. Which one of the following is not associated with an increased risk of this condition?

A.Obesity

B.Trophoblastic disease

C.Smoking

D.Nulliparity

E.Carrying twins

Answer:Smoking

Explanation:

Smoking is associated with a decreased incidence of hyperemesis gravidarum

Important for meLess important

Question:

A patient is brought to the acute mental health unit by the police after being found on the street shouting at people. He has no known past medical history.

On examination, he is poorly dressed. When asked about his mood, he begins by asking what colour the sky is, then begins to talk about his strong dislike for cheese, followed by wanting to break the table lamp he owns at home. Throughout the consultation, he speaks slowly.

What is the most appropriate term to describe this patient's findings?

A.Circumstantiality

B.Clang associations

C.Flight of ideas

D.Knight's move

E.Word salad

Answer:Knight's move

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

Knight's move is correct. This patient is speaking different sentences that are entirely unrelated to each other without any discernible link between them. This is known as Knight's move and is a thought disorder associated with schizophrenia.

Circumstantiality is incorrect. This is the inability to answer a question without giving excessive, unnecessary detail, however, the patient eventually returns to the original point and it is addressed. In this scenario, there is no return to the original point and there are no discernible links between what he is saying.

Clang associations is incorrect as it is where ideas are related to each other by the fact they sound similar or rhyme (such as a patient saying paint, patient, pastry, painful). There is no evidence of this here.

Flight of ideas is incorrect. Although this involves moving from one idea to another, this differs from Knight's move as there are discernible links between the ideas discussed. For example, this patient may have talked about their mood, and then what contributed to their mood, then about the contributing factor, then something related to that contributing factor and so on. As well as this, flight of ideas is associated with rapid and pressured speech, which is not seen in this scenario.

Word salad is incorrect. This is where speech is completely incoherent with sentences formed from real words strung together randomly forming a sentence that does not make sense.

Question:

A 75-year-old lady presented to the emergency department after suffering a fall 2 hours ago. Before the fall, she was nauseous and experienced sweating, pallor and discomfort in the stomach. She believed that she briefly lost her consciousness but then recovered quickly. She did not have any confusion or weakness after the fall. There were no tongue bites. Neurological examination was normal. Her hearing has always been bad since she was young.

What is the diagnosis?

A.Stroke

B.Mechanical fall

C.Benign paroxysmal positional vertigo

D.Neurally-mediated syncope

E.Meniere disease

Answer:Neurally-mediated syncope

Explanation:

Prodrome symptoms of sweating, pallor and nausea/vomiting before a transient loss of consciousness are suggestive of reflex (neurally mediated) syncope

Important for meLess important

Prodrome symptoms of sweating, pallor and nausea/vomiting before a transient loss of consciousness are suggestive of reflex (neurally mediated) syncope. This is further supported by quick recovery after the syncope.

Normal neurological examination ruled out a stroke. Both stroke and TIA rarely cause loss of consciousness.

BPPV causes recurrent short episodes of vertigo, triggered by movement of head position. This is not evident in the history. Meniere causes recurrent attacks of vertigo accompanied by tinnitus and progressive hearing loss.

Question:

A 72-year-old woman presents to her GP with symptoms of vaginal pain, itching and dyspareunia. After ruling out other potential causes of her symptoms the GP diagnoses her with atrophic vaginitis.

Which following treatments could be used as adjunct therapies, in combination with topical oestrogen cream, to treat her symptoms?

A.Lubricants and moisturisers

B.Oestrogen secreting pessary

C.Sitz baths

D.Cold compresses

E.Warm compresses

Answer:Lubricants and moisturisers

Explanation:

Lubricants and moisturisers are useful adjuncts to topical oestrogen as first-line treatment of atrophic vaginitis

Important for meLess important

The pain, itching and dyspareunia experienced in atrophic vaginitis is due to dryness of the vaginal mucosa. Topical oestrogen cream should be use as first line-treatment to help restore the vaginal mucosa, however, lubricants and moisturisers can provide effective short term relief while waiting for topical oestrogen creams to have effect.

Oestrogen secreting pessaries are an alternative to topical oestrogen cream, but combined use in this scenario would result in a significantly supra-therapeutic dose of oestrogen. While sitz baths are used for irritation and itching of the perineum this would not treat internal vaginal symptoms. Neither warm or cold compresses would provide lasting relief.

Question:

A 68-year-old man present to the GP with pain in his buttocks. He is sent for a review by the vascular team as they believe he is suffering from peripheral arterial disease. His pain comes on when he walks and stops within 2 minutes of resting however he says he has no pain in his calves. He is sent for angiography.

Given his presentation what vessel is most likely affected?

A.Femoral stenosis

B.Popliteal stenosis

C.Posterior tibial stenosis

D.Iliac stenosis

E.Dorsalis pedis stenosis

Answer:Iliac stenosis

Explanation:

Claudication affecting the femoral vessels is likely to present with calf pain rather than iliac claudication which causes buttock pain

Important for meLess important

This question is asking about a man presenting with symptoms of claudication. The question is asking about the most likely affected vessels due to his presentation. In this case, as the symptoms are mainly affecting his buttocks the iliac vessels are most likely to be stenosed.

If the femoral artery was stenosed you would expect his symptoms to be more affecting his calves. All the other vessels listed are found below the distribution of the femoral artery and so you would expect the symptoms to be occurring lower than this.

Question:

A 66-year-old woman is admitted to the emergency department with acute confusion. She is alone and unable to articulate any of her past medical history. On examination, she is overweight, there is non-pitting oedema affecting the eyes and legs, and she has dry skin and coarse hair. Her observations are a heart rate of 50 beats/min, blood pressure of 90/60mmHg, respiratory rate of 10 breaths/min, temperature of 30°C, and oxygen saturation of 90% on air.

What is the most likely diagnosis?

A.Addisonian crisis

B.Cushing's syndrome

C.Delirium tremens

D.Thyrotoxic storm

E.Myxoedema coma

Answer:Myxoedema coma

Explanation:

Myxoedema coma typically presents with confusion and hypothermia.

Important for meLess important

Myxoedema coma is a potentially fatal complication of longstanding undertreated hypothyroidism. It may be precipitated by illness, stress, and certain drugs. Apart from confusion and hypothermia, patients may have non-pitting periorbital and leg oedema, reduced respiratory drive, pericardial effusions, anaemia, seizures, and other symptoms of hypothyroidism.

Addisonian crises typically feature malaise, nausea and vomiting, abdominal pain, and muscle cramps and paraesthesia, which this patient does not have.

Cushing's syndrome does not usually present acutely. It features weight gain, abdominal striae, facial fullness, and muscle wasting.

Delirium tremens occurs after the withdrawal of alcohol in alcoholics. It presents with a tremor, agitation, palpitations, and potentially seizures.

A thyrotoxic storm is a complication of hyperthyroidism that features hyperthermia, tachycardia, vomiting, and agitation.

Question:

A 38-year-old woman is reviewed in the Endocrinology clinic, having been referred by her GP for refractory hypertension. Her ambulatory blood pressure readings have consistently been over 170/95 mmHg, in spite of gradual uptitration of amlodipine, enalapril and indapamide. She has no significant past medical history or family history, and examination of the chest and abdomen is normal.

Her blood test results are shown below:

Na+ 144 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 32 mmol/L (22 - 29)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 75 µmol/L (55 - 120)

Which of the following is the most likely underlying cause of her hypertension?

A.Adrenal carcinoma

B.Adrenal adenoma (Conn's syndrome)

C.Autoimmune adrenalitis

D.Phaeochromocytoma

E.Bilateral adrenal hyperplasia

Answer:Bilateral adrenal hyperplasia

Explanation:

Bilateral idiopathic adrenal hyperplasia is the most common cause of primary hyperaldosteronism

Important for meLess important

The presence of hypertension with hypokalaemia and mild alkalosis (as evidenced by the raised bicarbonate) should make candidates consider hyperaldosteronism. Hyperaldosteronism can be seen alongside elevated glucocorticoid activity in the context of excessive ACTH secretion (e.g. in Cushing's disease), or in isolation, as is the case in this patient. Hyperaldosteronism can be primary, or secondary to overzealous renin secretion, e.g. by a tumour, or in response to renal artery stenosis. Amongst the option choices, only causes of primary hyperaldosteronism are given. Of these, the most common epidemiologically is bilateral adrenal hyperplasia, which underlies 60-70% of cases of primary hyperaldosteronism.

Aldosterone-producing adrenal carcinomas account for less than 1% of all cases of primary hyperaldosteronism.

Aldosterone-producing adenomas, which produce the clinical entity of Conn's syndrome, account for approximately one third of cases of primary hyperaldosteronism, making this option epidemiologically less probable.

Autoimmune adrenalitis is the most common cause of primary adrenal insufficiency, which gives rise to the clinical entity of Addison's disease. This tends to present with hyperkalaemia rather than hypokalaemia, and in particular, postural hypotension rather than hypotension, due to mineralocorticoid deficiency.

A phaeochromocytoma is a rare cause of persistent hypertension. However, the hypertension associated with excessive catecholamine secretion would not explain the hypokalaemia and alkalosis seen in this patient.

Question:

A 27-year-old woman visits her GP for advice regarding conception. She is querying the use of supplements and/or medication. She is generally fit and well and has no significant past medical history, nor family history. She has previously had 2 children, both in the past 5 years, with no complications; both are healthy. On examination, she appears well; her BMI is recorded as 31 kg/m2.

Which of the following is most appropriate for this patient?

A.Lifestyle and dietary advice

B.5mg of folic acid

C.75mg of aspirin

D.150mg of aspirin

E.400mcg of folic acid

Answer:5mg of folic acid

Explanation:

Pregnant obese women (BMI >30 kg/m2), should be given high dose 5mg folic acid

Important for meLess important

The correct answer is 5mg of folic acid - as this woman's BMI is greater than 30, she should take 5mg rather than 400 micrograms, from now until the 12th week of pregnancy.

Lifestyle and dietary advice are incorrect - as above, high-dose folic acid is appropriate given her BMI.

75mg of aspirin is incorrect - this would be taken from the 12th week onwards in women who have one high-risk factor, or two moderate-risk factors, for pre-eclampsia. A BMI over 35 would qualify as a single moderate-risk factor, although this patient has a BMI of 31, and does not have a second risk factor.

150mg aspirin is an alternative dose to use in the prophylaxis of pre-eclampsia, as per NICE guidelines. However, in practice, 75mg is more commonly used.

400mcg of folic acid is incorrect - this is recommended for all women, except for those at higher risk of conceiving a child with a neural tube defect, including the patient in this scenario due to her BMI.

Question:

A 62-year-old man with no significant past medical history presents with a right sided groin lump which he noticed whilst having a shower. It has been present for 2 weeks and disappears when he lies down. It never causes him any discomfort and there are no other gastrointestinal symptoms of note. Examination reveals an small reducible swelling in the right groin consistent with an inguinal hernia. What is the most appropriate management?

A.Refer for fitting of a truss

B.Refer to vascular surgeon

C.Routine referral for surgical repair

D.Advise no action as will probably improve with time

E.Fast-track referral to colorectal service

Answer:Routine referral for surgical repair

Explanation:

This patient has an asymptomatic inguinal hernia. Studies looking at conservative management tend to find that many patients become symptomatic and eventually have surgery anyway. As this patient is medically fit most clinicians would refer for surgical repair.

Inguinal hernias do not resolve spontaneously.

Question:

A 55-year-old woman complains of neck and right arm pain for the past two months. The pain is often triggered by flexing her neck. Her past medical history includes osteoarthritis of her knee, obesity and depression. On examination there is no obvious muscle atrophy or weakness of the right arm. There is however some sensory loss over the middle finger and palm of the hand. Which nerve root is most likely to be affected by the impingement?

A.C4

B.C5

C.C6

D.C7

E.C8

Answer:C7

Explanation:

Question:

You see an 81-year-old lady with a history of diabetes, osteoarthritis and hypertension. She twisted her leg whilst getting out of a car and developed increasing pain weight bearing which has eased with simple analgesia. She also tells you she has a lump under her knee. On examination, she has a 4cm non-tender lump just below the popliteal fossa which becomes tense on extending the leg. She has full power throughout. What is the most likely diagnosis?

A.Deep vein thrombosis

B.Popliteal artery aneurysm

C.Sprain

D.Baker's cyst

E.Ruptured head of gastrocnemius

Answer:Baker's cyst

Explanation:

This describes the typical patient with a Baker's cyst. They are more likely to develop in patients with arthritis or gout and following a minor trauma to the knee. Foucher's sign describes the increase in tension of the Baker's cyst on extension of the knee.

A DVT (deep vein thrombosis) needs to be considered because it can mimic a Baker's cyst. A DVT can also co-exist with a Baker's cyst and a low threshold for ultrasound should be considered.

http://patient.info/doctor/Baker's-Cyst.htm

Question:

A 62-year-old man presents to the Emergency Department with a tremor and confusion. He says he has been feeling very sweaty this morning. On examination he has hyperreflexia. He has a history of depression, for which he takes citalopram and has recently been experiencing back pain, for which he has been started on tramadol. What is the most likely cause of this man's presentation?

A.Neuroleptic malignant syndrome

B.Delirium

C.Alzheimer's disease

D.Serotonin syndrome

E.Alcohol withdrawal

Answer:Serotonin syndrome

Explanation:

Serotonin syndrome can present with sweating, tremor, confusion and hyperreflexia

Important for meLess important

Combining multiple drugs that have effects on serotonin, such as an SSRI and tramadol, puts the patient at risk of serotonin syndrome.

Delirium can cause an acute confusional state but not tremor and sweating and is less likely than serotonin syndrome given the patient's medication use.

Alzheimer's disease develops gradually and presents with progressively worsening cognitive function.

Alcohol withdrawal can cause a similar set of symptoms but not hyperreflexia and is less likely in context of his medication history.

Question:

A 52-year-old man is seen in genitourinary medicine (GUM) clinic with a five day history of a swollen, tender and erythematous glans penis. He is unable to fully retract his foreskin and is experiencing pain on urination. He is not sexually active. This is his fourth presentation for balanitis in the last 12 months. On each occasion he has tested negative for sexually transmitted infections and bacterial infections and has been managed successfully with saline baths and topical clotrimazole. His past medical history is remarkable for diabetes mellitus.

After treating this acute episode with saline baths and topical clotrimazole, what is the most appropriate next step in management?

A.Nystatin cream

B.One week course of oral flucloxacillin

C.Prophylactic oral fluconazole

D.Prophylactic topical hydrocortisone

E.Refer for circumcision

Answer:Refer for circumcision

Explanation:

Recurrent balanitis is an indication for circumcision

Important for meLess important

Balanitis is inflammation of the glans penis. This can be due to sexually transmitted infection, dermatitis, bacterial infection, or in this case an opportunistic fungal infection (Candida) that is likely secondary to the patient's diabetes.

Acute infections are managed with saline baths and treatment of the underlying cause. In most cases, topical treatment is recommended:

Sexually transmitted infection: appropriate treatment of the infection

Dermatitis: topical hydrocortisone

Candida: topical clotrimazole or miconazole or nystatin cream

Bacterial infection: flucloxacillin or erythromycin or metronidazole according to sensitivity

In cases of recurrent balanitis, the most appropriate treatment is circumcision, which will prevent the condition from recurring.

Question:

A 16-year-old boy is seen in the endocrine clinic as he is yet to start puberty. In view of a absent sense of smell since birth, a diagnosis of Kallman's syndrome is suspected.

What would you expect to see on the patient's blood results?

A.Low FSH/LH, low testosterone

B.Low FSH/LH, raised testosterone

C.Raised FSH/LH, low testosterone

D.Raised FSH/LH, raised testosterone

E.Raised LH, low FSH, low testosterone

Answer:Low FSH/LH, low testosterone

Explanation:

Kallman's syndrome - LH & FSH low-normal and testosterone is low

Important for meLess important

Low FSH/LH and low testosterone is correct. In normal physiology, the hypothalamus produces GnRH, GnRH then stimulates LH and FSH production from the anterior pituitary, and FSH/LH go on to stimulate testosterone from the testes. Kallman's syndrome is caused by a failure of the embryonic development of olfactory nerve fibres, which in turn prevents the normal embryonic migration of nerves that produce gonadotrophin releasing hormone (GnRH) from the olfactory region to the hypothalamus. Accordingly, the absence of GnRH producing cells in Kallman's syndrome means there is no downstream stimulation of LH/FSH production and therefore no stimulation of testosterone production. Further, failure of olfactory nerve development causes a reduced or absent sense of smell, which is characteristic for Kallman's syndrome.

Low FSH/LH, raised testosterone is incorrect. FSH/LH stimulate testosterone production from the gonads, hence one would expect low testosterone with low FSH/LH in normal physiology.

Raised LH, low FSH, low testosterone is incorrect. The absence of GnRH in Kallman's syndrome would cause a low LH, as explained above.

Raised FSH/LH, low testosterone is incorrect. The absence of GnRH in Kallman's syndrome would lead to a low FSH/LH.

Raised FSH/LH, raised testosterone is incorrect. Without GnRH production, FSH/LH and therefore testosterone, would be low.

Question:

A 19 -year-old primigravida attends your surgery complaining of vomiting. She is 10 weeks pregnant, and has been unable to keep anything down for three days. On examination, she is tachycardic, has postural hypotension and her urine dip is positive for ketones.

Which of the following is the greatest risk factor for hyperemesis gravidarum?

A.Low maternal BMI

B.Second and successive pregnancies

C.Twin pregnancy

D.Increasing maternal age

E.Maternal epilepsy

Answer:Twin pregnancy

Explanation:

Multiple pregnancies have been associated with hyperemesis gravidarum, as have molar pregnancies, thought to be due to the increased placental mass (and therefore higher beta-hCG levels). In fact, young maternal age, first pregnancy and obesity also have suggested as factors associated with the condition.

It is not uncommon for women to feel nauseated in pregnancy, and for most this settles by around 16 weeks pregnancy. If the vomiting is prolonged (over a longer period during the pregnancy) or extensive (in frequency each day) then it can become problematic.

Many factors have been suggested as being implicated in causing nausea and vomiting in pregnancy including: high beta hCG levels (which is supported by the higher incidence of N&V in molar and multiple pregnancies), high oestrogen levels, nutritional deficiency (vitamin B6 in particular) and gastric dysfunction due to smooth muscle relaxation in high progesterone states, amongst others.

Question:

A 25-year-old man attends for his annual asthma review. He takes inhaled beclometasone propionate at a dose of 100 micrograms 2 puffs twice daily. He also has a salbutamol inhaler for symptomatic relief.

His Asthma Control Test (ACT) score is 25/25.

What would be the most appropriate management regarding his inhalers?

A.Add in inhaled long-acting beta-2 agonist (LABA)

B.Add in leukotriene receptor antagonist (LTRA)

C.Double dose of beclometasone dipropionate

D.Reduce beclometasone dipropionate dose by 25-50%

E.Stop beclometasone dipropionate and continue salbutamol as required

Answer:Reduce beclometasone dipropionate dose by 25-50%

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

This man has an ACT score which indicates well-controlled asthma. A higher score corresponds to better control. The lowest possible score is 5/25, indicating very poorly controlled asthma.

The British Thoracic Society (BTS) advocates maintaining patients on the lowest possible dose of inhaled corticosteroid (ICS) to achieve symptom control. The approach may vary from patient to patient, but the latest guidelines suggest decreasing the dose by approximately 25-50% each time.

Adding an inhaled long-acting beta-2 agonist (LABA) is incorrect. This would be an option as add-on therapy if this man had suboptimal asthma control despite regular inhaled corticosteroids.

Adding in a leukotriene receptor antagonist (LTRA) is incorrect. BTS guidelines recommend adding an LTRA if asthma remains uncontrolled despite using LABA and ICS combination therapy. NICE guidelines suggest that LTRA can be added if low-dose ICS is insufficient.

Doubling the dose of beclometasone dipropionate is incorrect. This would equate to a medium dose of ICS, which is only recommended if a patient remains symptomatic despite a combination of low-dose ICS and LABA (as an alternative to adding on an LTRA).

Stopping beclometasone dipropionate and continuing salbutamol as required is incorrect. Reducing ICS should be done slowly to reduce the risk of deterioration.

Question:

A 68-year-old woman is receiving haemodialysis for end stage renal failure. Soon after completing dialysis she complained of a headache and becomes increasingly drowsy. On examination her lung fields are clear to auscultation and bloods including serum electrolytes are normal. What complication of haemodialysis should be considered here?

A.Peritonitis

B.Dialysis disequilibrium syndrome

C.Sepsis

D.Disseminated intravascular coagulation

E.Fluid overload

Answer:Dialysis disequilibrium syndrome

Explanation:

Dialysis disequilibrium syndrome is a rare but serious complication of haemodialysis

Important for meLess important

The above answers are all complications of haemodialysis with the exception of peritonitis which is a serious complication of peritoneal dialysis.

the sudden deterioration following dialysis could be caused by fluid overload or electrolyte imbalance, but this is unlikely given normal bloods and clear lung fields.

Dialysis disequilibrium syndrome is a rare complication and usually affects those who have recently started renal replacement therapy. It is caused by cerebral oedema, but the exact mechanism is unclear. Therefore this is a diagnosis of exclusion.

Question:

A 57-year-old woman reports to the emergency department complaining of right-sided wrist pain following a fall on her outstretched right hand.

On examination, there is tenderness over her right anatomical snuffbox and pain on ulnar deviation of the right wrist.

An X-ray is arranged and confirms and un-displaced scaphoid fracture in the right wrist.

Based on the information provided, what is the most appropriate management option?

A.Advise 6 weeks of rest

B.Immediate screw fixation

C.Cast and X-ray again after 2-weeks

D.Screw fixation within 2 weeks

E.Cast for 6-8 weeks

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

A scaphoid fracture is a common injury to occur after a fall on an outstretched hand. The issue with scaphoid fractures is that there is a tendency for it not to show up on an X-ray. The scaphoid received a retrograde blood supply from the dorsal carpal branch of the radial artery, making avascular necrosis a risk of these fractures go undetected. They present with wrist pain, particularly on ulnar deviation and longitudinal compression of the thumb, and signs include wrist joint effusion and tenderness over the anatomical snuffbox. A scaphoid series of x-rays should be performed, and if a suspected fracture cannot be imaged, MRI scans can be used. If an un-displaced fracture is imaged, a neutral forearm cast should be applied for 6-8 weeks.

Rest alone will not treat a scaphoid fracture, and as stated before, without treatment these fractures can progress to avascular necrosis.

Immediate screw fixation is not required for an un-displaced scaphoid fracture.

If no fracture can be imaged, however, a scaphoid fracture is suspected, the ideal management is to apply a cast anyway and re-image (using x-ray scans) in 2-weeks time.

Screw fixation can be used as a treatment for a displaced scaphoid fracture, as this is less likely to heal with just casting alone.

Question:

What is the most appropriate time to take blood samples for therapeutic monitoring of lithium levels?

A.At any time

B.Immediately before next dose

C.4 hours after last dose

D.6 hours after last dose

E.12 hours after last dose

Answer:12 hours after last dose

Explanation:

Question:

A 55-year-old-man presents with abdominal pain. There is guarding on examination and a CT abdomen with contrast is requested.

His past medical history includes diabetes and high cholesterol. He is currently taking metformin 500mg BD and atorvastatin 20mg OD.

Which one of the following would you advise him in regards to his CT scan?

A.Discontinue atorvastatin for 48 hours after the scan

B.Discontinue atorvastatin for 1 week after the scan

C.Discontinue metformin for 48 hours after the scan

D.Do not have any food or fluids for 12 hours prior to the scan

E.Discontinue metformin for 1 week after the scan

Answer:Discontinue metformin for 48 hours after the scan

Explanation:

Metformin should be discontinued for 48 hours following a contrast CT due to the risk of renal impairment. There is no need to discontinue statins prior to or following a contrast CT scan.

Metformin should also be stopped in chronic kidney disease if the creatinine is > 150 mmol/l (or eGFR < 30 ml/min).

Question:

A mother brings her son in to surgery as she suspects he has a squint. She thinks his right eye is 'turned inwards'. You perform a cover test to gather further information. Which one of the following findings would be consistent with a right esotropia?

A.On covering the left eye the right eye moves medially to take up fixation

B.The cover test could not be used to identify this type of defect

C.On covering the left eye the right eye moves laterally to take up fixation

D.On covering the right eye the left eye moves laterally to take up fixation

E.On covering the right eye the left eye moves medially to take up fixation

Answer:On covering the left eye the right eye moves laterally to take up fixation

Explanation:

Squints may be classified as to where the eye deviates toward

the nose: esotropia

temporally: exotropia

superiorly: hypertropia

inferiorly: hypotropia

On covering the left eye in this example the right eye moves laterally from the nasal (esotropic) position to take up fixation.

Question:

A 45-year-old woman presents to the emergency department with a 2-day history of left-sided facial droop. She denies any limb weakness, visual disturbance, or difficulty swallowing. She reports noticing that when she speaks, she finds her voice loud and distorted. On examination, there is left facial paralysis and the patient is unable to raise her eyebrow. Peripheral neurological examination is unremarkable. Her only past medical history is migraine and anxiety. She has no known drug allergies.

What is the most appropriate first-line medical management?

A.Intravenous hydrocortisone

B.Oral aciclovir

C.Oral aspirin

D.Oral prednisolone

E.Oral sumatriptan

Answer:Oral prednisolone

Explanation:

All patients with a Bell's palsy should be given oral prednisolone within 72 hours of onset

Important for meLess important

This woman is presenting with a lower motor neuron facial palsy (as there is forehead involvement) alongside hyperacusis - this is in keeping with Bell's palsy and should be managed with oral prednisolone as she is presenting within 72 hours of symptom onset. This woman appears to be systemically well and can be discharged to complete a 10-day course of steroids (or a high-dose course for 5 days with a subsequent reducing regime).

Intravenous hydrocortisone is not the preferred corticosteroid management for patients with Bell's palsy. This is due to the necessity to administer the steroids for a 10-day course. It would be inappropriate to keep a patient who is otherwise well in hospital for 10 days only to administer corticosteroids intravenously when oral management has been proven to be as effective in clinical trials.

Aciclovir is an antiviral that is used in the management of herpes zoster. Current NICE guidelines do not recommend the use of antivirals alone or antivirals combined with corticosteroids in the management of Bell's palsy. This is due to insufficient evidence that either of these options is superior to the administration of corticosteroids only.

Oral aspirin would be used in the long-term management of an ischaemic stroke. It is not recommended for management during a suspected stroke or before imaging due to the risk of a haemorrhagic stroke being present rather than an ischaemic stroke. As this patient has forehead involvement, it is unlikely to be a stroke. This is due to a stroke being an upper motor neuron lesion that causes forehead sparing (while Bell's palsy is a lower motor neuron lesion).

Sumatriptan is given in the management of migraine. While this patient has a history of migraines, her presentation today is not consistent with migraines (which usually have symptoms of headache, nausea, and photophobia).

Question:

An 80-year-old man attends the Emergency Department with chest pain. He describes it as having a tearing quality. At initial triage, his blood pressure is 190/110 mmHg.

On examination, the patient is sweaty and in pain. Chest auscultation and heart sounds are normal. His blood pressure remains elevated. The abdomen is soft and non-tender.

Intravenous morphine is given and he undergoes a CT angiogram.

CT angiogram dissection of the descending thoracic aorta

What is the next stage in management?

A.Anticoagulation

B.Blood pressure control

C.Interventional radiology stenting

D.Palliative care

E.Transfer to a centre for vascular surgery

Answer:Blood pressure control

Explanation:

An uncomplicated dissection of descending aorta may be managed medically

Important for meLess important

The answer is blood pressure control. Most dissections of the descending aorta can be managed medically. The tear has been caused by shear stress of the wall by hypertension.

Anticoagulation is not a primary feature of managing dissections. There remains a discussion of whether or not it adversely affects outcomes. Anticoagulation would be used if the pain was attributable to a pulmonary embolus.

Radiological stenting is not the usual management of the descending thoracic aorta. Abdominal aortic aneurysms are commonly stented.

Palliative care is not indicated from the scenario given here. However, pain control is important and will help facilitate blood pressure control.

The initial management of dissections of the descending thoracic aorta is with blood pressure control. If there is a failure of treatment the patient could be referred for surgical intervention.

Question:

A 21-year-old woman presents for her dating scan after discovering she was pregnant 6 weeks ago, following a urinary pregnancy test.

Her ultrasound shows the pregnancy is extra-uterine and is located in her left fallopian tube. It is 20mm in size, is unruptured and has no cardiac activity.

She is currently reporting no symptoms, including no bleeding, cramping, vomiting or systemic symptoms her vitals are normal.

Her blood test results are as follows:

β-hCG Today 740 IU/L

β-hCG 1 week ago (Booking Appointment) 940 IU/L

There is no past medical history of note.

What is the most appropriate management to offer her?

A.Admit for 48 hours for 12-hourly β-hCG monitoring

B.Give safety netting advice and ask to return in 48 hours for serum β-hCG levels

C.Perform left salpingectomy

D.Perform left salpingotomy

E.Prescribe oral mifepristone and vaginal misoprostol

Answer:Give safety netting advice and ask to return in 48 hours for serum β-hCG levels

Explanation:

Expectant management of an ectopic pregnancy can only be performed for

1) An unruptured embryo

2) <35mm in size

3) Have no heartbeat

4) Be asymptomatic

5) Have a B-hCG level of <1,000IU/L and declining

Important for meLess important

This woman has an ectopic pregnancy. There is no cardiac activity, and it is small in size (<35mm). There are currently no symptoms or signs of rupture, and it appears the pregnancy is ending naturally, as shown by the decline in β-hCG level. She is a healthy woman, and therefore expectant management would be possible. This involves being given instructions to look out for any worrying symptoms such as pain or bleeding, and to return for a further blood test to confirm that β-hCG levels are still declining. Therefore, the correct answer is to provide safety netting advice and ask to return in 48 hours for serum β-hCG levels.

Admitting for 48 hours for 12-hourly β-hCG monitoring is not the most appropriate option. Whilst this would not be an unsafe plan, this woman is suitable for home management. There is no sign that this woman is currently unwell, or that she will need hospital intervention in the next 48 hours, and therefore she does not need to be admitted to the hospital.

Performing a left salpingectomy is inappropriate. There is no indication that this ectopic is severe enough to warrant the removal of her fallopian tube. She has no concerning features suggesting that surgical management is necessary, such as ruptured ectopic.

Performing a left salpingotomy is inappropriate. This woman can be better managed by expectant management. Surgical management may be indicated for a large (>35 mm) embryo, and may have cardiac activity. It would also be indicated with a higher β-hCG level or significant symptoms.

Prescribing oral mifepristone and vaginal misoprostol is inappropriate. This would be the recommended medical management of an ectopic pregnancy. Since this woman has no symptoms at all, and a low and declining β-hCG level, she can be managed with expectant management.

Question:

A 22-year-old woman presents with lethargy, pyrexia and headaches. She is a student and returned from a holiday in Ibiza ten days ago. These symptoms have been present for the past six days and she is wondering whether she may need an antibiotic. She also has a history of menorrhagia and is concerned that she may be anaemic. Clinical examination reveals a temperature of 37.9ºC and marked cervical lymphadenopathy. You order a full blood count which is reported as follows:

Hb 12.1 g/dl

Platelets 189 \* 109/l

WCC 13.1 \* 109/l

Neutrophils 5.2 \* 109/l

Lymphocytes 6.2 \* 109/l

Film Atypical lymphocytes seen

What is the most likely diagnosis?

A.Acute lymphoblastic leukaemia

B.Hashimoto's thyroiditis

C.Infectious mononucleosis

D.HIV seroconversion

E.Septicaemia secondary to streptococcal throat infection

Answer:Infectious mononucleosis

Explanation:

Atypical lymphocytes - ?glandular fever

Important for meLess important

Question:

A 15-year-old boy is brought for review by his mother due to a recurrent discharge from his right ear. He also feels that his hearing is worse on that side. As a child he had glue ear treated with grommets but his symptoms settled by the age of 6 years and the mother thinks the grommets fell out by themselves at some point. He is otherwise fit and well. Otoscopy shows the following:

What is the most likely diagnosis?

A.Normal tympanic membrane with small amount of wax

B.Chronic suppurative otitis media

C.Bullous myringitis

D.Cholesteatoma

E.Retained grommet

Answer:Cholesteatoma

Explanation:

Question:

A 26-year-old patient is currently under investigation for a diagnosis of multiple sclerosis (MS).

Which baseline investigation is most appropriate?

A.MRI brain with contrast

B.Brain biopsy

C.Blood tests for oligoclonal bands

D.MRI brain without contrast

E.Serum testing for JC virus titres

Answer:MRI brain with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

For this patient to fulfil the McDonald criteria for diagnosis she would need to show dissemination in space and time. The investigation most likely to demonstrate this would be MRI with contrast which would show currently enhancing new lesions allowing the criteria of 'dissemination in time' to be fulfilled.

MRI brain (non-contrast) would allow dissemination in space to be fulfilled but could not show dissemination in time on first MRI. Non-contrast MRI is often used for monitoring in disease-modifying therapies.

Brain biopsy would not be useful for this patient as it does not form part of the McDonald diagnostic criteria for MS.

Oligoclonal band testing would need to be matched with a CSF sample to be significant and oligoclonal band testing does not have to be positive for diagnosis.

The JC virus testing would be used when starting patients on certain disease-modifying treatments such as natalizumab as this virus is responsible for progressive multifocal leukoencephalopathy which can be reactivated as a rare side effect of some disease-modifying therapies.

Question:

A 5-year-old child presents with his mother to his GP. His mum is concerned as she has noticed some skin changes which started last week. The lesions are itchy but not painful. There is no past medical history of note except asthma.

On examination, you see the following skin lesion behind the child's knee:

© Image used on license from DermNet NZ

What is the best treatment option?

A.Apply cryotherapy

B.Prescribe a weak topical steroid to be used daily for one week, then review

C.Prescribe permethrin cream to be used by the child and all members of his household

D.Supportive care only and advise that the child can continue attending school

E.Supportive care only and advise to keep the child off school until all lesions have disappeared

Answer:Supportive care only and advise that the child can continue attending school

Explanation:

This child has molluscum contagiosum. This skin condition is caused by a pox virus and can be identified by its raised, pearly white, and umbilicated lesions. Supportive care is the mainstay of treatment for this condition, although specialist treatment may be required if the patient is immunocompromised. This condition normally clears up on its own within 18 months. Time off school is not necessary but, as the condition is infectious, it is advised to avoid sharing baths, towels, or clothing with others to prevent transmission.

Cryotherapy is not an appropriate management for molluscum contagiosum. There are multiple lesions. It may be used for cutaneous warts or veruccae.

Use of a weak topical steroid is not indicated for the treatment of molluscum contagiosum. In immunocompromised individuals with molluscum contagiosum other topical treatments such as imiquimod or potassium hydroxide may be used.

Permethrin is prescribed to treat scabies rather than molluscum contagiosum. Scabies would present with different skin lesions to molluscum contagiosum. Lesions often appear between the fingers, with visible burrowing and silver lines that progress to red raised spots.

As aforementioned, children with molluscum contagiosum can attend school. To prevent transmission they are instead advised to cover lesions with clothing or bandage where possible, avoid picking the lesions, and not to share towels with other individuals.

Question:

A 29-year-old female presents to her GP as she missed her Micronor pill (progestogen-only) this morning and is unsure what to do. She normally takes the pill at around 08:30 and it is now 10:00. What advice should be given?

A.Take missed pill now and no further action needed

B.Emergency contraception should be offered

C.Take missed pill now and advise condom use until pill taking re-established for 48 hours

D.Take missed pill now and omit pill break at end of pack

E.Perform a pregnancy test

Answer:Take missed pill now and no further action needed

Explanation:

Question:

A 28-year-old man is diagnosed with having ankylosing spondylitis. He presented with a six month history of back pain. On examination there is reduced lateral flexion of the spine but no evidence of any other complications. Which one of the following is he most likely to offered as first-line treatment?

A.Exercise regime + NSAIDs

B.Exercise regime + infliximab

C.Physiotherapy + sulfasalazine

D.Physiotherapy + etanercept

E.Exercise regime + paracetamol

Answer:Exercise regime + NSAIDs

Explanation:

Exercise regimes and NSAIDs are the 1st line management for ankylosing spondylitis

Important for meLess important

The anti-TNF drugs are currently only used for patients with severe ankylosing spondylitis which has failed to respond to NSAIDs.

Question:

A 78-year-old man presents with a lesion on his right cheek. This has slowly been getting larger over the past 6-7 months. He has no history of skin problems and the only past medical history of note is osteoarthritis of the knee and depression.

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Amelanotic malignant melanoma

B.Basal cell carcinoma

C.Keratoacanthoma

D.Squamous cell carcinoma

E.Actinic keratosis

Answer:Squamous cell carcinoma

Explanation:

Don't be fooled into thinking this is a basal cell carcinoma (BCC) by the presence of telangiectasia near the lesion. With BCC's these are generally found on the rolled edges of the lesion rather than being scattered around the periphery.

Question:

A 72-year-old woman goes to the optician as her daughter has told her that people over 70 can get a free eye test. She is long-sighted and has worn glasses for all of her adult life. Her GP recently told her that she has pre-diabetes, but she feels well and hasn't noticed any problems with her eyes. The optometrist carries out an eye pressure test and finds that she has high intraocular pressure. She tells the woman that she requires a referral to a specialist for further tests.

Given the likely diagnosis, what symptom is she most likely to experience?

A.Cloudy vision

B.Colour blindness

C.Dry eyes

D.Intense eye pain

E.Reduced peripheral vision

Answer:Reduced peripheral vision

Explanation:

Glaucoma primarily causes visual field defects

Important for meLess important

This patient has open-angle glaucoma, which primarily affects peripheral vision. Visual field defects develop slowly over many years and patients may not be aware of any problems with their eyesight until their vision is formally tested as the peripheral field is covered by the other eye's field of vision. Patients with open-angle glaucoma are unlikely to notice their visual loss until foveal vision is affected, by which point up to 90% of the optic nerve fibers may have been irreversibly damaged. The patient in this scenario is at increased risk of developing glaucoma due to her age, pre-diabetes, and the raised intraocular pressure detected by the optometrist. Normal intraocular pressure is 10-21 mmHg. Raised intraocular pressure is due to impaired drainage of aqueous fluid within the eye.

Intense eye pain is more likely caused by closed-angle glaucoma, where intraocular pressure builds up very quickly. In this case, the patient is asymptomatic and therefore is unlikely to have this more acute form of glaucoma. Other symptoms of closed-angle glaucoma include red eye, headache, seeing halos around lights, and nausea. Patients classically have a mid-dilated pupil on examination.

Cloudy vision is more likely to be caused by cataracts. Whilst persistently elevated blood glucose levels can accelerate the development of cataracts, the patient has no other features to suggest this is the diagnosis and this is also incorrect.

Open-angle glaucoma can sometimes cause colour blindness, but it much more commonly affects the visual fields and so this is not the correct answer.

Open-angle glaucoma does not cause dry eyes, although the two conditions often co-occur in older people. Dry eyes can also be caused by auto-immune conditions such as Sjogren's syndrome and systemic lupus erythematosus.

Question:

A 26-year-old man presents is seen in the clinic with a 7-month history of fever, cramping abdominal pain, bloating, and multiple episodes of diarrhoea. During this time, he has had unexplained weight loss and has noticed ulcers in his mouth. He has no other past medical history and does not smoke.

Given the likely diagnosis, what is the most commonly affected site?

A.Caecum

B.Ileum

C.Rectum

D.Sigmoid colon

E.Transverse colon

Answer:Ileum

Explanation:

The ileum is the most common site affected by Crohn's disease

Important for meLess important

Cramping abdominal pain, fever, and diarrhoea suggest a diagnosis of inflammatory bowel disease (IBD), which consists of Crohn's disease (CD) and ulcerative colitis (UC). The two can be differentiated based on the patient's presentation. The presence of weight loss and mouth ulcers make CD more likely, as it can affect the gastrointestinal tract anywhere from the mouth to the anus, whereas UC only affects the colon and rectum. CD can have bloody diarrhoea, however, this is less frequent than UC.

Ileum is correct as since this patient is more likely to have CD, which most commonly affects the ileum. This explains why patients can have weight loss in CD as inflammation at the ileum can lead to malabsorption.

Caecum is incorrect as this is less commonly affected in CD compared to the ileum. UC does not typically involve the caecum and is the less likely diagnosis in this patient as mentioned above.

Rectum is incorrect as this is the most common site affected by UC, giving rise to bloody stools. Since this patient has had weight loss and mouth ulcers, and no bloody diarrhoea, CD is more likely to be the diagnosis than UC as mentioned above.

Sigmoid colon and transverse colon are incorrect as these are less commonly affected in CD compared to the ileum. Although these can be affected by UC, the most common site affected by UC is the rectum. The presence of mouth ulcers, weight loss, and no bloody diarrhoea makes CD more likely than UC.

Question:

A 32-year-old woman presents to the emergency department with persistent diarrhoea after eating some undercooked chicken three days previously. On questioning, she has not been vomiting but has some mild abdominal pain. She has not noticed any blood or mucus in their stool. An arterial blood gas is taken as part of their investigations.

What is the most likely disorder of acid-base balance seen on arterial blood gas?

A.Mixed metabolic and respiratory acidosis

B.Normal anion gap metabolic acidosis

C.Normal anion gap metabolic alkalosis

D.Raised anion gap metabolic acidosis

E.Raised anion gap metabolic alkalosis

Answer:Normal anion gap metabolic acidosis

Explanation:

Diarrhoea - normal anion gap metabolic acidosis

Important for meLess important

The answer is a normal anion gap metabolic acidosis. This woman has increased gastrointestinal loss of bicarbonate from prolonged diarrhoea. The increased loss of bicarbonate results in the loss of alkalotic ions, leaving the blood in an acidotic state. This is a metabolic acidosis as carbon dioxide plays no role in the pH state. It is a normal anion gap as acidosis is not a result of acidotic ion production, such as lactate, ketosis, or salicylate acid.

Mixed metabolic and respiratory acidosis is incorrect. We do not have any information in the question to indicate hypoventilation, so there is not an excess of carbon dioxide in the blood, meaning this cannot be a respiratory acidosis. The reasons for this being a metabolic acidosis are above.

Normal anion gap metabolic alkalosis is incorrect. There is an increased loss of alkaline bicarbonate ions from this woman's diarrhoea, so the resultant disturbance is acidosis, not alkalotic. This disturbance is metabolic as opposed to respiratory, as there is no irregularity in carbon dioxide regulation.

Raised anion gap metabolic acidosis is incorrect. Causes of a raised anion gap include lactic acidosis, uric acidosis and ketoacidosis. The anion gap is raised in these cases because there is an additional acidotic ion now present. In this scenario, the bicarbonate is excreted during persistent diarrhoea which is the cause of the acidosis and normal anion gap.

Raised anion gap metabolic alkalosis is incorrect. There is increased loss of bicarbonate from the woman's diarrhoea, which is alkaline, so the resultant disturbance is acidosis. There is no excess acid being produced in the body (eg. lactate or ketones), so the anion gap would not be raised in this patient.

Question:

You are working in the emergency department when a nurse approaches you concerned about a new patient that has been brought into resus. He is complaining of pleuritic chest pain and is severely dyspnoeic and tachypnoeic. On examination, he is found to have tracheal deviation to the right, hyper-resonance and reduced breath sounds on the left.

His basic observations are: a temperature of 37.2ºC, oxygen saturations 93% on air, blood pressure 85/58 mmHg, respiratory rate 28 breathes/min, heart rate 140 beats/min, pain score 8/10.

Other than findings on respiratory examination, which observation makes the diagnosis of tension pneumothorax more likely than simple pneumothorax?

A.Blood pressure

B.Oxygen saturations

C.Pain score

D.Respiratory rate

E.Temperature

Answer:Blood pressure

Explanation:

Hypotension will occur in tension pneumothoraces as a result of cardiac outflow obstruction

Important for meLess important

Tension pneumothorax is a medical emergency and presents with signs of shock. Respiratory examination would show tracheal deviation away from the side of the pneumothorax.

Blood pressure - correct. The patient will be hypotensive due to the expanding pleural space obstructing cardiac outflow. This does not occur in simple pneumothoraces.

Oxygen saturations - despite the possibility that young, fit patients suffering from a simple pneumothorax may be asymptomatic, hypoxia can be present in both situations.

Pain score - it is more likely that a patient suffering from a tension pneumothorax would be in more pain, it is a subjective measure in assessing patient state.

Respiratory rate - both situations are likely to cause dyspnoea and subsequent tachypnoea.

Temperature - both situations are unlikely to present with temperature change.

Question:

You are reviewing an 82-year-old patient who is an inpatient on the medical ward, who was admitted after falling at home 3-weeks ago. He suffers from urinary incontinence and as such has a permanent indwelling catheter. Whilst reviewing the patient's notes, you see they had a urine culture performed 3-days ago which showed the presence of bacteria in his urine. He denies any current urinary symptoms.

What is the most appropriate management of this patient's urinary tract infection (UTI)?

A.Leave catheter in-situ and perform follow up urine culture in 7 days

B.Leave catheter in-situ and prescribe nitrofurantoin 100mg twice daily for 7 days

C.No treatment required

D.Remove catheter and prescribe nitrofurantoin 100mg twice daily for 3 days

E.Remove catheter and prescribe nitrofurantoin 100mg twice daily for 7 days

Answer:No treatment required

Explanation:

Do not treat asymptomatic bacteria in catheterised patients

Important for meLess important

The correct answer is no treatment required.

This catheterised patient has developed an asymptomatic bacteriuria, which is very common amongst catheterised patients. As this very rarely leads to serious sequelae, it should not be treated with antimicrobials.

Leave catheter in-situ and perform follow up urine culture in 7 days is incorrect, as asymptomatic bacteriuria in catheterised patients should not be treated, performing a follow-up urine culture will not change management of the patient and therefore should not be performed.

Leave catheter in-situ and prescribe nitrofurantoin 100mg twice daily for 7 days as asymptomatic bacteriuria in catheterised patients should not be treated.

Remove the catheter and prescribe nitrofurantoin 100mg twice daily for 3 days is incorrect as the patient is urinary incontinent and needs the catheter. Please note, nitrofurantoin 100mg twice daily for 3 days is the antimicrobial management of a lower UTI in a non-pregnant woman.

Remove the catheter and prescribe nitrofurantoin 100mg twice daily for 7 days is incorrect as the patient is urinary incontinent and needs the catheter. Please note, nitrofurantoin 100mg twice daily for 7 days is the antimicrobial management of a lower UTI in men and pregnant women.

Question:

A 31-year-old woman is invited for routine cervical smear. She is subsequently telephoned by the practice, informing her that the laboratory reported the sample as 'inadequate', and is invited back for a repeat smear. Once again, she is telephoned to inform her that this sample was also reported as 'inadequate' by the laboratory.

What should the next step be?

A.Refer for colposcopy

B.Refer to gynaecology

C.Request the laboratory perform high-risk human papilloma virus (hrHPV) testing

D.Repeat smear in 1 month

E.Repeat smear in 3 months

Answer:Refer for colposcopy

Explanation:

Cervical cancer screening: if two consecutive inadequate samples then → colposcopy

Important for meLess important

The correct answer is to refer for colposcopy - this should be done if two consecutive samples are 'inadequate'.

Repeating a smear in 1 month, or 3 months, is thus incorrect, as two samples have already been taken, and both have been inadequate.

Requesting the laboratory perform hrHPV testing is futile if the sample is inadequate.

Referring to gynaecology would be inappropriate - rather, a referral for colposcopy should be done.

Question:

An FY1 doctor working in the acute medical team has recently been found to be HIV positive following a routine sexual health screen. In her opinion the risk of transmission to patients is very low since she is not involved in any exposure prone procedures. What is the most suitable course of action?

A.Wait until her viral load is non-detectable before returning to work

B.Make no changes to work since in her opinion the risk is negligible

C.Consult occupational health

D.Ask human resources to move her to another position

E.Carry out further research into the risks before coming to an assessment

Answer:Consult occupational health

Explanation:

Question:

A 75-year-old man has progressively worsening vision in both eyes. He is finding it difficult to read and make out faces, and has fallen multiple times as edges of objects such as stairs are difficult to discern. A slit-lamp examination shows amber retinal deposits but no signs of neovascularisation.

There is a past medical history of hypertension and type 2 diabetes mellitus and takes amlodipine and metformin. He has smoked 30 cigarettes a day for the past 40 years but does not drink alcohol.

Given the likely diagnosis, which treatment option is best for this patient?

A.Intravitreal anti-VEGF agents

B.Laser photocoagulation

C.Omega 3 and 6 supplementation

D.Prostaglandin analogue eyedrops

E.Vitamins C+E and beta-carotene supplementation

Answer:Vitamins C+E and beta-carotene 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

Vitamins C+E and beta-carotene supplementation is correct. This patient is presenting with features suggestive of dry age-related macular degeneration (dry AMD) as they are of older age, struggling more with their central vision, and have metamorphopsia (where shapes of objects appear distorted). The slit-lamp examination confirms dry AMD due to the presence of drusen (amber retinal deposits) and the lack of neovascularisation. The AREDS trial has demonstrated that antioxidant and vitamin supplementation can reduce the progression of dry AMD by around 1/3 compared to those with no supplementation. These vitamins and minerals are vitamins C, E, beta-carotene, zinc oxide, and copper. There is, unfortunately, no definite cure for dry AMD at this point in time.

Intravitreal anti-VEGF agents is incorrect. These are used in the management of wet AMD to prevent new vessels from growing. This patient does not have wet AMD as there is no neovascularisation present on slit-lamp examination.

Laser photocoagulation is incorrect. This is another option for wet AMD, but anti-VEGF therapy is preferred due to the increased risk of visual loss after treatment. This patient does not have wet AMD as there is no neovascularisation present on slit-lamp examination.

Omega 3 and 6 supplementation is incorrect. These are not the vitamins and minerals associated with the treatment of dry AMD. These vitamins and minerals are vitamins C, E, beta-carotene, zinc oxide, and copper.

Prostaglandin analogue eyedrops is incorrect. This is used in the management of primary open-angle glaucoma (POAG) and does not play a role in the management of AMD. This patient's visual loss is more central than peripheral, making POAG a less likely diagnosis. As well as this, the presence of drusen (amber retinal deposits) makes dry AMD a more likely diagnosis.

Question:

A 21-year-old student attends your general practice clinic to discuss a recent positive pregnancy test result. Following lengthy discussion with her partner and family has decided that she wants an abortion. You find the consultation particularly difficult, as you do not personally agree with abortion and are currently caring for several patients who have been struggling to conceive. What should you do?

A.Discuss her options and explain that due to your personal beliefs, you will arrange for her to see another doctor in this instance who will make necessary arrangements

B.Explain your views regarding abortion and list the reasons as to why you feel this way, advising her to make an appointment with a different GP

C.Explain that she should discuss the matter with her family further to ensure she does not make a decision she may regret

D.Explain that whilst her choice is not something you approve of, you will organise the next steps and arrange appropriate referral

E.Explain your views, arranging for her to see another GP and recommending that she makes all future appointments with this doctor from now on

Answer:Discuss her options and explain that due to your personal beliefs, you will arrange for her to see another doctor in this instance who will make necessary arrangements

Explanation:

Good Medical Practice (2013) states the following information, relevant to the scenario above:

You must explain to patients if you have a conscientious objection to a particular procedure. You must tell them about their right to see another doctor and make sure they have enough information to exercise that right.

In providing this information you must not imply or express disapproval of the patients lifestyle, choices or beliefs.

You must not unfairly discriminate against patients or colleagues by allowing your personal views\* to affect your professional relationships or the treatment you provide or arrange.

Whilst both options 1, 2, 4 and 5 all encompass a degree of explanation, options 2, 4 and 5 also suggest a degree of disapproval or influence on the care you are providing to the patient, and so are inappropriate. As the scenario indicates the patient has had a period of time to discuss and consider her decision, option 3 is inappropriate and may cause unnecessary delays.

References:

General Medical Council. Good Medical Practice. London: General Medical Council, 2013. p. 18-20.

Question:

A 45-year-old G3P2 is brought to the emergency department by the paramedics after she suffered a generalized tonic-clonic seizure. Her blood pressure was found to be 190/125 mmHg. The paramedics obtained IV access and also administered intramuscular magnesium sulfate to treat her seizures. She was then put on an IV infusion of magnesium sulfate. On her arrival to the accident and emergency department, her respiratory rate is found to be 10 breaths per minute. You suspect this might be a case of respiratory depression secondary to magnesium sulfate.

What is the drug of choice for reversing respiratory depression caused by magnesium sulphate?

A.Bicarbonates

B.Flumazenil

C.Calcium gluconate

D.Naloxone

E.Zopiclone

Answer:Calcium gluconate

Explanation:

Calcium gluconate is first-line treatment for magnesium sulphate induced respiratory depression

Important for meLess important

Bicarbonates are used to prevent cardiovascular complications as a result of tricyclic antidepressants overdose.

Flumazenil is used in benzodiazepine overdose.

Calcium gluconate is the choice of drug for reversing respiratory depression caused by magnesium sulfate.

Naloxone is used to reverse respiratory depression secondary to opioid overdose.

Zopiclone is a hypnotic agent used to treat insomnia.

Question:

A 79-year-old male is diagnosed with upper rectal cancer. The malignancy is localised and the team decides to perform an anterior resection to excise it.

The surgeon thinks that to obtain an optimal result in the long term it is necessary to temporarily defunction the colon to protect the colorectal anastomosis.

Which is the most appropriate type of stoma?

A.End colostomy

B.End ileostomy

C.Gastrostomy

D.Loop ileostomy

E.Loop jejunostomy

Answer:Loop ileostomy

Explanation:

A loop ileostomy can be used to defunction the colon to protect an anastomosis

Important for meLess important

The correct answer is a loop ileostomy. This procedure involves taking a loop of ileum, performing a horizontal incision and bring it up to the skin. It is indicated to defunction the colon, for example, after rectal cancer surgery. Eventually, it can be reversed.

An end colostomy is performed when the colon is diverted or resected and anastomosis is not primarily achievable or desirable. It involves bringing the distal part of the colon up to the skin.

An end ileostomy is usually done following complete excision of colon or where ileocolic anastomosis is not planned. It may be used to defunction the colon, but a reversal is more difficult.

A gastrostomy is used for gastric decompression or feeding.

A loop jejunostomy is used as a very high output stoma. It may be used following emergency laparotomy with planned early closure.

Question:

Perinuclear antineutrophil cytoplasmic antibodies (pANCA) are most strongly associated with which condition?

A.Goodpasture's syndrome

B.Churg-Strauss syndrome

C.Polyarteritis nodosa

D.Granulomatosis with polyangiitis

E.Autoimmune hepatitis

Answer:Churg-Strauss syndrome

Explanation:

cANCA = granulomatosis with polyangiitis; pANCA = eosinophilic granulomatosis with polyangiitis + others

Important for meLess important

Question:

A 48-year-old woman is admitted with severe loin pain associated with microscopic haematuria. An abdominal film demonstrates a renal stone:

© Image used on license from Radiopaedia

What is the most likely constituents of the stone?

A.Urate

B.Xanthine

C.Struvite (ammonium magnesium phosphate, triple phosphate)

D.Calcium oxalate

E.Calcium phosphate

Answer:Struvite (ammonium magnesium phosphate, triple phosphate)

Explanation:

This patient has a stag-horn calculus.

Question:

A 74-year-old man presents with sudden onset left arm weakness, dysphasia and a left-sided facial droop which started one hour ago.

He has a background of hypertension, type 2 diabetes mellitus and hypercholesterolaemia. He lives with his wife and is usually independent of all activities of daily living, regularly playing golf with friends.

On examination, he has increased tone and 2/5 power throughout his left arm. His National Institutes of Health Stroke Scale (NIHSS) score is 9.

CT head shows an ischaemic lesion in the right hemisphere without evidence of haemorrhagic transformation. Magnetic resonance angiography confirms occlusion of the proximal anterior circulation.

What is the best next step in management?

A.Clopidogrel

B.Intravenous heparin

C.Modified-release dipyridamole

D.Thrombolysis

E.Thrombolysis and thrombectomy

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

NICE updated their guidelines for stroke in 2019. One of the most recent developments has been the recommendation to offer thrombectomy, together with thrombolysis, for patients who have a confirmed occlusion of the proximal anterior circulation on imaging. NICE have also made recommendations to use a modified Rankin score of less than 3 and a National Institutes of Health Stroke Scale (NIHSS) score of more than 5 when considering the selection of patients for mechanical thrombectomy.

This patient has a good premorbid status and an NIHSS score of 9. He would thus meet the criteria for a combination of thrombolysis and thrombectomy. For patients presenting within 4.5 hours and not meeting these criteria, thrombolysis is still recommended – provided there are no contraindications and haemorrhagic stroke has been excluded on imaging.

Clopidogrel would be used for secondary prevention of stroke but not in the acute setting. If both aspirin and clopidogrel were contraindicated or not tolerated, dipyridamole could be used for this purpose.

Intravenous heparin has a number of uses, including the treatment of venous thrombosis and acute peripheral arterial occlusion. It is no longer used in the acute management of ischaemic stroke, however, as it is associated with an increased risk of cerebral and systemic bleeding.

Question:

A 16-year-old male with sickle cell disease presents to sudden onset pain in his left thigh. He describes the pain as severe and says it woke him from sleep 1 hour ago. He has not taken any analgesia at home so far and otherwise feels well. The admitting team are concerned the patient may be experiencing a vaso-occlusive sickle-cell crisis.

What further information, if any, is needed to confirm the diagnosis of a vaso-occlusive crisis?

A.D-dimer to confirm activation of the coagulation cascade

B.Full blood count to confirm a drop in haemaglobin

C.No additional testing is needed to confirm a vaso-occlusive crisis

D.Trial of paracetamol and ibuprofen to confirm that the pain is not responsive to simple analgesia

E.Venous blood gas to confirm a raised lactate

Answer:No additional testing is needed to confirm a vaso-occlusive crisis

Explanation:

In sickle-cell, acute painful vaso-occlusive crises should be diagnosed clinically

Important for meLess important

An acute, painful vaso-occlusive crisis is a clinical diagnosis and therefore, no test is needed to establish the diagnosis. Of course, blood tests are important for the exclusion of other diseases or sickle cell crises.

Simple acute painful vaso-occlusive crises should be managed with appropriate analgesia for the patient. The patient should also be stabilised and closely monitored for complications. The frequency of attacks can be reduced with hydroxycarbamide.

D-dimer to confirm activation of the coagulation cascade is incorrect. This is a non-specific marker of coagulation cascade activation. It plays no role in the diagnosis of a vaso-occlusive crisis. It may be useful as a rule-out test when there is a clinical suspicion of thromboembolic disease but a lack of enough clinical evidence to make an adequate diagnosis (e.g. in settings of suspected PE with mid-to-low Well's score).

Full blood count to confirm a drop in haemaglobin. A drop in haemaglobin will be seen in all sickle cell crises so is not specific to a vaso-occlusive crisis. It should be performed in all patients with sickle cell who are presenting unwell.

Trial of paracetamol and ibuprofen to confirm that the pain is not responsive to simple analgesia is incorrect. The patient is in severe pain, which should be managed with strong analgesia such as opiates. The pain being responsive to simple analgesia would not exclude a vaso-occlusive crisis.

Venous blood gas to confirm a raised lactate is incorrect. Infarction would be expected to raise lactate, however, it is a non-specific marker and may be raised in multiple sickle cell crises. While is may be a useful marker of end-organ perfusion, and should be measured in patients who are unwell and displaying signs of shock, it is not diagnostic of a vaso-occlusive crisis.

Question:

A 35-year-old man requests testing for HIV (human immunodeficiency virus). He has recently discovered that his former partner has been diagnosed with AIDS (acquired immune deficiency syndrome). The last time he had sexual intercourse with his former partner was two years ago. He is currently fit and well and is asymptomatic.

What is the most appropriate management option?

A.Offer him testing for CD4 lymphocyte cell count and viral load

B.Offer him testing for HIV p24 antigen and HIV antibody

C.Offer him testing for full blood count

D.Testing is not required as he is asymptomatic

E.Urgent referral to a specialist HIV clinic

Answer:Offer him testing for HIV p24 antigen and HIV antibody

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 offer him testing for HIV p24 antigen and HIV antibody. Combination tests (HIV p24 antigen and HIV antibody) are now standard for diagnosing and screening HIV.

CD4 lymphocyte cell count and viral load are measured as part of monitoring for those with confirmed HIV infection. This patient does not have a confirmed diagnosis, therefore the option offer him testing for CD4 lymphocyte cell count and viral load is incorrect.

A full blood count may show features suggesting HIV such as lymphocytopenia. However, it is not a diagnostic test for HIV. NICE recommends offering an HIV test in primary care to those who:

Request testing

Have risk factors for HIV

Have another sexually transmitted infection

Have an AIDS-defining condition, an indicator condition, or clinical features of HIV infection.

Therefore, option offer him testing for full blood count is not the correct answer.

Human immunodeficiency virus (HIV) is a lentivirus from the subfamily of retroviruses. Lentiviruses have a long latent phase between infection and the development of symptoms. The duration of the asymptomatic phase varies widely among people with some progressing to advanced HIV disease within 1–2 years and others maintaining effective immune function more than 10 years later. Therefore, the option testing is not required as he is asymptomatic is incorrect.

Urgent referral to a specialist HIV clinic is required for those who are newly diagnosed with HIV infection. This patient does not have a diagnosis of HIV, therefore this option is incorrect.

Question:

A 31-year-old woman presents to her GP with severe dysmenorrhoea and deep dyspareunia. She has a regular menstrual cycle. She has no other medical or gynaecological history of note. On examination she has a fixed, retroverted uterus.

What is the most likely diagnosis?

A.Chlamydia

B.Ectopic pregnancy

C.Endometriosis

D.Ovarian cyst

E.Pelvic inflammatory disease

Answer:Endometriosis

Explanation:

The classic symptoms of endometriosis are pelvic pain, dysmenorrhoea, dyspareunia and subfertility

Important for meLess important

The symptoms described in this scenario suggest intra-pelvic pathology. A fixed, retroverted uterus alongside this patient's age are classic features of the presentation of endometriosis.

Chlamydia is often asymptomatic; some patients may present with dyspareunia but infection with chlamydia does not cause dysmenorrhoea.

Ovarian cysts can cause lower abdominal pain.

An ectopic pregnancy would typically cause lower abdominal pain. Patients are likely to be amenorrhoeic.

Pelvic inflammatory disease is more common in women under the age of 30, it is unlikely to cause dysmenorrhoea.

Question:

A 74-year-old woman is diagnosed with polymyalgia rheumatica after complaining of a 2-week history of proximal muscle pain and stiffness with raised inflammatory markers on blood tests.

A poor response to which medication below would prompt consideration of an alternative diagnosis?

A.Alendronic acid

B.Amitriptyline

C.Aspirin

D.Naproxen

E.Prednisolone

Answer:Prednisolone

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

Although alendronic acid is important to consider for bone protection with long term steroids, it will not make any symptomatic difference.

Amitriptyline is more useful in chronic or neuropathic pain as opposed to inflammatory disorders.

Aspirin and naproxen would be of some symptomatic benefit due to their anti-inflammatory properties, however, the response would be much less compared to prednisolone.

Question:

A 9-month-old baby is brought to the emergency department with a swollen finger. He appears to be in a lot of pain and is crying and writhing around. His past medical history is significant for a diagnosis of sickle cell disease.

On examination, his left ring finger is hot, tender and swollen. His vital signs are stable.

What is needed to confirm the likely diagnosis in this patient?

A.Anti-CCP

B.Coagulation screen

C.D-dimer

D.Hand ultrasound

E.No extra tests needed

Answer:No extra tests needed

Explanation:

In sickle-cell, acute painful vaso-occlusive crises should be diagnosed clinically

Important for meLess important

This boy has presented with a vaso-occlusive crisis of sickle cell disease. He is known to be affected and has a swollen digit (dactylitis), which is suggestive of vascular occlusion. Whilst other tests may be indicated to rule out infection or look at his haemoglobin levels, the diagnosis itself should be clinical only. Therefore the correct answer is that no extra tests are needed.

Anti-CCP is incorrect. This is a test for rheumatoid arthritis, which would not present in this way with dactylitis, or in this age group.

A coagulation screen is not necessary here. It is not thrombosis that is causing the vaso-occlusion, but it is instead red blood cells that have sickled. A coagulation screen would add little information. It may be done to rule out alternative diagnoses if there is uncertainty over the clinical picture.

D-dimer is also not necessary, as it is also involved in clotting. As explained above, the pathology here is not a clot, but it is instead a product of sickled red blood cells.

A hand ultrasound is incorrect. An ultrasound is unlikely to visualise any pathology in sickle cell, other than confirming the inflammation that is occurring. It is not recommended to ultrasound a suspected vaso-occlusive crisis of sickle cell disease.

Question:

A 56-year-old man presents to the emergency department with severe abdominal pain. He has a past medical history of atrial fibrillation and type 2 diabetes mellitus.

His observations on admission are: respiratory rate = 20/min, heart rate = 112/min, irregularly irregular, blood pressure = 134/97 mmHg, oxygen sats = 97%

An arterial blood gas sample is performed and shows the following:

pH 7.21

PaO2 10.3 kPa

PaCO2 3.4 kPa

HCO3 15.1 mmol/l

Lactate 7.1 mmol/l ( range: < 1 mmol/l)

What is the most likely diagnosis?

A.Diabetic ketoacidosis

B.Mesenteric ischaemia

C.Ruptured abdominal aortic aneursym

D.Metformin-induced lactic acidosis

E.Acute pancreatitis

Answer:Mesenteric ischaemia

Explanation:

This is a typical presentation of mesenteric ischaemia. Given the lactate value and the severity of the acidosis, an urgent surgical review is the most important thing to do in the first instance.

Metformin-induced lactic acidosis would not cause acute abdominal pain.

Question:

A 39-year-old woman who has a history of type 1 diabetes mellitus phones for advice as she is worried about her blood sugar level. What is the target blood sugar level before meals at other times of the day (excluding first thing in the morning)?

A.5-9 mmol/l

B.4-7 mmol/l

C.4-6 mmol/l

D.6-8 mmol/l

E.5-7 mmol/l

Answer:4-7 mmol/l

Explanation:

In type 1 diabetics, blood glucose targets:

5-7 mmol/l on waking and

4-7 mmol/l before meals at other times of the day

Important for meLess important

Question:

A 54-year-old female presents one week following a hip replacement with profuse diarrhoea. What is the most likely diagnosis?

A.Campylobacter

B.E. coli

C.Clostridium difficile

D.Salmonella

E.Staphylococcus aureus

Answer:Clostridium difficile

Explanation:

Clostridium difficile is the most likely cause as the patient would have been given broad-spectrum antibiotics at the time of the operation. NICE recommend that the following patients are given antibiotics to prevent surgical site infection:

clean surgery involving the placement of a prosthesis or implant

clean-contaminated surgery

contaminated surgery

surgery on a dirty or infected wound (requires antibiotic treatment in addition to prophylaxis)

Question:

You see a 13-year-old girl with her mother. She is normally completely fit and well and extremely active. She is a keen netball player and also enjoys dancing. She noticed a lump behind her right knee one week ago, it seemed to come on suddenly. She can't remember ever injuring her knee. It is not painful but her knee does feel 'tight'.

On examination, she has a round, soft fluctuant mass behind her right knee in the medial popliteal fossa. It is approximately the size of a tennis ball. The swelling feels tense in full knee extension and soften again or disappear when the knee is flexed. Flexion is slightly reduced.

What is the most likely diagnosis here?

A.Anterior cruciate ligament tear

B.Popliteal artery aneurysm

C.Rhabdomyosarcoma

D.Baker's cyst

E.Osgood–Schlatter disease

Answer:Baker's cyst

Explanation:

In a child with an asymptomatic, fluctuant swelling behind the knee the most likely diagnosis is a Baker's cyst

Important for meLess important

In a child with an asymptomatic, fluctuant swelling behind the knee the most likely diagnosis is a Baker's cyst. Therefore, option 4 is correct.

An anterior cruciate ligament tear would normally follow a twisting injury, it is likely to be painful and wouldn't commonly present with a lump in the popliteal fossa. Therefore, option 1 is wrong.

A popliteal artery aneurysm would be pulsatile and unlikely in this age group. Therefore, option 2 is incorrect.

A rhabdomyosarcoma is unlikely to be fluctuant and the patient may have other symptoms of systemic disease. It is unlikely to be asymptomatic. Therefore, option 3 is wrong.

Osgood–Schlatter disease causes anterior knee pain during adolescence. It is caused by multiple small avulsion fractures within the ossification centre of the tibial tuberosity at the inferior attachment of the patellar ligament. This patient does not have knee pain, therefore, option 5 is wrong.

Question:

A 45-year-old man presents to his general practitioner with dizziness and right-sided hearing loss. Since the onset of his symptoms, he has also noticed some right-sided facial numbness. He is FAST negative, however on cranial nerve examination he has an absent corneal reflex on the right and right sided sensorineural hearing loss. Ear examination is unremarkable. He is referred to the hospital for further investigation.

What is the likely diagnosis?

A.Guillain-Barre syndrome

B.Meningioma

C.Ramsay Hunt syndrome

D.Trigeminal neuroma

E.Vestibular schwannoma

Answer:Vestibular schwannoma

Explanation:

Cranial nerves V, VII and VIII are affected in vestibular schwannomas

Important for meLess important

Vestibular schwannoma (or acoustic neuroma) accounts for 80% to 90% of cerebellopontine angle tumours. This patient is presenting with symptoms affecting several of his cranial nerves. He has:

Vertigo and unilateral hearing loss indicating CN VIII involvement

Absent corneal reflex indicating CN V involvement

Unilateral facial numbness indicating CN VII involvement

Guillain-Barre syndrome typically presents with distal progressive weakness which moves proximally. It does not usually feature vertigo and hearing loss.

Meningioma may cause similar presenting symptoms and account for 5% to 10% of cerebellopontine angle tumours.

Ramsay Hunt syndrome is the reactivation of pre-existing Varicella Zoster virus in the geniculate ganglion. It can present with tinnitus, vertigo, facial paralysis, loss of taste, and dry eyes. In examination questions, there will commonly be references to tympanic membrane vesicles.

A trigeminal neuroma may cause trigeminal symptoms, such as facial numbness and absent corneal reflex but do not typically cause sensorineural hearing loss.

Question:

A 26-year-old woman presents to her GP with a three-day history of mild left iliac fossa pain. She also informs her GP that she stopped taking her oral contraceptives seven weeks ago due to side effects and has been amenorrhoeic for around two months. She has a pregnancy test undertaken in her GP, which comes back positive. You suspect she might have an ectopic pregnancy and refer her to the early pregnancy assessment unit.

What form of imaging would be the initial investigation of choice to confirm an ectopic pregnancy?

A.Abdominal ultrasound

B.Abdominal x-ray

C.CT scan

D.MRI scan

E.Transvaginal ultrasound

Answer:Transvaginal ultrasound

Explanation:

The investigation of choice for ectopic pregnancy is a transvaginal ultrasound

Important for meLess important

Transvaginal ultrasound is the correct answer as it is the recommended diagnostic imaging tool of choice for ectopic pregnancy and provides good diagnostic sensitivity.

Abdominal ultrasound can provide a wider field of view but has less diagnostic sensitivity in comparison to transvaginal ultrasound. However, it can be used to supplement a transvaginal ultrasound scan.

Abdominal x-ray would not provide good diagnostic sensitivity and can expose a potentially intrauterine pregnancy to radiation.

A CT scan would not be appropriate due to the amount of radiation exposure to a potentially viable intrauterine pregnancy.

MRI scan could be used as second-line if the diagnosis is equivocal but would not be the initial investigation of choice.

Question:

A 80-year-old lady presents with a 5 day history painful left sided neck swelling below the angle of the jaw. She also complains of a foul taste in her mouth. On examination, she has a temperature of 37.8ºC and a 4x5cm submandibular mass which is tender to palpation. There is associated tender lymphadenopathy. What is the most likely diagnosis?

A.Lymphadenitis

B.Viral parotitis

C.Sjogren's syndrome

D.Sialadenitis

E.Malignancy

Answer:Sialadenitis

Explanation:

This lady has sialadenitis - inflammation of the salivary gland likely secondary to obstruction by a stone impacted in the duct. The duct from the submandibular gland drain into the floor of the mouth and purulent discharge from this duct causes a foul taste in the mouth.

There are 3 main salivary glands:

the parotid glands are anterior and inferior to each ear

the submandibular glands lies below the angle of the jaw

the sublingual glands lie beneath the tongue

Disorders of these glands occur due to infection, inflammation, obstruction or malignancy.

Submandibular gland

Causes of swelling of this gland:

Obstruction: stone

Tumour: benign or malignant

Question:

Which one of the following statements regarding Perthes disease is incorrect?

A.Typically affects children between the ages of 4-8 years

B.Complications include premature fusion of the growth plates

C.Due to avascular necrosis of the femoral head

D.Twice as common in girls

E.10% of cases are bilateral

Answer:Twice as common in girls

Explanation:

Question:

Shona is a 40-year-old woman presenting with a new persistent itch and ongoing fatigue. Her fatigue has been ongoing for the past 3 months but had recently noticed a generalized itch across her entire body over the last 2 weeks. She recalled that she was given flucloxacillin 2 weeks ago for cellulitis.

She has not noticed any fevers recently. Her urine colour was normal but she has noticed her stool appears paler than usual. Examination revealed mild jaundice on her sclera. Abdominal examination was unremarkable.

Her blood tests are as follow:

Bilirubin 40 µmol/L (3 - 17)

ALP 250 u/L (30 - 100)

ALT 60 u/L (3 - 40)

AST 65u/L (5-40)

γGT 130 u/L (8 - 60)

Albumin 33 g/L (35 - 50)

Further blood tests revealed that she has elevated IgM levels. Viral hepatitis serology was negative. Autoantibody testing revealed:

Anti-smooth muscle Negative

Anti-mitochondrial Positive

Anti-liver/kidney microsomal Negative

What is the underlying diagnosis?

A.Autoimmune hepatitis

B.Drug-induced liver injury

C.Viral hepatitis

D.Primary biliary cholangitis

E.Primary sclerosing cholangitis

Answer:Primary biliary cholangitis

Explanation:

Primary biliary cholangitis - the M rule

IgM

anti-Mitochondrial antibodies, M2 subtype

Middle aged females

Important for meLess important

The combination of a young woman presenting with cholestatic liver dysfunction along with positive anti-mitochondrial antibody testing is highly suspicious for primary biliary cirrhosis (PBC). PBC is an autoimmune condition that results in the destruction of the bile ducts within the liver. It is often associated with anti-mitochondrial antibodies and raised IgM levels. It is managed with antipruritics and ursodeoxycholic acid.

Autoimmune hepatitis is incorrect as this will typically be associated with a hepatitis liver dysfunction on blood tests. Also, this is typically associated with anti-smooth muscle or anti liver/kidney microsomal antibodies. Besides, immunoglobulin levels will typically show raised IgG levels.

Primary sclerosing cholangitis is another autoimmune condition that causes inflammation and sclerosis of the hepatic bile ducts. This has a strong association with ulcerative colitis. It is not commonly associated with anti-mitochondrial antibodies. Anti-smooth muscle and anti-nuclear antibodies tend to be positive.

Drug-induced liver injury is associated with flucloxacillin and can cause cholestatic jaundice. However, it should not cause significant fatigue and it is not associated with the positive anti-mitochondrial antibody seen.

Viral hepatitis tends to present with a hepatitic liver dysfunction picture. Besides, it is stated in the question that her hepatitis serology has returned negative, making this diagnosis less likely.

Question:

A 15-year-old female presents to the general practitioner (GP) looking to start the contraceptive pill. The GP considers the Fraser Guidelines before agreeing to the prescription. Which one of the following is a requirement to be fulfilled?

A.The young person should be given information leaflets and told to come back in 7 days

B.The young person must inform their parents

C.The young person must stop having sexual intercourse until the age of 16 unless contraceptive treatment is prescribed

D.The young person's physical or mental health, or both, are likely to suffer if the contraceptive pill is not prescribed

E.It is in the young person's best interest to receive contraceptive advice with a relative or friend present

Answer:The young person's physical or mental health, or both, are likely to suffer if the contraceptive pill is not prescribed

Explanation:

The correct answer is 4, the young person's physical or mental health, or both, are likely to suffer.

It is not necessary for the young person to inform their parents but it is good practice to encourage the young person to think about discussing the situation with their parents as they can provide support.

It is not necessary for the patient to stop having sex until the age of 16.

Providing information leaflets is not a Fraser guideline but may still be beneficial for the young person.

It is not necessary when considering the young person's best interests, to have a relative or friend present.

Question:

A 48-year-old man presents to the emergency department with a 3-day history of dizziness and shortness of breath on exertion. He has no cough or chest pain but has noticed palpitations for the last 3 days.

The patient takes amlodipine for hypertension and a GTN spray for his angina. He has no other medical history.

On examination, he is alert and orientated. Observations show a heart rate of 170 BPM, respiratory rate of 25 breaths/min, and blood pressure 72/50mmHg.

An ECG shows a narrow complex irregular tachycardia without P waves.

What is the most important next step in management?

A.Electrical cardioversion

B.Give a bolus of IV saline

C.Start bisoprolol

D.Start digoxin

E.Start high dose aspirin

Answer:Electrical cardioversion

Explanation:

Acute presentation of atrial fibrillation: if signs of haemodynamic instability (e.g. hypotension, heart failure) → electrical cardioversion, as per the peri-arrest tachycardia guidelines

Important for meLess important

The correct answer is electrical cardioversion. In this case, the patient is acutely unwell and their blood pressure is so low he is at risk of going into cardiac arrest. This peri-arrest rhythm supersedes the risk of embolism and the patient needs to be returned to normal sinus rhythm immediately to ensure he perfuses the tissues and doesn't get end organ damage.

Give a bolus of IV saline is not correct. In this vignette, the haemodynamic instability is caused by the atrium not pushing sufficient blood into the ventricles and the ventricles not relaxing for long enough to fill with blood. Increasing blood volume with IV fluids will not push more blood into the ventricles and therefore make little difference to the blood pressure. The extra fluid could even be harmful and cause pulmonary oedema.

Starting high dose aspirin is the treatment for myocardial infarction and has no use in treating atrial fibrillation.

Starting bisoprolol would be correct if the patient were haemodynamically stable. If the patient's blood pressure was higher, they could receive a beta blocker to slow down the heart and allow the ventricles to fill. However in this case if the heart is slowed momentarily it will drop blood pressure and the patient may arrest, due to inadequate coronary artery perfusion.

Starting digoxin is incorrect. Digoxin is the second line of management for atrial fibrillation if the patient is haemodynamically stable. In this case, the patient is not haemodynamically stable, so pharmacologic therapies are not considered until cardioversion has been attempted and blood pressure returns to normal.

Question:

A 78-year-old woman has an acute-onset pulsating headache affecting her temples with associated scalp tenderness. She is immediately given corticosteroid therapy and it is decided that she will be placed on a long-term dose-reducing regimen. She has a past medical history of proximal muscle stiffness that is worse and prolonged in the morning.

Some baseline investigations are performed:

Calcium 2.33 mmol/L (2.10 - 2.60 mmol/L)

Phosphate 1.35 mmol/L (0.74 - 1.40 mmol/L)

Alkaline phosphatase 78 mmol/L (30 - 100 U/L)

25-hydroxycholecalciferol 13 mU/L (20 - 50 ng/mL)

What is the most appropriate next step in her management?

A.Arrange a DEXA scan

B.Commence alendronic acid

C.Commence denosumab

D.Commence high-dose calcium replacement

E.Commence high-dose vitamin D replacement

Answer:Commence high-dose vitamin D replacement

Explanation:

Hypocalcemia/vitamin D deficiency should be corrected before giving bisphosphonates

Important for meLess important

Commence high-dose vitamin D replacement is correct. This patient is likely to have giant cell (temporal) arteritis due to their pulsatile headache, scalp tenderness, age, and past history of proximal muscle stiffness that is worse and prolonged in the morning (suggestive of polymyalgia rheumatica, which is strongly associated with giant cell arteritis). The main method of treatment for giant cell arteritis. Since corticosteroids increase the risk of osteoporosis significantly, anyone that is likely to start steroids for at least 3 months should start bone protection immediately. This is in the form of first correcting hypocalcaemia and vitamin D (25-hydroxycholecalciferol) deficiencies, and then giving bisphosphonates. The patient, in this case, has low vitamin D and this should be corrected first.

Commence high-dose calcium replacement is incorrect. Although hypocalcaemia and vitamin D (25-hydroxycholecalciferol) deficiencies should be corrected first before giving bisphosphonates, this patient has a normal calcium level. The patient, in this case, has low vitamin D and this should be corrected first before giving bisphosphonates.

Arrange a DEXA scan is incorrect. Any patient that is likely to start steroids for at least 3 months should start bone protection immediately, meaning it is not necessary to arrange a DEXA scan to confirm or refute osteoporosis. This would unnecessarily irradiate the patient as the osteoporosis may not have even developed yet and it would be inappropriate to wait for the osteoporosis to develop, then give bone protection, hence why bone protection is immediately started in patients that are likely to be on long-term steroids. Hypocalcaemia and vitamin D (25-hydroxycholecalciferol) deficiencies should be corrected first before giving bisphosphonates.

Commence alendronic acid is incorrect. Although alendronic acid is the first-line option for bone protection in patients using long-term corticosteroids, hypocalcaemia and vitamin D (25-hydroxycholecalciferol) deficiencies should be corrected first before giving bisphosphonates. The patient, in this case, has low vitamin D and this should be corrected first before giving bisphosphonates.

Commence denosumab is incorrect. This is not a first-line option for bone protection in patients taking long-term corticosteroids. It is often used in very specific scenarios after initial options such as alendronic acid have failed. Hypocalcaemia and vitamin D (25-hydroxycholecalciferol) deficiencies should be corrected first before giving bisphosphonates. The patient, in this case, has low vitamin D and this should be corrected first before giving bisphosphonates.

Question:

A 22-year-old man presents with crampy abdominal pain diarrhoea and bloating. He has just returned from a holiday in Egypt. He had been swimming in the local pool three weeks ago. He reports that he is opening his bowels 5 times a day. The stool floats in the toilet water, but there is no blood. What is the most likely cause?

A.Cryptosporidium

B.Salmonella sp

C.E.coli sp

D.Chronic pancreatitis

E.Giardia lamblia

Answer:Giardia lamblia

Explanation:

Giardia causes fat malabsorption, therefore greasy stool can occur. It is resistant to chlorination, hence risk of transfer in swimming pools.

Question:

A 28-year-old patient who is currently 25 weeks pregnant attends your GP surgery with an itchy rash on her abdomen and torso, which started the previous night. She had recently been babysitting her niece who was then diagnosed with chickenpox. She does not know for sure if she has had chickenpox in the past. One examination, there are red spots vesicles on her arms, torso and abdomen. She is otherwise well and all vital signs within normal range.

What should your next step be?

A.Refer urgently to the Emergency Department

B.Conservative management with calamine lotion and let the rash disappear

C.Prescribe an emollient and steroid cream and review again in one week

D.Commence an oral course of aciclovir

E.Commence oral antibiotics to cover for secondary bacterial infection

Answer:Commence an oral course of 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

Pregnant women who are exposed to chickenpox should contact their doctor immediately. If they have not yet developed symptoms then a history will be taken to determine whether they are immune and blood tests may be arranged.

If a rash develops and the woman presents within 24 hours, then oral aciclovir should be started in all women who are over 20 weeks pregnant.

Conservative measures only in this scenario would be inappropriate as oral aciclovir is indicated.

Oral aciclovir may also be considered if <20 weeks.

Oral antibiotics are not indicated in this case as there is no evidence of secondary infection.

VZIG is also another option used to treat women who are exposed to chickenpox who are not immune however it is not beneficial in a woman in whom a rash has already appeared.

Question:

A 19-year-old woman has extensive nodular cystic acne. She has been visiting her GP regularly for the last year for treatment. Her current treatment includes lymecycline, benzoyl peroxide wash and the oral contraceptive pill.

On examination, there is extensive acne of the face with erythema and a nodular-cystic quality. Scarring is present.

What is the next step in the GP's management?

A.Methotrexate

B.Prescribe doxycycline

C.Prescribe oral isotretinoin

D.Prescribe oral prednisolone

E.Refer to dermatology

Answer:Refer to dermatology

Explanation:

Oral isotretinoin must only be used under specialist supervision

Important for meLess important

The correct answer is to refer to dermatology. The case describes severe acne vulgaris that has not responded to topical and oral therapies. Isotretinoin will likely be initiated by the dermatologist.

Methotrexate is used to manage psoriasis that is resistant to topical treatment. It is not of benefit in acne.

Doxycycline is unlikely to be successful when minocycline has already been tried. Tetracyclines' role in acne is through their antibacterial and anti-inflammatory properties.

Specialist assessment is needed for oral isotretinoin, which is the next step in management. It not appropriate for it to be initiated in primary care.

Oral prednisolone can cause or worsen acne. In a young patient, prednisolone could be used for asthma or inflammatory arthritis.

Question:

A 23-year-old university student presents to his general practitioner complaining of a new rash. The rash started with a single, round, scaly patch three weeks ago, localised close to his umbilicus. Since then, it has been spreading up the chest and it is only mildly itchy at night. The patient feels well in himself and does not complain of other symptoms.

The rash can be seen in the picture below:

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He has no past medical history and he takes no medications.

What is the most likely diagnosis?

A.Discoid eczema

B.Guttate psoriasis

C.Lichen planus

D.Pityriasis rosea

E.Pityriasis versicolor

Answer:Pityriasis rosea

Explanation:

The correct answer is pityriasis rosea. This patient is presenting with a new-onset widespread rash on his torso, composed of erythematous, oval, scaly patches. You can observe the longitudinal diameters of the oval lesions running parallel to the line of Langer, this is characteristic of pityriasis rosea. Additionally, he describes what is defined as a 'herald patch', a single lesion which develops before the others to then spread to the torso. Some patients report a viral illness close to the time of development of the rash, but this does not happen in all cases. The cause is not fully understood but herpes hominis virus 7 (HHV-7) may play a role in the development. Management is usually supportive and it usually disappears in 6 weeks.

Discoid eczema is a very good differential for this presentation. This is a form of eczema causing coin-shaped plaques that may be vesicular or crusted. It can be distinguished by pityriasis rosea because it is usually very itchy, whilst this patient complains only of a mild itch at night, and it is usually occurring on the limbs and, whilst here it is limited to the trunk.

Guttate psoriasis is the condition most commonly confused with pityriasis rosea. It usually presents with small, round or oval pink scaly papules, making it easy to be mistaken for pityriasis rosea. It is not the right answer here as it is classically preceded by a streptococcal sore throat 2-4 weeks, which the patient did not complain of, and is usually tear shaped rather than oval-shaped. Additionally, the fact that the longitudinal diameters of the oval lesions run parallel to the line of Langer, is very characteristic of pityriasis rosea and it is not seen in guttate psoriasis.

Lichen planus is a skin disorder of unknown aetiology which presents with itchy, shiny, violaceous, flat-topped, polygonal papules varying in size. These lesions can occur anywhere but are most common on the flexor surface of the wrists, the lumbar spine, and the ankles. In this case, the lesions are oval, scaly and erythematous rather than shiny, violaceous and polygonal, making the option incorrect.

Pityriasis versicolor is a superficial cutaneous fungal infection most commonly affecting the trunk. It presents with patches that may be hypopigmented, pink or brown, which might be more noticeable following a suntan. In this case, the lesions are oval, scaly and erythematous, making the option incorrect.

Question:

A 14-month-old boy is brought to surgery. Mum says he has been off his food for the past few days and is a bit 'niggly'. Clinical examination reveals the following:

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His temperature is 37.8degC. What is the most likely diagnosis?

A.Fifth disease

B.Erythema multiforme

C.Kawasaki disease

D.Hand, foot and mouth disease

E.Measles

Answer:Hand, foot and mouth disease

Explanation:

Question:

A 34-year-old woman attends a routine antenatal clinic at 16 weeks gestation.

She has no significant past medical history but suffers with occasional frontal headaches.

She is noted to have a blood pressure of 148/76mmHg.

Urinalysis reveals;

pH 6.5

Protein +1

Nitrates 0

Leuc 0

Blood 0

What is the most likely diagnosis?

A.Gestational hypertension

B.Pre-eclampsia

C.HELLP

D.Nephrotic syndrome

E.Chronic hypertension

Answer:Chronic hypertension

Explanation:

The answer here is chronic hypertension.

At 16 weeks gestation, this lady is too early into her pregnancy to have developed any of the pregnancy related causes of hypertension. The small amount of protein in her urine may also indicate relatively long standing hypertension. Intermittent frontal headaches are a common occurrence and are not a sign of pre-eclampsia in this case.

Pre-eclampsia and gestational hypertension would only occur after 20 weeks gestation. Pre-eclampsia with significant proteinuria, gestational hypertension without.

Nephrotic syndrome would be associated with a larger degree of proteinuria.

For further information on hypertension in pregnancy:

https://www.nice.org.uk/guidance/cg107/chapter/guidance

Question:

You are a doctor working in the emergency department. A 41-year-old man attends complaining of new left leg tingling and weakness. Three days ago he reports he was independent and walking normally. He has a past medical history of type 2 diabetes mellitus for which he takes insulin.

On examination he has a heart rate of 121 beats per minute, a blood pressure of 101/72 mmHg and a temperature of 38.3ºC. He has 4/5 power throughout the right leg. Sensation is altered over the right anterior thigh and knee. The left leg has 4/5 power in hip flexion and extension, 3/5 power in knee flexion, knee extension and ankle dorsiflexion and there is 0/5 power in great toe extension and plantarflexion. Sensation is altered on the left over the thigh and knee but absent to both light touch and pin prick in the left foot.

What is the most likely diagnosis?

A.Left foot diabetic gangrene

B.Lumbar epidural abscess

C.Lumbar discitis with pathological fracture

D.Intracranial abscess

E.Meningitis

Answer:Lumbar epidural abscess

Explanation:

Signs of systemic sepsis with changing lower limb neurology = possible epidural abscess

Important for meLess important

The patient here is clearly showing signs of sepsis with an evolving lower limb neurological deficit. The most likely explanation would be an epidural abscess causing compression of the cauda equina. Apart from the clinical signs he also has a history of diabetes which is a known risk factor for developing an epidural abscess.

A diabetic foot can present with a neurological deficit and sepsis but the neurological distribution is peripheral and distal to proximal. A left-sided diabetic gangrene would not cause right-sided neurological symptoms such as sensory loss and paraesthesia, especially not in the proximal limb.

Discitis with a pathological fracture can also cause a similar presentation of sepsis with neurological deficit but the key factor is the absence of pain. Fractures, especially pathological fractures with instability, are painful and the lack of back pain makes this far less likely than an epidural abscess.

Intracranial pathology is unlikely given the focal neurological deficit confined to the lower limbs. Both an intracranial abscess and meningitis are likely to cause systemic neurological symptoms such as meningism, depressed consciousness and weakness affecting upper and lower limbs. As these features are all absent it makes an intracranial pathology very unlikely.

Question:

You are an F1 teaching a medical student on your ward. They are very competent and you have seen them perform several venepunctures. You are teaching them to cannulate for the first time on a patient. The patient has been waiting for a cannula for several hours. During the teaching, you are bleeped urgently. What is the most appropriate course of action?

A.Allow the medical student to continue alone if they feel confident, tell them to document the solo attempt in the notes

B.Allow the medical student to continue alone, document your supervision in the notes

C.Continue supervision of the cannulation, attend to the urgent situation after so the patient isn't inconvenienced

D.Apologise to the patient for the delay, tell the medical student to stop until you return

E.Ask the patient if they mind the student continuing the cannulation unsupervised

Answer:Apologise to the patient for the delay, tell the medical student to stop until you return

Explanation:

The GMC makes it clear that it is the responsibility of every doctor to engage in teaching those more junior, but it is also your responsibility to supervise them appropriately (Domain 3: 39 and 40 'You should be prepared to contribute to teaching and training doctors and students'

'You must make sure that all you manage have appropriate supervision.')

Whilst inconveniencing a patient is not ideal, you must prioritise, and an urgent bleep is a priority.

It is never acceptable to knowingly document dishonestly/inaccurately in medical notes.

Question:

A father brings his 16-day old baby presents to the emergency department. The baby is visibly jaundiced and distressed, and the father explains the baby has not been feeding well since yesterday. Examination reveals hepatomegaly and splenomegaly. A newborn jaundice screen indicates no infection, normal thyroid function tests, raised conjugated bilirubin, liver transaminases and bile acids. The urine is negative for reducing substances.

Given the most likely diagnosis, what is the first-line management option?

A.Ursodeoxycholic acid only

B.Frequent monitoring

C.Surgical intervention

D.Liver transplant

E.Antibiotic prophylaxis only

Answer:Surgical intervention

Explanation:

Surgery is the treatment of choice for biliary atresia

Important for meLess important

The question points to the diagnosis of biliary atresia, as it points away from other causes of prolonged jaundice such as infection and hypothyroidism.

Biliary atresia can present with prolonged jaundice (present > 14 days of age), hepatomegaly, splenomegaly, abnormal growth, cardiac murmurs if associated cardiac abnormalities are present.

Given this diagnosis, surgical intervention is correct. A hepatoportoenterostomy (HPE) can be performed. This is also known as Kasai portoenterostomy and it allows bile drainage. In this procedure, the blocked bile ducts are removed and replaced with a segment of the small intestine. This restores bile flow from the liver to the proximal small bowel.

Ursodeoxycholic acid may be given as an adjuvant following surgical intervention. This would not be done as the first line management, nor be the only intervention provided as surgical intervention is required first to relieve the obstruction. It is believed to be hepatoprotective and facilitates bile flow and it can be initiated following urinary bile acids being sent for analysis and continued until the resolution of jaundice. However, if the total bilirubin is >256.6 micromol/L (>15 mg/dL) then it should not be given. This is as the bile acid load is too high and it is therefore unlikely to be of benefit.

Frequent monitoring is incorrect. This is a serious condition and urgent action needs to be taken.

Liver transplant is not the first-line treatment. If hepatoportoenterostomy is unsuccessful, liver transplantation would be the next step. It would also be considered if there were signs of end-stage liver disease, progressive cholestasis, hepatocellular decompensation, or the development of severe portal hypertension.

Antibiotic prophylaxis only is incorrect. Patients may receive antibiotic prophylaxis for the first year of life but this is not the first-line management.

Question:

A 43-year-old man with type 2 diabetes mellitus presents with lethargy. His current medications include metformin and gliclazide, although the gliclazide may soon be stopped due to his obesity. A number of blood tests are ordered which reveal the following:

HbA1c 66 mmol/mol (< 48)

Ferritin 204 ng/mL (25 - 350)

Bilirubin 23 µmol/L (3 - 17)

ALP 162 u/L (30 - 100)

ALT 120 u/L (3 - 40)

AST 109 u/L (3 - 40)

On discussing these results he states that he does not drink alcohol.

What is the most likely cause of these abnormal results?

A.Metformin-induced steatohepatitis

B.Haemochromatosis

C.Acute hepatitis secondary to gliclazide

D.Cryptogenic cirrhosis

E.Non-alcoholic fatty liver disease

Answer:Non-alcoholic fatty liver disease

Explanation:

T2DM with abnormal LFTs - ? non-alcoholic fatty liver disease

Important for meLess important

By far the most likely diagnosis in an obese type 2 diabetic is non-alcoholic fatty liver disease. This patient will require a liver screen, ultrasound and liver biopsy to confirm the diagnosis.

A normal ferritin makes a diagnosis of haemochromatosis unlikely, although it should always be considered in patients with both abnormal LFTs and diabetes.

Question:

A 35-year-old man presents to the emergency department after a night out, having taken an unknown substance. He is known to have a history of depression.

On examination his Glasgow coma scale (GCS) is 13/15, pupils are dilated and divergent. He is tachycardic with a heart rate of 110/min, his blood pressure is 124/70mmHg. His ECG shows sinus rhythm, with a lengthened QTc duration of 480msec. He is dry to the touch.

Which substance is he most likely to have ingested?

A.Cocaine

B.Sertraline

C.Diazepam

D.Amitriptyline

E.MDMA

Answer:Amitriptyline

Explanation:

The correct answer here is Amitriptyline - a tricyclic antidepressant (TCA) overdose.

Whilst the main effect of TCAs is to increase serotonin and noradrenaline in the brain by slowing re-uptake, they also block histamine, cholinergic and alpha 1 receptors. Therefore in overdose the anti-cholinergic effects give dilated pupils, dry skin, confusion, urinary retention and tachycardia. Divergent pupils are a common finding in tricyclic overdose. TCAs are also cardiotoxic by inactivating sodium channels in the heart leading to, as seen here, a potential prolongation of the QTc interval and a widened QRS complex. This can potentially lead to ventricular arrhythmias.

Other effects of TCAs not included here include seizures and a metabolic acidosis.

In overdose sertraline may present with serotonin syndrome. The Glasgow coma scale may be reduced and pupils dilated, but skin would not be dry. A classic feature of serotonin syndrome is hyperreflexia, often with muscle rigidity and tremor, which is not described here. Additionally QTc prolongation is unlikely with selective serotonin reuptake inhibitors (citalopram is an exception).

Cocaine produces sympathetic effects - agitation, restlessness, increased heart rate and blood pressure. In severe toxicity hyperthermia and rhabdomyolysis may occur. It would not cause a reduced GCS or altered QRS duration on ECG.

MDMA (ecstasy) excess presents similarly to cocaine, with increased psychomotor agitation, palpitations and hyperthermia. Additionally teeth grinding (bruxism) is noted frequently.

Diazepam ingestion could cause a reduced GCS due to its sedative effects. However it would not generally affect pupil size, heart rate or ECG. It is associated with respiratory depression.

Question:

You review the chest x-ray of a 34-year-old woman of Afro-Carribean origin who has been generally unwell with a cough, low-grade fever and erythema nodosum.

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What is the most likely diagnosis?

A.HIV

B.Lobar pneumonia

C.Histoplasmosis

D.Sarcoidosis

E.Pulmonary embolism

Answer:Sarcoidosis

Explanation:

The chest x-ray shows bilateral hilar lymphadenopathy. A combination with typical symptoms (a cough, low-grade fever and erythema nodosum) this makes a diagnosis of sarcoidosis very likely. Sarcoidosis is also more common in people of Afro-Caribbean ethnicity.

Question:

A 78-year-old woman is brought in by ambulance following a fall at home. On examination, her right leg is externally rotated raising suspicion of a neck of femur fracture. A hip x-ray confirms this and she undergoes a total hip replacement.

Her fall was found to be due to vertigo and poor balance. She admits to having a recent upper respiratory tract infection, followed by dizziness and nausea. On examination, it is clear she has right-sided vestibular neuronitis, as her hearing is intact.

What findings on Rinne's and Weber's tests would support this diagnosis?

A.Air conduction > bone conduction bilaterally, no lateralisation

B.Air conduction > bone conduction bilaterally, right lateralisation

C.Bone conduction > air conduction bilaterally, no lateralisation

D.Bone conduction > air conduction left, left lateralisation

E.Bone conduction > air conduction right, right lateralisation

Answer:Air conduction > bone conduction bilaterally, no lateralisation

Explanation:

Normal hearing

Rinne result: Air conduction > bone conduction bilaterally

Weber result: same in both ears

Important for meLess important

Air conduction > bone conduction bilaterally, no lateralisation is the correct answer. This is the expected Rinne's and Weber's test results for normal hearing, as in this woman. Vestibular neuronitis is a viral infection affecting the vestibular nerve. It results in vertigo, nausea and, balance problems, along with normal hearing. This allows you to differentiate it from acute labyrinthitis which causes sensorineural hearing loss. Air conduction is better than bone conduction in people with a functioning vestibulocochlear nerve. If bone conduction is better than air conduction, you have conductive hearing loss, as something is blocking the path of sound waves from reaching the vestibulocochlear nerve. Therefore, it uses bone transmission as the air transmission is blocked. If you have sensorineural hearing loss, air conduction will still be better than bone conduction as the nerve is damaged. However, Weber's would lateralise to the unaffected ear. In normal hearing, there is no lateralisation on Weber’s as both ears are functioning equally.

Air conduction > bone conduction bilaterally, right lateralisation is incorrect. This result would be expected if the woman had left sensorineural hearing loss. However, vestibular neuronitis does not affect hearing, so normal hearing in Rinne's and Weber's testing is expected.

Bone conduction > air conduction bilaterally, no lateralisation is incorrect. This is a bilateral conductive hearing loss and can be commonly seen in people with wax blocking their ears. The woman in this scenario has normal hearing so this is incorrect.

Bone conduction > air conduction left, left lateralisation is incorrect. If bone conduction > air conduction, conductive hearing loss is occurring. As weber's test is lateralising to the left, this result implies a left conductive hearing loss. In vestibular neuronitis, there is normal hearing so air conduction is > bone conduction.

Bone conduction > air conduction right, right lateralisation is incorrect. This result is seen in right-sided conductive hearing loss. This woman has normal hearing so this is incorrect.

Question:

A 56-year-old female is admitted to ITU with a severe pneumonia. Thyroid function tests are most likely to show:

A.TSH normal; thyroxine high; T3 high

B.TSH normal / low; thyroxine low; T3 low

C.TSH high; thyroxine low; T3 low

D.TSH low; thyroxine high; T3 high

E.TSH high; thyroxine normal; T3 high

Answer:TSH normal / low; thyroxine low; T3 low

Explanation:

Question:

A 65-year-old man is found to have an ejection systolic murmur and narrow pulse pressure on examination. He has experienced no chest pain, breathlessness or syncope. An echo confirms aortic stenosis and shows an aortic valve gradient of 30 mmHg. How should this patient be managed?

A.Routine aortic valve replacement

B.Urgent aortic valve replacement

C.Anticoagulation

D.Aortic valvuloplasty

E.Regular cardiology outpatient review

Answer:Regular cardiology outpatient review

Explanation:

Aortic stenosis management: AVR if symptomatic, otherwise cut-off is gradient of 40 mmHg

Important for meLess important

No action should be taken at present as he is currently asymptomatic. If the aortic valve gradient > 40 mmHg or there is evidence of significant left ventricular dysfunction then surgery is sometimes considered in selected asymptomatic patients

Question:

A 24-year-old woman is found to have a blood pressure of 170/100 mmHg during a routine medical check. She is well and clinical examination is unremarkable. Blood tests show:

Na+ 140 mmol/L (135 - 145)

K+ 2.6 mmol/L (3.5 - 5.0)

Bicarbonate 31 mmol/L (22 - 29)

Urea 3.4 mmol/L (2.0 - 7.0)

Creatinine 77 µmol/L (55 - 120)

Which one of the following investigations is most likely to be diagnostic?

A.Renal ultrasound

B.Overnight dexamethasone suppression test

C.Renin:aldosterone ratio

D.MR angiography

E.21-hydroxylase estimation

Answer:Renin:aldosterone ratio

Explanation:

A plasma aldosterone/renin ratio is the first-line investigation in suspected primary hyperaldosteronism

Important for meLess important

Conn's syndrome is the likely diagnosis - a renin:aldosterone ratio would be an appropriate first-line investigation. A normal clinical examination makes a diagnosis of Cushing's syndrome less likely

Question:

A 23-year-old man presents to the outpatient department with recent onset of fatigue and a tremor in his right hand. He also reports that recently he has been ‘stumbling into things’ as he is walking. On examination, he has some yellowish discoloration as well as dark rings around the iris of both eyes.

What is the most appropriate first-line treatment for this patient?

A.Iron supplements

B.Penicillamine

C.Methotrexate

D.Trientine

E.Ursodeoxycholic acid

Answer:Penicillamine

Explanation:

Kayser-Fleischer rings are seen in the eyes of patients with Wilson’s disease

Important for meLess important

This patient is suffering from Wilson's disease which is an inherited condition where too much copper is deposited in the tissues and causes liver and neurological problems. Penicillamine, a metal chelating agent, is the primary treatment to remove the excess copper from the body.

1 - incorrect - there is no indication for iron supplements in this scenario.

3 - incorrect - methotrexate is not a metal chelating agent and so has no role here.

4 - incorrect - the question is asking for the first-line treatment which is penicillamine. Trientine is also a chelating agent which is used in patients who are intolerant to penicillamine.

5 - incorrect - this is used to manage biliary conditions such as gallstones, it is not indicated in Wilson's disease.

Question:

A 27-year-old gravida 4, para 3 requires an assisted delivery with mid-cavity forceps after a prolonged second stage. The patient attends her GP a couple of weeks after the birth with difficulty walking; on examination she has a limp in her left leg, a numb thigh, weak knee extension and the patella reflex cannot be elicited. Her right leg is normal.

Which nerve has been damaged by the forceps delivery?

A.Femoral nerve

B.Obturator nerve

C.Common peroneal nerve

D.Lateral cutaneous nerve of the thigh

E.Sciatic nerve

Answer:Femoral nerve

Explanation:

The clinical picture in this case is an example of damage to the femoral nerve.

Nerve damage is a rare, but recognised risk of instrumental delivery. Injury is more likely with difficult deliveries and mid-cavity forceps. The following table shows the nerves that can be damaged by forceps, and their clinical features.

Nerve Clinical features

Femoral nerve Weakness in knee extension, loss of the patella reflex, numbness of the thigh

Lumbosacral trunk Weakness in ankle dorsiflexion, numbness of the calf and foot

Sciatic nerve Weakness in knee flexion and foot movements, pain and numbness from gluteal region to ankle

Obturator nerve Weakness in hip adduction, numbness over the medial thigh

Most nerve injuries recover within six to eight weeks, but occasionally nerve damage can be permanent.

Question:

A 4-year-old boy attends the GP surgery with his dad. He is day 7 post-tonsillectomy and seemed to be doing well but this morning dad found a small amount of blood on his pillow and could see fresh red blood in his mouth. On examination, the boy appears well but you can see a blood clot in his left tonsillar fossa with no active bleeding. His observations are below.

Systolic blood pressure: 102 mmHg (normal range: 75-110)

Pulse: 98 bpm (normal range: 80-150)

Temperature: 36.6ºC (normal range: 35.5-37.5)

Respiratory rate: 26/min (normal range: 17-30)

What is the correct course of management?

A.Immediate referral to ENT

B.Prescribe tranexamic acid

C.Reassure

D.Urgent referral to paediatrics

E.Review in 24 hours

Answer:Immediate referral to ENT

Explanation:

All post-tonsillectomy haemorrhages should be assessed by ENT

Important for meLess important

Secondary haemorrhage after a tonsillectomy is that which occurs over 24 hours post-surgery. It is potentially life-threatening. All patients should be managed by ENT in the hospital. Children may swallow the blood making bleeding less noticeable and causing difficulties when trying to quantify blood loss.

Reviewing the patient in 24 hours is incorrect as this presentation is an emergency.

Reassuring the patient is similarly incorrect.

Referral to paediatrics is incorrect as this is a surgical emergency and should be managed by ENT.

Although tranexamic acid may be helpful, this patient needs hospital admission so this answer is incorrect.

Question:

A 52-year-old woman presents to a gastroenterology clinic. This is a repeated presentation and she tells you she has been seen by two different doctors before.

She complains of explosive, watery diarrhoea several times a day. She tells you she had colonoscopy with biopsies that didn't detect any pathology. She has previously tried a low FODMAP diet for presumed IBS but this didn't help her symptoms.

She has no nausea or vomiting. On review of systems you note she experiences flushing several times a day which she ascribes to menopause. When asked about respiratory symptoms she tells you that she had some episodes of wheezing recently and that she had asthma as a child.

Which treatment will provide best symptomatic relief?

A.Ambrisentan

B.Fluoxetine

C.Loperamide

D.Mebeverine

E.Octreotide

Answer:Octreotide

Explanation:

Octreotide is a somatostatin analogue used to treat the symptoms of carcinoid syndrome

Important for meLess important

This woman with flushing, wheeze and diarrhoea suffers from carcinoid syndrome likely due to a tumour in her gastrointestinal tract that secretes serotonin.

If the carcinoid is contained to small bowel only, the liver is usually able to metabolise serotonin secreted into portal circulation. Thus the symptoms remain contained to GI tract only. The respiratory symptoms that this woman has may be therefore suggestive of carcinoid with liver metastases secreting serotonin into hepatic vein.

Ambrisentan is an endothelin receptor antagonist that may be used to treat pulmonary hypertension.

Fluoxetine is a selective serotonin reuptake inhibitor used to treat a variety of mental health disorders.

Loperamide will not address the respiratory symptoms and flushing.

Mebeverine is used in the symptomatic relief of IBS.

Octreotide is a somatostatin analogue. Carcinoid tumours express somatostatin receptors. Octreotide decreases the release of serotonin from those tumours thus alleviating symptoms.

Question:

You have been looking after a 67-year-old woman who is being treated for acute myeloid leukaemia in hospital. Coincidentally, she had recently found a breast lump and this afternoon she went to the breast clinic to get the breast lump checked.

Her blood results from this morning are as follows:

Hb 82 g/L Male: (135-180)

Female: (115 - 160)

Platelets 39 x 109/L (150 - 400)

WBC 4.7 x 109/L (4.0 - 11.0)

The nurse in breast clinic calls you to let you know they are going to take a biopsy of the breast lump.

What should you do?

A.Tell them to go ahead with the biopsy as the platelets are in a suitable range for a biopsy, and order a bag of platelets and a bag of red blood cells in case she bleeds afterwards

B.Tell them that it's ok to do the biopsy, but that they will need to press on the site for at least 5 minutes afterwards

C.Repeat the full blood count and give a platelet transfusion if platelets have dropped to below 30 x 109/L, then tell them they can do the biopsy after that

D.Order a blood transfusion and a platelet transfusion before having the biopsy, then allow them to do it if platelets are above 30 x 109/L

E.Order a platelet transfusion, run that through and then do the biopsy afterwards if platelets are above 50 x 109/L

Answer:Order a platelet transfusion, run that through and then do the biopsy afterwards if platelets are above 50 x 109/L

Explanation:

Platelet transfusion for thrombocytopenia before surgery or an invasive procedure. Aim for plt levels of:

> 50×109/L for most patients

50-75×109/L if high risk of bleeding

>100×109/L if surgery at critical site

Important for meLess important

This is the correct answer as platelets should be above 50 x 109/L for procedures like this. If a biopsy was done with low platelets, there is a high risk of bruising and bleeding.

Doing the biopsy before giving the platelets and red blood cells is incorrect, because that will not stop her from bleeding during the procedure.

Pressing for 5 minutes afterwards would definitely help prevent bleeding and bruising, but is not as appropriate as getting a platelet transfusion seeing as this is an invasive procedure.

There's likely not much to gain from repeating the full blood count, as she had her bloods taken that morning and it's unlikely much will have changed. Furthermore, platelet transfusion should be given if platelets are <50 x 109/L, not <30 x 109/L.

Ordering a blood transfusion, although she is anaemic, will have no benefit in this situation. Usually the blood transfusion threshold is <80g/L and it is the low platelets that is the main issue here. Furthermore, the platelet level should be above 50 x 109/L, not above 30 x 109/L.

Question:

A 25-year-old comes to see you on a Monday morning after an episode of unprotected intercourse the Friday before. She is concerned about an unwanted pregnancy and wishes to be prescribed the most effective option to prevent this. Her last menstrual period was two weeks ago.

What is the most appropriate action?

A.Advise she has missed the window for emergency contraception

B.Arrange for copper coil (IUD) insertion

C.Prescribe levonorgestrel emergency contraception

D.Prescribe ulipristal acetate emergency contraception

E.Start the combined oral contraceptive pill

Answer:Arrange for copper coil (IUD) insertion

Explanation:

A copper IUD is the most effective method of emergency contraception and should be offered to all women

Important for meLess important

This patient is presenting approximately 72 hours following an episode of unprotected intercourse and would like the most effective form of contraception. The most appropriate action is to arrange for copper coil (IUD) insertion. The IUD is effective in preventing pregnancy for up to five days (120 hours) following unprotected intercourse (if not yet ovulated) or up to five days following ovulation and acts to prevent fertilisation or implantation respectively. If there are concerns about the presence of sexually transmitted diseases, antibiotics can be given concurrently.

Advise she has missed the window for emergency contraception is incorrect. Both the copper coil (first-line) and ulipristal acetate are licensed for emergency contraception up to five days (120 hours) following intercourse, whilst levonorgestrel emergency contraception can be taken up to 72 hours post-coitus.

Prescribe levonorgestrel emergency contraception is incorrect. Levonorgestrel efficacy is greatest when taken within 12 hours, and no later than 72 hours, post-intercourse. Efficacy decreases with time and is minimally effective if ovulation has occurred. This patient is presenting 72 hours following intercourse and with her last menstrual period 14 days ago it is possible that she has already ovulated. A copper coil (IUD) insertion would therefore be a more appropriate choice.

Prescribe ulipristal acetate emergency contraception is incorrect. Whilst ulipristal acetate may be taken up to 120 hours post-intercourse, its efficacy decreases with time. Additionally, the main mechanism of action is to prevent ovulation and therefore efficacy decreases if ovulation has occurred. In this case, a copper coil would be more appropriate.

Start the combined oral contraceptive pill is incorrect. Whilst the discussion of contraceptive choices going forward is appropriate in this consultation, this will not address the patient's presenting concern.

Question:

A 75-year-old woman is found by her daughter pale, unresponsive and cold to touch. A paramedic confirmed the death, by noting the following findings: no response to verbal or painful stimuli, fixed dilated pupils, impalpable carotid pulse and absent heart and breath sounds. There was no apparent evidence of injury or trauma. Her usual medications were on her bedside table, unopened. Her past medical history includes hypothyroidism and hypertension, which were both optimally controlled with medication. She lived alone and was independent in all activities daily. The death was unexpected, as she had been fit and well, previously.

What is the most appropriate course of action?

A.Request post-mortem with next of kin's consent

B.Refer to coroner

C.Call a doctor to verify the death

D.Complete a medical certificate of cause of death (MCCD)

E.Arrange burial immediately

Answer:Refer to coroner

Explanation:

If the deceased has an unknown cause of death then they should be discussed with the coroner

Important for meLess important

Since the cause of death in this scenario is unknown, the most appropriate action would be to refer this case to the coroner.

A post-mortem is an examination of the body after death carried out by pathologists, to determine the cause of death. If a coroner decides a post-mortem should be done, consent is not required from the deceased's next of kin. This is because they have a legal requirement to carry this out if a death is suspicious, sudden or unnatural. Since the death was unexpected in this scenario, it would be more appropriate to refer to the coroner first. A coroner is an independent judicial officer, whose purpose is to decide whether an untimely or unexpected death is the result of natural or unnatural causes.

There is no need to call a doctor to verify the woman's death, since the paramedic is qualified to make this assessment and has done so, in this scenario.

It would be inappropriate to complete the MCCD without investigating the cause of death first. An MCCD is a permanent legal record and so it is important that the information written on this is accurate.

An MCCD is required by law for the deceased's family to register the death, which enables them to make arrangements for burial or disposal of the body. Hence, given that a coroner should assess the deceased first, MCCD cannot be filed, making this option not appropriate.

Question:

A 57-year-old lady presents to the postmenopausal bleed clinic with a 2 week history of light vaginal bleeding, and mild pain on intercourse. She is otherwise well. On vaginal examination she is tender and has slight dryness. What should be done next in clinic?

A.Discharge with oestrogen cream

B.Endometrial biopsy

C.Laparoscopy

D.Refer to hormone replacement therapy (HRT) clinic

E.Trans-vaginal ultrasound (TVUS)

Answer:Trans-vaginal ultrasound (TVUS)

Explanation:

Atrophic vaginitis is a diagnosis of exclusion, and can only be made after ruling out other pathology

Important for meLess important

Atrophic vaginitis is a diagnosis of exclusion. Endometrial cancer must be ruled out, and the first line investigation for this is always TVUS. While this is most likely atrophic vaginitis, it still must be investigated to rule this out. Once a TVUS is done, if it comes back normal then either discharge with cream or referral to HRT clinic would be the most appropriate, but TVUS must be done first. If it is abnormal (>4mm), then endometrial biopsy would be done. Laparoscopy would not help.

Question:

An 18-year-old man presents with nausea, vomiting and abdominal pain. He also reports weight loss of 10kg over the past 3 months, and excessive thirst and urination. Urinalysis reveals elevated ketones. A blood tests reveals a plasma glucose of 32.6 mmol/l. A diagnosis of diabetic ketoacidosis is suspected and confirmed by venous blood gases. He is commenced on 0.9% saline and intravenous insulin. Shortly after the initiation of insulin he develops a cardiac arrhythmia.

What is the most likely cause of the arrhythmia?

A.Hyperkalaemia

B.Metabolic acidosis

C.Hypophosphataemia

D.Hypokalaemia

E.Hypoglycaemia

Answer:Hypokalaemia

Explanation:

Diabetic ketoacidosis is associated with dehydration and profound loss of electrolytes, in particular sodium and potassium. Untreated diabetic ketoacidosis results in a metabolic acidosis which acts on cells to cause potassium efflux and H+ influx. In addition, insulin deficiency also results in potassium efflux. Therefore untreated DKA can be associated with normal or even high serum potassium levels even though the osmotic diuresis has caused a profound total body potassium deficiency.

When DKA is treated with insulin, potassium then moves from the extracellular space to the intracellular space, which can result in a profound hypokalaemia. It is therefore very important to keep a close eye on the potassium levels. Potassium will often be required before and/or during insulin treatment.

Question:

A 38-year-old homeless man is brought to the emergency department after being found unresponsive in a local park. On admission, his temperature is 30.2 ºC and an ECG shows a broad complex polymorphic tachycardia. The patient is diagnosed with torsades de pointes.

What is the most appropriate treatment?

A.Adenosine

B.Amiodarone

C.Atropine

D.Calcium gluconate

E.Magnesium sulphate

Answer:Magnesium sulphate

Explanation:

IV magnesium sulfate is used to treat torsades de pointes

Important for meLess important

Magnesium sulphate is the correct answer. This patient has torsades de pointes which is a form of polymorphic ventricular tachycardia that can be precipitated by hypothermia. Magnesium sulfate is the first-line therapy and is used to stabilise the cardiac membrane.

Adenosine is the incorrect answer. It is used to revert patients back to sinus rhythm with supraventricular tachycardias. It is inappropriate to use adenosine in this patient as it would not solve the torsades.

Amiodarone is the incorrect answer. It is used in the management of broad complex tachycardia in stable patients. It is also used in resuscitation scenarios for shockable and non-shockable rhythms. This patient has torsades de pointes which is caused by a prolonged QT interval. Giving amiodarone will prolong the QT further and therefore risk making the patient worse.

Atropine is the incorrect answer. Atropine is an anticholinergic medication that increases the heart rate and improves the atrioventricular conduction by blocking the parasympathetic influences on the heart. Although atropine has been used to treat torsades de pointes, it is not usually recommended as it can induce paradoxical bradycardia with consequent worsening of the arrhythmia.

Calcium gluconate is the incorrect answer. It is used in the treatment of hyperkalaemia. It is inappropriate in this scenario as the stem does not mention hyperkalaemia.

Question:

A 34-year-old man comes to his GP for review. Over the past two weeks he has developed a number of painful, erythematous lesions on his shins. He has no dermatological history of note and is usually fit and well. On examination the lesions are consistent with erythema nodosum. You arrange some baseline investigations. What is the most appropriate management?

A.Oral prednisolone

B.Topical hydrocortisone

C.No active treatment, arrange routine follow-up

D.Urgent referral to dermatology

E.Oral flucloxacillin

Answer:No active treatment, arrange routine follow-up

Explanation:

Question:

A patient of yours has been diagnosed with Horner's syndrome. Which of the following is most likely to be seen?

A.Miosis + third cranial nerve palsy

B.Mydriasis + ptosis + exophthalmos

C.Mydriasis + anhydrosis on the affected side of the face

D.Miosis + ptosis + enophthalmos

E.Mydriasis + ptosis + enophthalmos

Answer:Miosis + ptosis + enophthalmos

Explanation:

Horner's syndrome: miosis + ptosis + enophthalmos +/- anhydrosis

Important for meLess important

Question:

A 19-year-old woman with a known history of wasp sting allergy presents to the emergency department after being stung by a wasp. She reports immediately feeling itchy and developing a widespread erythematous rash. She denies dizziness, syncope or feeling breathless. There is no swelling of the mouth or lips.

On examination, her heart rate is 60 beats per minute and her blood pressure is 115/80 mmHg. There is no respiratory compromise.

What is the most appropriate treatment for this patient?

A.No adrenaline is required

B.1mg IV adrenaline

C.150mcg IM adrenaline

D.300mcg IM adrenaline

E.500mcg IM adrenaline

Answer:No adrenaline is required

Explanation:

The Resus Council UK define anaphylaxis as:

the sudden onset and rapid progression of symptoms

Airway and/or Breathing and/or Circulation problems

Important for meLess important

Anaphylaxis is a severe generalised hypersensitivity reaction that is characterised by rapidly developing life-threatening airway and/or breathing and/or circulation problems, usually associated with skin and mucosal changes. Although this patient has developed an acute reaction to a wasp sting with skin changes, there is no life-threatening airway, breathing or circulation problem. She, therefore, does not have anaphylaxis and does not require adrenaline. Instead, she should be given an antihistamine and/or oral steroids to help with her symptoms.

Giving 1mg IV adrenaline is incorrect. This is the dose and administration used in cardiac arrest. This patient does not have anaphylaxis and does not require adrenaline. In anaphylactic patients, IV adrenaline is only used in refractory cases and by those who are skilled with its use.

Giving 150mcg IM adrenaline is incorrect. This patient does not require adrenaline. Furthermore, this is the dose for children aged 6 months to 6 years.

Giving 300mcg IM adrenaline is incorrect. As discussed, the patient does not require adrenaline. Secondly, this is the dose for children aged 6-11 years.

Giving 500mcg IM adrenaline is wrong. This is the dose for adult anaphylaxis and would be appropriate if she had developed airway, breathing or circulation problems.

Question:

A 42-year-old non-binary patient is referred to the endocrinology department after presenting to their urgent care centre with a 3-month history of bilateral lower limb oedema, lethargy, muscle weakness, and pleuritic chest pain. They have a 24-pack-year smoking history, drink 2 bottles of wine per week, and take no recreational drugs. A chest x-ray at the urgent care centre shows a mass lesion in the right hilum. During the follow-up, their endocrinologist ordered a high-dose dexamethasone suppression test.

What would be the likely result of this test, given the patient's symptoms and primary investigation findings?

A.Cortisol: elevated, ACTH: suppressed

B.Cortisol: not suppressed, ACTH: not suppressed

C.Cortisol: not suppressed, ACTH: suppressed

D.Cortisol: suppressed, ACTH: not suppressed

E.Cortisol: suppressed, ACTH: suppressed

Answer:Cortisol: not suppressed, ACTH: not suppressed

Explanation:

High-dose dexamethasone suppression test with an ectopic source of ACTH

Cortisol: not suppressed

ACTH: not suppressed

Important for meLess important

This patient is presenting with symptoms of ectopic ACTH (adrenocorticotropic hormone) production. Increased ACTH production can lead to hypokalaemia (seen in the vignette with muscle weakness and lethargy), metabolic alkalosis, and glucose intolerance. The description of lymphoedema and pleuritic chest pain, alongside the chest x-ray findings of a mass lesion should guide the student towards suspecting an ACTH-producing pulmonary tumour. Investigation with a high-dose dexamethasone suppression test should be performed as an inpatient due to the high dose of steroid being administered and would show no suppression of cortisol or ACTH - this is due to the ACTH source being from an ectopic site, rather than being part of the hypothalamic-pituitary-adrenal (HPA) axis which would experience some negative feedback from a high dose of dexamethasone.

Cortisol: elevated, ACTH: suppressed would be seen if there was an ectopic source of cortisol production (such as a cortisol-producing tumour). There would be ACTH suppression (as the ACTH is being produced from the HPA axis which would respond to negative feedback signals) and no suppression of cortisol (as the cortisol is independent of the HPA axis).

Cortisol: not suppressed, ACTH: suppressed is the same as cortisol being elevated and ACTH being suppressed.

Cortisol: suppressed, ACTH: not suppressed indicates that there are high levels of ACTH however there is suppression of cortisol. If there is no suppression of ACTH, there should be ongoing high levels of cortisol as elevated cortisol is a 'downstream' effect of high levels of ACTH.

Cortisol: suppressed, ACTH: suppressed is expected to be seen in patients who are administered this test as there should be negative feedback from the dexamethasone causing reduction in ACTH production and in cortisol production. This may also occur in patients who have increased ACTH or cortisol production which is responsive to dexamethasone. Typically, if a patient has an abnormal low dose dexamethasone suppression test, but their high dose dexamethasone suppression test shows ACTH and cortisol suppression - this indicates a pituitary adenoma as it responds to the negative feedback of dexamethasone.

Question:

A 37-year-old hypertensive woman presents to the emergency department of a large city hospital with a 1-hour history of sudden onset headache and nausea and vomiting. Since arrival in the department, she has complained of new onset facial pain over her right maxilla. She has bloods sent showing:

D-dimer 1500 ng/mL (<500 ng/mL)

She is referred to the medical team for further management who organise a scan.

What scan is the gold standard for investigating this patient's potential diagnosis?

A.CT facial bones

B.Fibrinogen blood test

C.MR head

D.MR venogram

E.Non-contrast CT head

Answer:MR venogram

Explanation:

MR Venogram is the gold standard test for diagnosing venous sinus thrombosis

Important for meLess important

This patient is presenting with symptoms consistent with a venous sinus thrombosis - her age is within typical ranges for women presenting with this condition, she has a sudden onset headache, features of increased intracranial pressure such as nausea and vomiting, and a raised d-dimer. The new onset of facial pain may also indicate poor perfusion of cranial nerve nuclei. The gold standard for investigation of this condition is MR venogram. As this is a large hospital, there is a good chance that this patient may be able to have this scan as a first-line investigation. An alternative would be a CT venogram as this should also demonstrate any filling defects.

CT facial bones is an incorrect answer as this will not identify the filling defect in the venous system. CT facial bones are useful if a patient presents with traumatic injury to the face and there is a suspected fracture. This patient has no history of trauma and her d-dimer indicates a potential thrombotic picture.

Fibrinogen blood test is a useful test for supporting a thrombotic picture however it is not the gold standard in the diagnosis of venous sinus thrombosis. If the fibrinogen was elevated alongside the d-dimer, this would further support the suspected diagnosis, however, imaging is always required to confirm that the patient has had a venous sinus thrombosis.

MR head is typically a non-contrast imaging modality. While sensitive enough to usually demonstrate venous sinus thrombosis, it is not the gold standard as its sensitivity is less than MR venogram.

Non-contrast CT head is an incorrect answer as this imaging modality is not sensitive for assessing filling defects in the venous system. While the patient is presenting with symptoms consistent with a subarachnoid haemorrhage (for which a CT head would be an appropriate investigation), she is also reporting facial pain and there is an elevated d-dimer which makes venous sinus thrombosis more likely.

Question:

A 28-year-old woman presents to her GP complaining of a 3-month history of fatigue and constipation. On examination, she has dry skin and hair and you note a firm, non-tender mass in the neck. She has no significant medical history and isn't aware of any family history as she was adopted.

Given the likely diagnosis, what is the most likely pathology underlying her condition?

A.Autoimmune thyroiditis

B.Drug induced hypothyroidism

C.Iodine deficiency

D.Subacute thyroiditis

E.Toxic multinodular goitre

Answer:Autoimmune thyroiditis

Explanation:

Autoimmune thyroiditis (Hashimoto’s) is the most common cause of hypothyroidism and is associated with other autoimmune diseases

Important for meLess important

The correct answer is 'autoimmune thyroiditis'.

This patient is presenting with symptoms that are typical of hypothyroidism. The most likely pathology underlying this is autoimmune thyroiditis (or Hashimoto's disease) as it is the most common cause of hypothyroidism and the lump in her neck is most likely to be the typical firm, non-tender goitre associated with the disease.

Drug-induced hypothyroidism could be a potential cause of these symptoms but she is not on any medications that would normally be associated with this.

Iodine deficiency is another possible cause of hypothyroidism but there is nothing to suggest it in this patient.

Subacute thyroiditis is another possible cause of hypothyroidism. However, it would generally initially present with symptoms of hyperthyroidism and a painful goitre.

Toxic multinodular goitre is a possible cause of hyperthyroidism rather than hypothyroidism.

Question:

A 15-year-old boy from Germany presents with chronic diarrhoea for the past 9 months. He also reports foul smelling stools. He has a past medical history of recurrent chest infections from a young age and diabetes mellitus.

What is the most likely diagnosis?

A.Cystic fibrosis

B.Coeliac disease

C.Alpha-1 anti-trypsin deficiency

D.Chronic pancreatitis

E.Kartagener's Syndrome

Answer:Cystic fibrosis

Explanation:

Cystic fibrosis (CF) can give rise to pancreatic insufficiency and consequently steatorrhoea caused by gastrointestinal malabsorption of fats. CF also classically affects the lungs resulting in persistent pulmonary infections. While the majority of new cystic fibrosis (CF) diagnoses are detected very early in life in the UK (via newborn screening), there is a small percentage of children, adolescents and adults who receive a late diagnosis.

It is also important to remember that not all countries test for CF as part of their neonatal screening program. For example, in Germany, only approximately 15% of neonates are tested for cystic fibrosis in regional research programs and voluntary early-detection program.

Although type 1 diabetes mellitus is more commonly seen in patients with coeliac disease (due to the auto-immune nature of both conditions), the recurrent chest infections would not be typical of coeliac disease.

Question:

A 48-year-old woman with a history of asthma presents to the emergency department with shortness of breath, cough, with some specs of brown sputum. The only recent change in her life is moving into her new flat. Chest x-ray appears normal but blood tests later reveal an elevated IgE and IgM to A.fumigatus and so a diagnosis of allergic bronchopulmonary aspergillosis is made.

Which of the following would be considered a major feature seen in this condition?

A.Delayed skin reaction to fungal elements

B.Fungal elements in sputum

C.Peripheral bronchiectasis on chest x-ray

D.Peripheral blood eosinophilia

E.Persistent cough

Answer:Peripheral blood eosinophilia

Explanation:

Eosinophilia is a feature of allergic bronchopulmonary aspergillosis

Important for meLess important

Allergic bronchopulmonary aspergillosis (ABPA) is a condition characterised by a hypersensitivity response to the fungus aspergillus (most commonly aspergillus fumigatus). It occurs most often in people with asthma or cystic fibrosis. Patients may live in damp buildings where fungal spores may grow and be inhaled. They can also be found in soil, compost, plants, and air conditioning systems. Clinically, patients have atopic symptoms (especially asthma) and present with a recurrent chest infection. There are also major and minor features for this condition. Major criteria include a history of asthma, radiographic features of central bronchiectasis or pulmonary opacities (chronic or transient), blood eosinophilia, immediate skin reactivity to the aspergillus antigen, and increased serum IgE (>1000 IU/ml).

Delayed skin reaction to aspergillus and fungal elements in the sputum are seen as minor features of ABPA.

Central bronchiectasis is often seen in ABPA, not peripheral bronchiectasis.

A persistent cough may be a feature in this condition, especially if someone has a background of asthma but is not specific for the condition and, therefore, is the incorrect answer.

Question:

A 76-year-old man presents with dyspnoea. A chest x-ray is performed:

© Image used on license from Radiopaedia

What is the main finding on the film?

A.Right upper lobe consolidation

B.Right sided pneumothorax

C.Pulmonary oedema

D.Right middle + lower lobe consolidation

E.Bronchiectasis

Answer:Right middle + lower lobe consolidation

Explanation:

The presence of consolidation above the horizontal fissure and the obscured right heart border suggest the presence of right middle lobe consolidation. There is some loss of definition (silhouette sign) of the medial aspect of the right hemidiaphragm suggesting some right lower lobe consolidation as well.

A chest drain is also seen on the right hand side. This had been inserted to drain an associated pleural effusion.

Question:

A 24-year-old woman presents to the GP with a week-long history of headaches. The headaches are severe and last for about an hour at a time, occurring about once a day. The pain is stabbing in nature, located behind her left eye and she gets associated nasal stuffiness and watering/tearing of the eye.

She is otherwise well, with no other symptoms.

What is the most appropriate acute management for this woman?

A.High-flow oxygen and oral sumatriptan

B.High-flow oxygen and subcutaneous sumatriptan

C.Ibuprofen

D.Oral sumatriptan and an NSAID

E.Verapamil

Answer:High-flow oxygen and subcutaneous sumatriptan

Explanation:

Episodic, intense, unilateral eye pain, lacrimation, restless → ?cluster headache

Important for meLess important

High-flow oxygen and subcutaneous sumatriptan is the correct answer. This woman’s presentation is consistent with a diagnosis of cluster headaches, which usually present as episodes of intense, unilateral, stabbing pain located behind or around the eye. Cluster headaches are often associated with symptoms like eye redness, lid swelling, lacrimation and nasal stuffiness.

The acute management of a cluster headache is with a subcutaneous triptan and the administration of high-flow 100% oxygen. These can be used individually or in combination. Sometimes intranasal triptans may be used, but oral triptans are not used in cluster headaches.

High-flow oxygen and oral sumatriptan is incorrect. Although high-flow oxygen is used, oral triptans are not used in cluster headaches. Usually subcutaneous, and sometimes intranasal triptans are used.

Ibuprofen is incorrect. Non-steroidal anti-inflammatory drugs (NSAIDs) are not in the recommended acute treatment for cluster headaches.

Oral sumatriptan and an NSAID is incorrect. This is the first-line management of a migraine. Though migraines are also unilateral, they tend to be associated with symptoms like nausea, photophobia and photophobia, which aren’t seen in this case. In addition, migraines aren’t associated with lacrimation or nasal stuffiness. Therefore this case fits better with a presentation of cluster headaches, which are treated with subcutaneous triptans rather than an oral triptan + an NSAID.

Verapamil is incorrect. This is the drug of choice for prophylaxis in cluster headaches, however, this question asks about acute management, not prophylactic/ongoing management.

Question:

A 52-year-old man with known Marfan syndrome, ischaemic heart disease and COPD presents with chest discomfort over a 6–8-hour period which is not improved by his GTN spray. He denies any other symptoms.

On examination, he has a reduced air entry on the left side and a chest x-ray reveals a pneumothorax measuring 3cm. He has never had a pneumothorax before.

What treatment should be performed for this patient?

A.Aspiration attempt to a maximum of 2.5 L, followed by chest drain if no improvement on x-ray

B.Aspiration attempt until no further air can be removed, followed by chest drain if no improvement on x-ray

C.Chest drain placement

D.Chest drain placement with suction

E.Oxygen therapy for 4 hours followed by aspirate if no improvement on the X-ray

Answer:Chest drain placement

Explanation:

If a secondary pneumothorax > 2cm and/or the patient is short of breath then patient should be treated with chest drain (not aspiration) as first-line

Important for meLess important

The British Thoracic Society (BTS) define a secondary pneumothorax as any pneumothorax in a patient with underlying lung disease. As this patient has COPD any pneumothorax should be considered secondary. The BTS guidelines for the management of a secondary pneumothorax suggest that if the patient is over 50 years old, the pneumothorax measures over 2 cm and/or the patient is short of breath then a chest drain should be inserted.

In primary pneumothorax, over 2cm or secondary pneumothorax between 1-2cm aspiration should be attempted to a maximum of 2.5L followed by chest drain if no improvement is seen on chest x-ray. If air can still be aspirated beyond 2.5L it may indicate a persistent air leak; therefore, the procedure should be stopped. No improvement or failure of aspiration can be defined as a pneumothorax remaining over 1cm on repeat chest x-ray. All patients meeting these criteria should be admitted for at least 24 hours to ensure resolution.

Aspiration attempt beyond 2.5L is not advised in the management of either primary or secondary pneumothorax as it may indicate a persistent air leak. If a patient meets the initial criteria for an aspiration attempt but there is not adequate improvement after 2.5L has been removed (i.e. the pneumothorax remains over 1cm) then a chest drain should be placed.

Chest drain placement with suction is controversial. In theory, the addition of suction may be used if a patient’s lung does not initially re-inflate or if a persistent air leak prevents re-inflation however there is limited evidence of its benefit.

Oxygen therapy for 24 hours treatment followed by aspirate if there is no improvement on x-ray is not a recognised management option. In secondary pneumothorax less than 1cm then a trial of oxygen and admission for 24 hours may be considered however aspiration would only be required in the pneumothorax were to increase in size or if the patient's clinical condition deteriorated.

Question:

A 34-year-old man develops gross facial and tongue swelling shortly after being given the Japanese encephalitis vaccination. He is immediately given intramuscular adrenaline 500mcg. An ambulance is called, high-flow oxygen is applied and he is layed flat on the floor with his legs raised. Despite the adrenaline he facial swelling does not improve and his blood pressure is 82/54 mmHg. How soon after the first-dose of adrenaline can he be given a further dose?

A.3 minutes

B.5 minutes

C.10 minutes

D.15 minutes

E.30 minutes

Answer:5 minutes

Explanation:

In the treatment of anaphylaxis, you can repeat adrenaline every 5 minutes

Important for meLess important

Question:

A 23-year-old woman presents to the general practitioner with a worsening rash on her face and upper back which is causing a significant impact on her self confidence. She is currently five months pregnant and describes experiencing similar lesions during her teenage years. She is otherwise well with no allergies. The rash has not responded to topical benzoyl peroxide.

Examination identifies numerous erythematous papules and pustules distributed across the patient's face and upper back.

Which of the following management options is most appropriate?

A.Oral doxycycline

B.Oral erythromycin

C.Oral minocycline

D.Topical isotretinoin

E.Topical metronidazole

Answer:Oral erythromycin

Explanation:

Acne vulgaris in pregnancy - use oral erythromycin if treatment needed

Important for meLess important

The correct answer is oral erythromycin.

This patient is presenting with erythematous papules and pustules distributed across the face and upper back, a description in keeping with acne vulgaris. This has not responded to topical benzoyl peroxide, which is considered safe in pregnancy. Acne vulgaris should be managed with erythromycin in cases where treatment is needed in pregnancy. This should be used for a maximum of three months.

Oral doxycycline is incorrect. While this is sometimes used in cases of acne vulgaris refractory to topical therapy, tetracyclines (including doxycycline) are contraindicated in pregnancy as they affect skeletal development and cause tooth discolouration.

Oral minocycline is incorrect as this is also a tetracycline.

Topical isotretinoin is incorrect as both oral and topical retinoids are teratogenic and should be avoided in pregnancy.

Topical metronidazole is incorrect. This is an option in the management of mild acne rosacea.

Question:

A 27-year-old woman who is on the combined oral contraceptive pill (COCP) requests advice. She is currently on day 10 of her cycle and has forgotten to take her last two pills. Prior to this incident, she took her pill correctly every day. She had unprotected sexual intercourse 12 hours ago and wonders if she needs to take emergency contraception to prevent pregnancy.

What would be the most appropriate advice to give her?

A.To have a copper intrauterine device (IUD) fitted

B.No emergency contraception is required and to continue taking her pill as normal

C.To arrange oral emergency contraception

D.Depo-Provera (medroxyprogesterone acetate) injection

E.Advise her that it is too late for emergency contraception

Answer:No emergency contraception is required and to continue taking her pill as normal

Explanation:

If two pills are missed, between days 8-14 of the cycle, no emergency contraception is required, as long as the previous 7 days of COCP have been taken correctly

Important for meLess important

The Faculty of Sexual and Reproductive Health advises that for women who are established on the COCP, no emergency contraception is required if two pills are missed between days 8-14 of the cycle, provided that the woman had taken the previous 7 days of pills correctly.

We are told that the patient in this scenario doesn't usually have a problem taking her pill, and therefore can be safely assumed that she doesn't require emergency contraception in order to prevent pregnancy.

As this patient does not require emergency contraception, offering her a hormonal-based emergency contraceptive would be inappropriate. There are a few different options if emergency contraception is required. EllaOne (ulipristal 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 IUD 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.

Contraceptive injections can be used for long term contraception but are not used as a form of emergency contraception and would therefore be an inappropriate choice in this case.

It is possible to prescribe emergency contraception up to 120 hours after unprotected sexual intercourse (although its efficacy decreases with time). Therefore, advising a patient that she must take the emergency contraception within 12 hours would be incorrect advice.

Question:

A 54-year-old woman who is currently receiving chemotherapy for breast cancer presents for advice. Her granddaughter has developed chickenpox, with the pox first appearing yesterday whilst she was looking after her. The patient has never had chickenpox herself and is concerned about developing it, although she is asymptomatic at the current time. What is the most appropriate management?

A.Arrange varicella zoster immunoglobulin

B.Prescribe oral aciclovir

C.Admit for intravenous aciclovir

D.Reassure the patient she is not at an increased risk

E.Arrange immunisation against varicella

Answer:Arrange varicella zoster immunoglobulin

Explanation:

This patient is immunocompromised secondary to the chemotherapy and is therefore at risk of a severe varicella infection. She should therefore be given varicella zoster immunoglobulin.

Question:

A 55-year-old female is on a course of oral antibiotics for mild diverticulitis. She attends a birthday party and soon afterwards complains of flushing, headache, vomiting and palpitations. Her heart rate is 115 beats/min.

She denies any significant past medical history and no history of allergies to any food or medication. She denies recreational drug use but admits having had 1 glass of wine at the party.

Which of the following antibiotics is she likely on?

A.Ciprofloxacin

B.Metronidazole

C.Penicillin

D.Amoxicillin with clavulanic acid

E.Doxycycline

Answer:Metronidazole

Explanation:

The combination of metronidazole and ethanol can cause a disulfiram-like reaction. Clinical features of this include head and neck flushing, nausea and vomiting, sweatiness, headache and palpitations.

Cefoperazone, a cephalosporin, is also associated with a disulfiram-like reaction to alcohol.

Question:

A 34-year-old man with a history of depression is admitted to the Emergency Department. He states he has taken an overdose of both diazepam and dosulepin. On examination blood pressure is 116/78 and the pulse is 140 bpm. His respiratory rate is 8 per minute and the oxygen saturations are 97% on room air. What is the most appropriate next course of action?

A.Give flumazenil

B.Insert a haemodialysis line

C.Obtain an ECG

D.Give naloxone

E.Start N-acetylcysteine infusion

Answer:Obtain an ECG

Explanation:

As this patient has a marked tachycardia the first step would be to obtain an ECG. If changes such as QRS widening are seen then intravenous bicarbonate should be given

Some users have argued that an 'ABC' approach should be taken, with flumazenil given to reverse the respiratory depression. The potential risk of doing this would be inducing a seizure given the coexistent tricyclic overdose

Question:

A 30-year-old man with a history of mitral valve prolapse, recurrent pneumothorax, lower back pain secondary to scoliosis and pectus excavatum is considering starting a family. Given the likely diagnosis, what is the mode of inheritance of this condition?

A.X-linked recessive

B.Mitochondrial

C.Autosomal codominant

D.Autosomal recessive

E.Autosomal dominant

Answer:Autosomal dominant

Explanation:

Question:

A 14-year-old girl was brought into the emergency department by ambulance after an episode of lip-smacking and shirt tugging before she collapsed on the ground.

She was reported to experience limb jerking and tongue biting while unconscious for 5 minutes before the ambulance arrived. She regained consciousness afterwards and seemed confused and tired.

What area of the brain did the seizure start from?

A.Cerebellum

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

The scenario describes the progression of a focal seizure which began from the temporal lobe to a generalised tonic-clonic seizure.

Temporal lobe is the correct answer for this scenario and presents with automatism. Examples of automatism include lip smacking and pulling buttons of t-shirts which at times may appear inappropriate for people oblivious to the condition.

Frontal lobe is incorrect in this scenario because these seizures present with Jacksonian March, described as paresthesia or uncontrolled motor activity that spreads from distal peripheries proximally. Frontal lobe seizures also cause posturing as the frontal lobe is involved with motor functioning. These patients don't usually experience any post-ictal confusion but they experience Todd's paralysis, which is sustained weakness of the affected side of the body.

Cerebellum is incorrect in this case. The cerebellum is involved in the coordination and regulation of body functions. Signs of cerebellar dysfunction include balance problems, vertigo and nystagmus; these were not mentioned in this scenario.

Occipital lobe is incorrect in this scenario as these seizures present with floaters or flashes. The occipital lobe is the visual processing area of the brain. This patient did not experience any visual changes during the seizure.

Parietal lobe is incorrect in this scenario as these seizures present with pins and needles or a tingling sensation. This lobe is involved in the processing of sensory information from the surroundings. The case described in this question did not mention the patient reporting any abnormal sensation.

Question:

A 7-year-old boy is referred to the enuresis clinic by his GP. His mother initially contacted the GP concerned with ongoing bedwetting and it transpires that the boy has never had a 'dry night'.

The GP has provided general advice on diet, fluid intake and toileting behaviour, though the mother says the bedwetting has not resolved. Despite the use of a reward system, the boy still wets the bed at night and the mother is getting concerned.

She speaks to the enuresis clinic and is sent home with an intervention.

What is this intervention likely to be?

A.A better prize for the reward system

B.Desmopressin

C.Enuresis alarm

D.Oxybutynin

E.Tolterodine

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

In a child with nocturnal enuresis, an enuresis alarm is generally offered if advice alone is not enough. This is first-line as per NICE guidance.

A better prize for the reward system may be worth exploring; after all, the child may not be motivated if he does not feel the prize is worth the effort. However, it should be assumed that the mother can motivate their child appropriately and so it is more likely this will not be the route taken by the clinic. If it hasn't worked, it is probable outcomes will not change by repeating this intervention.

Desmopressin, oxybutynin and tolterodine are all pharmacological interventions used in nocturnal enuresis (tolterodine is unlicensed). Desmopressin is usually offered if the enuresis alarm does not work.

Question:

A 53-year-old man is on the intensive care unit following an emergency abdominal aortic aneurysm repair. He develops abdominal pain and diarrhoea and is profoundly unwell. His abdomen has no features of peritonism. Which of the following arterial blood gas pictures is most likely to be present?

A.pH 7.45, pO2 10.1, pCO2 3.2, Base excess 0, Lactate 0

B.pH 7.35, pO2 8.0, pCO2 5.2, Base excess 2, Lactate 1

C.pH 7.20, pO2 9.0, pCO2 3.5, Base excess -10, Lactate 8

D.pH 7.29, pO2 8.9, pCO2 5.9, Base excess -4, Lactate 3

E.pH 7.30, pO2 9.2 pCO2 4.8, Base excess -2, lactate 1

Answer:pH 7.20, pO2 9.0, pCO2 3.5, Base excess -10, Lactate 8

Explanation:

This man is likely to have a metabolic acidosis secondary to a mesenteric infarct.

Question:

A 35-year-old male presents with the rash shown below, which has been over the past 2 months. It is intensely itchy.

© Image used on license from DermNet NZ

Given the most likely diagnosis, which of the following is the most appropriate management for this condition?

A.Gluten-free diet

B.Oral anti-histamines

C.Oral corticosteroids

D.Topical anti-histamines

E.Topical corticosteroids

Answer:Gluten-free diet

Explanation:

This patient has an itchy rash that most closely resembles dermatitis herpetiformis. Dermatitis herpetiformis is most commonly caused by coeliac disease; therefore, is treated with a gluten-free diet.

Oral and topical corticosteroids are third-line treatments for dermatitis herpetiformis in patients that have failed to respond to a gluten-free diet and dapsone therapy.

Both topical and oral anti-histamines are not used in the treatment of dermatitis herpetiformis.

Question:

A 2-month-old girl is brought to surgery with poor feeding and vomiting. Mother reports that her urine has a strong smell. A urinary tract infection is suspected. What is the most appropriate management?

A.Urine culture + empirical oral antibiotic therapy + ultrasound as soon as possible

B.Urine culture + empirical oral antibiotic therapy + outpatient referral to paediatrics

C.Urine culture + oral antibiotics based upon results + ultrasound within 6 weeks

D.Urine culture + empirical oral antibiotic therapy + ultrasound within 6 weeks

E.Refer immediately to hospital

Answer:Refer immediately to hospital

Explanation:

Question:

A 65-year-old man is on the ward recovering from an ST-elevated myocardial infarction (STEMI).

Five days into his recovery, he reports sudden onset shortness of breath, particularly when lying flat. He also reports developing a wheezing cough.

Examination reveals distended neck veins and an audible pan-systolic murmur.

Based on the information provided, which of the following pathologies is the most likely explanation for this patient's current presentation?

A.Aortic dissection

B.Dressler's syndrome

C.Left ventricular aneurysm

D.Left ventricular free wall rupture

E.Ventricular septal defect

Answer:Ventricular septal defect

Explanation:

A patient develops acute heart failure 5 days after a myocardial infarction. A new pan-systolic murmur is noted on examination - ventricular septal defect

Important for meLess important

Ventricular septal defects usually occur within the first week of myocardial infarction (MI) and are caused by ischaemic damage to the inter-ventricular septum. It presents with acute heart failure and a pan-systolic murmur. An echocardiogram (ECHO) should be performed to confirm the diagnosis, especially as it can present similarly to acute mitral regurgitation caused by papillary muscle rupture or ischaemia following an MI.

Aortic dissection would not be a common complication of an MI and would present with tearing chest pain, radiating to the back, rather than breathlessness. It can cause a murmur if it is associated with aortic regurgitation, which does not always occur.

Dressler's syndrome is an autoimmune reaction to proteins formed in the healing of the myocardium post-myocardial infarction (MI). It presents with recurrent pericarditis (chest pain, often worse when lying flat) and fever, rather than acute shortness of breath. It would not explain the murmur heard in this scenario.

A left ventricular aneurysm is slow-growing and often presents insidiously with excessive tiredness and signs of heart failure. It is not likely to present so soon after an MI or in such an acute manner, and would not explain the murmur.

Left ventricular free wall rupture is caused by infarction causing a weakening in the wall. The rupture leads to bleeding into the pericardium, resulting in cardiac tamponade. Examination of a patient with left ventricular free wall rupture would reveal signs of cardiac tamponade, including raised jugular venous pressure, pulses paradoxus and muffled/quiet heart sounds. It would not explain the murmur in this scenario.

Question:

A patient presents to the GP for her annual diabetes check. After talking to her about her HbA1c results, you take some routine observations as the patient reports the feeling of her heart racing lately.

Temperature 36.4ºC

Heart rate 120bpm

Respiratory rate 12bpm

Oxygen saturations 98% on air

Blood pressure 135/96mmHg

Her regular medications consist of metformin, dapagliflozin, ramipril, nifedipine and indapamide.

What medication is likely to be responsible for her symptoms?

A.Dapagliflozin

B.Indapamide

C.Metformin

D.Nifedipine

E.Ramipril

Answer:Nifedipine

Explanation:

Nifedipine causes peripheral vasodilation which may result in reflex tachycardia

Important for meLess important

Nifedipine is correct. This patient is presenting with isolated tachycardia and the feeling of his heart beating in his chest. This is likely due to his nifedipine. Nifedipine causes peripheral vasodilation which leads to the heart compensating for the drop in blood pressure by beating faster. Hence the reflex tachycardia we see in this patient.

Dapagliflozin is incorrect. Dapagliflozin is an SGLT-2 inhibitor used in the treatment of type 2 diabetes mellitus. Important side effects to consider with this drug include urinary tract infections and Fournier’s gangrene. This is a result of glucose being present in the urine.

Indapamide is incorrect. Indapamide is a thiazide-like diuretic, used in many different situations e.g. managing hypertension. Important side effects to note with diuretics include dehydration and gout.

Metformin is incorrect. Metformin is a drug commonly used first-line in the treatment of type 2 diabetes mellitus. Important side effects to consider with the use of metformin include GI upset and lactic acidosis.

Ramipril is incorrect. Ramipril is an ACE inhibitor that is used again for many different reasons e.g. managing hypertension. Important side effects to consider in patients using metformin include a dry cough and angioedema.

Question:

Which one of the following is least associated with cocaine toxicity?

A.Metabolic alkalosis

B.Hyperthermia

C.Psychosis

D.Rhabdomyolysis

E.Seizures

Answer:Metabolic alkalosis

Explanation:

Question:

A 27-year-old man with a 3-month history of excessive thirst and polyuria presents to the endocrinology clinic. He has a past medical history of bipolar disorder, which is well controlled on lithium.

Initial blood results carried about by his GP are below.

Na+ 140 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Glucose 6 mmol/L (4-11)

HbA1c 41 mmol/mol (<42)

What test would be diagnostic in this patient?

A.CT head

B.Renal tract ultrasound

C.Thyroid function tests

D.Urine osmolality

E.Water deprivation test

Answer:Water deprivation test

Explanation:

Investigation for diabetes insipidus - water deprivation test

Important for meLess important

The correct answer is a water deprivation test . This would be the diagnostic test for diabetes insipidus (DI). The clues to the diagnosis of DI are the symptoms of polydipsia and polyuria, the use of lithium and his normal plasma glucose. Nephrogenic DI can occur in up to 20-40% of patients who take lithium. In cranial DI, there is a deficiency of ADH. In nephrogenic diabetes insipidus, ADH is available, but there is a lack of response by the kidneys. This is why desmopressin can be given to differentiate between cranial and nephrogenic DI. If urine output is normal after water deprivation, this indicates primary polydipsia and desmopressin does not need to be given.

A CT head is incorrect as it would not be diagnostic of diabetes insipidus, and it is actually an MRI which is used to survey the pituitary, hypothalamus, and pineal gland to determine any cranial causes.

A renal tract ultrasound is incorrect as this is used to assess obstructive complications caused by the high urinary back-pressure, not for diagnosis.

Doing thyroid function tests is incorrect as there is no evidence of hyper or hypothyroidism, and this would not help with the diagnosis of diabetes insipidus.

Urine osmolality is incorrect as although it would be expected the urine osmolality would be < 200 mOsm/kg this is not diagnostic.

Question:

A 29-year-old woman presents to her GP with several painful, red, raised lesions on her shins. She has also noted a thin, white, odourless vaginal discharge.

Over the last week, she has suffered from feeling increasingly nauseous. She has also been passing urine more frequently but denies dysuria/haematuria.

What is the most appropriate next investigation?

A.Biopsy of the skin lesions

B.High vaginal swab

C.Pregnancy test

D.Sputum sample for Ziehl-Neelsen staining

E.Urine sample for microscopy, culture and sensitivity

Answer:Pregnancy test

Explanation:

Erythema nodosum may be caused by pregnancy

Important for meLess important

Pregnancy test is correct. This patient has erythema nodosum, and the other symptoms she describes (non-offensive vaginal discharge, nausea and urinary frequency) are all physiological changes that occur during pregnancy. A pregnancy test is therefore the most appropriate next investigation.

Biopsy of the skin lesions is incorrect. The features described are compatible with erythema nodosum accompanied by normal physiological changes of pregnancy. Erythema nodosum caused by pregnancy is self-limiting and is not known to cause any adverse outcomes for the mother or the baby. A biopsy is therefore unnecessarily invasive and would not change management.

High vaginal swab is incorrect. A high vaginal swab can be used to diagnose bacterial vaginosis, Trichomonas vaginalis and Candida. Bacterial vaginosis is associated with a fishy discharge, Trichomonas vaginalis with a thin offensive smelling discharge and Candida with a white curd-like discharge. None of these fit the discharge described, and infections with these organisms would not explain the other symptoms she describes, which are all normal physiological changes associated with pregnancy.

Sputum sample for Ziehl-Neelsen staining is incorrect. This is the test for mycobacteria such as Mycobacterium tuberculosis, but there are no strong indications that this patient has tuberculosis from the question stem, as the symptoms she describes suggest erythema nodosum accompanied by normal physiological changes of pregnancy.

Urine sample for microscopy, culture and sensitivity is incorrect. This would provide evidence for urinary tract infection, amongst other things. This patient does note urinary frequency; however, a urinary tract infection would not explain the erythema nodosum or the vaginal discharge. These features can all be caused by pregnancy.

Question:

A 33-year-old known to be HIV positive presents with a 2 day history of diarrhoea. What is the most likely cause of his diarrhoea?

A.Herpes simplex enteritis

B.Cryptosporidium

C.Histoplasmosis

D.Shigella

E.Mycobacterium avium intracellulare

Answer:Cryptosporidium

Explanation:

Cryptosporidium is the most common cause of diarrhoea in patients with HIV infection. Histoplasmosis may cause respiratory infection in HIV patients. Mycobacterium avium intracellulare and giardiasis are known causes of diarrhoea in HIV patients but are not as common as Cryptosporidium infection

Question:

You are counselling a 38-year-old female with major depressive disorder who is considering undergoing electroconvulsive therapy (ECT).

Which of the following is a short term side effect of this treatment?

A.Epilepsy

B.Mania

C.Cardiac arrhythmias

D.Parkinson's disease

E.Glaucoma

Answer:Cardiac arrhythmias

Explanation:

ECT - cardiac arrhythmias are a short term side effect

Important for meLess important

It is vital to accurately know the side effects of ECT as it is a treatment which the public regard with caution.

ECT is indicated in treatment-resistant depression, catatonic schizophrenia and severe mania. A much-feared treatment due to its early usage with very high strengths and no anaesthesia, it is now regarded as a reasonably safe intervention.

Its short term side effects include headache, nausea, memory impairment and arrhythmias. Long term, there are very few effects noted, though rarely patients have long term memory issues.

ECT is a treatment for mania, and an experimental treatment for Parkinson's. ECT induces a generalised seizure, but is not associated with epilepsy. It is not associated with glaucoma.

Question:

A 23-year-old man is brought to the emergency department following submersion. The patient has a temperature of 26 degrees centigrade and is found to be in ventricular fibrillation (VF) on ECG.

You have so far been performing ALS and have given three defibrillation shocks. You have also begun active and passive rewarming. The patient remains in VF.

What should your ongoing management be?

A.Continue ALS giving shocks every 2 minutes

B.Continue ALS giving shocks every 4 minutes

C.Continue chest compressions but withhold shocks until patient's temperature >30 degrees

D.Continue chest compressions but withhold shocks until patient's temperature is >35 degrees

E.Declare the attempt futile

Answer:Continue chest compressions but withhold shocks until patient's temperature >30 degrees

Explanation:

In cases of hypothermia causing cardiac arrest, defibrillation is less effective and only 3 shocks should be administered before the patient is rewarmed to 30 degrees centigrade

Important for meLess important

In hypothermia, defibrillation is much less effective and only 3 shocks should be given until the patient has been rewarmed to 30 degrees.

Pacing is ineffective in hypothermia and should only be used once normothermia is reached.

Drugs should be withheld until the patient is 30 degrees and then should be given at double time intervals until the patient is reaching normothermia or has the return of spontaneous circulation (ROSC).

Question:

A 25-year-old man presents with a several-month history of fluctuating abdominal cramps and foul-smelling, greasy loose stools. This is associated with significant weight loss and fatigue.

He is otherwise well and denies any infective symptoms. He has no past medical history and is not on any medications.

Anti-transglutaminase and anti-endomysial antibodies are positive.

What specific blood film abnormality is associated with this condition?

A.Degmacyte

B.Howell-Jolly bodies

C.Hypersegmented neutrophils

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

This patient has presented with the autoimmune disorder, coeliac disease, where patients develop an intolerance to gluten (found in foods such as wheat and barley), resulting in an inflammatory response. The diagnosis is confirmed with positive anti-transglutaminase and anti-endomysial antibodies. A well-recognised complication of coeliac disease is hyposplenism thought to result from functional hyposplenism and splenic atrophy. As such, a blood film in coeliac patients often shows Howell-Jolly bodies signifying the inability of a damaged spleen to remove these red cell inclusions.

Degmacyte, also known as ‘bite cells’, are abnormally shaped mature red blood cells with a portion of the cell margin removed. These removed portions or ‘bites’ occur due to the mechanical removal of denatured haemoglobin as the cells migrate through the spleen. This denaturing of haemoglobin can result from several processes of oxidative haemolysis such as glucose-6-phosphate dehydrogenase deficiency. These cells are not associated with hyposplenism and are not commonly seen in coeliac disease.

Hypersegmented neutrophils are normally defined as the presence of neutrophils whose nuclei have six or more lobes or where over 3% of neutrophils have at least five lobes. Hypersegmented neutrophils are associated with the macrocytic, megaloblastic anaemia due to hypovitaminosis such as vitamin B12 or folate deficiency. Although severe coeliac disease can result in some malabsorption, hypovitaminosis is rare and therefore these cells are not associated with the condition.

Schistocytes are irregularly shaped, fragmented parts of red blood cells, often seen in patients with mechanical haemolysis. Several microangiopathic diseases can result in haemolytic conditions including disseminated intravascular coagulation and thrombotic microangiopathies. Again, these cells are not associated with coeliac disease.

Spherocytes are sphere-shaped red blood cells rather than normal bi-concave disk-shaped cells. They are found in hereditary spherocytosis and immunological-mediated haemolytic anaemia. The spleen mistakes these sphere-shaped cells as damaged and therefore removes them resulting in the associated anaemia. They are not seen in coeliac disease.

Question:

A 24-year-old female presents to your outpatient clinic having been referred due to recurrent miscarriages. She has had no successful pregnancies thus far. Her blood tests reveal the following:

APTT 42 (27-35)

Platelets 95 (150-400)

PT 12 seconds (11-14)

What is the likely cause of these abnormalities?

A.Autoimmune thrombocytopenia (AITP)

B.Antiphospholipid syndrome

C.Von Willebrand Disease (vWD)

D.Haemophilia A

E.Heparin Overdose

Answer:Antiphospholipid syndrome

Explanation:

Antiphospholipid syndrome leads to a raised APTT and normal PT and can result in thrombocytopenia. AITP would cause solely low platelets whilst vWD and haemophilia A would only affect the APTT. Unfractionated heparin could lead to prolonged APTT however low platelets would only potentially occur as a long term side effect and is an unlikely cause of her recurrent miscarriages.

Question:

A 36-year-old woman presents with flushing, diarrhoea and abdominal discomfort. She says these symptoms have come on over the last few months and do not appear to be getting better. You decide to run some tests. 24-hour urine 5-HIAA is elevated confirming your diagnosis of carcinoid syndrome. A scan is undertaken which localises the neoplastic lesion to the jejunum. You start her on octreotide to calm her symptoms whilst she awaits surgery. What cardiac abnormalities are associated with this conditions?

A.Hypertrophic obstructive cardiomyopathy

B.Acquired ventricular septal defect

C.Pulmonary stenosis and tricuspid insufficiency

D.Aortic dissection

E.Löeffler endocarditis

Answer:Pulmonary stenosis and tricuspid insufficiency

Explanation:

Carcinoid syndrome can affect the right side of the heart. The valvular effects are tricuspid insufficiency and pulmonary stenosis

Important for meLess important

Carcinoid syndrome is a neuroendocrine tumour. There are many locations that they can occur in such as in the GI tract, in the respiratory tract and many other places. They can secrete serotonin which leads to many of the symptoms this patient suffers. The syndrome is associated with right-sided valvular pathology. The most common pathology is tricuspid insufficiency and pulmonary stenosis. The best way to remember is the acronym 'TIPS'.

HOCM is associated with inherited gene defects on the β-myosin heavy chain. This is not associated with carcinoid syndrome.

Acquired VSD would be associated with an MI and not carcinoid syndrome.

Aortic dissection is associated with hypertension and connective tissue disorder.

Löeffler endocarditis is endocarditis due to eosinophil proliferation in the heart. It is associated with helminthic infections and not carcinoid syndrome.

Question:

A 55-year-old HIV positive man presents to the Emergency Department with sudden onset of chest pain. A more detailed history is taken which reveals that his pain is sharp and improves when he sits forward. Examination shows that he has a temperature of 38.1ºC and his heart rate is 115 beats/min. An ECG is carried out soon after and based on this man's symptoms, what would be the most likely initial finding?

A.Low voltage QRS complexes

B.Concave ST elevation

C.T wave inversion

D.Concave ST depression

E.Absent P wave

Answer:Concave ST elevation

Explanation:

Saddle-shaped ST elevation is often seen in the ECG of a patient with acute pericarditis

Important for meLess important

This is a typical clinical picture of acute pericarditis. The combination of the pleuritic chest pain which improves upon sitting forward makes this the most likely diagnosis. Typically, widespread 'saddle-shaped' or concave ST elevation is seen in the ECG of patients with pericarditis.

Question:

A 13-year-old girl presents to her general practitioner with a one-week history of fever and fatigue. She has a past medical history of Downs syndrome. Her observations show:

Respiratory rate 16 breaths/min

Heart rate 85 beats/min

Blood pressure 120/84mmHg

Temperature 37.1ºC

Oxygen saturations 97%

On examination, you note conjunctival pallor and a generalised petechial rash on her abdomen.

What is the most appropriate initial management of this patient?

A.Benzylpenicillin 600 mg delivered intramuscularly

B.Benzylpenicillin 1200mg delivered intramuscularly

C.Immediate referral for specialist assessment

D.Routine referral for specialist assessment

E.Urgent transfer to the emergency

Answer:Immediate referral for specialist assessment

Explanation:

Children and young people (0-24yrs): Refer for immediate specialist assessment for leukaemia if: unexplained petechiae or hepatosplenomegaly

Important for meLess important

The correct answer is an immediate referral for specialist assessment.

This patient's presentation of conjunctival pallor (suggests anaemia) unexplained petechiae and past history of downs syndrome all make a diagnosis of acute lymphocytic leukaemia likely. Any patient under the age of 24 presenting with unexplained petechiae or hepatosplenomegaly requires an immediate referral for specialist assessment for leukaemia. For reference, petechiae occur due to thrombocytopenia and hepatosplenomegaly due to leukaemic cell infiltration into these organs.

Benzylpenicillin 600 mg delivered intramuscularly is incorrect. This is the initial management of community cases of meningococcal disease in patients aged 1-9 years-old. While the patient has a petechial rash, they have no other symptoms to suggest this diagnosis, such as shock or meningism.

Benzylpenicillin 1200 mg delivered intramuscularly is incorrect. This is the initial management of community cases of meningococcal disease in patients aged 10 years and older. While the patient has a petechial rash, they have no other symptoms to suggest this diagnosis, such as shock or meningism.

Routine referral for specialist assessment is inappropriate as this patient may be seriously unwell and requires further assessment.

Urgent transfer to the emergency is incorrect. While this patient requires urgent assessment, this needs to be performed by a paediatrician, not a doctor working in the emergency department.

Question:

A 17-year-old girl is brought in due to parental concerns about lack of menstruation. All her school friends have already started their periods and they are worried that there may be something wrong with her.

Blood tests show the following:

FSH 12 IU/L (4-8)

LH 13 IU/L (4-8)

What is the most likely underlying diagnosis?

A.Noonan syndrome

B.Normal late menarche

C.Polycystic ovarian syndrome

D.Pregnancy

E.Turner syndrome

Answer:Turner syndrome

Explanation:

Raised FSH/LH in primary amenorrhoea - consider gonadal dysgenesis (e.g. Turner's syndrome)

Important for meLess important

Turner syndrome is the most likely underlying cause of this girl's amenorrhea. In Turner syndrome, one of the two X chromosomes is missing in a female. Physical signs may include a short and webbed neck, low-set ears, low hairline at the back of the neck, short stature, and swollen hands and feet noted at birth. Typically, patients do not develop menstrual periods and breasts without hormone treatment and are unable to have children without reproductive technology. However, the incidence of spontaneous puberty varies between 8-40% depending on whether or not there is a complete or partial absence of the X chromosome. Turner syndrome is a common cause of primary amenorrhea. Genetic studies would confirm the diagnosis.

Noonan syndrome is an autosomal dominant condition that may present with mildly unusual facial features, short height, congenital heart disease, bleeding problems, and skeletal malformations. Facial features include widely spaced eyes, light-colored eyes, low-set ears, a short neck, and a small lower jaw. Common heart problems may include pulmonary valve stenosis. The breast bone may either protrude or be sunken, while the spine may be abnormally curved. Noonan syndrome is similar in some ways to Turner syndrome, but it often affects boys. It is far less common than Turner syndrome as a cause of primary amenorrhea in girls and therefore is not the most likely diagnosis.

Normal late menarche is incorrect. While some girls start their menstruation later and this may be physiological, they would not have deranged LH and FSH. These point to a potential underlying pathology that warrants further investigation.

Polycystic ovarian syndrome (PCOS) is not the most likely diagnosis here, but it is a common cause of secondary amenorrhoea. In PCOS, LH is disproportionately high compared to FSH. Normally this ratio is about 1:1, but for women with PCOS, the ratio may be 2:1 or 3:1.

Pregnancy is an important differential to consider as the girl may not have disclosed sexual activity to her parents. However, the girl has never had a period and so is unlikely to be fertile. Furthermore, the follicle-stimulating hormone (FSH) is suppressed during pregnancy, which would not be in keeping with her blood test results.

Question:

A 67-year-old woman presents to the GP with a 3-day history of burning pain when passing urine and increased frequency. She is not sexually active and has no past medical history, except for a penicillin allergy.

Her temperature is 37.0ºC, her heart rate is 85 bpm, and her blood pressure is 128/75 mmHg. An abdominal examination is unremarkable and there is no costovertebral angle tenderness. A dipstick is positive for leukocytes and nitrites only.

What is the most appropriate action for the GP to take?

A.Prescribe nitrofurantoin for 3 days

B.Prescribe nitrofurantoin for 3 days and send a urine culture

C.Prescribe nitrofurantoin for 7 days

D.Prescribe nitrofurantoin for 7 days and send a urine culture

E.Refer to urology for further assessment

Answer:Prescribe nitrofurantoin for 3 days and send a urine culture

Explanation:

An MSU should be sent for all women over > 65-years-old with a suspected urinary tract infection

Important for meLess important

The presence of dysuria and increased frequency along with a dipstick positive for leukocytes and nitrites 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. 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 is incorrect. This would be appropriate if this patient was less than 65 years old. As mentioned above, since this patient is over 65 years of age, NICE recommends sending a urine culture as well as urine dipsticks are less reliable in older patients due to the presence of asymptomatic bacteriuria.

Prescribe nitrofurantoin for 7 days is incorrect as although the drug choice is correct, the duration is unnecessary and should be 3 days instead. If this patient were male or pregnant, then a 7-day course would be appropriate.

Prescribe nitrofurantoin for 7 days and send a urine culture is incorrect. Although urine cultures should be sent, nitrofurantoin should be given for 3 days rather than 7, as this patient is not male or pregnant.

Refer to urology for further assessment is incorrect. Referral should be considered in scenarios such as where patients have persistent haematuria following treatment (which can suggest malignancy), or if patients have recurrent UTIs where the case is unknown. These features do not apply to this patient, therefore a referral is not necessary.

Question:

A 34-year-old woman of Chinese Han ethnicity telephones her GP to discuss her pregnancy which was planned and is at an estimated 6-weeks gestation. She smokes 10 cigarettes/day and has a body mass index (BMI) of 31 kg/m². She suffers from mild asthma only, which is well-controlled with inhaled beclometasone. The GP prescribes folic acid 5mg daily and advises the patient to continue this for the first 12-weeks of her pregnancy.

Which of the following is an indication for high-dose folic acid for this patient?

A.History of asthma

B.Patient's age

C.Patient's body mass index (BMI)

D.Patient's ethnicity

E.Smoking status

Answer:Patient's body mass index (BMI)

Explanation:

Pregnant obese women (BMI >30 kg/m2), should be given high dose 5mg folic acid

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, 0.4mg daily in the first 12 weeks of pregnancy is sufficient. However, patients with a BMI of ≥30 kg/m² should be provided with 5mg daily for the first 12 weeks of pregnancy.

In addition to patients with a BMI of ≥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.

History of asthma, smoking, patient age, and Asian ethnicity are not indications for high-dose folic acid prescribing in pregnancy.

Smoking in pregnancy is a risk factor for prematurity, low birth weight, and cleft lip/palate. There is a possible association between smoking and NTD risk, though at this time of writing high dose folic acid prescribing for pregnant smokers is not recommended.

Both asthma and the extremes of maternal age (young and old) may also carry some risk of an NTD, but this remains to be established and high dose folic acid prescribing for these patient groups is not currently recommended.

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:

A 45-year-old man presents to the emergency department with agitation and tremors. He denies any hallucinations. The patient admits to chronic excessive alcohol consumption.

His temperature is 37.1ºC, his heart rate is 130 bpm, and his blood pressure is 168/105 mmHg. On examination, he is jaundiced and has ascites, however, the examination is limited as he experiences a generalised tonic-clonic seizure.

How long has it most likely been since the patient's last drink?

A.4 hours ago

B.6 hours ago

C.12 hours ago

D.36 hours ago

E.72 hours ago

Answer:36 hours ago

Explanation:

Alcohol withdrawal

symptoms: 6-12 hours

seizures: 36 hours

delirium tremens: 72 hours

Important for meLess important

This patient has a history of chronic excessive alcohol consumption along with stigmata of liver disease (jaundice and ascites). Given this history, the presence of tremors, agitation, tachycardia, and hypertension are likely to be due to acute alcohol withdrawal. The symptoms experienced by patients vary according to how long ago their last alcoholic drink was, progressing from agitation, tremors, and anxiety to seizure and life-threatening delirium tremens.

36 hours ago is correct. Since this patient has experienced a generalised tonic-clonic seizure secondary to alcohol withdrawal, it is likely his last alcoholic drink was 36 hours ago as this is roughly when seizures first start following alcohol withdrawal.

4 hours ago is incorrect as symptoms of acute alcohol withdrawal typically occur 6-12 hours following the last drink. Since symptoms progress from agitation and tremors to seizures and delirium tremens, it is unlikely for this patient to experience seizures in such as short timeframe since their last drink.

6 hours ago is incorrect as in the first 6-12 hours following alcohol withdrawal, patients experience mild-moderate symptoms such as restlessness, tremors, insomnia, fatigue, and headaches. Seizures do not occur within this timeframe.

12 hours ago is incorrect as patients experience mild to moderate symptoms of alcohol withdrawal as mentioned above. Seizures do not occur within the first 6-12 hours.

72 hours ago is incorrect. Although seizures may occur at 72 hours, symptoms of delirium tremens tend to appear at 72 hours. These symptoms consist of profound confusion and hallucinations, which are not seen here. Therefore, this much time has not likely elapsed.

Question:

A 5-year-old boy has an anaphylactic reaction following the ingestion of nuts. He is brought to the emergency department however, on arrival he shows no signs of life.

What is the correct treatment?

A.2 rescue breaths then 15 chest compressions to every 1 ventilation breaths

B.2 rescue breaths then 15 chest compressions to every 2 ventilation breaths

C.5 rescue breaths then 15 chest compressions to every 1 ventilation breaths

D.5 rescue breaths then 15 chest compressions to every 2 ventilation breaths

E.5 rescue breaths then 30 chest compressions to every 2 ventilation breaths

Answer:5 rescue breaths then 15 chest compressions to every 2 ventilation breaths

Explanation:

In paediatric basic life support, the ratio of compressions to breaths is 15:2

Important for meLess important

5 rescue breaths then 15 chest compressions to every 2 ventilation breaths is the correct answer. In a child, 5 rescue breaths should be administered and the correct ratio during cardiopulmonary resuscitation is 15 chest compressions to 2 ventilation breaths. For a child under 1, the two-thumb encircling or two-finger techniques should be used. For a small child, the one-handed technique should be used. For a larger child, the two-handed technique can be used (as for adults).

30:2 is incorrect. This is the correct ratio of compressions to breaths in adult cardiopulmonary resuscitation.

Question:

A 50-year-old man presents with a week history of shortness of breath. He is found to have a pleural effusion on his chest x-ray. This is sampled and analysed with the following results:

Protein 36g/L

LDH 340 units/L (<200)

What is the most common cause of this type of pleural effusion?

A.Heart failure

B.Pneumonia

C.Malignancy

D.Connective tissue disease

E.Renal failure

Answer:Pneumonia

Explanation:

Pneumonia is the most common cause of an exudative pleural effusion

Important for meLess important

This question first asks you to establish that this is an exudative effusion by knowing that the protein level >35 and the LDH >200 point to this.

This means heart failure and renal failure can immediately be ruled out as they are both transudative.

Of the remaining three, pneumonia is by far the most common cause of exudative pleural effusion.

Question:

A 67-year-old man is diagnosed with Parkinson's disease after presenting to his GP with a resting tremor and difficulty initiating movement. He is started on a medication to treat this by his neurologist. At his review a few months later, he says that his symptoms have been much better but his wife has been complaining because he has started to spend a significant amount of money betting on football matches. His wife adds that this is very out of character for him.

Which of the following medications is he likely to have been prescribed?

A.Amantadine

B.Bromocriptine

C.Entacapone

D.Levodopa

E.Selegiline

Answer:Bromocriptine

Explanation:

Dopamine receptor agonists are associated with the highest chance of inhibition disorders out of the antiparkinsonian medications

Important for meLess important

The correct answer is bromocriptine.

This patient's wife is reporting that he seems to have developed an issue with impulse control on his new medication, as evidenced by his new gambling behaviour. The medication class most associated with this is dopamine receptor agonists, of which bromocriptine is an example. None of the other medications mentioned are in this class so none are as likely to cause disorders of inhibition.

Amantadine can be prescribed as an add-on medication in Parkinson's disease. The mechanism of action is not fully understood, but the side effects include ataxia, slurred speech, confusion and dizziness.

Entacapone is a Catechol-O-Methyl Transferase (COMT) inhibitor. These can be prescribed for Parkinson's disease as COMT is an enzyme involved in the breakdown of dopamine - so these medications are often prescribed alongside levodopa in patients with established Parkinson's disease. They would not generally be used as part of first-line treatment.

Levodopa is often the mainstay of Parkinson's disease treatment but can wear off after time, so it is generally only prescribed once the symptoms begin to have a significant effect on the patient's quality of life. Levodopa is generally associated with motor complications such as dyskinesias rather than problems with impulse control.

Selegiline is a Monoamine Oxidase-B inhibitor that can be prescribed in Parkinson's disease. It inhibits the breakdown of dopamine secreted by dopaminergic neurones and is not generally associated with problems with impulse control.

Question:

A 73-year-old woman presents to the emergency department with left-sided weakness and dysarthria which she first noticed at 11 o'clock this morning. She has a background of hypertension and atrial fibrillation. On examination, there is left-sided hemiparesis. Her blood glucose is 6.5 mmol/L.

What is the most appropriate next investigation?

A.CT head with contrast

B.Carotid artery ultrasound

C.ECG

D.MRI brain

E.Non-contrast CT head

Answer:Non-contrast CT head

Explanation:

Non-contrast CT head scan is the first line radiological investigation for suspected stroke

Important for meLess important

This woman has presented with symptoms that are highly suggestive of a stroke (a sudden onset focal neurological deficit). Her history of atrial fibrillation would suggest an ischaemic aetiology is very likely. A non-contrast CT scan of her head is the priority to rule out an intracranial haemorrhage before considering thrombolysis (if she has presented within the appropriate window and has no contraindications) or aspirin therapy.

Contrast phases are performed to image blood vessels or soft tissue in greater detail. They take longer to perform than non-contrast scans. In the case of a suspected acute stroke, only a non-contrast scan is required.

An ECG will certainly be needed in the workup of this patient. In fact, patients should have 48 hours of telemetry in an acute stroke, to look for paroxysmal atrial fibrillation (although we already know that this woman has atrial fibrillation). However, this is not the most urgent investigation needed to guide the treatment.

MRI scans are sometimes performed, including when the diagnosis of stroke is uncertain. Many ischaemic strokes will not show on a CT scan in the first few hours, and small infarcts may require MRI imaging to be seen at all. Requesting an MRI scan is not a first-line investigation in stroke and should be guided by a specialist.

Ultrasound of the carotid arteries would allow visualisation of carotid artery stenosis which could precipitate an embolic stroke. This may be required in the workup of this patient if she would be suitable for carotid endarterectomy, but is not the first-line investigation.

Question:

A 64-year-old patient is admitted to the hospital for an ST-elevation myocardial infarction and is promptly transferred to the catheter lab for percutaneous coronary intervention. During the procedure, whilst connected to monitoring, he is witnessed as having a cardiac arrest and the rhythm is noted to be ventricular tachycardia.

Which of the following is the most appropriate immediate action?

A.Administer adrenaline

B.Administer amiodarone

C.Commence cardiopulmonary resuscitation

D.Deliver one shock and commence cardiopulmonary resuscitation

E.Deliver three successive shocks

Answer:Deliver three successive shocks

Explanation:

Witnessed cardiac arrest while on a monitor - up to three successive shocks before CPR

Important for meLess important

The correct answer is to deliver three shocks. When a cardiac arrest is witnessed, and the patient is monitored, up to three successive shocks can be given, followed by commencing cardiopulmonary resuscitation (CPR).

Administering adrenaline at the first instance would be incorrect - this should be given after the third shock during a VF/VT arrest. If this were a PEA/asystole arrest, it would be appropriate to give it immediately.

Amiodarone should also be given after the third shock - not immediately.

Commencing cardiopulmonary resuscitation immediately would be incorrect in this scenario. As a witnessed arrest, delivering three shocks is appropriate.

Similarly, delivering just one shock and then commencing CPR is not correct as three shocks should be given.

Question:

An 18-year-old man is admitted to the emergency department with an episode of acute asthma. He is unable to complete sentences, tachycardic (118 beats per minute) and tachypnoeic (respiratory rate 30). He has received salbutamol, ipratropium bromide nebulisers and intravenous hydrocortisone through a large bore cannula in the right antecubital fossa. Despite another salbutamol nebuliser, there is no improvement in his condition. What medication would be most appropriate to add?

A.Beclamethasone

B.Magnesium sulphate

C.Amoxicillin

D.Nifedipine

E.Adrenaline

Answer:Magnesium sulphate

Explanation:

This patient is suffering acute severe asthma.

This is because of his inability to complete sentences, tachycardia and tachypnoea.

The SIGN guidelines give clear instructions on how to escalate care.

1. Oxygen

2. Salbutamol nebulisers

3. Ipratropium bromide nebulisers

4. Hydrocortisone IV OR Oral Prednisolone

5. Magnesium Sulfate IV

6. Aminophylline/ IV salbutamol

Review the following guidelines for more information:

http://www.sign.ac.uk/pdf/sign101s62008.pdf

Question:

You are discussing alcohol intake with a middle-aged man who has just been discharged from hospital after an episode of acute pancreatitis. He currently drinks around 2 litres of cider (ABV 5%) a day. How many units is that a week?

A.25 units

B.70 units

C.10 units

D.80 units

E.100 units

Answer:70 units

Explanation:

Alcohol units = volume (ml) \* ABV / 1,000

Important for meLess important

2000 ml x 5% = 10,000

Divide this figure by 1,000 to get the number of units = 10,000/1,000 = 10 units/day

10 units/day x 7 days = 70 units

Question:

A 29-year-old woman attends the fertility clinic with her partner. She has a history of regular 35-day menstrual cycles. Which of the following investigations is the best measure of ovulation?

A.Basal body temperature charting

B.Day 21 progesterone

C.Day 28 progesterone

D.Serum oestrogen

E.LH surge

Answer:Day 28 progesterone

Explanation:

The follicular phase of the menstrual cycle can be variable, however, the luteal phase (after ovulation) remains constant at 14 days.

The serum progesterone level will peak 7 days after ovulation has occurred. Therefore, in a 35-day cycle the follicular phase will be 21 days (ovulating on day 21), luteal phase 14 days. Therefore, the progesterone level will be expected to peak on day 28 (35-7).

Day 21 progesterone will only be useful in women with a regular menstrual cycle length of 28 days.

Basal body temperature charting can be used to assess ovulation but is not the optimal investigation recommended by NICE. Following ovulation, the basal temperature will increase. Additionally, the LH surge occurs around 24-36 hours prior to ovulation. This is the hormone that is measured in ovulation kits that some patients may purchase. These are not recommended by NICE as a means of increasing fertility rates. Couples are advised to have unprotected vaginal sexual intercourse every 2-3 days throughout the cycle, in orders to increase their chances of conceiving.

Source - NICE Fertility guidelines, February 2013.

Question:

A 25-year-old man presents to the emergency department after being hit in the head with a hammer during a fight. He is awake and alert, in intense pain, and has no amnesia to the event or loss of consciousness. He has not had any episodes of seizures or vomiting. The patient has no past medical history of significance.

On examination, scalp lacerations and a boggy swelling overlie the left lateral aspect of the scalp, with a slight dip. There is no bruising over the mastoid process and no rhinorrhoea or otorrhoea. His Glasgow coma score of 15.

What is the most appropriate step in his management?

A.CT head immediately

B.CT head within 2 hours

C.CT head within 8 hours

D.MRI head immediately

E.MRI head within 8 hours

Answer:CT head immediately

Explanation:

Head injuries with a suspected open or depressed skull fracture require an immediate CT head

Important for meLess important

CT head immediately is the correct answer. The patient in the vignette presented with a depressed skull fracture. The injury has likely occurred at the pterion (the junction of the frontal, sphenoid, parietal, and temporal bone). Based on NICE guidelines, the patient requires an immediate CT head as urgent treatment in the form of surgery may be necessary. Although the patient is relatively stable, urgent assessment is needed if critical features are hidden from view (e.g. an intracranial bleed or fracture material embedded into the brain tissue).

CT head within 2 hours is incorrect. As the patient in the vignette has a depressed skull fracture, he will require a CT within 1 hour of assessment based on NICE guidelines. Delaying the CT will leave the patient undiagnosed for longer, increasing the risk of developing complications such as increased intracranial pressure and seizures.

CT head within 8 hours is incorrect. As the patient in the vignette has a depressed skull fracture, he will require a CT within 1 hour of assessment based on NICE guidelines.

If this patient were to have no features of a depressed skull fracture, they would still require a CT head within 8 hours. Although the patient does not have neurological abnormalities or symptoms besides pain (which would be expected after a head injury), the mechanism of injury is dangerous and warrants imaging.

MRI head immediately is incorrect. An MRI may be used later to investigate the injury further; however, this takes time. A CT head can be performed quickly, identifying complications requiring urgent treatment, such as intracranial bleeding or raised intracranial pressure.

MRI head within 8 hours is incorrect. A CT should be performed instead of an MRI as it is quicker and can identify features that need urgent treatment, such as an intracranial bleed. The patient also has features of a depressed skull fracture, which will require imaging within 1 hour of assessment.

Question:

A 28-year-old woman visits her general practitioner with a 3-month history of intermittent headaches. She describes the headache as an intense feeling of pressure that often awakes her from sleep. It is associated with nausea and vomiting and is aggravated on straining. She has a past medical history of mild asthma, acne and chronic back pain.

On examination, her blood pressure is normal. She has normal tone and power in her upper and lower limbs. There is no sensory or cerebellar deficit. She has an enlarged blind spot bilaterally and fundoscopy shows bilateral papilloedema. The remainder of her cranial nerve examination is unremarkable.

Which of the following is a risk factor for this patient’s condition?

A.Alcohol

B.Co-codamol

C.Intranasal corticosteroids

D.Lymecycline

E.St John's Wort

Answer:Lymecycline

Explanation:

Tetracyclines increase the risk of idiopathic intracranial hypertension

Important for meLess important

Drugs that increase the risk of IIH. COMAAR – ciclosporin, oral contraceptives, mineralocorticoids, amiodarone, antibiotics (tetracyclines, sulphonamides), retinoic acid.

This woman has idiopathic intracranial hypertension. Idiopathic intracranial hypertension causes a headache secondary to raised intracranial pressure without an underlying space-occupying lesion or hydrocephalus. Features of the headache present similarly to those of a space-occupying lesion and include exacerbation on straining or bending forwards, nausea and vomiting and visual disturbance including double vision. Classical examination findings include papilloedema and a 6th cranial nerve palsy. Treatment options include stopping any causative drugs, weight loss and diuretic use such as acetazolamide. If these methods fail, repeated lumbar punctures can be offered to try and relieve the intracranial pressure. Risk factors for the condition include, female sex obesity, pregnancy and drugs including steroids, the combined oral contraceptive pill and tetracyclines. Lymecycline is a tetracycline antibiotic, making it the correct choice.

Question:

A 25-year-old female patient presents with massive haemorrhage. You are working in the hospital blood bank and are asked to prepare 2 units each of Red cells and Fresh Frozen Plasma (FFP) when the result of the group and save is available.

The patient's sample is grouped as B RhD negative. You manage to procure some Group B red cells from the fridge but there is no Group B FFP available.

FFP from a donor of which blood group would be best to give?

A.A RhD negative

B.A RhD positive

C.AB RhD negative

D.AB RhD positive

E.O RhD positive

Answer:AB RhD negative

Explanation:

The universal donor of fresh frozen plasma is AB RhD negative blood

Important for meLess important

This patient is blood group B RhD negative, meaning her red cells possess B antigens only from the ABO grouping, and she naturally produces anti-A antigens in her plasma. Therefore, she needs to receive red cells with only B antigen or no antigens at all (i.e. Groups B or O) but needs to receive FFP that does not have anti-B in it. Group O donors naturally produce anti-A and anti-B, Group A donors naturally produce only anti-B, so she can only receive FFP from groups B or AB.

Group AB is the universal donor for FFP because they produce neither anti-A or anti-B and is therefore compatible with all ABO groups.

In many cases the RhD status would not matter for blood transfusion, however as this is a woman of childbearing age who is RhD negative, she should receive RhD negative blood in order to avoid problems with future pregnancies in which the foetus is RhD positive.

Source: http://lifeinthefastlane.com/ccc/blood-products/

Question:

A 29-year-old woman is admitted to the Medical Admissions Unit.

She presents with neck stiffness, photophobia and a fever. There is no evidence of a rash. Her GCS is 15.

Her lumbar puncture shows an increased opening pressure and looks turbid. There is a raised white cell count and low glucose in the CSF. She is started on ceftriaxone.

What other treatment should be given to improve outcomes?

A.Aciclovir

B.Dexamethasone

C.Fluconazole

D.Prednisolone

E.Vancomycin

Answer:Dexamethasone

Explanation:

Dexamethasone improves outcomes (by reducing neurological sequelae) in the treatment of bacterial meningitis

Important for meLess important

This presentation, combined with the CSF results, is highly suggestive of bacterial meningitis. The patient has been started on appropriate antibiotic therapy. Dexamethasone improves neurological outcomes in the treatment of bacterial meningitis, such as deafness. Therefore, dexamethasone is the most appropriate additional treatment to offer. Note that there are a few contraindications to this treatment, including septic shock or meningococcal septicaemia.

Aciclovir is an antiviral. As this is bacterial meningitis, there is no indication for antivirals in this patient.

Fluconazole is an anti-fungal and is not indicated in bacterial meningitis.

There is no role for prednisolone in the setting of meningitis.

Vancomycin is an antibiotic. There is currently no indication for additional antibiotics in this patient as the CSF culture has not been reported and she has been commenced on appropriate empirical antibiotic therapy.

Question:

This 21-year-old woman has a history of recurrent epistaxis:

© Image used on license from DermNet NZ

What is the most likely underlying diagnosis?

A.Idiopathic thrombocytopenic purpura

B.Peutz-Jeghers syndrome

C.Anorexia nervosa

D.Combined oral contraceptive pill use

E.Hereditary haemorrhagic telangiectasia

Answer:Hereditary haemorrhagic telangiectasia

Explanation:

Question:

A 46-year-old patient presents to the emergency department complaining of a fever and muscle rigidity. She stated this came on a few hours ago.

On examination, she appears sweaty, has a temperature of 38.8ºC, and a heart rate of 103 bpm. Her other observations are within normal range.

Her past medical history consists of depression and type 2 diabetes for which she takes sertraline and metformin.

The patient visited her GP this morning and was diagnosed with a new medical condition, she was prescribed a new medication.

What is likely to have precipitated this presentation?

A.Atorvastatin

B.Fexofenadine

C.Omeprazole

D.Ramipril

E.Tramadol

Answer:Tramadol

Explanation:

Tramadol co-prescribed with SSRIs is a common cause of serotonin syndrome

Important for meLess important

Tramadol is correct. This patient is presenting with a likely diagnosis of serotonin syndrome. The symptoms she is experiencing (hyperthermia, sweating, myoclonus + muscle rigidity) combined with her past medical history of depression for which she takes an SSRI, point us towards a diagnosis of serotonin syndrome. Tramadol is known to cause serotonin syndrome. This is because tramadol inhibits monoamine reuptake, increasing the concentration of serotonin in the synaptic cleft. Therefore, this answer is correct.

Atorvastatin, fexofenadine, omeprazole and ramipril are all incorrect. None of these medications are known to increase serotonin concentrations and therefore, would not be expected to cause serotonin syndrome.

Question:

A 65-year-old man is seen in clinic after experiencing painless visual loss with associated floaters over the last 2 days. He has a history of type 2 diabetes mellitus and takes metformin, sitagliptin, and empagliflozin.

Visual acuity in the affected eye is 6/9. Fundoscopy shows the following:

What is the most likely diagnosis?

A.Branch retinal vein occlusion

B.Central retinal vein occlusion

C.Posterior vitreous detachment

D.Retinitis pigmentosa

E.Vitreous haemorrhage

Answer:Vitreous haemorrhage

Explanation:

Vitreous haemorrhage is correct. The image demonstrates haemorrhaging (redness) in the vitreous cavity, which is seen as the red streak in the lower centre part of the image extending to the right, which alongside the history of visual loss and floaters, suggests a diagnosis of vitreous haemorrhage. This patient has a history of type 2 diabetes which can be presumed to be difficult to control as he is taking 3 diabetic medications. The small circular marks in the periphery demonstrate treated proliferative diabetic retinopathy via retinal laser photocoagulation, which essentially uses a laser to destroy abnormal retinal blood vessels.

Posterior vitreous detachment (PVD) is incorrect. Although this can present with floaters, patients often report flashes in their vision as well. PVD can be thought of as the preceding events leading to retinal detachment, where changes to the vitreous fluid lead to the retina being tugged on, leading to flashes and floaters until eventually, it detaches. PVD would not explain the haemorrhaging (redness) in the vitreous cavity, which is seen as the red streak in the lower centre part of the image, and would instead show a Weiss ring, which would show a ring-shaped floater around the optic nerve.

Central retinal vein occlusion (CRVO) is incorrect. Although type 2 diabetes mellitus can predispose to the development of CRVO, this typically presents with acute painless visual loss and is not associated with floaters. Fundoscopy would show widespread haemorrhages, however, they appear as red patches with clearly-marked edges rather than a singular red streak in the vitreous, which is seen in the lower centre part of the image.

Branch retinal vein occlusion (BRVO) is incorrect. Similarly to the above, this presents with an acute painless visual loss with well-marked patches of red (haemorrhages) in a set region of the retina, which is not seen here as there is a singular red streak in the vitreous. BRVO is also not associated with floaters.

Retinitis pigmentosa is incorrect. It would be unlikely for this patient to have retinitis pigmentosa, as this is typically a genetic condition and would be more likely to manifest earlier in life. This would appear as dark black spots on the edges of the retina and would not explain the haemorrhaging (redness) in the vitreous cavity, which is seen as the red streak in the bottom centre part of the image,

Question:

A 54-year-old woman presented to the emergency department with a fever of 38.5ºC degrees. She had recently undergone mitral valve repair one month ago with a prosthetic valve replacement.

On examination, auscultation of the heart revealed a high-pitched “blowing” pansystolic murmur, best heard at the apex with the patient in the left lateral decubitus position. Peripherally there were Osler's nodes and Janeway lesions on the hands.

Given the suspected diagnosis, what is the most likely cause?

A.Enterococcus

B.Staphylococcus aureus

C.Staphylococcus epidermidis

D.Streptococcus bovis

E.Streptococcus viridans

Answer:Staphylococcus epidermidis

Explanation:

Most common cause of endocarditis:

Staphylococcus aureus

Staphylococcus epidermidis if < 2 months post valve surgery

Important for meLess important

Endocarditis is a disease resulting in inflammation of the endocardium, usually affecting the heart valves and typically due to an underlying infection that can be acute, subacute or chronic.

Staphylococcus epidermidis infections predominate in early prosthetic valve endocarditis, whereas in late prosthetic valve endocarditis there are equal incidences of both streptococcal and staphylococcal infections.

Staphylococcus aureus is the leading cause of infective endocarditis and its mortality has remained high in spite of improved diagnostic and therapeutic procedures.

Enterococcus endocarditis is usually a disease of older men with the most frequent source of infection being the genitourinary tract.

Streptococcus bovis is the second commonest streptococcal species to cause infective endocarditis. The portal of entry for this organism is predominantly the gastrointestinal tract and less frequently the biliary and urinary tracts.

Streptococcus viridans is the most common cause of native valve endocarditis. Patients that are affected by this usually have underlying cardiac disease. Viridans streptococci are part of normal oral flora and generally gain access to the bloodstream through breaches in the oral mucosa e.g. through dental surgery.

Question:

A 54-year-old man presents with a 1-month history of a painful lesion on his forehead. He feels the lesion has grown in size over the past month. His past medical history includes a renal transplant six years ago due to autosomal dominant polycystic kidney disease (ADPCKD). He is currently taking tacrolimus, mycophenolate mofetil, and prednisolone. On examination, there is a two-cm, firm, keratotic nodule on the right side of his forehead.

What is the most appropriate management of the lesion?

A.Cryotherapy

B.Increase dose of prednisolone

C.Surgical excision and biopsy

D.Topical 5-fluorouracil cream

E.Topical imiquimod

Answer:Surgical excision and biopsy

Explanation:

Patients who have received an organ transplant are at risk of skin cancer (particularly squamous cell carcinoma) due to long-term use of immunosuppressants

Important for meLess important

The history of a rapidly growing keratotic nodule in an immunosuppressed patient on a sun-exposed site points strongly to a diagnosis of squamous cell carcinoma (SCC). The optimum management is excision and biopsy of the lesion to confirm the diagnosis and ensure complete removal.

Cryotherapy would not guarantee complete removal of the lesion, and it would not provide histological proof of SCC.

Increasing dose of prednisolone does not confer any benefit. Rather, they put the patients at greater risk of adverse effects from glucocorticoid use.

Topical 5-fluorouracil (5-FU) cream is used for actinic keratosis. While actinic keratosis is also commonly found on sun-exposed sites, it is more slow-growing than the lesion described.

Topical imiquimod is commonly known by its brand name Aldara in the United Kingdom. It is prescribed for superficial basal cell carcinoma and actinic keratosis. Superficial basal cell carcinoma is slow-growing and presents with a thin, translucent rolled border which is not seen here.

Question:

A 55-year-old woman presents to the emergency department with her partner in the evening.

Yesterday between 1 pm and 2 pm, she took a large number of paracetamol tablets and does not recall how many. Afterwards, she regretted it but did not seek medical attention. After a discussion today with her partner she decided to seek medical help.

She has no past medical history and feels well. She is not jaundiced. On abdominal examination, there is some tenderness in the right upper quadrant. Blood tests have been taken and results are awaited.

What is the most appropriate next step in her management?

A.Commence N-acetylcysteine if ALT is above the upper limit of normal

B.Commence N-acetylcysteine if serum paracetamol concentration is detectable

C.Commence N-acetylcysteine immediately

D.Refer for psychiatric assessment

E.Send home with safety netting advice

Answer:Commence N-acetylcysteine immediately

Explanation:

Paracetamol overdose: if presentation > 24 hours after an overdose start acetylcysteine if the patient is jaundiced, has hepatic tenderness or an elevated ALT

Important for meLess important

Commence N-acetylcysteine (NAC) immediately is correct. This patient has presented >24 hours after an overdose and has hepatic tenderness, therefore NAC should be commenced immediately. Guidelines say you should give acetylcysteine immediately without waiting for blood test results for any patient presenting more than 24 hours after an acute overdose of paracetamol if the patient is clearly jaundiced or has hepatic tenderness, regardless of how many tablets they have taken.

Commence N-acetylcysteine if ALT is above the upper limit of normal is incorrect. If this patient did not have hepatic tenderness you can wait for blood results before starting treatment. Treatment would then be commenced if ALT was above the limit of normal. However in this case the patient has hepatic tenderness so waiting for blood results would be inappropriate as it would delay treatment unnecessarily.

Commence N-acetylcysteine if serum paracetamol concentration is detectable is incorrect. In this case the patient has hepatic tenderness so waiting for blood results would be inappropriate and would unnecessarily delay treatment.

Refer for psychiatric assessment is incorrect. All patients with a non-accidental overdose should have a psychiatric assessment once fit. However, this patient shows signs of liver toxicity (hepatic tenderness) and therefore the immediate priority should be treatment with NAC.

Send home with safety netting advice is incorrect. This patient has taken an overdose of a potentially toxic substance and has signs of liver toxicity. It would not be appropriate to send this patient home without treatment and monitoring.

Question:

A 25-year-old woman presents to her general practitioner complaining of offensive vaginal discharge and itching. She reports the discharge is yellow-green in colour and is occasionally frothy. On examination, there is vulvovaginal erythema and swelling. The cervix appears erythematous and punctated. She has no past medical or surgical history, has no allergies, and uses the combined oral contraceptive pill for contraception.

What is the best treatment for this patient?

A.IM ceftriaxone

B.Oral azithromycin

C.Oral ciprofloxacin

D.Oral doxycycline

E.Oral metronidazole

Answer:Oral metronidazole

Explanation:

Trichomonas vaginalis: offensive yellow/green discharge, strawberry cervix

Important for meLess important

This patient is presenting with symptoms consistent with Trichomonas vaginalis. Common symptoms are:

Offensive yellow-green discharge (which may be thick, thin, or frothy).

Vulvovaginitis (which can extend and cause irritation between the thighs).

'Strawberry cervix' (erythematous, punctate cervix).

Management for this condition is with a 5 or 7 day course of oral metronidazole.

This patient does not have symptoms consistent with Neisseria gonorrhoea. Although asymptomatic in up to 50% of women, it may present with offensive vaginal discharge, lower abdominal pain, dysuria, dyspareunia, and (rarely) intermenstrual bleeding. It is unlikely to present with a 'strawberry cervix'. It is managed with a single dose of IM ceftriaxone (if sensitivity is not known) or a single dose of oral ciprofloxacin (if sensitivity is known and the organism is sensitive). This single-dose management is beneficial as it does not rely on patient compliance.

Chlamydia trachomatis is the most frequently reported sexually transmitted infection in young people and is commonly managed with either oral azithromycin (single dose) or oral doxycycline (for 7 days). As stated before, single-dose management is the optimal management choice as it negates the need for patient compliance to an extended course of medication.

Question:

A 28-year-old man presents to the emergency department with a one-week history of fatigue and shortness of breath. His past medical history is significant for an allogenic haematopoetic stem cell transplant 3 months ago.

Blood results are as follows:

Hb 72 g/L Male: (135-180)

Female: (115 - 160)

Platelets 46 \* 109/L (150 - 400)

WBC 2.2 \* 109/L (4.0 - 11.0)

You plan to transfuse him 2 units of blood. The laboratory call to ask if any special requirements are indicated.

What special requirements do you advise the laboratory?

A.CMV negative blood

B.Irradiated

C.Leukodepleted

D.No special requirements indicated

E.Washed

Answer:Irradiated

Explanation:

Irradiated blood products are used to avoid transfusion-associated graft versus host disease

Important for meLess important

Irradiated blood is required in individuals with severe immunodeficiencies, those with a history of Hodgkin's lymphoma, patients who have been exposed to certain drugs (e.g. bendamustine and fludarabine), and following stem cell transplant. Following autologous stell cell transplantation irradiated blood is required for 3 months (6 months if total body irradiation is performed). In contrast, those who have had an allogeneic stem cell transplant require irradiated blood for a minimum of 6 months and until they are also off immunosuppression, have a lymphocyte count >1, and have no evidence of chronic graft versus host disease (GvHD).

Historically, immunocompromised patients who have not been infected with CMV (CMV negative) received CMV negative blood due to the possible life-threatening complication of infection. However recent studies have shown that leukodepletion is just as effective as CMV IgG negative blood components. Therefore CMV IgG negative blood is no longer required in this cohort.

The following groups of patients require CMV-negative blood:

Intra-uterine transfusions.

Neonates up to 28 days post expected date of delivery.

Pregnancy.

With very few stated exceptions (e.g. granulocytes), from November 1999 all allogeneic blood components produced in the UK have been subjected to a leukocyte depletion process. This was primarily a vCJD risk reduction measure, however, it has resulted in other added benefits including reduced incidence of non-febrile haemolytic transfusion reactions, TRALI, and transfer of CMV. All blood products in the UK are leukodepleted (with very few exceptions eg granulocytes). This is therefore not a special requirement.

Washed red cells can be requested for patients who have recurrent febrile or allergic reactions to standard packed red cells.

Question:

A 27-year-old woman who is 22-weeks pregnant presents to the emergency department after noticing a vesicular rash on her torso this morning. Upon further questioning you ascertain that her 4-year-old son developed chickenpox last week and the patient does not remember if she has had the condition before. She appears comfortable at rest.

You perform serological testing for varicella zoster virus which shows the following:

Varicella IgM Positive

Varicella IgG Negative

Which is the most appropriate management?

A.IV aciclovir

B.No treatment required

C.Oral aciclovir

D.Varicella zoster vaccination

E.Varicella zoster vaccination + oral aciclovir

Answer:Oral aciclovir

Explanation:

Chickenpox exposure in pregnancy > 20 weeks - if not immune give either oral antivirals or VZIG

Important for meLess important

This patient has not had chickenpox in the past and has active varicella infection as suggested by the negative IgG and positive IgM serology results. Women who develop chickenpox during pregnancy should be treated with oral aciclovir 800mg 5 times a day for 7 days if >20 weeks pregnant.

The RCOG advises that only women who develop severe infection and are at high risk of complicated chickenpox should be referred to hospital for IV aciclovir. Patients should be hospitalised if they develop chest or CNS symptoms, a dense hemorrhagic rash, or are immunocompromised. These findings are not evident in this scenario as the patient appears well currently and therefore this is not the best management for this patient.

No treatment would be inappropriate as this would increase maternal risk of developing pneumonia, hepatitis and encephalitis. The foetus would also have a small increased risk of developing foetal varicella syndrome (FVS) which may cause skin scarring, eye defects, and neurological abnormalities.

Live vaccines should not be administered routinely to pregnant women due to the risk of foetal infection. Therefore, options that include giving the varicella zoster vaccination are incorrect.

Question:

A 67-year-old woman presents to the GP surgery complaining of intermittent chest pain for the past month. She describes it as, 'a feeling of intense tightness,' in the centre of her chest which occasionally radiates to her jaw. This comes on when she walks her dog but eases off quickly when she sits down on the park bench. Her observations are normal and her electrocardiogram (ECG) shows normal sinus rhythm.

What is the most appropriate first-line investigation for this woman?

A.CT angiography

B.Cardiac magnetic resonance imaging (MRI)

C.Exercise ECG

D.Myocardial perfusion scintigraphy

E.Stress echo

Answer:CT 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

This woman presents with symptoms consistent with stable angina (typical pain, brought on by exertion and relieved by rest) which therefore needs to be investigated. CT angiography is the correct answer as it is the first-line investigation for stable chest pain caused by ischaemic heart disease.

Stress echo is incorrect as it is a type of functional imaging which is used second-line for diagnosis.

Myocardial perfusion scintigraphy and cardiac MRI are incorrect as these are also types of functional imaging and therefore second-line options.

Exercise ECG is no longer routinely used in the diagnosis of stable angina as other investigations are more cost-effective and accurate.

Question:

Which one of the following types of anti-anginal medication do patients commonly develop tolerance to?

A.Nifedipine

B.Standard release isosorbide mononitrate

C.Nicorandil

D.Verapamil

E.Modified release isosorbide mononitrate

Answer:Standard release isosorbide mononitrate

Explanation:

Question:

A 25-year-old female delivered her first child via caesarean section 4 weeks ago. She is exclusively breastfeeding and wishes to start using contraception. Which form of contraception is absolutely contraindicated?

A.Implantable progestogen

B.Combined contraceptive pill

C.Progestogen only pill

D.Mirena coil (levonorgestrel releasing intrauterine device)

E.Depo- Provera (injectable progestogen)

Answer:Combined contraceptive pill

Explanation:

The answer here is the combined contraceptive pill. According to the UKMEC guidelines produced by the Faculty of Sexual and Reproductive Health, use of the combined contraceptive pill as contraception at less than 6 weeks postpartum if breastfeeding is classified as an unacceptable risk (UKMEC Cat 4). If this patient had other risk factors for venous thromboembolism and was not breastfeeding, the risks would still be deemed higher than the benefits of using this method of contraception. All of the other options would be feasible to use for contraception for this patient.

Question:

A 23-year-old woman is admitted to the Emergency Department after a road traffic collision. She has suffered blunt trauma to the abdomen and is complaining of central back pain.

Observations:

Blood pressure 87/58 mmHg

Heart rate 106 bpm

Respiratory rate 17/min

On examination, her peripheries are warm. She has generalised abdominal tenderness and localised tenderness over T3. She is conscious but distressed and complains of not being able to feel her feet. Her ECG is normal.

What is the most likely type of shock this woman is experiencing?

A.Anaphylactic shock

B.Cardiogenic shock

C.Haemorrhagic shock

D.Neurogenic shock

E.Septic shock

Answer:Neurogenic shock

Explanation:

Neurogenic, septic, and anaphylactic shock (together are all distributive shock) will cause warm peripheries, with the others causing cool peripheries

Important for meLess important

Neurogenic shock is correct. This is a type of distributive shock. The localised pain over the spine indicates a spinal injury. When combined with her reports of a lack of feeling in her feet, we can suspect transection of the spinal cord and neurogenic shock. Although haemorrhagic shock in its early stages may also be possible, neurogenic shock explains her warm peripheries. In neurogenic shock, peripheral vascular resistance is maintained, and so a patient's peripheries will feel warm still.

Anaphylactic shock is incorrect. There is no indication she has had an allergic reaction as lip or tongue swelling and wheeze are absent. The clinic scenario is more consistent with haemorrhagic or neurogenic shock given the trauma she has experienced.

Cardiogenic shock is incorrect. The clinical scenario does not indicate risk factors for cardiogenic shock, such as ischaemic heart disease. Given her trauma, she may have suffered a contusion to the heart, but the normal ECG and lack of chest injuries make this less likely. Also, cardiogenic shock leads to cool peripheries, whereas this woman's peripheries are warm.

Haemorrhagic shock is incorrect. The clinical scenario may be consistent with an internal haemorrhage due to blunt force abdominal trauma. Her heart rate is mildly increased and her blood pressure is low, which is consistent with a haemorrhage. Assuming she is suffering from shock of some kind, her warm peripheries would not be consistent with haemorrhagic shock as this would lead to cool peripheries.

Septic shock is incorrect. The clinical scenario is a trauma, as opposed to an infection. If this were septic shock, we would expect a history of infection and fever. Septic shock also leads to warm peripheries. The history of trauma and neurological symptoms indicates that neurogenic shock is more likely.

Question:

A 56-year-old man presents with episodic facial pain and discomfort whilst eating. He has suffered from halitosis recently and he frequently complains of a dry mouth. He has a smooth swelling underneath his right mandible. What is the most likely underlying diagnosis?

A.Stone impacted in Whartons duct

B.Stone impacted in Stensens duct

C.Benign adenoma of the submandibular gland

D.Adenocarcinoma of the submandibular gland

E.Squamous cell carcinoma of the submandibular gland

Answer:Stone impacted in Whartons duct

Explanation:

The symptoms are typical for sialolithiasis. The stones most commonly form in the submandibular gland and therefore may occlude Whartons duct. Stensens duct drains the parotid gland.

Question:

An 84-year-old female with a long standing urinary catheter is admitted with smelly urine. She has no other symptoms or signs. All vital signs are normal. WCC is normal. Three samples taken under sterile conditions from the urinary catheter have all grown Escherichia coli.

What is the most accurate definition for this scenario?

A.Colonisation

B.SIRS (systemic inflammatory response syndrome)

C.Sepsis

D.Contamination

E.Bacteraemia

Answer:Colonisation

Explanation:

Finding bacteria in the urine due to colonisation is is an inevitable consequence of a long term indwelling urinary catheter. This is called asymptomatic bacteruria. Most people who have this condition do not need treatment because the bacteria are not causing any harm.

Question:

Each of the following features is seen in Marfan's syndrome, except:

A.Pectus excavatum

B.Tall stature

C.Learning difficulties

D.High-arched palate

E.Upwards lens dislocation

Answer:Learning difficulties

Explanation:

Question:

A 22-year-old woman is seen in the clinic with 4 unprovoked episodes of rapid bilateral upper and lower limb muscle contraction and relaxation lasting around 10 seconds before stopping. She denies any loss of consciousness and can continue doing her activities after each episode. A collateral history is taken, and it is established that no incontinence or tongue biting occurs.

There is no history of head trauma. She does not take any regular medication.

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:Levetiracetam

Explanation:

Myoclonic seizures: levetiracetam is first-line for females

Important for meLess important

This patient has presented with bilateral upper and lower limbs contracting and relaxing, known as clonus. There is no loss of consciousness, incontinence, tongue-biting, or a post-ictal period characterised by fatigue, making myoclonic epilepsy the most likely diagnosis.

Levetiracetam is correct, as this is the first-line option for women of childbearing potential, as high-quality evidence has demonstrated its efficacy for this use. Although sodium valproate is the first line of therapy for men, it is avoided in women due to its association with teratogenicity.

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 this is a second-line option for the management of myoclonic seizures in women where levetiracetam has been unsuccessful. This patient has not yet tried any treatment, therefore, trying the first-line option would be more appropriate.

Sodium valproate is incorrect, as it is contraindicated in women of childbearing potential due to its associations with teratogenicity, such as neural tube defects. If this patient were male, this would be the first-line option. The first-line option for women of childbearing potential (and the second-line option for men) is levetiracetam.

Topiramate is incorrect, as this is another second-line option for the management of myoclonic seizures in women of childbearing potential where levetiracetam has been unsuccessful. This patient has not yet tried any treatment; therefore, trying the first-line option would be more appropriate.

Question:

A 75-year-old man presents to his GP for an annual check-up. His blood pressure is measured twice at separate times during the session and both times it is recorded at 190/110 mmHg. The patient denies any headache, blurred vision, chest pain, or palpitations. There are crepitations present at both lung bases on auscultation extending to the mid zones and the patient reports dyspnoea at rest. Fundoscopy shows no signs of retinal haemorrhage, papilloedema or hypertensive retinopathy.

The GP takes a full set of vital signs and they are as follows:

Respiratory rate 12

SpO2 95% on room air

Temperature 36ºC

Blood pressure 190/110mmHg

Heart Rate 50bpm

How should the GP proceed next?

A.Offer ambulatory blood pressure monitoring

B.Refer the patient for a same-day specialist assessment

C.Start the patient on bisoprolol and reassess the following day

D.Repeat blood pressure measurement in practice in seven days

E.Give stat dose of metoprolol and reassess in one hour

Answer:Refer the patient for a same-day specialist assessment

Explanation:

If new BP >= 180/120 mmHg + new-onset confusion, chest pain, signs of heart failure, or acute kidney injury then admit for specialist assessment

Important for meLess important

This patient needs to be reviewed by a specialist soon as they are displaying likely signs of heart failure in the setting of severe hypertension. NICE recommends a referral for same-day assessment for patients with a new blood pressure of >180/120 mmHg and confusion, chest pain, signs of heart failure, or acute kidney injury. Other findings which may warrant a same-day specialist referral in the setting of severe hypertension include retinal haemorrhages, papilloedema (signs of accelerated hypertension) or suspected phaeochromocytoma.

This patient should be seen quickly to avoid further end-organ damage. For this reason it would not be appropriate to send them home for ABPM.

Starting a patient on a beta blocker when they are in possible acute heart failure is a decision that should be made by a specialist in a hospital environment as it could precipitate further decompensation.

If there is no target end-organ damage (heart, brain, eyes, kidneys) then rechecking blood pressure in 7 days is recommended by the NICE guidelines. Investigations to rule out end organ damage should be performed ASAP.

Metoprolol is a short-acting beta blocker. While it may sometimes be used to manage hypertension, it is not the first line treatment, and caution is advised if starting a patient who may be in new onset acute heart failure on a beta blocker. The patient should ideally be seen by a specialist as quickly as possible and attempts to manage the blood pressure should be made in a hospital environment in case of sudden deterioration in the patient's condition.

Question:

A 67 year patient with known emphysema presents to the Emergency Department with a two week history of cough productive of blood stained sputum. Chest X-Ray shows a circular area of dense right upper lobe consolidation. Despite seven days of intravenous antibiotics (piperacillin and tazobactam) his condition has not improved. An urgent inpatient bronchoscopy reveals no endobronchial lesion but broncho-alveolar lavage reveals an underlying pathogenic organism. Ziehl-Nielson staining is negative. What organism would you suspect?

A.Moraxella catarrhalis

B.Aspergillus fumigatus

C.Pseudomonas aeruginosa

D.Mycobacterium tuberculosis

E.Burkholderia cepacia

Answer:Aspergillus fumigatus

Explanation:

This patient is likely to have developed an aspergilloma in an emphysematous cavity, which explains the lack of improvement with broad spectrum intravenous antibiotics, haemoptysis and chest X-Ray findings. Moraxella and pseudomonas are usually sensitive to piperacillin + tazobactam and do not classically cause clinical haemoptysis. M. tuberculosis is unlikely given the negative Ziehl-Nielson staining. Burkholderia is typically an infective organism in cystic fibrosis patients, not those with emphysema.

Question:

A 32-year-old woman presents to the obstetric clinic at 30 weeks gestation. She has been diagnosed with gestational diabetes and was started on metformin two weeks previously. Despite a well controlled diet and maximum dose metformin, her blood glucose levels remain too high.

What is the next most appropriate step to control blood glucose in this woman?

A.Add on a sulfonylurea and review in two weeks

B.Stop metformin as start insulin therapy

C.Add on an sodium-glucose co-transporter-2 (SGLT-2) antagonist and review in one week

D.Add on insulin therapy

E.Continue metformin and review in two weeks

Answer:Add on insulin therapy

Explanation:

In gestational diabetes, if blood glucose targets are not met with diet/metformin then insulin should be added

Important for meLess important

This woman has gestational diabetes and hyperglycaemia associated with this can result in macrosomia, premature birth and stillbirth. It is therefore vital that glucose levels are brought under control as quickly as possible. NICE state that 'if blood glucose targets are not met with diet and exercise changes plus metformin, offer insulin as well'.1 Adding on insulin therapy is therefore the most appropriate thing to do.

Sulfonylureas are not as effective as the metformin and insulin combination in pregnancy.² In addition, they have been shown to be teratogenic in animals. They are therefore not indicated in gestational diabetes.

Stopping metformin would not be ideal as it increases sensitivity to insulin, something which is lacking during pregnancy. Instead, it is safe to continue metformin while adding insulin therapy.

Sodium-glucose co-transporter-2 (SGLT-2) antagonists are also associated with teratogenic effects in animals. They are a very useful option for diabetes management in patients with congestive heart failure due to their diuretic effects.

Continuing metformin alone for a further two weeks in spite of persistently high blood glucose will increase the risk of complications. Insulin should be added at this stage.

1 NICE (2015). Diabetes in pregnancy: management from preconception to the postnatal period

² BMJ (2015). Glibenclamide, metformin, and insulin for the treatment of gestational diabetes: a systematic review and meta-analysis.

Question:

A 4-hour-old neonate born at 39 weeks gestation is being seen on the postnatal ward. She was noted to be jittery by the midwives and appeared to have irregular respirations. Her mother had gestational diabetes.

A heel prick blood glucose measurement at 4-hours-old revealed the following:

Glucose 1.1 mmol/L (1.5 – 6)

She is otherwise healthy, with no birth complications or other symptoms.

What is the most appropriate next step in the management of the newborn?

A.Admit to neonatal unit and encourage to breastfeed

B.Admit to neonatal unit and give IV 10% dextrose

C.Keep on postnatal ward and encourage to breastfeed

D.Keep on postnatal ward and repeat heel prick glucose measurement in 1 hour

E.Obtain venous sample for laboratory glucose testing

Answer:Admit to neonatal unit and give IV 10% dextrose

Explanation:

Neonatal hypoglycaemia: if symptomatic or very low blood glucose admit to neonatal unit and give IV 10% dextrose

Important for meLess important

This neonate has recorded hypoglycaemia, along with a known risk factor for developing this (e.g. gestational diabetes). Whilst transient hypoglycaemia may be normal in some babies up to a few hours old, her jitteriness and irregular respirations are most likely symptoms of her hypoglycaemia. Given she has symptomatic hypoglycaemia, the most appropriate management plan is to urgently admit her to the neonatal unit and give IV 10% dextrose. This is in order to prevent further neurological symptoms from developing, such as seizures, coma or apnoea.

Admitting to the neonatal unit and encouraging her to breastfeed is partially appropriate, as she will be in the right setting for care to be delivered. However, breastfeeding is not going to correct the hypoglycaemia quick enough to prevent potential complications from occurring.

Keeping on the postnatal ward and encouraging breastfeeding is inappropriate. The postnatal ward is not the correct place of care for a potentially severely unwell infant and as discussed above, breastfeeding is not appropriate to correct the hypoglycaemia.

Keeping on the postnatal ward and repeating heel prick glucose measurement in 1 hour is not necessary. With symptomatic hypoglycaemia, one measurement is enough to initiate treatment without waiting for a second confirmatory test.

Obtaining a venous sample for laboratory glucose testing is not appropriate. A heel prick test is accurate enough in this scenario, to confirm the hypoglycaemia, and treatment should not be delayed while awaiting laboratory confirmation.

Question:

A 78 year old female is admitted to the surgical receiving unit from the community. She has presented with an oozing surgical wound following total left hip replacement. She is a known poorly controlled insulin dependent diabetic.The scar is non healing and oozing yellow pus. It appears red and inflamed. The registrar requests you place the patient on the emergency theatre list for removal and wash out of the hip prosthesis. You send a full blood count, CRP and swabs to the microbiology lab. The results are phoned through later that day and the microbiologist describes clusters of gram positive cocci visible from microscopy. What is the most likely organism?

A.Klebsiella

B.Pseudomonas aeruginosa

C.Staphylococcus aureus

D.Pneumococcus

E.Haemophilus influenzae

Answer:Staphylococcus aureus

Explanation:

Staphylococcus aureus is a gram+ve bacterium, catalase +ve, coagulase +ve organism

Important for meLess important

Staphylococcus aureus is a gram positive coccus. Often seen under a microscope as a bunch of grapes in formation. Gram positive bacteria colonise the skin. They most commonly cause skin and soft tissue infections. In this case they have infected the hip prosthesis. Staphylococcus aureus can be difficult to treat, we know this strain to be MRSA (Methicillin Resistant Staphylococcus aureus ).

Pseudomonas aeruginosa is a gram negative rod. It is known to colonise patients with cystic fibrosis. When from in the laboratory it gives a green tint to the culture medium. This may also been seen in necrotic leg ulcers.

Klebsiella is a gram negative rod.

Haemophilus influenzae is a gram negative coccobacillus.

Pneumococcus is a gram positive diplococcus.

Question:

A 23-year-old woman has come to the emergency department. She is 37 weeks pregnant, and is complaining of a temperature and feeling generally unwell. She is seen by the emergency department doctors and sent to the obstetric unit. There, she is found to have a fever of 38ºC and to be tachycardic at 110 bpm. The fetus is found to be tachycardic as well. She says she has had no other symptoms, except having an episode of what she said describes as urinary incontinence 3 weeks ago, and some discharge afterwards. What is the most likely cause of her presenting complaint?

A.Chlamydia infection

B.Chorioamnionitis

C.Gonorrhoea infection

D.Pelvic inflammatory disease

E.Urinary tract infection

Answer:Chorioamnionitis

Explanation:

You should think chorioamnionitis in women with preterm-PROM with a triad of maternal pyrexia, maternal tachycardia, and fetal tachycardia

Important for meLess important

This is a typical history of chorioamnionitis- maternal pyrexia, tachycardia, and fetal tachycardia with a background of PPROM that is untreated. While pelvic inflammatory disease and UTI are reasonable differentials, chorioamnionitis is the more likely. This will almost certainly require IV antibiotics and immediate cesarean section

Question:

The gastroenterology team review a 35-year-old man who was admitted for prolonged gastroenteritis. He is complaining of white discharge from his nipples, which he says started when he was put on a new medication. He has vomited twice overnight but is now tolerating oral intake, and is otherwise well enough for discharge.

Examination is unremarkable.

Which medication was he most likely prescribed?

A.Ciprofloxacin

B.Loperamide

C.Metoclopramide

D.Ondansetron

E.Haloperidol

Answer:Metoclopramide

Explanation:

Metoclopramide may result in galactorrhoea

Important for meLess important

The patient is complaining of galactorrhoea - inappropriate secretion of milk. Metoclopramide is a dopamine antagonist, used to reduce nausea and vomiting. It can cross the blood-brain barrier and affect dopamine receptors which inhibit prolactin release. As a result, more prolactin is released, leading to galactorrhoea.

Ondansetron does not have an effect on prolactin and does not cause nipple discharge. The main adverse effect of ondansetron is constipation.

Haloperidol can commonly cause hyperprolactinaemia and lead to galactorrhoea. However, it is unlikely to have been prescribed in this scenario given it is more commonly used as an antipsychotic.

Loperamide is an opioid used for diarrhoea and can also very rarely lead to raised prolactin; again, it is not the most likely cause in this case.

Ciprofloxacin is a fluoroquinolone antibiotic that is occasionally used in bacterial gastroenteritis if severe, the patient is immunocompromised or a returned traveller. It is not a common cause of raised prolactin or galactorrhoea.

Question:

A 69-year-old man presents to the GP with a 6-month history of worsening breathlessness and a persistent cough. He feels constantly fatigued and has started experiencing chest pain, night sweats and weight loss. He has no past medical history. His father and brother, who both used to work with him in the family shipbuilding business, died from a type of cancer in their lungs. He does not drink alcohol or smoke.

On examination of the chest, there are reduced breath sounds in the right middle and lower zones and this area is stony dull to percussion. No abnormalities were detected on the left side.

Which of the following is the gold standard investigation to confirm the diagnosis?

A.Biomarker testing

B.Chest X-ray

C.Lung function tests

D.Thoracic ultrasound

E.Thoracoscopic biopsy

Answer:Thoracoscopic biopsy

Explanation:

Diagnosis of a mesothelioma is made on histology, following a thoracoscopy

Important for meLess important

The correct option is a thoracoscopic biopsy as the most likely diagnosis is mesothelioma, which is diagnosed on histology. Features suggesting mesothelioma include potential occupational asbestos exposure (shipbuilding), significant family history and the latent period. Patients commonly present with breathlessness secondary to a pleural effusion (stony dull percussion note).

Although a chest X-ray is usually the first imaging modality performed, typical findings (e.g. unilateral pleural effusion/thickening) are non-specific and so are not adequate in making a diagnosis alone.

Biomarker testing is incorrect as known biomarkers are neither diagnostic nor prognostic for mesothelioma. However, it may be considered in patients who are unfit for more invasive procedures.

The sensitivity of thoracic ultrasound is too low to provide a definitive diagnosis, though it can be used to assess pleural thickening and fluid.

Lung function tests are helpful in assessing respiratory impairment but won't be able to provide a diagnosis alone.

Question:

A 71-year-old woman is presecribed ondansetron to help treat nausea which has not responded to either metoclopramide or cyclizine. What is the mechanism of action of ondansetron?

A.5-HT3 antagonist

B.5-HT2 antagonist

C.Dopamine antagonist

D.NK1 receptor antagonist

E.Antihistamine

Answer:5-HT3 antagonist

Explanation:

Examples of dopamine antagonists include metoclopramide and domperidone.

Question:

A 57-year-old woman presents with a three month history of right-sided hip pain. This seems to have come on spontaneously without any obvious precipitating event. The pain is described as being worse on the 'outside' of the hip and is particularly bad at night when she lies on the right hand side.

On examination there is a full range of movement in the hip including internal and external rotation. Deep palpation of the lateral aspect of the right hip joint recreates the pain.

An x-ray of the right hip is reported as follows:

Right hip: Minor narrowing of the joint space otherwise normal appearance

What is the most likely diagnosis?

A.Fibromyalgia

B.Lumbar nerve root compression

C.Osteoarthritis

D.Greater trochanteric pain syndrome

E.Meralgia paraesthetica

Answer:Greater trochanteric pain syndrome

Explanation:

Greater trochanteric pain syndrome is now the preferred term for trochanteric bursitis.

Whilst the x-ray shows joint space narrowing this is not an uncommon finding. Osteoarthritis would also be less likely given the palpable nature of the pain and relatively short duration of symptoms.

Question:

An 82-year-old man presents to the emergency department with a fall on a background of a 4-day history of severe diarrhoea. His past medical history is significant for hypertension, for which he takes amlodipine. He returned from a holiday to Colombia 5 days ago.

On examination, the patient’s mucous membranes appear dry and his skin turgor is reduced. His heart rate is 103 beats per minute, his respiratory rate is 16 breaths per minute, his oxygen saturations are 98% on room air, and his temperature is 37.4ºC.

What is a venous blood gas most likely to show?

A.Metabolic acidosis with hypercalcaemia

B.Metabolic acidosis with hyperkalaemia

C.Metabolic acidosis with hypoalbuminaemia

D.Metabolic acidosis with hypochloraemia

E.Metabolic 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 correct. This patient is suffering from diarrhoea which may be due to gastroenteritis, which is a common cause of diarrhoea in travellers. Diarrhoea causes a normal anion gap metabolic acidosis as bicarbonate ions, secreted in the GI tract below the pylorus, are lost from the intestinal epithelium. Potassium is also lost from the intestinal epithelium in diarrhoeal illness, resulting in hypokalaemia in severe instances.

Metabolic acidosis with hypochloraemia is incorrect. Hyperchloraemia is more likely than hypochloraemia in the context of diarrhoeal illness. Diarrhoeal illnesses may lead to increased chloride reabsorption into the blood to replace lost bicarbonate cations, leading to a hyperchloraemic normal anion gap metabolic acidosis.

Metabolic acidosis with hyperkalaemia is incorrect. Diarrhoeal illnesses are classically associated with hypokalemia rather than hyperkalaemia, due to the loss of potassium from the intestinal epithelium.

Metabolic acidosis with hypercalcaemia is incorrect. Disturbances in calcium homeostasis are typically observed in chronic diarrhoea rather than acute gastroenteritis. Severe gastroenteritis may be associated with hypocalcaemia.

Metabolic acidosis with hypoalbuminaemia is incorrect. Acute diarrhoeal illnesses are not classically associated with hypoalbuminaemia. Chronic diarrhoea may cause malabsorption syndrome, which is associated with hypoalbuminaemia.

Question:

A 48-year-old man presents to the GP with right-sided elbow pain. This started last week after painting the stairwell of his home. On examination, the pain is worse on wrist extension against resistance and supination of the forearm whilst the elbow is extended.

What is the most likely diagnosis?

A.Cubital tunnel syndrome

B.Lateral epicondylitis

C.Medial epicondylitis

D.Olecranon bursitis

E.Radial tunnel syndrome

Answer:Lateral epicondylitis

Explanation:

Lateral epicondylitis: worse on resisted wrist extension/suppination whilst elbow extended

Important for meLess important

Lateral epicondylitis is the correct answer. Is the most likely cause of elbow pain in this individual. It is commonly exacerbated by wrist extension and supination of the forearm. Sometimes referred to as 'tennis' elbow, but remember other activities can also trigger it.

Cubital tunnel syndrome is incorrect. Presents with the signs of ulnar nerve compression. Paraesthesia is in the ulnar nerve distribution and is exacerbated when the elbow is flexed for extended periods of time.

Medial epicondylitis is incorrect. This condition is commonly referred to as 'golfer's' elbow. The pain is aggravated by wrist flexion and pronation. Sometimes it is associated with ulnar nerve compression. The symptoms in the question do not suggest medial epicondylitis as the pain is worsened on resisted extension and there are no other associated features.

Olecranon bursitis is incorrect. Olecranon bursitis presents with a swelling over the olecranon and there may also be associated pain, warmth, and erythema. It typically affects middle-aged male patients.

Radial tunnel syndrome is incorrect. This is commonly misdiagnosed as lateral epicondylitis as it presents similarly. However, it is usually worsened by extending the elbow and pronating the forearm.

Question:

A 28-year-old woman presents with diarrhoea and abdominal bloating after eating. She has a past medical history of Crohn's disease treated with ileocaecectomy but no other medical conditions. Routine bloods and imaging show no abnormalities. You suspect a diagnosis of small bowel bacterial overgrowth syndrome (SBBOS).

What is the appropriate first-line diagnostic test?

A.Faecal calprotectin

B.Hydrogen breath testing

C.Lower GI endoscopy and biopsy

D.Rifaximin trial

E.Small bowel aspirate and culture

Answer:Hydrogen breath testing

Explanation:

Hydrogen breath testing is an appropriate first line test for diagnosis of small bowel overgrowth syndrome

Important for meLess important

Hydrogen breath testing is the correct answer. This is the first line diagnostic test for SBBOS, often called small intestine bacterial overgrowth (SIBO). In this test, a glucose and lactose challenge is given before testing, which is fermented by the aberrant bacteria in the small bowel. This leads to early absorption and excretion of hydrogen by the lungs.

Faecal calprotectin is incorrect. This is used in the diagnostic workup of inflammatory bowel disease. However, it is of little use in the diagnosis of SBBOS as it is non-specific.

Lower GI endoscopy and biopsy would be incorrect here. This may be useful to rule out a flare of Crohn's disease, but will not be useful in the diagnosis of SBBOS, as the main problem is bacterial overgrowth in the small bowel which cannot be seen on endoscopy.

A trial of rifaximin is incorrect. Whilst theoretically this could work as a diagnostic aid, there is no evidence for this and it is currently only recommended for treatment of SBBOS as opposed to diagnosis.

Small bowel aspirate and culture is incorrect. This was previously recommended as the first-line diagnostic test, however, this has now been superseded by hydrogen breath testing due to greater availability and its less invasive nature. This is still used for complex cases where hydrogen breath testing is inconclusive.

Question:

A 65-year-old man with a history of ischaemic heart disease and hypertension presents to the emergency department with abdominal pain accompanied by some rectal bleeding. He has had associated diarrhoea. This has happened several times before, and tends to be mostly after eating a large meal. He had put off seeing a Doctor but his wife had insisted on him coming to hospital on this occasion.

On examination, the patient is well and the pain has subsided. A chest x-ray does not show any free air under the diaphragm and abdominal x-ray does not show any obstruction. He is discharged with colonoscopy booked as an outpatient.

Given the likely diagnosis, which part of the colon is most likely to be affected?

A.Caecum

B.Ascending colon

C.Hepatic flexure

D.Splenic flexure

E.Rectum

Answer:Splenic flexure

Explanation:

The splenic flexure is the most likely area to be affected by ischaemic colitis

Important for meLess important

Given the history of ischaemic heart disease and hypertension an ischaemic cause of the pain is likely. Add to this the pain gets worse after eating, when the bowel requires more blood flow for its increased energy demands for digestion and ischaemic colitis would be the diagnosis to investigate first.

This is an anatomy question testing knowledge of 'watershed' areas (areas where arterial blood supplies change from one major vessel to the next). These areas are most vulnerable to reduced blood supply as they are the most distal parts of the distribution from their supplying arteries. The splenic flexure marks the point where the majority of blood supplied changes from the superior mesenteric artery (SMA) to the inferior mesenteric artery (IMA).

The SMA supplies the caecum, ascending colon, and hepatic flexure.

The rectum itself gets an excellent supply of blood from collaterals due to branches from the internal iliac artery.

The recto-sigmoid junction also forms a watershed area but this is less often examined and was not a choice here.

Question:

You see a 48-year-old woman in clinic following a cholecystectomy 6 months ago. She complains that since the operation she has experienced chronic diarrhoea which seems to float in the toilet.

What would be the best medication to offer to help with these symptoms?

A.Bismuth salts

B.Cholestyramine

C.Creon

D.Loperamide

E.Rehydration salts

Answer:Cholestyramine

Explanation:

Bile-acid malabsorption may be treated with cholestyramine

Important for meLess important

Cholestyramine works by binding to bile acids in the small intestine and promoting their reabsorption into the cycle of bile acid production, which will address the cause of diarrhoea in this woman.

In this patient the diarrhoea was likely caused by the removal of her gallbladder. This disturbs the usual cycle of bile release and bile acid reabsorption. This results in too much bile progressing to the large intestine, where it causes more water and salts to be lost in the stool and a faster transit time of stool through the intestines.

Bismuth can be used for diarrhoea more generally, such as to prevent symptoms during infective diarrhoea, however will not fix the long-term problem.

Creon is used to replace pancreatic enzymes, for example in cystic fibrosis where there is a reduction in pancreatic enzymes reaching the intestine.

Loperamide can again be used acutely to prevent diarrhoea, but will not address the underlying cause for this patient.

Rehydration salts help to replace depleted electrolytes, usually in acute diarrhoea.

Question:

A 29 year-old man presented to his GP with a 1 day history of blood in his urine. He had an upper respiratory tract infection 3 days previously. He was otherwise fit and well and took no regular medications.

On examination, his pulse was 70 beats per minute and his blood pressure was 135/85 mmHg. Urinalysis showed blood 4+ and was negative for protein.

Hb 156 g/l

Platelets 344 \* 109/l

WBC 6.0 \* 109/l

Na+ 141 mmol/l

K+ 4.0 mmol/l

Urea 5.4 mmol/l

Creatinine 85 µmol/l

What is the most likely diagnosis?

A.Membranous nephropathy

B.Acute interstitial nephritis

C.IgA nephropathy

D.Focal segmental glomerulosclerosis

E.Minimal change disease

Answer:IgA nephropathy

Explanation:

This is a case of a young man presenting with frank haematuria 3 days after an upper respiratory tract infection. This is a classic presentation of IgA nephropathy which is often a self-limiting condition.

Question:

Mr Green is a 57-year-old man who presents to eye casualty with sudden loss of vision in his left eye. He mentions that he had noticed some dark spots within his vision over the last few days. He is not experiencing any pain and has a past medical history of diet-controlled type 2 diabetes mellitus and hypertension.

Which of the following is the most likely cause of his visual loss?

A.Age-related macular degeneration

B.Cataracts

C.Retinal detachment

D.Scleritis

E.Vitreous haemorrhage

Answer:Vitreous haemorrhage

Explanation:

Vitreous haemorrhage is an important differential for sudden visual loss in diabetics

Important for meLess important

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 haemorrhage within the vitreous cavity.

Age-related macular degeneration is an important cause of visual loss. However it would generally present with a progressive, central visual loss. Associated symptoms such as pain or flashes and floaters would suggest an alternative diagnosis.

Cataracts are also a common cause of painless loss of vision and diabetes is a risk factor for these. However, patients would typically complain of progressive symptoms rather than an acute loss of vision. Additionally they may experience dulling of colours or glare when looking at lights. Examination would also reveal a reduced red reflex.

Retinal detachment is another important 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.

Scleritis is a cause of painful loss of vision. Patients tend to present with dull, boring eye pain, headaches and a watering eye. Visual acuity may be affected but this tends to happen later on in the course of the disease.

Question:

You are an F1 doctor working in a GP surgery when a 34-year-old male patient arrives to ask you to complete a medical examiner report as he's applying to be a large goods vehicle driver. In the past he has suffered tonic-clonic seizures which are well controlled with medication, his last seizure was 11 years ago. He's otherwise healthy. He explains how important this job is to him as he was made redundant two months earlier and asks if you need to mention his epilepsy on the report, as the DVLA are already aware and believes it may affect his chances of a successful application. What is the best response?

A.As the DVLA are already aware of his epilepsy there is no need to repeat the information on the report

B.Include his history of epilepsy on the report

C.Suggest the patient applies for other types of work

D.Phone the DVLA to check they are aware of the patient's epilepsy and if so exclude it from the report

E.Inform the potential employer of the patient's attempted dishonesty

Answer:Include his history of epilepsy on the report

Explanation:

Option 2 is correct. As a doctor, you must not leave out relevant information from a report or include any information which may be misleading, this is not affected whether the DVLA are aware of his epilepsy or not and so options 1 and 4 are incorrect. Suggesting the patient applies for different work is inappropriate and info

GMC Explanatory Guidance - Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 55-year-old man with a background of Barrett’s oesophagus is seen in the gastroenterology clinic with the results of his routine surveillance endoscopy. He is still experiencing symptoms of dyspepsia despite regular treatment with high-dose omeprazole. He denies dysphagia or weight loss.

Endoscopy and biopsy results: Columnar epithelium is seen in the distal 5cm of the oesophagus. Dysplastic cells are seen on biopsy in keeping with high-grade dysplasia.

What is the recommended next step in this patient’s management?

A.Combined omeprazole and ranitidine therapy

B.Computed tomography (CT) chest, abdomen and pelvis

C.Endoscopic mucosal resection

D.Oesophagectomy

E.6-monthly endoscopic surveillance

Answer:Endoscopic mucosal resection

Explanation:

Dysplasia on biopsy in Barrett's oesophagus requires an endoscopic intervention

Important for meLess important

This patient has evidence of dysplasia on his surveillance endoscopy and biopsy. Regardless of systemic symptoms and severity of dysplasia, all dysplasia should be treated. Endoscopic intervention is needed at this stage. Options include endoscopic mucosal resection and surgical removal of pre-cancerous cells or radiofrequency ablation where heat is used to destroy pre-cancerous cells.

Combined omeprazole and ranitidine therapy may help further suppress the symptoms of dyspepsia but would not treat this patient’s dysplasia.

A CT chest, abdomen and pelvis is considered if a patient shows signs of established malignancy, in order to stage the disease by looking for invasion and metastatic spread. However, it is not indicated in low-grade dysplasia as these cells have not transformed into cancerous cells.

An oesophagectomy would be an option if this patient was diagnosed with an oesophageal adenocarcinoma which this patient is at high risk of developing with a background of Barrett’s oesophagus and evidence of dysplasia. However, it is not a treatment of dysplasia.

Endoscopic surveillance is frequently used to monitor for progression of Barrett’s oesophagus. Patients with metaplasia affecting at least 3cm of the oesophagus are recommended to have 2-3 yearly endoscopies, whilst those with < 3cm should have 3-5 yearly endoscopies. 6-monthly endoscopic surveillance is not an option for managing patients with high-grade dysplasia as treatment should be initiated following diagnosis to prevent the transformation of dysplastic cells to cancerous cells. NICE guidelines recommend 6-monthly endoscopic surveillance for patients with low-grade dysplasia until it either transforms to high-grade dysplasia or there are 2 consecutive biopsies of non-dysplastic Barrett’s oesophagus, in which case the patient can then have 2-3 yearly endoscopic surveillance.

Question:

A 65-year-old male presents with sudden onset hemiparesis affecting the right face, arm and leg. The symptoms started approximately 12 hours ago. On examination you note right sided hemiparesis, aphasia, and a right homonymous hemianopia. A CT scan confirms left sided ischaemic stroke. An ECG demonstrates an irregularly irregular rhythm with absence of P waves. He has has a CHA2DS2-VASc Score of 4.

What is the most important initial treatment to provide?

A.Clopidogrel

B.Low molecular weight heparin

C.Warfarin

D.Aspirin

E.Thrombolysis

Answer:Aspirin

Explanation:

The patient should receive 300 mg aspirin once daily for fourteen days. In patients where aspirin is contraindicated, clopidogrel should be used as an alternative.

Thrombolysis is not indicated as it has been greater than 4.5 hours since the onset of symptoms.

Although warfarin is indicated as the patient has atrial fibrillation as evident by the ECG findings and their CHA2DS2-VASc is elevated, patients following a disabling ischaemic stroke should receive aspirin 300 mg once daily for 14 days, before being considered for anticoagulant treatment.

References

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Question:

A 24-year-old man presents to his GP with a painless mass in his scrotum. He is not sure how long it has been present as he does not frequently self-examine, and reports having no other symptoms of note. On examination, he has an enlargement of his left testicle.

His GP requests a two-week-wait testicular ultrasound scan, which reveals a cystic lesion containing heterogeneous solid echoes within the left testicle.

Which of the following tumour markers is associated with this condition?

A.Alpha fetoprotein (AFP)

B.Carcinoembryonic antigen (CEA)

C.Prostate-specific antigen (PSA)

D.CA 15-3

E.CA 19-9

Answer:Alpha fetoprotein (AFP)

Explanation:

Non-seminoma germ cell testicular tumours (e.g. teratomas) are associated with raised hCG and AFP

Important for meLess important

This is a young male with a painless testicular mass. The ultrasound scan points towards a teratoma - the echoes within the cystic lesion may represent mucinous/sebaceous material, hair follicles, etc. These tumours are associated with both hCG and AFP. AFP is also associated with hepatocellular carcinoma.

CEA is a glycoprotein that is used as a tumour marker, primarily in colorectal cancer. It can also be raised in gastric, pancreatic, lung, and breast cancer. It is not classically raised in teratomas, and so is not correct here.

PSA is an enzyme produced in the prostate. Physiologically, it has a role in liquifying semen to allow the sperm to mobilise more easily, and in thinning of the cervical mucous. It is raised in prostate cancer, as well as in prostatitis and benign prostatic hyperplasia. It is not classically raised in teratomas, and so is not correct here.

CA 15-3 is a tumour marker most commonly associated with breast cancer. It may also be raised in benign breast diseases, benign liver disease, sarcoidosis, and lupus.

CA 19-9 is a tumour marker most commonly associated with pancreatic cancer, but can also be associated with colorectal cancer and hepatocellular carcinoma.

Question:

You are an F2 doctor working in the emergency department when a 25-year-old female patient who is on holiday from Japan, arrives with severe abdominal pain and vomiting. You try to take a history from the patient but she doesn't speak any English and you only know a few words in Japanese. She has arrived alone to the department as she became lost from her friend who she was travelling with. What is the best approach to try and communicate with this patient?

A.Use hand gestures and drawings to take a history

B.Use the internet to find some translations which will help you gain a history from the patient

C.Contact the hospital translator service and request an interpreter as soon as possible

D.Ask one of your colleagues who is semi-fluent in Japanese to translate

E.Ask a consultant for advice on how to communicate with the patient

Answer:Contact the hospital translator service and request an interpreter as soon as possible

Explanation:

Option 3 is correct. In line with Good Medical Practice, you should ensure that suitable arrangements are made to meets patients' language needs to ask and provide information. using hand gestures and the Internet would be inappropriate and potentially harmful if there is a misunderstanding. Asking one of your colleagues to translate could also be acceptable but you should try and contact the translator service first as your colleague will have their own workload and you may be able to get an interpreter quickly. Asking advice from you consultant is also a good idea but wouldn't achieve anything in the short term, at least with option 3 you are trying to take steps to resolve the matter before immediately seeking help.

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

You are called to review a woman in the maternity ward who is 3 days post-partum complaining of ongoing vaginal bleeding and passage of clots. You explain that lochia is normal in the post-partum period and can be expected to continue for some time.

After what period of time would continued lochia warrant further investigation with ultrasound?

A.1 week

B.2 weeks

C.4 weeks

D.6 weeks

E.8 weeks

Answer:6 weeks

Explanation:

An ultrasound is indicated if lochia persists beyond 6 weeks

Important for meLess important

Lochia is the passage of blood, mucus and uterine tissue that occurs during the puerperium\*. This should be expected to cease after 4-6 weeks. Continue vaginal discharge beyond this time is an indication for ultrasound to investigate the possibility of retained products of conception.

\* Puerperium is the period of approximately six weeks after childbirth during which time the woman's reproductive organs return to normal. Lochia is a normal part of this process.

Question:

An 89-year-old man with a history of hypertension, ischaemic heart disease and type 2 diabetes presented to the emergency department with a right facial droop of one hour’s onset. An urgent CT head was arranged, which showed no acute changes. His symptoms resolved in the emergency department, with a total duration of 3 hours.

Which other urgent investigation should have been performed when the patient initially presented with a focal neurological deficit, which could have identified a diagnosis other than transient ischaemic attack?

A.Blood sugar

B.Carotid dopplers

C.Echocardiogram

D.Serum lipids

E.72 hour ECG

Answer:Blood sugar

Explanation:

Hypoglycaemia can lead to focal neurological symptoms and needs to be ruled out as a mimic of TIA

Important for meLess important

A blood sugar is important to perform to exclude hypoglycaemia, which can cause a focal neurological deficit, mimicking a transient ischaemic attack (TIA). It is particularly important in diabetic patients.

Carotid dopplers are performed following a TIA to look for carotid stenosis, but would not exclude a differential diagnosis.

An echocardiogram may be performed to identify a source of thrombus causing stroke/TIA, but not to exclude a differential.

Serum lipids are performed to identify high cholesterol - a risk for TIA/stroke.

While an urgent ECG could identify an arrhythmia causing syncope (which could mimic TIA or stroke), a 72 hour ECG is performed less urgently to identify paroxysmal atrial fibrillation following a TIA or stroke.

Question:

A 42-year-old female is wishing to discuss contraception. She has only been using barrier methods but is now keen to explore long-acting reversible contraceptives (LARCs). She has done some reading and is particularly interested in the progestogen-only depot injection.

Which of the following conditions would contraindicate the use of this mode of contraception?

A.Concurrent use of enzyme-inducing drugs

B.A body mass index of 40 kg/m²

C.Previous pulmonary embolism

D.Severe dysmenorrhoea

E.Current breast cancer

Answer:Current breast cancer

Explanation:

Current breast cancer is a contraindication for injectable progesterone contraceptives

Important for meLess important

Current breast cancer is the only condition listed above which is a UK Medical Eligibility Criteria for Contraceptive Use (UKMEC) Category 4, which represents 'an unacceptable health risk if the method is used'.

According to the Faculty of Sexual and Reproductive Healthcare (FSRH), the efficacy of the progestogen-only injectable is not reduced with concurrent use of enzyme-inducing drugs.

Obesity and severe dysmenorrhoea are UKMEC Category 1 (no restriction) for the use of the progestogen-only injectable, while a history of venous thromboembolism is Category 2 (advantages generally outweigh the risks).

Question:

A 43-year-old male presents to general practice with cough, weight loss, and night sweats. He has recently visited his family in Bangladesh.

The doctor suspects tuberculosis (TB) and arranges for the following tests to be done:

Mantoux test negative

Ziehl-Neelsen staining acid-fast bacilli positive

Sputum culture Mycobacterium tuberculosis grown

TB is subsequently diagnosed.

Which of the following could be a cause for the negative Mantoux test result?

A.BCG vaccination

B.IV drug use

C.Sarcoidosis

D.TB immunity

E.Alcohol misuse

Answer:Sarcoidosis

Explanation:

Sarcoidosis can cause a false negative Mantoux test

Important for meLess important

The Mantoux test involves an intradermal injection of purified protein derivative (PPD) tuberculin. If there is a skin reaction, this indicates latent or active TB is present. Immunosuppression can cause a false negative result - including in sarcoidosis, steroid use, AIDS and lymphoma.

BCG vaccination is a cause of a false positive.

IV drug use would not cause a false negative result.

Immunity to TB would cause a positive Mantoux test, and would not cause the other positive results.

Alcohol misuse should not cause a false negative result.

Question:

A 32-year-old woman presents to her GP to discuss methods of contraception. She is in a long-term relationship and currently does not want any children. She is confident that she would be able to reliably take a daily medication. Her main concern is that she does not want to take anything that will cause her to gain weight.

Which of the following methods of contraception is most associated with this side effect?

A.Combined oral contraceptive pill

B.Implantable contraceptive

C.Injectable contraceptive

D.Intrauterine device

E.Intrauterine system

Answer:Injectable contraceptive

Explanation:

Depo-provera is associated with weight gain

Important for meLess important

The correct answer is 'injectable contraceptive'.

The method of contraception that is most associated with weight gain is injectable contraception, such as Depo-Provera.

The combined oral contraceptive pill is associated with an increased risk of venous thromboembolic disease and breast and cervical cancer. While some patients are concerned about weight gain when taking this method of contraception there is no association demonstrated in research.

Implantable contraceptives such as Implanon as generally associated with irregular/heavy bleeding. They are not associated with weight gain.

Intrauterine devices such as the copper coil are associated with heavier and more painful periods. They are not associated with weight gain.

Intrauterine systems such as the Mirena coil are associated with frequent uterine bleeding and spotting early after fitting. They are not associated with weight gain.

Question:

Which one of the following statements regarding cow's milk protein intolerance/allergy in infants is true?

A.An adrenaline pen should be given to all parents

B.It is more common in breastfed infants

C.Green-coloured stools are common

D.Around 1-2% of infants are affected

E.The majority of cases resolve before the age of 5 years

Answer:The majority of cases resolve before the age of 5 years

Explanation:

Question:

A 65-year-old man is referred to the respiratory clinic with unexplained shortness of breath. He has a past medical history of asthma and ankylosing spondylitis. He uses salbutamol occasionally. He smokes 20 cigarettes daily.

On examination, chest auscultation is normal. He has a hunched posture.

Plain radiography of the chest is unremarkable.

Lung function tests:

FEV1 74% best-predicted (>80%)

FVC 62 % best-predicted (>80%)

FEV1/FVC 1.19 (>0.7)

Gas transfer (TLCO) 81 % best predicted (>80%)

What is the likely cause for his dyspnoea?

A.Asthma

B.Bronchiectasis

C.COPD

D.Kyphoscoliosis

E.Pulmonary fibrosis

Answer:Kyphoscoliosis

Explanation:

Kyphoscoliosis (e.g. ankylosing spondylitis) can cause a restrictive lung defect on spirometry

Important for meLess important

Kyphoscoliosis is the correct answer. The patient has ankylosing spondylitis, which predisposes him to kyphoscoliosis, which we can infer from his hunched posture. This is a cause of a restrictive lung deficit. Restrictive lung function results are typified by reduced FEV1 and FVC values but a normal or increased FEV1/FVC ratio. The lung function tests, in this case, demonstrate restrictive physiology as described. The only two causes of restrictive lung deficits listed are kyphoscoliosis and pulmonary fibrosis. While ankylosing spondylitis can cause pulmonary fibrosis, the absence of clinical examination or radiographic findings suggesting this diagnosis make it unlikely and therefore kyphoscoliosis is the most likely explanation.

Asthma is incorrect. He only uses his salbutamol inhaler occasionally, suggesting his asthma is mild. Additionally, this diagnosis is associated with obstructive lung function tests, which are not present here. Furthermore, there is no wheeze. Taken together, this diagnosis is not likely on this basis.

Bronchiectasis is incorrect. This is associated with obstructive lung function testing along with purulent sputum and chest auscultation evidence of crackles, which clear on coughing. Ankylosing spondylitis is a rare cause of bronchiectasis but none of these features is present in this case.

COPD is not the right answer. While this patient is a smoker, not all those who smoke develop COPD. It is associated with wheeze and obstructive lung function testing rather than restrictive physiology. The x-ray may show emphysema, flattened hemidiaphragms and hyperinflation. In obstructive lung disease, the FEV1/FVC ratio is < 0.7.

Pulmonary fibrosis is incorrect. This is associated with AS and would cause a restrictive lung deficit However, a normal chest examination along with a normal chest x-ray make clinically significant ILD unlikely. Additionally, we would expect the gas transfer (TLCO) to be abnormal in pulmonary fibrosis due to impaired diffusion capacity. This would not be the case in kyphoscoliosis.

Question:

You see a 72-year-old man who has a problem with his penis. He has been unable to pull his foreskin back for a couple of years and now the end of his penis is quite sore and he believes there is an odour. He is otherwise well. He believes that this condition came on slowly over a number of years.

On examination, the man is uncircumcised and there is a tight white ring around the tip of his foreskin. You can just about make out the glans penis through the end of the foreskin and it looks inflamed.

What specific condition is causing this man's balanitis?

A.Zoon's balanitis

B.Circinate balanitis

C.Erythroplasia of Queyrat

D.Squamous cell carcinoma

E.Lichen sclerosis

Answer:Lichen sclerosis

Explanation:

Lichen sclerosis is the most likely diagnosis in an uncircumcised man, who has developed a tight white ring around the tip of the foreskin and phimosis

Important for meLess important

Lichen sclerosis is the most likely diagnosis in an uncircumcised man, who has developed a tight white ring around the tip of the foreskin and phimosis. Therefore, option 5 is correct.

Zoon's balanitis is a benign condition of uncertain origin affecting uncircumcised men. It may be secondary to other conditions such as lichen sclerosus or erythroplasia of Queyrat. It presents with orange-red lesions with pinpoint redder spots on the glans and adjacent areas of the foreskin in uncircumcised men. Therefore, option 1 is wrong.

Circinate balanitis is a chronic balanitis in men with Reiter's syndrome, although it can occur in isolation. It presents with a well-demarcated erythematous plaque with a ragged white border. This is not the case here, so option 2 is also wrong.

Erythroplasia of Queyrat is an in-situ squamous cell carcinoma. It presents with single or multiple plaques with a red, velvety appearance and is often asymptomatic. Therefore, option 3 is wrong.

With a squamous cell carcinoma, lesions may be papillary or flat. Papillary lesions usually appear on the glans which eventually becomes necrotic and ulcerated. Flat lesions usually ulcerate early. Squamous cell carcinoma may arise on the background of lichen planus or lichen sclerosus. This is not the history here so option 4 is also wrong.

Question:

An 18-year-old man attends your GP surgery for a consultation. He complains of spots on his face that have been present for a few months. The spots have not improved with the over-the-counter facial wash he has been using. The patient is getting increasingly more self-conscious about them. He would like some treatment. On examination, you see comedones and inflamed lesions on the patient's face. There are no nodules.

What is the most appropriate initial management of this patient?

A.Refer to dermatology

B.Trial of low-strength topical benzoyl peroxide

C.A 1-month course of oral lymecycline

D.Reassure the patient that this condition will likely improve and review in 2 months

E.A 3-month course of oral tetracycline

Answer:Trial of low-strength topical benzoyl peroxide

Explanation:

Use non-antibiotic topical treatment first line for the management of acne

Important for meLess important

A trial of low-strength topical benzoyl peroxide is correct. Moderate acne vulgaris is the diagnosis in this scenario as there are inflamed lesions but no nodules. A trial of topical therapy is the most appropriate initial management for mild to moderate acne. Topical benzoyl peroxide, topical azelaic acid, or topical antibacterial (such as erythromycin or clindamycin) are appropriate initial management options for mild to moderate acne as advised by NICE CKS.

Refer to dermatology is incorrect. This patient has mild to moderate acne and initial management can be tried in the community. If he had moderate acne not responding to two courses of oral antibiotics or severe acne vulgaris or a severe variant of acne such as acne conglobata or acne fulminans, a dermatology referral would be appropriate.

A 1-month course of oral lymecycline is incorrect because topical management has not yet been tried. Oral antibiotics would be appropriate if suitable courses of topical management options have failed. When topical management fails, a 3-month course of oral antibiotic therapy should be given alongside topical treatment.

Reassure the patient that this condition will likely improve and review in 2 months is incorrect. Acne requires treatment. This patient has been distressed by the condition to prompt attendance at the surgery. Even if he had mild acne, he would require topical management.

A 3-month course of oral tetracycline is incorrect as topical management has not yet been tried. This would be appropriate if suitable courses of topical management options have failed for this patient. Tetracycline and oxytetracycline would be first-line oral antibiotic therapy if this patient had not responded to appropriate courses of topical treatment.

Question:

Which one of the following statements regarding dipeptidyl peptidase-4 inhibitors in the management of type 2 diabetes mellitus is correct?

A.Metformin should always be co-prescribed

B.Do not cause weight gain

C.Is given via a subcutaneous injection

D.An example is exenatide

E.Patients should be warned that hypoglycaemia is the most common side-effect

Answer:Do not cause weight gain

Explanation:

Hypoglycaemia is rare in patients taking dipeptidyl peptidase-4 inhibitors.

Question:

A 38-year-old patient presents to the emergency department with vomiting and confusion. On further questioning, she reports six months of fatigue, weight loss and 'head rush' when standing.

Blood tests show the following:

Na+ 126 mmol/L (135 - 145)

K+ 5.6 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

Once she is stabilised, she undergoes further tests and is prescribed a maintenance regime of 20mg hydrocortisone and 100mcg fludrocortisone daily.

What dose of medication should she take if she becomes acutely unwell, for example with an infection?

A.10mg hydrocortisone, 50mcg fludrocortisone

B.20mg hydrocortisone, 100mcg fludrocortisone

C.20mg hydrocortisone, 50mcg fludrocortisone

D.40mg hydrocortisone, 100mcg fludrocortisone

E.40mg hydrocortisone, 200mcg fludrocortisone

Answer:40mg hydrocortisone, 100mcg fludrocortisone

Explanation:

Addison's patient with intercurrent illness → double the glucocorticoids, keep fludrocortisone dose the same

Important for meLess important

This patient's presentation with vomiting and confusion, fatigue, weight loss and postural hypotension all point towards adrenal insufficiency.

Her blood tests show hyponatraemia and hyperkalaemia due to aldosterone deficiency. When aldosterone is secreted, its action on the sodium-potassium pump in the distal convoluted tubule and collecting duct causes sodium reabsorption and potassium excretion. In its absence, the opposite happens; sodium is lost and potassium rises.

The third clue to the diagnosis of Addison's is the steroid replacement regimen that is initiated.

During intercurrent illness, patients should double their glucocorticoid dose to mimic the normal steroid response to illness, but keep their mineralocorticoid dose the same. 40mg hydrocortisone is double her usual dose (20mg) and 100mcg fludrocortisone is the same, so this is the correct option. This is in order to mimic the body's usual response to intercurrent illness, which involves increased secretion of glucocorticoids but unchanged mineralocorticoids secretion.

Question:

A 29-year-old man presents to the emergency department complaining of severe pain in his perineum and scrotum. He has type 2 diabetes that is currently well controlled by his regular medication of dapagliflozin. On examination, there is a purple rash with bullae present covering the entire perineum and extending up the scrotum, the patient tells you he is in intense pain but when you palpate the rash he reports reduced sensation. His observations are BP 110/90mmHg, heart rate 109bpm, respiration rate 21/minute, temperature 38.1ºC, and oxygen saturation 98% on room air.

What is the likely diagnosis?

A.Cellulitis

B.Septic arthritis

C.Necrotizing fasciitis

D.Pyoderma gangrenosum

E.Hidradenitis suppurativa

Answer:Necrotizing fasciitis

Explanation:

Necrotising fasciitis: most commonly affected site is the perineum

Important for meLess important

The symptoms described are in keeping with necrotizing fasciitis, and the site that is most commonly affected is the perineum, as stated in the patient's presenting complaint. Based on his observations he is pyrexial and tachycardia/tachypnoea which may be due to the severe pain he is experiencing. The patient is a type 2 diabetic which increases his risk of developing necrotizing fasciitis and he is also taking dapagliflozin, which is an SGLT-2 inhibitor, associated with a further increase in risk.

In the early stages, there is lots of overlap between cellulitis and necrotizing fasciitis with it being difficult to distinguish between the two. The presence of bullae in the rash, the purple discolouration, and the severe pain, all in a patient with risk factors for necrotizing fasciitis would make cellulitis a less likely diagnosis.

Septic arthritis is a medical emergency like necrotizing fasciitis but it arises in a joint space, which is not the case in this patient. The affected joint would be red, hot and swollen and there would be a reduction in range of movement.

Pyoderma gangrenosum presents as a rapidly enlarging, very painful ulcer and is commonly associated with inflammatory conditions like inflammatory bowel disease and rheumatoid arthritis. The rash described in this scenario is not ulcerated and the patient doesn't have any past medical history of inflammatory bowel disease or rheumatoid arthritis.

Hidradenitis suppurativa is a chronic inflammatory skin disease that can lead to inflammatory lesions, pustules, and abscesses forming in the groin area. These lesions are painful but don't tend to arise acutely and don't match the description of the rash from this case.

Question:

A 2-year-old boy is brought to his GP as his mother has noted him limping over the past day. He is up to date with his vaccinations and has no past medical history, although he did have symptoms of a cold several days ago.

On examination, he looks well. His temperature is 38.3ºC, his heart rate is 110 beats per minute, his respiratory rate is 25 breaths per minute and his saturations are 100% on air. There is no redness, swelling or erythema to his hip joint and he allows slight movement of the hip, although becomes upset with excessive movement.

What is the most appropriate management?

A.Arrange a routine hip ultrasound

B.Arrange bilateral hip x-rays

C.Manage conservatively with analgesia and safety-netting

D.Refer for a same-day hospital assessment

E.Refer routinely to paediatric orthopaedics

Answer:Refer for a same-day hospital 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 age of the child, the fact he is well (other than his temperature, his observations are within normal limits for his age), his recent cold and the examination findings (i.e. some restricted movement but a normal looking joint without significant restriction) all point towards a diagnosis of transient synovitis, the most common cause of hip pain in children. Although this is a self-limiting condition managed with analgesia only, any child with limp/hip pain who also has a fever should be referred for same-day assessment to rule out septic arthritis. In secondary care, the Kocher criteria use a combination of signs and symptoms (fever and non-weight bearing) and blood tests (ESR and white cell count) to determine the likelihood of a septic joint.

Arrange a routine hip ultrasound is not correct. This would be the investigation of choice to screen for developmental dysplasia of the hip (DDH). DDH presents in newborns and those with risk factors (e.g. breech presentation) are screened with ultrasound at six weeks. DDH would not be a cause of new, acute hip pain in an older child. USS may also be used to investigate a ? septic joint and could guide drainage. However, this would not be done routinely. Immediate investigation and treatment of a suspected septic joint are required to reduce morbidity and mortality.

Bilateral hip x-rays are not required. These are the investigation modality of choice for suspected Perthes' disease. This would present less acutely, is not associated with a viral infection and is more common in slightly older children.

Manage conservatively is appropriate management for transient synovitis. However, there is a low threshold for children with suspected transient synovitis to be referred to secondary care, given the differential of septic arthritis. As this child has a temperature, they should first be seen in secondary care.

A routine referral to paediatric orthopaedics is not required for transient synovitis (which is self-limiting) or the differential of septic arthritis (which needs urgent inpatient investigation).

Question:

A 45-year-old man returns from a holiday in Thailand suffering from non-bloody diarrhoea. After further questioning he complain of nausea, however, has had no episodes of vomiting. His stomach has been painful with stomach cramps for the past 48 hours.

Given this man's presentation, what is the most likely cause of his symptoms?

A.Crohn's disease

B.Irritable bowel syndrome

C.Infection by enterotoxigenic E.coli

D.Infection by C. jejuni

E.Infection by C. difficile

Answer:Infection by enterotoxigenic E.coli

Explanation:

Watery travellers diarrhoea with stomach cramps and nausea, think Enterotoxigenic E. coli

Important for meLess important

This question is asking about a man presenting with diarrhoea, abdominal cramps and nausea following recent travel. This is the typical pattern of acute travellers diarrhoea, most likely by enterotoxigenic E.coli infection.

Both Crohn's disease and irritable bowel syndrome are both less likely due to the time frame of the presentation. When approaching patients with diarrhoeal symptoms, it is useful to classify whether they are acute or chronic. This helps to narrow down your differential list as both of these will fall into the chronic category.

When ruling out the most likely infective agent, it is best to classify diarrhoeal infection into bloody or non-bloody. Campylobacter jejuni typically causes bloody stools and abdominal pain. In this question, no blood is noted and so this makes this less likely.

Clostridium difficile infection typically follows a hospital stay or course of antibiotics and is associated with profuse diarrhoea. As this patient has returned from holiday recently this is less likely.

As established earlier, the correct answer is option 3. Enterotoxigenic E.coli infection typically occurs in travellers with diarrhoea associated with stomach cramps and nausea as is present in this case.

Question:

A 19-year-old soldier has just returned from a prolonged marching exercise and presents with a sudden onset, severe pain, in the forefoot. Clinical examination reveals tenderness along the second metatarsal. Plain x-rays are taken of the area, these demonstrate callus surrounding the shaft of the second metatarsal. What is the most likely diagnosis?

A.Stress fracture

B.Mortons neuroma

C.Osteochondroma

D.Acute osteomyelitis

E.Freiberg's disease

Answer:Stress fracture

Explanation:

A short history of pain together with clinical examination and radiological signs affecting the second metatarsal favour a stress fracture. The fact that callus is present suggests that immobilisation is unlikely to be beneficial. Freibergs disease is an anterior metatarsalgia affecting the head of the second metarsal, it typically occurs in the pubertal growth spurt. The initial injury was thought to be due to stress microfractures at the growth plate. The key feature in the history which distinguishes the injury as being stress fracture is the radiology. In Freibergs disease the x-ray changes include; joint space widening, formation of bony spurs, sclerosis and flattening of the metatarsal head.

Question:

A 30-year-old female presents to her GP seeking contraception. She has three children and states she has completed her family. She is open to long-acting reversible contraception. After receiving advice about all options available, she opts for the copper IUD. Besides pregnancy, which of the following is it important to exclude?

A.Migraines with aura

B.Pelvic inflammatory disease

C.History of ectopic pregnancy

D.History of venous thromboembolism

E.Smoking history

Answer:Pelvic inflammatory disease

Explanation:

Pelvic inflammatory disease is an absolute contraindication to the insertion of a copper IUD. Women at risk, such as those with multiple sexual partners or symptoms suggestive of pelvic inflammatory disease, should be tested and, if necessary, treated for any infections which could cause pelvic inflammatory disease such as Chlamydia trachomatis and Neisseria gonorrhoeae . Testing for these infections is done using endocervical swabs.

Insertion of a copper IUD is in itself a risk for developing pelvic inflammatory disease, however this risk is low in women who are at low risk of sexually transmitted infections.

For more information please see the NICE guideline CG30 on long-acting reversible contraception: https://www.nice.org.uk/guidance/cg30/chapter/1-Recommendations#copper-intrauterine-devices

Question:

You are doing the discharge summary for a 56-year-old man who is being discharged following a ST-elevation myocardial infarction (MI) for which he was treated with a percutaneous coronary intervention. He has no past medical history of note. Following NICE guidance, which of the following best describes the medications which he should be taking?

A.Aspirin + beta-blocker + aldosterone antagonist + statin

B.Aspirin + beta-blocker + ACE-inhibitor + statin

C.Clopidogrel + beta-blocker + ACE-inhibitor + statin

D.Dual antiplatelet therapy + beta-blocker + ACE-inhibitor + statin

E.Dual antiplatelet therapy + long-acting nitrate + beta-blocker + ACE-inhibitor + statin

Answer:Dual antiplatelet therapy + beta-blocker + ACE-inhibitor + statin

Explanation:

Question:

A 52-year-old woman is diagnosed with non-alcoholic steatohepatitis following a liver biopsy. What is the single most important step to help prevent the progression of her disease?

A.Stop smoking

B.Start statin therapy

C.Eat more omega-3 fatty acids

D.Start sulfonylurea therapy

E.Weight loss

Answer:Weight loss

Explanation:

Weight loss is the best first line management for NAFLD

Important for meLess important

Question:

A 29-year-old male presents to the emergency department with a 3-day history of high fever, chills and a dry cough. As well as this, he is experiencing an intermittent aching pain in both arms and becomes short of breath with light exertion. He alludes to recently being on holiday in Croatia for one week but did not have any symptoms while abroad.

On examination, he looks dishevelled and is tachypnoeic. There are coarse crackles in the left middle and lower zones.

Chest X-ray shows dense consolidation on the left side and the patient is urinary antigen positive.

With the likely diagnosis, which of the following antibiotics would be most appropriate to prescribe?

A.Amoxicillin

B.Clarithromycin

C.Rifampicin

D.Gentamicin

E.Cefazolin

Answer:Clarithromycin

Explanation:

Macrolides such as clarithromycin are used to treat Legionella

Important for meLess important

The recent travel history and urinary antigen indicate Legionnaire’s disease. This atypical pneumonia tends to affect males more. The mortality rate from diagnosed infections can be as high as 15%. Three risk factors relating to increased mortality are people who are immunocompromised, if there is a delay in antibiotic therapy and if the patient is elderly or very young (age of <1).

Macrolides, quinolones and tetracyclines have high activity against Legionella. Any of these would be reasonable choices for therapy. Dual therapy of a macrolide and quinolone is frequently used in practice which is very effective. One must be aware that there is QT prolongation risk with these antibiotic classes prescribed together.

Rifampicin can treat Legionnaire’s disease but is rarely used as the first line due to its side effect profile.

Evidence shows that beta-lactams and aminoglycosides do exert activity against Legionella species in vitro but are not clinically effective.

Question:

A 72-year-old woman is rushed to the emergency department from her nursing home. Staff at the nursing home found she was becoming increasingly unresponsive over the past several hours and was seen to be shaking.

On examination, the patient appears unwell, has visible rigors and a urinary catheter in-situ. Her extremities are cold to touch, displaying cyanosis and poor capillary refill. Her blood pressure is 95/60mmHg, heart rate of 130 beats per minute, respiratory rate of 24 breaths per minute and temperature of 34.4ºC.

She is aggressively fluid resuscitated and stabilised in the emergency department, and an admission organised. When reviewing her blood work the following day, the admitting registrar notes her liver function tests are significantly deranged.

AST 1087 u/L (5 - 40)

ALT 1135 u/L (3 - 40)

What is the most likely cause of this patient's abnormal liver function tests?

A.Autoimmune hepatitis

B.Hepatitis B infection

C.Hepatocellular carcinoma

D.Ischaemia

E.Paracetamol overdose

Answer:Ischaemia

Explanation:

Acute hypoperfusion (e.g. low BP secondary to blood loss) may result in ischaemic hepatitis

Important for meLess important

Given this woman's presentation, it is likely that hypotension secondary to sepsis resulted in ischaemia to hepatocytes and a major hepatic insult - causing the deranged liver function tests (LFTs). Workup of her acute liver injury may include additional blood tests including viral serology, paracetamol levels and auto-antibodies, however these options are not in line with the presentation presented.

Ischaemic hepatitis can occur following instances of acute hepatic hypoperfusion, due to a fall in blood flow to the liver from both the hepatic artery and the portal venous system; vessels responsible for hepatic oxygenation.

Ischaemic hepatitis is often characterised by marked elevation in aminotransferase liver enzymes (AST and ALT) which peak 1-3 days after the insult. There is often a significant rise in lactate dehydrogenase (LDH) which is sensitive for ischaemic hepatitis compared to other causes of liver injury. Values for AST and ALT are often in the 1000s, the differential for which is rare, and includes ischaemic hepatitis, acute viral hepatitis and drug-induced hepatitis.

Autoimmune hepatitis is typically found in young women with a history of autoimmune disorders. Elevation of AST or ALT is usually not as elevated as those seen here, usually <250 U/L.

Although this woman is septic, there is no indication the causative agent is hepatitis B. Acute hepatitis B infection should be suspected if risk factors are present such as IV drug use or a history of risky sexual practices, especially if jaundice is observed on examination.

Hepatocellular carcinoma may cause mild to moderate derangement of AST or ALT, if obstructing the intrahepatic or extrahepatic biliary tree, or if preceded by cirrhosis. However, not to the levels seen here, usually <250 U/L.

A paracetamol overdose is a frequent cause of acute liver failure, however there is no indication of this from the question, and the clinical picture is more fitting of ischaemic hepatitis secondary to sepsis.

Question:

A 24-year-old woman presented to the GP with a recent history of central obesity, hirsutism, amenorrhea. She also reported that she also got frequent urinary tract infection recently. On examination, you noticed that she had multiple striae on the abdomen, thin skin and high blood pressure. Visual examination showed that she had bitemporal hemianopia. She is a non-smoker, not taking any medication and normally fit and well.

Based on the findings, you decided to do further testings to confirm the diagnosis.

What will be the test results shown?

A.Suppressed ACTH and cortisol on high-dose dexamethasone suppression

B.Suppressed ACTH but unsuppressed cortisol on high-dose dexamethasone suppression

C.Unsuppressed ACTH and cortisol on high-dose dexamethasone suppression

D.Unsuppressed ACTH and suppressed cortisol on high-dose dexamethasone suppression

E.Cortisol decrease on CRH stimulation

Answer:Suppressed ACTH and cortisol on high-dose dexamethasone suppression

Explanation:

High-dose dexamethasone suppression test with a pituitary adenoma

Cortisol: suppressed

ACTH: suppressed

Important for meLess important

Suppressed ACTH and cortisol on high-dose dexamethasone suppression is the correct answer. The patient is likely to have Cushing's disease (pituitary adenoma). The secretion of ACTH from the pituitary gland is normally regulated by the level of cortisol in the blood plasma. ACTH stimulates the adrenal cortex to produce cortisol. As plasma cortisol levels increase, ACTH secretion is suppressed. As cortisol levels decrease, ACTH increases. Dexamethasone is a synthetic steroid similar to cortisol, which suppresses ACTH secretion in normal people. A lesion compressing or disrupting optic chiasm (in this case pituitary adenoma) would result in bitemporal hemianopia. A low dose of dexamethasone suppresses cortisol in individuals with no pathology in endogenous cortisol production. A high dose of dexamethasone exerts negative feedback on pituitary neoplastic ACTH-producing cells (Cushing's disease), but not on ectopic ACTH-producing cells or adrenal adenoma (Cushing's syndrome).

Suppressed ACTH but unsuppressed cortisol on high-dose dexamethasone suppression is incorrect. Cushing's syndrome due to other causes (e.g. adrenal adenomas). As the source of stimulation is not from ACTH, suppression of dexamethasone will not produce any effect for cortisol as it is secreted from other sources eg adrenal adenoma.

Unsuppressed ACTH and cortisol on high-dose dexamethasone suppression is incorrect. Ectopic ACTH syndrome will have this result produced. As ACTH is secreted from outside the pituitary, negative feedback does not exert any effect on the pituitary and hence no effect on ACTH.

Unsuppressed ACTH and suppressed cortisol on high-dose dexamethasone suppression is incorrect. This can be a result of a damaged adrenal gland with an ectopic ACTH source which is extremely unlikely.

Cortisol decrease on CRH stimulation is incorrect. It is a peptide hormone that stimulates both the synthesis and the secretion of ACTH in the corticotropin-producing cells (corticotrophs) of the anterior pituitary gland. The CRH stimulation test has been used to identify the source of excess ACTH in ACTH-dependent Cushing syndrome. Pituitary tumours tend to be sensitive to CRH stimulation while ectopic tumours do not usually respond.

Question:

A 54-year-old man who has developed disseminated intravascular coagulation secondary to sepsis is reviewed. Twenty minutes ago he started to bleed per rectum. Blood products including packed red cells and fresh frozen plasma have been ordered. What is the single most important factor in determining whether cryoprecipitate should be given?

A.A low fibrinogen level

B.A high prothrombin time

C.A high activated partial thromboplastin time

D.A low platelet count

E.A low haemoglobin

Answer:A low fibrinogen level

Explanation:

A low fibrinogen level is the major criteria determining the use of cryoprecipitate in bleeding

Important for meLess important

Question:

A 38-year-old female develops hypertension in the third trimester of her first pregnancy. A 24 hour urine collection shows 0.5g protein. Which one of the following complications is least associated with this condition?

A.Intracerebral haemorrhage

B.Pulmonary oedema

C.Fetal prematurity

D.Transverse myelitis

E.Fetal intrauterine growth retardation

Answer:Transverse myelitis

Explanation:

Transverse myelitis is not associated with pre-eclampsia

Question:

An 83-year-old woman with a previous stroke is admitted with a productive cough and shortness of breath. Carers noticed her coughing after drinking her tea yesterday. On examination there are coarse crepitations with no wheeze and the chest x-ray shows right lower zone consolidation.

Her blood results are:

Hb 110 g/L Male: (135-180)

Female: (115 - 160)

Platelets 360 \* 109/L (150 - 400)

WBC 15.8 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 9.8 mmol/L (2.0 - 7.0)

Creatinine 128 µmol/L (55 - 120)

CRP 280.4 mg/L (< 5)

The patient is deemed to have capacity and does not want artificial feeding despite having an unsafe swallow and at an increased risk of aspiration.

What is the most appropriate intervention to do next?

A.Discuss with the patient's family and then place a nasogastric tube

B.Make the patient 'nil by mouth' and continue with intravenous fluids

C.Refer the patient to the nutrition team for assessment for percutaneous endoscopic gastrostomy (PEG)

D.Respect the patient's wishes and discuss feed at risk

E.Sedate patient and place an nasogastric tube to start feeding

Answer:Respect the patient's wishes and discuss feed at risk

Explanation:

If a patient has capacity, you must follow their wishes even if it means withdrawing or not providing treatment

Important for meLess important

The patient has capacity and therefore can make her own decisions. It is good practice to discuss with a patient's family however the patient must first give consent for this and the family cannot make decisions for the patient if the patient has capacity.

Making the patient 'nil by mouth' and keeping hydrated with intravenous fluids would not go against the patient's wishes however it is not the best management option.

Referring the patient to the nutrition team for assessment of PEG would be inappropriate. This is a type of artificial feeding and would be against the patient's wishes who has capacity and has expressed that she does not want artificial feeding.

Respecting the patient's wishes and not starting artificial feeding is the correct answer. Discussing feed at risk and what this means is a good idea a this time and can be used to explore the patients wishes for future care.

Question:

A 37-year-old male has presented to the emergency department following a witnessed seizure. The witness reports them having a tonic-clonic seizure that lasted approximately 10 minutes. They were drowsy for 15 minutes following this, but is now alert and talking to you on admission. They have a past medical history of schizophrenia and have reported multiple seizures since starting a new medication 3 weeks ago.

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

A.Aripiprazole

B.Clozapine

C.Olanzapine

D.Quetiapine

E.Risperidone

Answer:Clozapine

Explanation:

Clozapine reduces seizure threshold, making seizures more likely

Important for meLess important

All of the above medications are atypical antipsychotic drugs that are used for an array of indications. Of these, the only notable drug that reduces seizure threshold is clozapine. Clozapine is an effective medication but carries a number of serious side effects which you must be aware of: agranulocytosis, neutropenia, reduced seizure threshold, and myocarditis.

All atypical antipsychotics can cause weight gain and hyperprolactinemia. However, generally speaking, aripiprazole has a good side effect profile and is less likely to increase prolactin levels or cause other side effects.

Olanzapine is notorious for its associations with dyslipidemia and weight gain, and is also associated with diabetes and sedation. It is for this reason that some patients are purposefully given olanzapine if they are underweight and cannot sleep.

Quetiapine is also associated with weight gain and dyslipidemia. However, one of the most notable side effects of this drug is postural hypotension.

Risperidone can increase the likelihood of developing extrapyramidal side effects, as well as cause postural hypotension and sexual dysfunction.

Question:

A 57-year-old woman attends for a review of her type two diabetes mellitus (T2DM). She was diagnosed 3-years ago and commenced on metformin.

The patient's past medical history is significant for obesity (BMI 31 kg/m²). She works as an HGV driver and has a significant needle phobia.

Her HbA1c is as below:

HbA1c 59 mmol/mol

She is started on an appropriate additional T2DM medication which has been chosen to suit her lifestyle.

After taking this medication for 2 months, she is pleased to note a 3kg weight loss without any lifestyle change.

What medication was this patient started on?

A.Acarbose

B.Empagliflozin

C.Gliclazide

D.Liraglutide

E.Pioglitazone

Answer:Empagliflozin

Explanation:

SGLT-2 inhibitors have the beneficial side effect of weight loss in patient with T2DM

Important for meLess important

Empagliflozin is the correct answer. This drug causes weight loss due to increased urinary glucose excretion and subsequently reduced glucose uptake into adipose tissue. NICE recommends that SGLT-2 inhibitors such as empagliflozin may be added as second-line therapy in T2DM not controlled by metformin alone (this patient's HbA1c has risen above 58 mmol/mol) in patients who cannot take sulfonylureas or for patients who are at significant risk of hypoglycaemia and its consequences. This patient is an HGV driver, so episodes of hypoglycaemia would be potentially dangerous (hypoglycaemia is a key side-effect of sulfonylureas)

Acarbose is incorrect. This drug does not cause weight loss (it exerts its small blood glucose lowering effect by slowing gastric absorption of carbohydrates) and is not routinely added to metformin to improve glucose control. It is used for patients who do not tolerate traditional antidiabetic medications.

Gliclazide is incorrect. Sulfonylureas like gliclazide increase insulin secretion, which leads to weight gain, not loss. The patient would not be prescribed a sulfonylurea due to the risk of hypoglycaemia, which is unacceptable given her job.

Liraglutide is incorrect. This is because, although GLP-1 receptor agonists also promote weight loss, they would not be an appropriate choice in this needle-phobic patient as they are given by injection. Furthermore, they are not usually considered until a combination of three antidiabetic drugs has been ineffective, which is not the case in this patient.

Pioglitazone is incorrect. This is because, although it is appropriate to add a second agent to metformin, it does not cause weight loss; it causes mild weight gain due to increased peripheral insulin sensitivity and so adipose uptake of glucose.

Question:

A 4-week-old boy is brought to see the general practitioner by his mother. She is concerned about a 'swelling' in the right side of his scrotum that has appeared over the past week. He does not appear to be in any pain, has been feeding well and has not had any diarrhoea or coryzal symptoms.

On examination, a scrotal swelling is palpable on the right side. It is possible to get above the swelling. The right testicle is difficult to palpate as a result of the swelling, but the left testicle is easily palpable. On transillumination, the right hemiscrotum lights up.

What is the most appropriate course of action given the above information?

A.Perform an aspiration and send off for cytology and cultures

B.Refer to paediatric urology outpatients

C.Advise the mother to return in 1 week if it has not resolved

D.Reassure that it is not sinister and will likely resolve by 1 year

E.Refer for scrotal ultrasound

Answer:Reassure that it is not sinister and will likely resolve by 1 year

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

This 4-week-old boy presents with what is likely a hydrocele that was not noticed at birth. As fluid accumulates hydroceles grow to become more visible. Given this clinical diagnosis, aspiration is inappropriately invasive and has no role.

Similarly, as hydroceles often are self-resolving, specialist input is not required unless it persists beyond 18 months to 2 years of age.

The hydrocele is not necessarily expected to resolve within 1 week and has no immediate complications. Therefore the mother does not need to return if it persists beyond this time.

As mentioned, the hydrocele is likely to resolve on its own (typically before 1 year old). They are not painful and generally don't cause any complications. Therefore expectant management/reassurance are appropriate.

As the diagnosis is clinical, ultrasound is not required. If there was any doubt on history or examination ultrasound could be considered e.g. to rule out an inguinal hernia.

Question:

A 33-year-old woman presents to the GP requesting the combined oral contraceptive pill. She suffers with severe unilateral headaches and describes a sensation of pins and needles which spread up her arm before the headache onset. She smokes 10-20 cigarettes most weekends and has a BMI (body mass index) of 34 kg/m². There is a family history of thromboembolic disease in her younger sister. Which single part of the history represents the strongest contraindication to prescribing the combined oral contraceptive?

A.Patient age

B.BMI

C.Smoking history

D.Migraine with aura

E.Family history

Answer:Migraine with aura

Explanation:

The patient's headache is strongly suggestive of a diagnosis of migraine. Migraine with aura is classified as UKMEC 4 (represents an unacceptable health risk in the prescription of the combined oral contraceptive pill). Although the majority of patients who experience aura describe visual phenomena, some have sensorimotor symptoms including paraesthesia, focal weakness or dysphasia.

The other elements of the history would certainly have an additive effect and should encourage a discussion about more appropriate options for contraception but migraine with aura is the single greatest contraindication.

Question:

A 52-year-old woman attends your clinic complaining of persistent ringing in her ears.

She had recently been seen for lower back pain and advised to take naproxen and paracetamol, although the paracetamol was replaced with co-codamol and subsequently with co-dydramol.

What medication is most likely to have caused her new symptom?

A.Co-codamol

B.Co-dydramol

C.Melatonin

D.Naproxen

E.Paracetamol

Answer:Naproxen

Explanation:

Aspirin and other NSAIDs taken in high doses can cause tinnitus

Important for meLess important

NSAIDs, particularly stronger ones such as naproxen, can cause tinnitus as a side effect, although the frequency of this is reported as 'unknown' in the BNF.

There may be anecdotal reports of patients that tinnitus has developed after initiating co-codamol therapy, however, tinnitus is not a known side effect of co-codamol according to the BNF. More commonly, opioids can cause side effects such as constipation, dizziness, drowsiness, dry mouth, euphoria, headaches, nausea and vomiting, respiratory depression (with high doses), urinary retention and arrhythmias or palpitations, and, importantly, there is a significant risk of addiction and withdrawal symptoms.

Similarly, co-dydramol (dihydrocodeine with paracetamol) is not known to cause tinnitus according to the BNF. However, other side effects such as drowsiness, respiratory depression and addiction are important ones to consider as with co-codamol.

Melatonin is also not known to cause tinnitus. Though it is a drug which is relatively well tolerated, possible side effects of melatonin include arthralgia, changes in behaviour, drowsiness, headaches, abdominal pain, hypotension, and issues relating to the quality of the sleep (counterintuitively described as 'sleep disorders' on the BNF): some patients report being able to fall asleep more easily but waking up early, or experiencing unusual or unpleasant dreams.

Question:

A 65-year-old man with liver cirrhosis of unknown cause is reviewed in clinic. Which one of the following factors is most likely to indicate a poor prognosis?

A.Alanine transaminase > 200 u/l

B.Caput medusae

C.Ascites

D.Gynecomastia

E.Splenomegaly

Answer:Ascites

Explanation:

Question:

A 31-year-old woman attends clinic, concerned about her pregnancy. She is at 32 weeks gestation, and she reports the pregnancy being uneventful so far. However, for the past few days, she feels that the baby has been moving less than earlier in the pregnancy. She is otherwise well - she has had no recent infection, nor feeling unwell. She has no significant past medical history. This is her first pregnancy.

Obstetric abdominal examination is unremarkable and the patient looks completely well.

What should the initial management be?

A.Fetal blood sampling

B.Handheld Doppler

C.Referral to fetal medicine unit

D.Ultrasound scan

E.Cardiotocography for 20 minutes

Answer:Handheld Doppler

Explanation:

If a pregnant woman reports reduced fetal movements then handheld Doppler should be used to confirm fetal heartbeat as a first step

Important for meLess important

The RCOG guidelines stratify management of reduced fetal movements by gestation. If the patient is past 28 weeks, as in this scenario, the most appropriate initial step is to use handheld Doppler to confirm fetal heartbeat. If this is not detectable, ultrasound should be offered immediately. If a heartbeat was detected, cardiotocography should be used for 20 minutes to monitor the heart rate.

Fetal blood sampling does not play a role here.

Referral to a fetal medicine unit would be appropriate if no movements had been felt at all by 24 weeks.

Question:

A 27-year-old patient presents to the Emergency Department with fresh red vaginal bleeding and lower abdominal pain.

The patient is at 34 weeks gestation and gravida 2, para 1. She is rhesus positive and a current smoker. Access to her current maternity notes is unavailable. She tells you she has pre-eclampsia for which she takes labetalol.

Maternal observations are normal and there are no concerns with foetal movements. A cardiotocograph (CTG) demonstrates that the foetal heart rate is 140 beats/min, variability is 15 beats/min, accelerations are present and there are no decelerations noted.

On examination, the uterus is hard and tender to palpation. The doctor suspects that the foetus may be in a transverse lie. The patient's pad is partially soaked but there is no active bleeding noted on a quick inspection.

What would the most appropriate first course of action be in this scenario?

A.Administer anti-D antibodies and perform a Kleihauer test

B.Administer corticosteroids and arrange admission to the ward

C.Arrange induction of labour

D.Emergency caesarean section

E.Perform a sterile speculum examination

Answer:Administer corticosteroids and arrange admission to the ward

Explanation:

Management of placental abruption when the fetus is alive, <36 weeks and not showing signs of distress is to admit and administer steroids

Important for meLess important

This patient has presented with painful bleeding and a hard, tender uterus - this is suggestive of placental abruption. Risk factors for placental abruption identified in this case are being a current smoker, pre-eclampsia and transverse lie. Management of placental abruption depends on gestation, foetal condition and maternal condition. In this scenario, the patient is haemodynamically stable, is at 34 weeks gestation and there are no signs of foetal distress. The most appropriate plan, therefore, is to administer steroids and admit to the ward for observation.

Administration of anti-D and performing a Kleihauer test is inappropriate as the patient is already known to be rhesus positive.

Arranging induction of labour is incorrect as this foetus has not matured to term - and so induction of labour would not be indicated in this scenario.

Emergency caesarean section would be appropriate if foetal distress was noted. However, as there are no signs of foetal distress and the mother is haemodynamically stable, emergency operative delivery is not indicated.

Performing a sterile speculum examination would not be appropriate - we can see from the history that there is no access to the patient's maternity notes. If this patient had placenta praevia, a speculum examination could cause or exacerbate haemorrhage. The most appropriate action would therefore be to admit to the ward until either access to notes becomes available or an ultrasound is performed.

Question:

Mary is a 76-year-old woman with a history of well-controlled hypertension. She presented to the emergency department yesterday with a 5-hour history of an irregular racing sensation in her chest. Mary tells you that although she doesn't regularly drink alcohol, she did consume around 16 units yesterday while attending a friend's wedding. An ECG is performed which shows absent P waves and an irregularly irregular rhythm. Since admission, Mary had continuous cardiac telemetry and spontaneously returned to sinus rhythm.

Does Mary require anticoagulation?

A.No, anticoagulation is not required for this brief paroxysmal episode of atrial fibrillation

B.No, Mary does not require anticoagulation as the atrial fibrillation was likely provoked by alcohol

C.No, Mary's CHAD2DS2-VASc score does not warrant anticoagulation

D.No, Mary presents a major bleeding risk and is not suitable for anticoagulation

E.Yes, even a single episode of paroxysmal atrial fibrillation warrants consideration of anticoagulation

Answer:Yes, even a single episode of paroxysmal atrial fibrillation warrants consideration of anticoagulation

Explanation:

A single episode of paroxysmal atrial fibrillation, even if provoked, should still prompt consideration of anticoagulation

Important for meLess important

Even a single episode of paroxysmal atrial fibrillation should be considered for anticoagulation if otherwise appropriate, to lower the risk of thromboembolism.

A single episode of paroxysmal atrial fibrillation, even if clearly provoked, should still be managed with anticoagulation due to the risk of recurrence of AF.

Mary's CHAD2DS2-VASc score clearly does indicate anticoagulation should be considered, with a score of 4 (female +1, >75 years old +2, and history of hypertension +1).

Mary does not present a major bleeding risk. Her age is one minor non-modifiable risk factor, while her hypertension is controlled and so is not a risk factor. You should calculate the ORBIT score to assess bleeding risk, Mary would have a score of +1 due to her age. The ORBIT score does not have formal clinical rules which guide management, however, it does give an indication of the bleeding risk. Mary with a score of +1 would be in the low-risk group which can be expected to experience 2.4 bleeds per 100 patients years.

A single episode of paroxysmal atrial fibrillation, even if provoked by external events such as alcohol or infection, should still be considered for anticoagulation to limit the risk of stroke.

Question:

A 27-year-old woman presents for review. She describes herself as having 'IBS' and for the past two years has suffered intermittent bouts of abdominal pain, bloating and loose stools. For the past two weeks however her symptoms have been much worse. She is now passing around 3-4 watery, grey, 'frothy' stools per day. Her abdominal bloating and cramps have also worsened and she is suffering from excessive flatulence. Judging by the fitting of her clothes she also feels that she has lost weight. Some blood tests are ordered:

Hb 10.9 g/dl

Platelets 199 \* 109/l

WBC 7.2 \* 109/l

Ferritin 15 ng/ml

Vitamin B12 225 ng/l

Folate 2.1 nmol/l

What is the most likely diagnosis?

A.Crohn's disease

B.Coeliac disease

C.Infective exacerbation of irritable bowel syndrome

D.Ulcerative colitis

E.Bacterial overgrowth syndrome

Answer:Coeliac disease

Explanation:

The main clues is this question are the anaemia and low ferritin/folate levels, all characteristic of coeliac disease. The description of the diarrhoea is also typical although some patients may have more overtly 'fatty' stools.

Why not irritable bowel syndrome? Common things are common and atypical presentations of common conditions are seen more than typical presentations of less common conditions. The main reason is the bloods - a low ferritin and folate would not develop with IBS +/- gastroenteritis. Even if the woman suffered from menorrhagia this would not explain the low folate although it may account for the anaemia/low ferritin.

Coeliac disease is more common than Crohn's by a factor of around 100. In exams there are also usually more clues to point towards a diagnosis of Crohn's (e.g. mouth ulcers etc).

Question:

An 8-year-old boy with sickle-cell disease presents with a 5-day history of fever, rash, and runny nose. His mother has brought him to the emergency department today, as she is concerned that he seems extremely tired and not himself. His blood tests are shown below.

Hb 67 g/L Male: (135-180)

Female: (115 - 160)

Platelets 98 \* 109/L (150 - 400)

WBC 3.2 \* 109/L (4.0 - 11.0)

Neuts 1.5 \* 109/L (2.0 - 7.0)

Lymphs 0.8 \* 109/L (1.0 - 3.5)

Mono 0.2 \* 109/L (0.2 - 0.8)

Eosin 0.1 \* 109/L (0.0 - 0.4)

What is the most likely cause of his presentation?

A.Acute myeloid leukaemia

B.Meningitis

C.Parvovirus B19

D.Sickle-cell crisis

E.Systemic lupus erythematosus

Answer:Parvovirus B19

Explanation:

Parvovirus B19 can cause fever, rash and patients with predisposing haematological conditions, pancytopenia

Important for meLess important

Patients with a background of haemolytic anaemia, particularly sickle cell disease, are at risk of aplastic anaemia if infected with parvovirus B19 . Also known as 'fifth disease', it typically causes a mild illness with a characteristic 'slapped cheek' rash.

Acute myeloid leukaemia is a possible cause of tiredness and pancytopaenia, however, it is much more common in adults and given the fever, runny nose and rash and infective cause is more likely.

Meningitis should always be considered in a febrile unwell child. However, there is no mention of features of meningism and meningitis typically causes leucocytosis.

Sickle-cell crisis would typically present with pain.

Systemic lupus erythematosus can cause a butterfly rash across the cheeks but is not normally associated with pancytopaenia.

Question:

A 49-year-old gentleman presents to his GP with a month history of headache, sweating and visual problems. He mentions that he has noticed a change in his appearance compared with old photos and that his wedding ring no longer fits.

Given the likely diagnosis, which of the following investigations is most appropriate?

A.Pituitary MRI

B.Serum IGF-1

C.Serum prolactin

D.Short synacthen test

E.Insulin tolerance test with growth hormone measurement

Answer:Serum IGF-1

Explanation:

Serum IGF-1 levels are now the first-line test for acromegaly

Important for meLess important

This is a classic presentation of acromegaly. The vast majority are caused by excess growth hormone (GH) secretion from a pituitary adenoma.

Question:

A 56-year-old woman presents to the GP surgery with a three-month history of fatigue. Her past medical history includes asthma and vitiligo. On examination she is pale and she has a red, swollen tongue. Her blood results are as follows.

Hb 98 g/L Male: (135-180)

Female: (115 - 160)

MCV 110 \* 1015/L (80 - 100)

Platelets 160 \* 109/L (150 - 400)

WBC 8.6 \* 109/L (4.0 - 11.0)

Reticulocytes 0.95% (0.5 - 1.5)

Which additional blood test would be most useful in confirming the likely diagnosis?

A.Anti-endomysial cell antibodies

B.Anti-mitochondrial antibodies

C.Anti-tissue transglutaminase antibodies

D.Gastric parietal cell antibodies

E.Intrinsic factor 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

This woman has a symptomatic megaloblastic anaemia associated with glossitis. This is likely due to pernicious anaemia (common in middle aged/older women and more common in people with other autoimmune disorders e.g. vitiligo). Intrinsic factor antibodies are more useful than gastric parietal cell antibodies in making this diagnosis. Therefore intrinsic factor antibodies is the correct answer.

Anti-tissue transglutaminase antibodies and anti-endomysial antibodies are used in the diagnosis of coeliac disease. Whilst coeliac disease can cause anaemia including due to low B12 and/or low ferritin, there are no specific symptoms in the question that point towards a diagnosis of coeliac disease. Therefore, the most likely diagnosis remains pernicious anaemia, and intrinsic factor antibodies are more useful as a first-line investigation.

Anti-mitochondrial antibodies are associated with primary biliary cholangitis and autoimmune hepatitis, and hence not useful as a first line test for investigating B12 deficiency.

Question:

A 73-year-old woman with a history of squamous cell carcinomas presents to her GP with a lesion on the back of her hand. She reports having an insect bite on the site of the lesion over a month ago, and since then it has been slowly growing from the site. It is moderately tender. On examination, her hand looks like this:

© Image used on license from DermNet NZ

What appropriate management should be offered?

A.Daily 5-fluorouracil application for four weeks

B.Reassurance and safety-netting

C.Routine percutaneous drainage

D.Topical anti-histamines

E.Urgent 2-week-wait referral to dermatology

Answer:Reassurance and safety-netting

Explanation:

This lesion is a firm, dome-shaped nodule on the dorsum of the hand, which is described as moderately tender. This is a common presentation of a dermatofibroma - they are usually asymptomatic and are often precipitated by an injury to the site, such as an insect bite.

Reassurance and safety-netting is the most appropriate management of this patient as dermatofibromas will usually resolve over the course of weeks without any treatment needed; however, due to the patient's history of skin cancer, safety-netting to ensure she returns with any other skin lesions would be appropriate.

Daily 5-fluorouracil application for four weeks may be an appropriate treatment if the patient had another basal cell carcinoma.

Routine percutaneous drainage is occasionally required for sebaceous cysts.

Topical anti-histamines may be useful for itchy lesions, such as insect bites. However, this patient is unlikely to have had an insect bite that has persisted for this time duration.

Urgent 2-week-wait referral to dermatology would be appropriate if there were concerns of skin cancer, but here the lesion is benign. A worrying lesion that warrants a 2-week wait referral includes irregular margins, ulceration, unexplained bleeding, and irregular variation of colours within the lesion.

Question:

A 65-year-old man on palliative treatment for metastatic oesophageal cancer is finding it increasingly difficult to take his morphine and as such is in increasing discomfort. His current prescription is for 60 mg BD oral.

Which of the following is the most appropriate option to manage his pain?

A.Switch to subcutaneous morphine infusion at 120 mg/24hrs

B.Switch to gabapentin

C.Switch to fentanyl ‘100’ patch (100 micrograms/hour)

D.Switch to subcutaneous morphine infusion at 60 mg/24hrs

E.Increase oral morphine solution to 90 mg BD

Answer:Switch to subcutaneous morphine infusion at 60 mg/24hrs

Explanation:

Divide by two for oral to subcutaneous morphine conversion

Important for meLess important

This patient’s daily dose of oral morphine is 120 mg in total. Based on the history provided, his increasing pain is a result of his inability to swallow, rather than a change in his condition. As such the most appropriate option is to switch to an equivalent dose of an opioid via a more tolerable route.

1) The ratio of oral to parenterally administered morphine is 2:1, that is to say, subcutaneous or intravenous doses are half that of the oral dose. This dose is, therefore, double his current requirements.

2) There has been no change in his condition or nature of his pain. As such, it would not be appropriate to switch to a different class of pain relief.

3) Transdermal patches are suitable for those with stable levels of pain who will not require regular titration of their pain relief. This will not always be the case in a palliative cancer patient. They should also not be given to opioid naïve patients. At this dose, a fentanyl 100 patch will deliver 2400 micrograms or 2.4 mg of fentanyl per 24 hours. The conversion of oral morphine to transdermal fentanyl is however 1:100, and as such this is equivalent to 240 mg oral morphine per 24 hours, double his current requirements.

4) This is correct as a subcutaneous dose of 60 mg/24 hours is equivalent to 120 mg of oral morphine.

5) This option would be inappropriate as it is the patient’s difficulty in taking his pain relief that is causing his pain, not an increase in his pain requirements.

Question:

A 36-year-old woman presents with a one-hour history of a severe headache. You review her within a few minutes of arrival in the department.

She describes a sudden onset headache and feels it is the worst headache she has ever had in her life. She has felt nauseated since it started and vomited once and also describes photophobia.

Her GCS is 15, she has no focal neurology and is afebrile.

You suspect a subarachnoid haemorrhage and a CT brain is performed one hour after your assessment.

The CT shows no acute intracranial pathology.

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

A.CT angiogram

B.Consider an alternative diagnosis

C.Digital subtraction angiography

D.Lumbar puncture

E.Magnetic resonance angiography

Answer:Consider an alternative diagnosis

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

This question tests knowledge of the recent NICE guidelines on the diagnosis and management of subarachnoid haemorrhage (SAH).

The patient in question has multiple features of SAH and a plain CT brain is the correct initial investigation.

The NICE guidelines suggest that if a patient has a normal CT brain within 6 hours of the onset of the headache then SAH is unlikely and you should consider an alternative diagnosis. This is therefore the correct answer.

If the CT is performed greater than 6 hours after the onset of the headache and shows no evidence of SAH then you should consider a lumbar puncture, which should be performed at least 12 hours after onset, but this does not apply in this case, so it is incorrect.

If the CT shows a subarachnoid haemorrhage, the next investigation is usually a CT angiogram, but this is unnecessary if there is no SAH visible., so is not correct.

If you subsequently do perform a lumbar puncture and this shows xanthochromia, then a CT angiogram would then be indicated but is not correct at this stage.

Digital subtraction angiography (DSA) is incorrect. This is used to determine if an aneurysm is present if a CT angiogram does not identify the cause of the SAH but an aneurysm is still suspected.

Magnetic resonance angiography (MRA) is incorrect and this is only usually performed if DSA is contraindicated.

Question:

An 86-year-old lady suffers a mechanical fall and sustains a pertrochanteric hip fracture. This is treated with a dynamic hip screw (DHS). Post-operatively, the ward physiotherapist asks you what her weight bearing status is.

What instructions would you give?

A.Full weight bearing after 24 hours

B.Bed rest for the first 24 hours, unrestricted weight bearing afterwards

C.Full weight bearing immediately post-op

D.Bed rest until there is radiographic evidence that the fracture is uniting

E.Partial weight bearing first 48 hours

Answer:Full weight bearing immediately post-op

Explanation:

The aim of hip fracture surgery is to allow immediate post-operative weight bearing

Important for meLess important

The British Orthopaedic Association (BOA) state that the aim of hip fracture surgery should be to allow the patient to fully weight bear, unrestricted, immediately following surgery. This reduces the length of stay and the complications associated with prolonged immobility such as chest infection, venous thromboembolic disease, pressures sores etc.

Most elderly patients will find it difficult to comply with 'partial weight bearing' instructions or to mobilise non-weight bearing.

In addition, the mechanism of the dynamic hip screw is such that it requires weight bearing so that compression is achieved across the fracture site.

Question:

A 34-year-old man originally from West Africa is seen by his GP in January with depression. There is no past medical history of note but he is known to smoke cannabis. He has had similar episodes for the past two winters. What is the most likely diagnosis?

A.Cyclothymic disorder

B.Atypical depression

C.Seasonal affective disorder

D.Schizophrenia

E.Drug-induced depression

Answer:Seasonal affective disorder

Explanation:

Question:

A 28-year-old man from Zimbabwe presents to the emergency department with a 2 week history of fever, cough, headache, vomiting and neck stiffness. He is known to be HIV positive and is on treatment. His most recent CD4 count was 450 cells/mm³

On examination he has no focal neurological signs but appears drowsy and confused. You suspect meningitis and perform and lumbar puncture

The results show:

Opening pressure 25mm H2O

Appearance cloudy

White cells 200 cells/mm³

Cells 90% lymphocytes

CSF protein 3 g/L

CSF glucose 1.1 mmol/L

Blood glucose 6.8 mmol/L

What is the most likely diagnosis?

A.Meningococcal meningitis

B.TB meningitis

C.Cryptococcal meningitis

D.Partially treated bacterial meningitis

E.Herpes simplex meningitis

Answer:TB meningitis

Explanation:

The lymphocytic CSF with high protein and low glucose in this case could be due to both cryptococcal and TB meningitis, however the insidious onset of symptoms, very high protein and low glucose compared to the plasma glucose (<1/3 of plasma) points more towards TB meningitis. Also this man has a relatively high CD4 count and only a mildly raised opening pressure which makes cryptococcal meningitis more unlikely. TB and HIV co-infection are common, especially in sub-Saharan Africa and should always be considered.

Question:

A 23-year-old Sri Lankan male presents with 6 months of gradual onset low back pain, worse before waking. He describes increasing stiffness in his right wrist and left third metacarpal joints. On examination, you note reduced spinal movements in lateral spinal flexion and rotation and a positive Schober's test. He has not received any previous treatments for his back pain and has no other past medical history. What is the most appropriate initial management?

A.Start sulphasalazine

B.Start infliximab

C.Start etanercept

D.Physiotherapy and NSAIDs

E.No treatment

Answer:Physiotherapy and NSAIDs

Explanation:

The patient gives a classic description of new onset ankylosing spondylitis. He presents from the typical age group of between 15-25. NSAIDs and physiotherapy should be the first line treatment for all symptomatic AS patients, allowing up to 4 weeks for assessment of effect. Up to 70% of AS patients receive sufficient symptomatic relief with NSAIDs alone, with the most recent EULAR guidelines recommending continuous NSAIDs therapy for those with active persistent symptoms1. There is also evidence that this reduces radiological progression of the disease.

Systemic glucocorticoids have no place for AS management but intra-articular steroid injections may be indicated in peripheral joints or enthesitis. Of traditional DMARDs, sulphasalazine is the only DMARD with evidence of efficacy in peripheral joint involvement but is not effective in those with axial joint involvement2. TNF-alpha inhibitors are recommended on those with AS symptoms insufficiently controlled by NSAIDs alone. There appears to be no difference in efficacy between etanercept, infliximab or adalimumab3.

1. Zochling J, van der Heijde D, Burgos-Vargas R et al. ASAS/EULAR recommendations for the management of ankylosing spondylitis. Ann Rheum Dis. 2010;65(4):442

2. Van der Heijde D, Sieper J, Maksymowych WP et al. 2010 Update of the international ASAS recommendations for the use of anti-TNF agents in patients with axial spondyloarthritis. Ann Rheum Dis. 2011;70(6):905

3. McLeod C, Bagust A, Boland A et al. Adalimumab, etanercept and infliximab for the treatment of ankylosing spondylitis: a systematic review and economic evaluation. Health Technol Assess. 2007;11(28):1

Question:

A 42-year-old female has just delivered her second and final child at 41 weeks gestation. She has currently been in the third stage of labour for 64 minutes. She has so far lost 2800ml of blood. Her previous baby was delivered by elective caesarean-section. Her only past medical history is pelvic inflammatory disease.

Due to her risk factors, an antenatal ultrasound was performed and confirmed the underlying diagnosis. Unfortunately, the results of this scan had not been seen by the delivery team until now.

What is the most definitive treatment of the underlying problem?

A.Hysterectomy

B.Oxytocin administration

C.Ergometrine administration

D.Traction on the umbilical cord

E.Wait another 30 minutes

Answer:Hysterectomy

Explanation:

Hysterectomy is the recommended treatment for delayed placental delivery in patients with placenta accreta

Important for meLess important

This patient has presented with a delayed third stage of labour. This is on a background of a likely placenta accreta. This is indicated by the following two risk factors in the patient's medical history:

Previous caesarean-section

Previous pelvic inflammatory disease

The stem implies this was diagnosed antenatally too on ultrasound.

The definitive management of such a patient is hysterectomy with the placenta left in-situ [1]. This is because the attempts to actively remove the placenta can cause significant haemorrhage.

Medical management (oxytocin and ergometrine) may help manage the post-partum haemorrhage but is not a definitive treatment option.

Cord traction is unlikely to help as the placenta is pathologically implanted into the uterine wall.

It would not be appropriate to wait another 30 minutes due to the risk of further bleeding.

Reference:

[1] https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Placenta-Accreta

Question:

A 20-year-old male who has come to the emergency department because of a sudden pain in his right chest earlier today. He has no past medical history and this has never happened before. He admits to smoking marijuana regularly but no other recreational drugs. He is not short of breath and does not have any other focal or systemic symptoms.

On examination he is alert and oriented and has an asthenic body habitus. Air entry is equal on both sides but the pain is exacerbated by deep inspiration. A chest X-ray shows a 3cm rim of air around the right lung.

What is the most appropriate management for this patient?

A.CT chest

B.Chest drain insertion

C.Discharge with advice

D.Aspiration

E.Wait and observe for 24 hours

Answer:Aspiration

Explanation:

In primary pneumothorax that has either shortness of breath or >2cm rim of air, aspiration should be attempted

Important for meLess important

The correct answer is aspiration as the patient has presented with a spontaneous pneumothorax that is >2cm from lung apex to thoracic cupola. Tall, thin, male smokers are at high risk of primary pneumothoraces. Aspiration should be attempted in the safe triangle. The borders of the safe triangle are: the anterior border of latissimus dorsi, the lateral border of pectorals major, a horizontal line at the level of the nipple and the base of the axilla.

A CT chest would be requested if there was suspicion of underlying pulmonary disease that could have caused the pneumothorax.

Chest drains are used in traumatic pneumothoraces or if the primary pneumothorax is very large or progresses on chest X-ray.

Patients with large (>2cm) or symptomatic spontaneous pneumothoraces should not be discharged as there is potential for progression. Patients with small (<2cm) pneumothoraces can be discharged with advice.

You would need to treat the pneumothorax before waiting and observing. It is unlikely they would also require 24 hours in hospital.

Question:

A 45-year-old woman presents to her general practitioner complaining of sleep disturbances. She has not been able to fall asleep before 3 am in the past three weeks and she constantly wakes up during the few hours of sleep she gets. This has been impacting her work as during the day she feels tired and incapable to concentrate.

She does not complain of any other symptoms and looks alert and comfortable. Her past medical history comprises of rheumatoid arthritis, asthma, urticaria and anxiety.

What medication is the most likely to cause her symptoms?

A.Chlorpheniramine

B.Diazepam

C.Methotrexate

D.Prednisolone

E.Zolpidem

Answer:Prednisolone

Explanation:

Corticosteroids may cause insomnia

Important for meLess important

The correct answer is prednisolone. This patient is complaining of insomnia, which has been associated with the usage of corticosteroids. The mechanism behind this side effect has not been fully understood yet.

Chlorpheniramine is a sedating antihistamine drug that is used in the management of urticaria. It can cause drowsiness rather than insomnia by being an H1 inhibitor.

Diazepam is a drug that can potentially be used to treat insomnia rather than be the cause of it, especially if the insomnia is linked to daytime anxiety.

Methotrexate is an antimetabolite that inhibits dihydrofolate reductase used to manage rheumatoid arthritis. Very rarely it can cause insomnia, but prednisolone is much more likely to be causing it.

Zolpidem is a Z-drug that can be prescribed to treat insomnia rather than be the cause of it.

Question:

A 55-year-old man presents for his diabetes check-up. He is currently taking metformin 1g twice daily.

His HbA1c on review is 61mmol/mol.

His BMI is 36 kg/m² and he requests that any new medications started will not cause him any further weight gain.

What medication should be avoided?

A.Canagliflozin

B.Exenatide

C.Gliclazide

D.Liraglutide

E.Vildagliptin

Answer:Gliclazide

Explanation:

Sulfonylureas often cause weight gain

Important for meLess important

This question focuses on choosing a diabetic medication that does not have a side effect of weight gain.

Gliclazide is a medication in the sulfonylurea class. The sulfonylureas have the negative side effect of causing weight gain.

Canagliflozin is a medication in the sodium-glucose co-transporter-2 (SGLT2)- inhibitor group. These medications cause weight loss, via the excretion of glucose by the kidneys.

Exenatide and liraglutide are medications in the Glucagon-like peptide-1 (GLP1)-agonist group. They are administered subcutaneously and help with weight loss. They are used for patients who are overweight and who meet specific other criteria. Liraglutide has the added benefit of being given only once a day.

Vildagliptin is a Dipeptidyl-peptidase 4 (DPP4)-inhibitor that works by increasing levels of incretins. DPP-4 inhibitors do not cause weight gain.

Question:

A 62-year-old man has a full blood count performed as part of a routine review. He denies a history of smoking and has no history of chest symptoms.

Blood results show:

Hb 195 g/L (135-180)

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

WBC 7.0 \* 109/L (4.0 - 11.0)

Which one of the following is most likely to be the cause for these results?

A.Acute myeloblastic leukaemia (AML)

B.Chronic obstructive pulmonary disease (COPD)

C.Hereditary haemochromatosis

D.Polycythaemia vera

E.Wilson's disease

Answer:Polycythaemia vera

Explanation:

Polycythaemia vera usually causes an isolated rise in haemoglobin

Important for meLess important

Polycythaemia vera is associated with JAK2 mutation causing proliferation of red blood cells.

AML would lead to a raised white cell count, likely with reduced haemoglobin and platelet count.

COPD can result in secondary polycythaemia via chronic hypoxia leading to increased EPO, however, this patient has never smoked.

Hereditary haemochromatosis leads to increased ferritin stores but is unlikely to dramatically alter the haemoglobin.

Wilson's disease does not cause elevated haemoglobin.

Question:

Bernard is a 62-year-old man who comes to see you with a 3 day history of sore throat, cough and muscle ache. He has a past medical history of type 2 diabetes and hypertension. He takes a twice daily insulin regimen.

After a full assessment, you explain to Bernard that he has likely got the flu and advise rest, regular paracetamol and plenty of fluids.

What is the most appropriate advice to give Bernard with regards to his insulin whilst he is unwell?

A.Continue his normal insulin regime and check blood sugars frequently

B.Double his normal dose of insulin whilst he is unwell

C.Half his normal dose of insulin whilst he is unwell

D.Stop insulin whilst unwell and re-start once he is feeling better

E.Check blood sugars before each insulin dose whilst he is unwell and omit if blood sugar is <4mmol/L

Answer:Continue his normal insulin regime and check blood sugars frequently

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

Patients with insulin-dependent diabetes who become unwell should continue with their normal insulin regime and ensure they check their blood sugars frequently (at least four hourly during the day).

Stopping or reducing insulin whilst unwell would be very dangerous due to the risk of diabetic ketoacidosis.

Checking blood sugars before each insulin dose would not be appropriate as it would require the patient to be titrating each insulin dose very carefully and this would also depend on how much they would be eating. This would not be practical or safe in this situation for Bernard.

Doubling Bernard's normal insulin dose would put him at a significantly increased risk of hypoglycaemia, particularly when he is likely to have a reduced oral intake due to feeling unwell.

Question:

A 23-year-old man presents with a three day history of general malaise and low-grade temperature. Yesterday he developed extensive painful ulceration of his mouth and gums. On examination his temperature is 37.4ºC, pulse 84 / min and there is submandibular lymphadenopathy. What is the most likely diagnosis?

A.Epstein Barr virus

B.Lichen planus

C.HIV seroconversion illness

D.Herpes simplex virus infection

E.Oral Candida

Answer:Herpes simplex virus infection

Explanation:

This man has gingivostomatitis, a characteristic feature of primary herpes simplex virus infection

Question:

A 23-year-old man presents with recurrent headaches. These typically occur 2 or 3 times a month and are characterised by severe, right-sided headaches which are throbbing in nature and last around 8-12 hours. When he gets the headaches he finds it hard to carry on working and tends to go and lie down in a dark room. The headaches so far have responded poorly to paracetamol.

Which one of the following medications should be prescribed to help reduce the frequency of these headaches?

A.Ibuprofen

B.Pizotifen

C.Propranolol

D.Zolmitriptan

E.Carbamazepine

Answer:Propranolol

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

This is a classic history of migraine, prophylaxis should be offered with propranolol or topiramate.

Zolmitriptan is used in the acute treatment of migraine, not for prophylaxis.

Question:

A 48-year-old woman presents to an ophthalmology clinic with a 2-month history of altered sensation in her left eye after a road traffic accident. She first noticed the decreased sensation in her left eye when applying her contact lenses.

On examination, the patient's pupils are equal and reactive to light. There are no visual field defects and her visual acuity is 6/6 with contact lenses. Gentle application of cotton wool to the right globe elicits blinking and tearing, while the application to the left globe elicits no response.

Given this information, what is the most likely site of the lesion?

A.CN V1

B.CN V2

C.CN V3

D.Facial nerve

E.Oculomotor nerve

Answer:CN V1

Explanation:

Loss of corneal reflex - CN V

Important for meLess important

CN V1 lesion is the correct answer, as the ophthalmic nerve supplies sensory innervation to the globe and is the most likely site of this patient's lesion in view of her sensory deficit and absent left-sided corneal reflex. Ophthalmic nerve lesions may result in a sensory deficit of the globe, lacrimal glands, side of the nose, upper eyelids, and frontal sinuses.

CN V2 is incorrect, as this is the maxillary branch of the trigeminal nerve and does not provide sensory innervation to the globe. The maxillary nerve plays no role in the corneal reflex.

CN V3 is incorrect as this is the mandibular branch of the trigeminal nerve and plays no role in the corneal reflex. The mandibular nerve provides sensory and motor function to the oral cavity and muscles of mastication.

Facial nerve is incorrect, as this controls the efferent limb of the corneal reflex and would not cause the patient's loss of sensation to the left globe. While a facial nerve lesion would cause a loss of the corneal reflex, it would not cause this patient's sensory deficit.

Oculomotor nerve is incorrect, as it plays no role in the coordination of the corneal reflex. The oculomotor nerve carries motor and sympathetic fibres to the eye.

Question:

A 45-year-old man with a background of alcoholic pancreatitis is rushed into the emergency department with a 6-hour history of haematemesis and epigastric pain.

His observations are all within normal range. Examination finds the abdomen is soft but distended, and there is tenderness in the epigastrium. There is a palpable liver edge and visible veins over his abdomen. Digital rectal examination demonstrates an empty rectum with no signs of bleeding.

What is the most appropriate immediate management?

A.Intravenous antibiotics and terlipressin

B.Intravenous noradrenaline

C.Intravenous omeprazole

D.Sengstaken-Blakemore tube

E.Transfer to endoscopy immediately

Answer:Intravenous antibiotics and terlipressin

Explanation:

Both terlipressin and antibiotics should be given before endoscopy in patients with suspected variceal haemorrhage

Important for meLess important

This patient has presented with an upper gastrointestinal bleed (UGIB). Causes of UGIB include peptic ulcer disease and varices. This patient has a previous history of alcohol excess and abdominal examination findings show stigmata of liver disease (such as distended chest wall veins and a palpable liver edge). This suggests that oesophageal varices are the most likely underlying cause. Ruptured oesophageal varices can be life-threatening and treatment includes adopting an ABC approach. Provided the patient remains stable, transfer to endoscopy is needed to ligate bleeding varices. NICE recommend that both terlipressin and intravenous antibiotics should be given to patients with a suspected variceal haemorrhage, before endoscopy occurs.

Noradrenaline is a vasopressor agent used in the management of blood pressure if initial measures with intravenous fluid resuscitation fail. Currently, this patient is relatively haemodynamically stable and has not yet received intravenous fluids. Therefore, vasopressor support is not indicated at this stage.

Intravenous omeprazole should be given prior to endoscopy to patients with UGIB that is secondary to peptic ulcer disease. However, in patients with UGIB secondary to varices, terlipressin and antibiotics should be given instead.

A Sengstaken-Blakemore tube is an emergency procedure used in the event of an uncontrolled gastrointestinal haemorrhage. Initial resuscitative efforts should be tried first.

The decision to transfer to endoscopy depends on the severity of UGIB. Haemodynamically unstable patients should have an endoscopy immediately, whilst stable patients should have an endoscopy within 24 hours. This patient is relatively haemodynamically stable. Furthermore, initial resuscitation with intravenous terlipressin and antibiotics has not yet been initiated, making immediate endoscopy an incorrect answer.

Question:

A 75-year-old male with diabetes type 2 is undergoing an appendectomy. He does not use insulin-based medications.

What statement is correct in regard to the management of this patient?

A.This patient has good control of their diabetes if their HbA1c is 77 mmol/mol

B.This patient should be recommenced on oral diabetes medication 48 hours after they commence eating postoperatively

C.This patient should stop taking their oral diabetes medication one week prior to the operation

D.This patient should be first on the list

E.This patient should be put last on the list

Answer:This patient should be first on the list

Explanation:

Patients with diabetes should ideally be put first on the operating list to prevent complications of poor BM control.

Patients with poor control or who are taking insulin will need a sliding scale.

Question:

An 11-week-old boy is brought to the emergency department for concerns around breathing. Four days ago the boy started with a runny nose and mild fever. He was better for 2 days, and then now has begun coughing often, is struggling to breathe and is not taking to feeds.

On examination, there is evidence of nasal flaring. On chest auscultation, there are bilateral crackles and an expiratory wheeze. His temperature is 38.2ºC (normal: 36.1-38.0ºC), oxygen saturations are 98% on air (normal: >96%), the heart rate is 130 beats per minute (normal: 115-160), and he has a respiratory rate of 48 breaths per minute (normal: 25-45).

Given the likely diagnosis, what is the most appropriate treatment?

A.Amoxicillin

B.Dexamethasone

C.Erythromycin

D.Nebulised salbutamol

E.Supportive measures only

Answer:Supportive measures only

Explanation:

Bronchiolitis does not require antibiotics, children requires supportive management only

Important for meLess important

This is a classic presentation of bronchiolitis - a coryzal phase preceding respiratory symptoms such as cough, increased work of breathing (shown by nasal flaring), as well as crackles and wheeze on auscultation. His vital signs are remarkable for a mild temperature and tachypnoea. Whilst these vital signs may point towards sepsis in an adult, the normal parameters are different in a child of this age, and sepsis would not be suspected.

NICE guidelines state that the treatment of bronchiolitis should be supportive therapy only, such as humidified oxygen or fluids if indicated.

Salbutamol can be used in asthma. NICE state that it should not be used in bronchiolitis.

Amoxicillin is the first-line treatment for community-acquired pneumonia, however, antibiotics are not recommended for bronchiolitis.

Oral dexamethasone can be used in croup but is not recommended for bronchiolitis. Croup presents with a characteristic barking cough, which is not present in this patient.

Erythromycin can be used in whooping cough, but is an antibiotic and therefore not required in this patient.

Question:

A 25-year-old woman presents for her first cervical smear. What is the most important aetiological factor causing cervical cancer?

A.Human papilloma virus 6 & 11

B.Early first intercourse

C.Smoking

D.Combined oral contraceptive pill use

E.Human papilloma virus 16 & 18

Answer:Human papilloma virus 16 & 18

Explanation:

Cervical cancer: Human papillomavirus infection (particularly 16,18 & 33) is by far the most important risk factor

Important for meLess important

Whilst all of the above are known to contribute to the development of cervical cancer infection with human papilloma virus 16 & 18 is by far the most important factor.

Question:

A 22 year-old man is referred to clinic with refractory hypertension.

Potassium 2.7mmol/l

Other U&E, FBC, calcium and LFTs are normal. Which would be the most appropriate next investigation?

A.CT abdomen

B.MR angiography renal tract

C.24 hour urinary catecholamines

D.USS abdomen

E.Plasma renin and aldosterone levels

Answer:Plasma renin and aldosterone levels

Explanation:

The differential for hypertension with low potassium includes Conn's, Cushing's, renal artery stenosis and Liddle's. The first step in this case should be further simple investigations. Quantifying the renin and angiotensin levels will help to distinguish the cause here, before going on to more specialised tests.

Cushing's and Conn's would be associated with a high aldosterone and a low renin, renal artery stenosis would be associated with a high renin and aldosterone, Liddle's is associated with a low renin and aldosterone.

Question:

A 45-year-old man presents to the emergency department after an episode of blood in his vomit. He reports bringing up 3 tablespoons of blood half an hour ago. This is the first time he has vomited blood and he now feels a bit dizzy. He does not have any significant past medical history but reports suffering from heartburn and indigestion over the past few weeks.

What scoring system should the medical team use to determine if this patient can be discharged?

A.Forrest score

B.Glasgow-Blatchford score

C.Glasgow-Imrie score

D.HAS-BLED score

E.Rockall score

Answer:Glasgow-Blatchford score

Explanation:

In an acute upper GI bleed, the Blatchford score can identify low risk patients who may be discharged

Important for meLess important

The Glasgow-Blatchford score is a pre-endoscopic score that can be used to identify patients that are at low risk after an upper GI bleed and can be treated as outpatients.

Forrest and the Rockall score, in contrast, are used to determine the severity of an upper GI bleed based on endoscopic findings and the risk of re-bleeding.

Glasgow-Imrie is a risk score for acute pancreatitis.

Finally, HAS-BLED score alludes to bleeding but is in fact used to estimate the risk of major bleeding for patients on anticoagulation.

Question:

A mother brings her 10-month-old child to the emergency department late at night due to respiratory distress. The mother states that the child did not eat dinner that night and has since started drooling at the mouth, looking very unwell and the child is now petrified of being moved. Questioning reveals that the child is late for their routine vaccinations for their age, but the mother is keen on completing the course.

The patient has a heart rate of 150 beats per minute, a temperature of 39.4ºC, blood pressure of 88/60mmHg (normal for age: ~90/60mmHg) and a respiratory rate of 28 breaths per minute.

Given the most likely diagnosis, which of the following is most likely to be found in this patient?

A.Coughing episodes severe enough to cause vomiting

B.High-pitched expiratory stridor

C.Patient leaning forward and extending their neck when seated

D.Recent febrile convulsion for 3 minutes

E.Up-to-date immunisation history

Answer:Patient leaning forward and extending their neck when seated

Explanation:

Patients with acute epiglottis may adopt the 'tripod' position

Important for meLess important

Acute epiglottitis is becoming less common in modern medicine but remains a life-threatening cause of respiratory distress in children due to the risk of airway obstruction. Typically caused by Haemophilus influenzae type b, conjugate vaccines to Hib mean the disease is now much less common. However, children who are not up to date with their vaccinations, or in households who refuse vaccination are at greater risk.

Abrupt onset and rapid progression (within hours) of dysphagia, drooling, and distress ('the three D's') are hallmarks of epiglottitis in children, and patients frequently adopt the 'tripod' position to maximise airway opening. The 'tripod position' can also be seen in other respiratory conditions such as a retropharyngeal or peritonsillar abscess.

Coughing episodes causing vomiting (post-tussive emesis) are not typical of epiglottitis, but are frequently seen in pertussis (whooping cough) and can be seen in other conditions such as asthma.

High-pitched expiratory stridor is indicative of subglottic or lower airway obstruction and is not usually found in epiglottitis. It can be caused by anaphylaxis, foreign body aspiration, asthma, bronchitis or congenital conditions such as tracheobronchial tree malformations.

Febrile convulsions can be associated with epiglottitis, as they are thought to be due to a rapid rise in core body temperature. A sudden onset, high fever (>38.7ºC) is typical of epiglottitis but the presence of febrile convulsions can occur with any febrile illness such as roseola infantum, for example, caused by human herpesvirus 6 (HHV6).

An up-to-date vaccination history should include vaccination against Hib. However, at 10 months of age, a full course of Hib vaccination is not yet complete. This is which is why children <1 year of age are at the greatest risk of developing acute epiglottitis.

Question:

A 27-year-old woman is brought to the emergency department by her partner. She is 33 weeks pregnant and G2P1. So far, her pregnancy has progressed normally. There were no concerns raised at her antenatal appointments. However, earlier today, she had a 'sudden gush' of fluid soaking her trousers.

She is currently afebrile and does not have any other abnormal vital signs. On examination, you can see fluid pooling in the posterior vaginal fornix. Swabbing this fluid returns a positive partosure.

Given the most likely diagnosis, what is the most appropriate management?

A.Cervical cerclage

B.Expectant management

C.IM corticosteroids

D.Indomethacin tocolysis

E.Magnesium sulfate

Answer:IM corticosteroids

Explanation:

In preterm prelabour rupture of membranes, antenatal corticosteroids should be administered to reduce the risk of respiratory distress syndrome

Important for meLess important

IM corticosteroids are the correct answer. Antenatal corticosteroids are given to reduce the risk of complications if the baby was born preterm. It stimulates surfactant secretion in the lung of the neonate, reducing the risk of neonatal respiratory distress syndrome.

Cervical cerclage is incorrect. Cerclages are placed to reduce cervical insufficiency and they are normally placed between 12-24 weeks of gestation. Preterm prelabour rupture of membranes is a contraindication to cervical cerclage.

Expectant management is incorrect. While it is possible to allow the labour to progress naturally, it is not the most appropriate choice. Generally, the cut-off point for expectant management is >34 weeks gestation. At this point, the risk of neonatal respiratory distress syndrome is less than the risk of intraamniotic infection caused by delaying the onset of labour.

Indomethacin tocolysis is incorrect. While in the absence of infection, tocolysis is recommended to allow corticosteroid injections to achieve their full effect, it is not the appropriate medication in this scenario. Indomethacin at >32 weeks gestation is associated with the closure of ductus arteriosus and oligohydramnios. Nifedipine is the agent of choice in this scenario and will typically be used to delay labour for 48 hours.

Magnesium sulfate is incorrect. It is normally given for neuroprotection of the foetus and reduces the risk of developing cerebral palsy. It is not recommended for women > 32 weeks gestation.

Question:

A 13-year-old girl presents to her GP with her father as she is concerned about recently gaining weight. She feels that her hands and feet have got 'fatter' in the last few weeks and she has had to buy larger shoes as her old ones no longer fit. She also says that her face looks rounder and puffier than it used to. A routine review of symptoms reveals no other problems except when passing urine, she has noticed her urine looks very frothy.

A urine dip performed at the GP shows the following:

Leucocytes negative

Nitrites negative

Blood negative

Protein +++

pH 6.1

Glucose negative

You request routine bloods which show the following:

Na+ 139 mmol/l Bilirubin 6 µmol/l

K+ 4.6 mmol/l ALP 17 u/l

Urea 5.1 mmol/l ALT 13 u/l

Creatinine 78 µmol/l Albumin 22 g/l

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

A.Oral prednisolone + urgent outpatient referral to paediatrics

B.24-hour urinary protein measurement

C.Oral prednisolone and cyclophosphamide + urgent outpatient referral to paediatrics

D.Admit to paediatrics

E.Urgent referral to nephrology for renal biopsy

Answer:Oral prednisolone + urgent outpatient referral to paediatrics

Explanation:

This girl has presented with a classical nephrotic syndrome. The majority of cases in childhood are due to minimal change disease which is nearly always responsive to oral steroid therapy. For this reason, a renal biopsy is not indicated unless there is no response to steroid therapy. Treatment with cyclophosphamide would be second line in people not responding fully to oral steroids.

24-hour urinary protein measurement would help confirm the diagnosis of nephrotic syndrome but you would not delay starting treatment prior to doing so.

Question:

A 63-year-old man complains of dystonia, chorea, and athetosis (involuntary writhing movements). These symptoms have been worsening, and he notices it is worse a few hours after taking his medication. He is on medication for hypertension, parkinson's, and depression.

What medication may have caused this?

A.Amlodipine

B.Levodopa

C.Mirtazapine

D.Rasagiline

E.Sertraline

Answer:Levodopa

Explanation:

Patients taking levodopa may experience dyskinesias at peak dose: dystonia, chorea and athetosis (involuntary writhing movements)

Important for meLess important

Patients taking levodopa which is used to treat parkinson's may conversely experience dyskinesias (erratic movements) at peak dose. This is usually a few hours after their dose and is more common after being on levodopa for a few years.

Amlodipine is used for hypertension. It does not usually cause dyskinesias. Amlodipine's possible side effects include ankle swelling and hypotension.

Mirtazapine works by increasing central noradrenaline and serotonin. This can cause movement disorders as an uncommon side effect and can cause serotonin syndrome. This would usually involve rigidity and clonus; however, if the patient was experiencing this, they would likely have other symptoms of serotonin syndrome. The four cardinal signs of serotonin syndrome are fever, autonomic changes, rigidity, and mental state changes.

Rasagiline is a monoamine oxidase type B inhibitor (MAO), which is used in Parkinson's disease, often as an addition to levodopa. It can be added to drug regimes to reduce the on/off affect of levodopa. It does not cause the same peak dose dyskinesias that levodopa does.

Sertraline works by increasing serotonin by inhibiting serotonin reuptake. Like mirtazapine, it can cause serotonin syndrome, and increased tone can occur. As above, this would likely result in other symptoms alongside the increased tone.

Question:

You are taking a history from a 19-year-old man who has been brought to the emergency department by the police after being found wandering the streets and speaking incoherently.

When asked how he is, the man replies 'How do I feel? Like a wheel that's rolling away, and I stay and I sway with the breeze'. He is not orientated to time or place and makes repeated attempts to remove his clothes and run out into the street.

What phenomenon is being demonstrated by his language?

A.Clang association

B.Derailment

C.Echolalia

D.Perseveration

E.Word salad

Answer:Clang association

Explanation:

Clang associations - ideas related only by rhyme or being similar sounding

Important for meLess important

This man shows signs of psychosis. Urine toxicology should be performed to determine whether this is drug-induced. Other differentials include schizophrenia, and mania (if there is a history of depression).

The correct answer is clang association, also known as clanging, which can be alliterative or speaking in rhymes. This may occur as part of a flight of ideas, whereby phrases in a sentence are only distantly related to each other e.g. 'I feel like a wheel, a wheel that's rolling, a rolling pin couldn't pin you down!'

Derailment is incorrect. Also known as knight's move thinking, this is a more severe form of thought disorder, where there is no relation between phrases e.g. 'I feel tired, I'll dye my hair, they said the rain would never stop!'

Echolalia is incorrect as this describes mimicry, where the patient repeats your sentence back to you.

Perseveration is also incorrect as this describes giving the same answer repeatedly e.g. 'I feel fine fine fine fine' or answering 'Yes' repeatedly.

Word salad is also incorrect. This is the least intelligible of thought disorders, whereby words in a sentence are unrelated to each other e.g. 'feel coat over trouble, can't destroy'.

Question:

A 64-year-old patient presents to the emergency department complaining of abdominal pain and abdominal distention. They report not opening their bowels for 5 days and have not passed flatus for 2 days. There are hyperactive tinkling bowel sounds on examination, and a digital rectal exam shows an empty rectum. An urgent CT abdomen and pelvis with contrast showed a large, localised descending colon lesion which is highly suspicious of malignancy; it is causing bowel obstruction with severely dilated bowel loops.

Which is the best initial surgical option for this patient?

A.Abdominoperineal (AP) resection

B.Ileocolic anastomosis

C.Loop colostomy

D.Loop ileostomy

E.Total colectomy

Answer:Loop colostomy

Explanation:

A loop colostomy is used to defunction and decompress the distal colon in obstructing cancers

Important for meLess important

A loop colostomy is the surgery of choice for distal colon cancers. The stoma has two openings, one connected to the functioning part of your bowel and the other leads into the distal portion of the bowel. This will defunction and decompress the distal colon, and the stoma can be reversed at a later date. Due to the nature and location of the lesion here, this is the procedure of choice.

AP resection is the procedure of choice for cancers involving the distal rectum or anus. This involves the removal of the distal bowel, rectum and anus. However, due to the location of the lesion in this patient, it would be an inappropriate procedure.

An ileocolic anastomosis can be performed after resection of the proximal colon, e.g. right hemicolectomy. However, this patient has a descending colon mass, so this would not be a suitable intervention.

An ileostomy is the surgery of choice for proximal colon cancers. Here the distal end of the ileum is used to create a stoma. This allows time for defunctioning the large bowel before stoma reversal, if this is considered. However, as this patient has a descending colon mass, this would not be a suitable intervention.

Total colectomy is the removal of the entire large bowel. Indications for this include ulcerative colitis not responding to medical management and familial adenomatous polyposis (FAP). However, as this is a localised descending colon lesion, a total colectomy would not be indicated.

Question:

An 16 year-old presents with a 2 day history of abdominal pain. On questioning, this is a constant ache with no obvious exacerbating or precipitating factors. He is opening his bowels as normal. He is usually well, aside from a cold in the preceding week.

He has an antalgic gait and complains of pain in his left knee. Examination of his left knee is unremarkable. He has bilteral mild periorbital oedema. There is also an extensive purpuric rash, focused around his buttocks and posterior leg. This is non-blanching.

Urinalysis: Blood 3+, Protein 2+

Hb 135 g/l Na+ 135 mmol/l

Platelets 230 \* 109/l K+ 3.5 mmol/l

WBC 11 \* 109/l Urea 7 mmol/l

Neuts 9 \* 109/l Creatinine 85 µmol/l

What is the most likely diagnosis?

A.Intussusception

B.Henoch-Schonlein purpura

C.Idiopathic thrombocytopenic purpura

D.Glomerulonephritis

E.Bacterial meningitis

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

Henoch-Schonlein purpura (HSP) is an IgA-mediated autoimmune vasculitis, often preceded by an upper respiratory tract infection.

It is characterised by the classic triad of purpura, arthritis and abdominal pain.

Purpura

The classical skin rash often precedes clinical presentation. The purpura is typically palpable, over the lower limbs in an extensor and buttock distribution

Arthralgia

Typically the larger joints are affected with pain, swelling and reduced range of movement. The joint pain does not result in permanent damage.

Gastrointestinal

The symptoms can range to colicky abdominal pain to gastrointestinal haemorrhage and intussusception.

Renal

Renal involvement has a wide range including microscopic haematuria, macroscopic haematuria, proteinuria, nephrotic/nephritic syndrome and renal impairment. There may also be hypertension. Most patients with renal involvement will make a fully recovery.

Immune mediated thrombocytopenia and bacterial meningitis (with septicaemia), are both differentials of a purpuric rash. They are unlikely in this case due to a normal platelet count, low inflammatory markers and a well patient with no features of meningism.

Question:

Steven is a 24-year-old male who is brought in by ambulance following high speed car accident. Steven has sustained multiple injuries including a penetrating left eye injury, multiple rib fractures and splenic rupture which the surgeons have deemed requires emergency surgery.

Which of the following anaesthetic muscle relaxants is contraindicated for Steven?

A.Suxamethonium

B.Atracurium

C.Rocuronium

D.Pancuronium

E.Vecuronium

Answer:Suxamethonium

Explanation:

Suxamethonium is contraindicated for patients with penetrating eye injuries or acute narrow angle glaucoma, as suxamethonium increases intra-ocular pressure

Important for meLess important

Suxamethonium causes a transient rise in intra-ocular and intra-cranial pressure and therefore is unsuitable for use in anyone with penetrating eye injuries or acute narrow angle glaucoma. Other contraindications to use of suxamethonium include hyperkalemia, recent burns, spinal cord trauma causing paraplegia, and previous suxamethonium allergy.

The other options are all non-depolarizing muscle relaxants and are not contraindicated in the case of penetrating eye injury, and therefore would be more suitable options in this case.

Question:

A six-year-old presents to the GP with his mother, who describes a stubborn patch of eczema on the boy’s left cheek which has worsened despite his usual emollient and topical hydrocortisone treatment. Overnight, the patch has become extremely painful and spread to his chin. He has had eczema since infancy but is otherwise well.

Examination reveals a patch of dry erythematous skin on the right cheek and a larger, more erythematous patch on the left, extending to the chin. The area is hot and tender on palpation. Vital signs are normal.

What is the most appropriate action?

A.Oral aciclovir

B.Oral flucloxacillin

C.Same-day referral to paediatrics

D.Topical clobetasol to affected areas

E.Topical hydrocortisone to affected areas

Answer:Same-day referral to paediatrics

Explanation:

An area of rapidly worsening painful eczema is an early sign of eczema herperticum

Important for meLess important

The correct answer is same-day referral to paediatrics . This child is presenting with an area of rapidly worsening and painful eczema, that is not responding to the usual treatment. This raises suspicion of and should be treated as, eczema herpeticum. Eczema herpeticum is treated as a medical emergency. It can rapidly worsen and lead to systemic complications. Urgent assessment and treatment with antivirals are indicated to prevent eye and meningeal involvement.

Oral aciclovir is not the most appropriate action here. This child is presenting with the symptoms and signs of eczema herpeticum which should be treated as a medical emergency with assessment in secondary care. Mild cases may well respond to oral antivirals, however, this should be after a thorough assessment. This patient has facial involvement and therefore secondary care referral is most appropriate, and it is likely they will require intravenous antivirals.

Oral flucloxacillin is not the most appropriate action here. The child is presenting with the symptoms and signs of eczema herpeticum which is caused by the herpes simplex virus. Definitive treatment is therefore with antivirals rather than antibiotics. Whilst antibiotics may also be required in superadded bacterial infection, the most appropriate action here is secondary care referral for IV antiviral treatment.

Topical clobetasol to affected areas is not the most appropriate action here. Whilst this may be appropriate for severe flares of eczema on the body, this child has evidence of worsening, painful, tender eczema which should raise suspicion for eczema herpeticum and therefore urgent assessment in secondary care and antiviral treatment is required.

Topical hydrocortisone to affected areas is not the most appropriate action here. This would be a potential to try for flares of facial eczema on the face that are not responding to emollient treatment, however, this child is presenting with signs and symptoms which are concerning for eczema herpeticum which requires urgent assessment in secondary care and antiviral treatment.

Question:

A 72-year-old female known to have osteoporosis is started on alendronate. Which one of the following side-effects is it most important to warn her about?

A.Sore throat

B.Heartburn

C.Headache

D.Diarrhoea

E.Palpitations

Answer:Heartburn

Explanation:

Bisphosphonates can cause a variety of oesophageal problems

Important for meLess important

Whilst the development of any new problem following the introduction of a new drug warrants medical review it is particularly important to warn patients starting bisphosphonates about symptoms which could suggest an oesophageal reaction, especially with alendronate

Question:

A 30-year-old who is currently 27 weeks pregnant comes to see you about a thin, white discharge. Swabs are taken and clue cells are seen on microscopy. Which treatment do you initiate?

A.Metronidazole 400mg bd for 7 days

B.Single dose of metronidazole 2g

C.Intravaginal clindamycin cream 2% od for 7 days

D.Intravaginal metronidazole gel 0.75% od for 5 days

E.Oral clindamycin 300mg bd for 7 days

Answer:Metronidazole 400mg bd for 7 days

Explanation:

Bacterial vaginosis in pregnancy: still use oral metronidazole

Important for meLess important

Offer treatment to all pregnant women with symptomatic bacterial vaginosis (BV). If a pregnant woman is incidentally found to have BV and has no symptoms, discuss with the woman's obstetrician whether treatment is appropriate. Oral metronidazole is the treatment of choice. High-dose regimens are not recommended during pregnancy. Intravaginal metronidazole gel or clindamycin cream are alternative choices if the woman prefers a topical treatment or is unable to tolerate oral metronidazole. Oral clindamycin is not widely recommended in primary care because of an increased risk of pseudomembranous colitis.

Source: NICE CKS - Bacterial Vaginosis

Question:

An obese 24-year-old female presents with headaches and blurred vision. Examination reveals bilateral blurring of the optic discs but is otherwise unremarkable with no other neurological signs. Blood pressure is 130/74 and she is apyrexial. What is the most likely underlying diagnosis?

A.Multiple sclerosis

B.Meningococcal meningitis

C.Brain abscess

D.Normal pressure hydrocephalus

E.Idiopathic intracranial hypertension

Answer:Idiopathic intracranial hypertension

Explanation:

Obese, young female with headaches / blurred vision think idiopathic intracranial hypertension

Important for meLess important

The combination of a young, obese female with papilloedema but otherwise normal neurology makes idiopathic intracranial hypertension the most likely diagnosis

Question:

A 45-year-old man presents to the emergency department with right upper quadrant pain, fatigue, and anorexia that has been going on for a few weeks and is getting gradually worse. His past medical history includes heavy alcohol intake, gastroesophageal reflux disease (GORD) and a hiatus hernia. He only takes omeprazole and has no known allergies.

On examination, he looks jaundiced.

A liver function test is done which shows:

Bilirubin 50 µmol/L (3 - 17)

ALT 150 u/L (3 - 40)

AST 300 u/L (8 - 33)

Albumin 35 g/L (35 - 50)

What is the most likely diagnosis?

A.Acute cholecystitis

B.Acute pancreatitis

C.Alcoholic hepatitis

D.Hepatitis A

E.Non-alcoholic steatohepatitis (NASH)

Answer:Alcoholic hepatitis

Explanation:

The AST/ALT ratio in alcoholic hepatitis is 2:1

Important for meLess important

Alcoholic hepatitis usually presents between the age of 40 and 50 years in those with a history of heavy alcohol use (usually >100 g/day for more than 20 years which is equal to about 3 glasses of 12% wine or 7 beers). Common presenting symptoms include right upper quadrant pain, anorexia, weight loss, jaundice, muscle wasting, and fever. AST/ALT>2 is characteristic of alcoholic hepatitis and points toward the diagnosis in this patient.

Acute cholecystitis is inflammation of the gall bladder that usually presents with acute right upper quadrant pain associated with high inflammatory markers. This man is presenting with sub-acute symptoms along with an AST/ALT ratio of 2, making alcoholic hepatitis a more likely diagnosis.

Hepatitis A is a viral infection that presents acutely with abdominal pain and vomiting usually after travelling to Africa, Asia, the Middle East, or Central and South America. This patient is presenting with sub-acute symptoms with no recent travel history, making hepatitis A a less likely diagnosis.

Non-alcoholic steatohepatitis (NASH) is an advanced form of non-alcoholic fatty liver disease which could present in a similar presentation with abdominal pain and fatigue. However, having an AST/ALT ratio of 2 makes this a less likely diagnosis.

Acute pancreatitis usually presents with acute epigastric pain radiating to the back associated with high amylase levels. The subacute presentation in this man along with the AST/ALT ratio of 2 makes this a less likely diagnosis.

Question:

A 5-year-old girl presents with recurrent seizures. The seizures usually occur at night and are witnessed by her parents. Clinical examination reveals an area of roughened skin over the lumbar spine. What is the most likely diagnosis?

A.Homocystinuria

B.Herpes simplex encephalitis

C.Acute promyelocytic leukaemia

D.Tuberous sclerosis

E.Neurofibromatosis

Answer:Tuberous sclerosis

Explanation:

Tuberous sclerosis - roughened patches of skin over lumbar spine (Shagreen patches)

Important for meLess important

Epilepsy is common in tuberous sclerosis. The roughened area of skin is termed a Shagreen patch

Question:

Concurrent use of which one of the following would make combined oral contraceptive pill less effective?

A.Fluconazole

B.Sodium valproate

C.Allopurinol

D.Isoniazid

E.Carbamazepine

Answer:Carbamazepine

Explanation:

Carbamazepine is a P450 enzyme inductor

Important for meLess important

Question:

A 55-year-old man presents to the GP with an 8-month history of spots over his nose, cheeks, and forehead along with redness. The redness is worsened with sun exposure and eating spicy foods. He has no other symptoms or significant medical history.

On examination, the skin of his face is flushed, and there are a large number of diffuse papules and pustules on his cheeks, nose, and face. There is scarring over the nose and cheeks. Minimal telangiectasia is seen and there are no other abnormalities. Observations are all normal.

What is the most appropriate treatment for the GP to prescribe?

A.Oral doxycycline only

B.Topical benzoyl peroxide and oral doxycycline

C.Topical benzoyl peroxide and topical clindamycin

D.Topical ivermectin and oral doxycycline

E.Topical ivermectin only

Answer:Topical ivermectin and oral doxycycline

Explanation:

Rosacea: a combination of topical ivermectin + oral doxycycline is first-line for patients with severe papules and/or pustules

Important for meLess important

Papules, pustules, and flushing erythema over the nose, cheeks, and forehead that is worsened with triggers such as sunlight and spicy foods should raise suspicion of rosacea. This patient also has scarring, suggesting severe disease. Many patients may also have varying degrees of telangiectasia. NICE recommends gearing initial treatment towards the predominant symptom. This patient's predominant symptoms are papules and pustules, and the presence of scarring makes their rosacea severe. For less severe disease, simple measures such as sunscreen and camouflage creams may be considered, however, this patient requires more aggressive treatment.

Topical ivermectin and oral doxycycline is correct as NICE recommends treating moderate-severe rosacea with a combination of topical ivermectin and oral doxycycline as high-quality evidence has shown their efficacy in eradicating organisms associated with the development of rosacea, including Demodex folliculorum which are mites infected with the bacteria Bacillus oleronius.

Oral doxycycline only is incorrect as oral doxycycline is not used as monotherapy in any of the steps of managing rosacea. If oral doxycycline were to be used, it would have topical ivermectin co-prescribed with it, as these two combined are efficacious in rosacea when papules and pustules are the predominant symptoms.

Topical benzoyl peroxide and oral doxycycline is incorrect. This would be considered if the patient had acne vulgaris that has not responded to single topical therapy (such as topical benzoyl peroxide), and combined topical therapy (such as benzoyl peroxide and topical antibiotics). Open and closed comedones, papules, and pustules are the main features of acne vulgaris. Erythema that is exacerbated by triggers such as sunlight is not commonly seen. Since these features, except for papules and pustules, are not present in this patient, it is less likely they have acne vulgaris.

Topical benzoyl peroxide and topical clindamycin is incorrect. This would be appropriate if this patient had acne vulgaris that has not responded to topical monotherapy (such as benzoyl peroxide). As mentioned above, although both can have papules and pustules, acne vulgaris is characterised by open and closed comedones and is not as closely associated with flushing and erythema compared to rosacea. Furthermore, acne vulgaris is not typically exacerbated by sunlight and spicy foods.

Topical ivermectin only is incorrect. This would be appropriate if this patient had mild-moderate papules and pustules. Since there are a large number of papules and there is evidence of scarring, this patient's rosacea is at least moderate if not severe, therefore combination therapy with topical ivermectin and oral doxycycline should be given.

Question:

A 56-year-old man attends the emergency department with a 3-day history of sharp left-sided chest pain and intermittent fevers. His past medical history includes hypercholesterolaemia and a non-ST elevation myocardial infarction (NSTEMI) 4 weeks ago.

On examination, he has a heart rate of 88bpm and a blood pressure of 121/71mmHg. His heart sounds are muffled. His jugular venous pressure is normal and there is equal air entry bilaterally.

Bedside echo: 1.2cm pericardial effusion.

Investigations:

Hb 144 g/L (135-180)

WBC 11.1 \* 109/L (4.0 - 11.0)

ESR 78 mm/hr < 28

What is the most likely diagnosis?

A.Cardiac tamponade

B.Dressler's syndrome

C.Infective endocarditis

D.Myocarditis

E.Pericarditis

Answer:Dressler's syndrome

Explanation:

A man presents with central, pleuritic chest pain and fever 4 weeks following a myocardial infarction. The ESR is elevated - Dressler's syndrome

Important for meLess important

Dressler's syndrome is correct. This is an autoimmune reaction against antigenic proteins that form following myocardial recovery post-myocardial infarction. There is an overlap of symptoms compared to pericarditis including pleuritic chest pain, fever and raised WCC and ESR. In pericarditis, there may also be a pericardial effusion causing muffled heart sounds. However, Dressler's syndrome is a form of secondary pericarditis that typically occurs 2-6 weeks following a myocardial infarction, whereas pericarditis tends to develop within 48 hours.

Cardiac tamponade is incorrect. Although this patient has a pericardial effusion which can lead to cardiac tamponade in severe cases, there are no other features suggestive of cardiac tamponade (e.g. elevated JVP or hypotension from cardiogenic shock).

Infective endocarditis is incorrect. This typically presents with an insidious history of fatigue, myalgia and pyrexia of unknown origin. Often, murmurs can be auscultated on examination or extra-cardiac features may be seen such as Osler's nodes, Janeway lesions or splinter haemorrhages. Given the absence of these features, infective endocarditis is less likely to be the underlying diagnosis.

Myocarditis is incorrect. Symptoms of myocarditis may be similar to pericarditis and include chest pain and shortness of breath. Due to injury to the myocardium, symptoms can be more significant with cardiogenic shock and a high troponin leakage. However, given the recent myocardial infarction followed by chest pain and fevers, Dressler's syndrome is the more likely diagnosis.

Pericarditis is incorrect. Given the patient's presenting symptoms and clinical findings, pericarditis is a very important differential to consider. However, pericarditis tends to present a lot earlier (within 48 hours) compared to Dressler's syndrome, which presents within 4 weeks following myocardial infarction.

Question:

You are reviewing the blood tests of an 81-year-old woman who was admitted yesterday morning with community-acquired pneumonia.

She is being treated with intravenous (IV) antibiotics and is taking regular paracetamol and naproxen for osteoarthritis.

Some of her blood tests from this morning and from admission are shown below:

Admission bloods Bloods from this morning

Hb (115-160) 132 g/L 128 g/L

Platelets (150-400) 257 \* 109/L 321 \* 109/L

WBC (4.0-11.0) 18.4 \* 109/L 14.9 \* 109/L

Na+(135-145) 138 mmol/L 141 mmol/L

K+ (3.5-5.0) 4.2 mmol/L 3.7 mmol/L

Urea (2.0-7.0) 5.6 mmol/L 10.1 mmol/L

Creatinine (55-120) 62 µmol/L 191 µmol/L

CRP (<5) 185 mg/L 142 mg/L

Which of the following is best describes the most recent investigation findings?

A.Normal renal function

B.Stage 1 acute kidney injury (AKI)

C.Stage 2 AKI

D.Stage 3 AKI

E.Stage 4 AKI

Answer:Stage 3 AKI

Explanation:

KDIGO AKI stage 3

↑ creatinine >3.0 times, or

↓ urine output <0.3 mL/kg/hr for ≥ 24 hours

Important for meLess important

This patient has developed an AKI while an inpatient in hospital. Her regular naproxen use and infection are likely to have contributed to this. Since admission, her creatinine has increased to more than 3 times from baseline so this would be classed as stage 3 AKI according to the Kidney Disease: Improving Global Outcomes (KDIGO) criteria. Other criteria for stage 3 AKI are an increase in creatinine to ≥ 353.6 µmol/L or a reduction in urine output to <0.3 mL/kg/hour for ≥24 hours.

It would be incorrect to say that her renal function is normal, as her creatinine has risen significantly above normal.

Stage 1 AKI would be defined as an increase in creatinine by 1.5-1.9 times the baseline according to the KDIGO criteria. Other criteria for stage 1 AKI are an increase in creatinine by ≥ 26.5 µmol/L or a reduction in urine output to <0.5 mL/kg/hour for ≥ 6 hours.

Stage 2 AKI would be defined as an increase in creatinine by 2.0-2.9 times the baseline. The other criteria for stage 2 AKI is a reduction in urine output to <0.5 mL/kg/hour for ≥12 hours.

Stage 4 is not a stage of AKI that exists within the KDIGO criteria.

Question:

A 68-year-old man presents to his general practitioner as he has had difficulty breathing through his nose for the past 6 months. He attributed this to hayfever, which he has a previous history of. However, his symptoms have not resolved during the months when it would have in previous years. His past medical history includes hypertension, an ST-elevation myocardial infarction 6 years ago and he is a current smoker with a 30 pack-year smoking history.

Which of the following features of this history or examination would prompt urgent referral to a specialist?

A.Bilateral nasal polyps observed

B.One episode of self-resolving epistaxis in the past 3 months

C.Unilateral nasal polyps observed

D.4 episodes of sinusitis in the past year

E.30 pack year smoking history

Answer:Unilateral nasal polyps observed

Explanation:

Unilateral polyps are a red flag symptom

Important for meLess important

The pathophysiology of nasal polyps is not fully understood. However, a unilateral polyp should be assumed to be neoplastic until proven otherwise, particularly in an elderly patient with a significant smoking history. Histology should be performed to exclude head and neck malignancy. The most common malignant tumour in the nasal cavity is a squamous cell carcinoma.

Causes of bilateral polyps may include chronic rhinosinusitis, aspirin sensitivity, asthma or eosinophilic granulomatosis with polyangiitis - a small vessel vasculitis. Although they may appear alarming, medical management is often indicated prior to referral. Referral may be necessary for further evaluation if medical management fails.

Epistaxis can be a concerning symptom for patients. Most epistaxis is idiopathic and originates from the anterior nasal circulation, as these blood vessels are small, superficial and are easily damaged. A single episode of epistaxis should not be immediately attributed to a 'red flag' diagnosis, however, recurrent episodes of epistaxis or blood-stained nasal discharge would be of greater concern.

Recurrent sinusitis is an important diagnosis to make as effective treatment can greatly improve a patient's quality of life. The presence of polyps has been associated with subtypes of chronic rhinosinusitis, however, these diagnoses should not prompt referral to a specialist unless medical management has failed.

This patient's significant smoking history places him at increased risk of many types of cancer, including head and neck cancers, however, on its own, a significant smoking history does not necessitate an urgent referral.

Question:

A 14-year-old girl presents to the emergency department with vomiting, abdominal pain, and distension, which has come on over the last 6 hours. She has vomited over 10 times and is now feeling extremely unwell. She states that she hasn't passed gas or opened her bowels all day.

On examination, her abdomen is distended with a palpable mass in the right upper quadrant and tinkling bowel sounds. Dark blue spots lining the oral mucosa can be seen, which have been present since childhood.

She has no relevant medical history and is otherwise well.

What is the most likely underlying cause of this presentation?

A.Fitz-Hugh-Curtis syndrome

B.Juvenile polyposis syndrome

C.Neurofibromatosis type 1

D.Neurofibromatosis type 2

E.Peutz-Jeghers syndrome

Answer:Peutz-Jeghers syndrome

Explanation:

Small bowel obstruction (often due to intussusception) is a common presenting complaint in Peutz-Jegher's syndrome

Important for meLess important

Peutz-Jeghers Syndrome is correct. This young patient has developed small bowel obstruction secondary to intussusception, characterised by severe vomiting, the inability to pass flatus/stool, and a right upper quadrant mass. Peutz-Jeghers Syndrome is an autosomal dominant condition which causes hamartomatous polyps in the gastrointestinal tract, most commonly the small bowel - which can act as lead points for intussusception and subsequent obstruction. It is also associated with pigmented dark spots on the oral mucosa, which this patient has. This patient will require immediate “drip and suck” and likely surgical or endoscopic intervention.

Fitz-Hugh Curtis is incorrect. This is a rare complication of pelvic-inflammatory disease characterised by inflammation of the liver capsule and adhesion formation. The commonest presentation of Fitz-Hugh Curtis is sudden-onset right upper quadrant abdominal pain. This can very rarely cause small bowel obstruction, but it would not explain the right upper quadrant mass in this patient and you would expect to see more systemic features as a result of the underlying pelvic inflammatory disease.

Juvenile polyposis is incorrect. This is a genetic condition which causes hamartomatous polyps in the gastrointestinal tract. It should be noted that “juvenile” refers to the appearance of the polyps, not the age of the patient. This condition rarely affects the small bowel and thus bowel obstruction is not a recognised complication. A typical presentation would be rectal bleeding, abdominal pain, and iron deficiency anaemia due to ongoing bleeding.

Neurofibromatosis type I (NF1) and neurofibromatosis type II (NF2) are incorrect. Neurofibromatoses are genetic disorders characterised by the growth of usually benign tumours in nerve tissue. Type I is much more common, accounting for around 90% of cases, and typically causes cutaneous lesions, cafe-au-lait spots (dark brown birthmarks), and lisch nodules (hamartomas of the iris). Type II rarely presents with cutaneous lesions and almost always presents with bilateral vestibular schwannomas. While NF1 can cause gastrointestinal stromal tumours, secondary small bowel obstruction is an exceedingly rare complication of this condition. NF2 is not associated with obstruction.

Question:

A 60-year-old man is brought in by his daughter. He has recently been fired from his job due to allegations of sexual harassment towards coworkers. His daughter states that he 'hasn't been himself'. He is socially withdrawn and has increased his smoking to ten cigarettes a day. His house is cluttered with newspapers and he has failed to pay his electricity bill on two recent occasions.

The patient states he feels fine. His daughter notes that her paternal grandfather developed cognitive difficulty in his sixties. A 10-point cognitive screener test shows mild impairment.

What is the most likely diagnosis?

A.Alzheimer's dementia

B.Dementia with Lewy bodies

C.Frontotemporal dementia

D.Major depressive disorder

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 a family history of early-onset dementia and displays deteriorating cognition, disinhibition (socially inappropriate behaviour), apathy, hyperorality (increased cigarette use) and executive dysfunction (unable to plan/pay bills). He likely has behavioural-variant frontotemporal dementia (bvFTD) (previously known as Pick's disease). BvFTD is a common early-onset dementia syndrome characterized by degeneration of the frontal and temporal lobes and manifests clinically as progressive deterioration in behaviour/cognition associated with six clinically discriminating features:

Disinhibition (loss of manners, decorum, socially inappropriate behaviour)

Apathy/inertia

Loss of sympathy/empathy

Perseverative/compulsive behaviours (eg. simple repetitive movements, ritualistic behaviours)

Hyperorolality (eg. oral exploration of objects, increased consumption of alcohol/cigarettes, altered food preferences)

Executive dysfunction with relative sparing of memory and visuospatial functions.

Memory difficulties tend to develop later in the disease course. A family history of dementia is present in up to 40% of cases with an autosomal dominant component being present in 10%.

Alzheimer's dementia would likely present with more severe memory loss. This patient's constellation of clinical features suggests bvFTD.

Dementia with Lewy bodies presents with at least 2 of 4 of the following: hallucinations, fluctuating levels of consciousness/cognition ('good and bad days'), REM-sleep behaviour disorder and parkinsonism. This patient's history fits more with FTD.

This patient does not meet the criteria for diagnosis of major depressive disorder. His constellation of clinical features points towards bvFTD.

Vascular dementia does not present with disinhibition and hyperorality. These point more towards a diagnosis of bvFTD.

Question:

A 50-year-old man is admitted to Resus with a suspected anterior myocardial infarction. An ECG on arrival confirms the diagnosis and thrombolysis is prepared. The patient is stable and his pain is well controlled with intravenous morphine. Clinical examination shows a blood pressure of 140/84 mmHg, pulse 90 bpm and oxygen saturations on room air of 97%. What is the most appropriate management with regards to oxygen therapy?

A.2-4 l/min via nasal cannulae

B.No oxygen therapy

C.15 l/min via reservoir mask

D.28% via Venturi mask

E.35% via Venturi mask

Answer:No oxygen therapy

Explanation:

Please see the note below and provided link - there are now specific guidelines relating to the use of oxygen in emergency situations.

Question:

A 57-year-old woman presents to her general practitioner with a 4-month history of blurred vision. She reports that her vision is excellent when she wakes in the morning, though by the evening her sight is too poor to read. On further questioning, the patient reports 6kg of unintentional weight loss over 2 months.

On examination, the patient has moderate bilateral ptosis.

Serum analysis shows that the patient has acetylcholine receptor autoantibodies. PET/CT imaging reveals a hypermetabolic lesion, consistent with malignancy.

What malignancy may be responsible for this patient's presentation?

A.Bronchial adenoma

B.Follicular lymphoma

C.Mesothelioma

D.Small cell lung cancer

E.Thymoma

Answer:Thymoma

Explanation:

Myasthenia gravis is associated with thymomas

Important for meLess important

The correct answer is thymoma. Thymomas are tumours of the thymus, found in the anterior mediastinum, and are associated with myasthenia gravis, an autoimmune neuromuscular disorder. The patient's presentation is in keeping with myasthenia gravis, characterised by blurred vision that worsens throughout the day. Patients with myasthenia gravis classically have acetylcholine receptor autoantibodies, leading to weakness that worsens with continued use. Thymomas are thought to account for 15% of myasthenia gravis cases, while 30% of individuals with thymomas are diagnosed with myasthenia gravis.

Bronchial adenoma is incorrect, as this is not associated with myasthenia gravis. Bronchial adenomas classically present with purulent sputum, and may cause carcinoid syndrome, characterised by flushing, diarrhoea, and dyspnoea.

Follicular lymphoma is incorrect, as this is not associated with myasthenia gravis. Follicular lymphoma classically presents with painless lymphadenopathy, night sweats, and weight loss.

Small cell lung cancer is incorrect, as this may be associated with Lambert-Eaton myasthenic syndrome, a distinct condition from myasthenia gravis. Lambert-Eaton myasthenic syndrome is classically associated with fatigue that improves with repeated use, while patients with myasthenia gravis experience greater fatigue with continuous use. Lambert-Eaton myasthenic syndrome is associated with voltage-gated calcium channels autoantibodies, whereas myasthenia gravis is associated with acetylcholine receptor autoantibodies.

Mesothelioma is incorrect, as this is not associated with myasthenia gravis. Patients with mesothelioma classically have a history of asbestos exposure and present with weight loss and chest pain.

Question:

A 25-year-old primigravida presents to her General Practitioner at 25-week gestation following a referral from her midwife who found glucose present during a routine urinalysis. The following results are noted:

Blood pressure 129/89 mmHg

Fundal height 25.5 cm

Fasting plasma glucose 6.8 mmol/L

What intervention should be offered to this patient?

A.Commence insulin

B.Commence metformin

C.Aim for 1-2kg weight loss within next 1-2 weeks

D.Trial of diet and exercise for 1-2 weeks

E.Home monitoring of blood glucose for 2 weeks

Answer:Trial of diet and exercise for 1-2 weeks

Explanation:

Gestational diabetes: if the fasting plasma glucose is < 7 mmol/l a trial of diet and exercise should be offered for 1-2 weeks

Important for meLess important

This patient is presenting with elevated fasting plasma glucose (6.8 mmol/L) and may have gestational diabetes. The most appropriate management for this is a trial of diet and exercise to attempt to control blood glucose without pharmacological intervention. The patient should be advised to eat a high fibre diet with minimal foods containing refined sugars. During this period, the patient will be asked to check their blood glucose regularly as there are significant risks to the foetus with gestational diabetes and the patient should contact their team if ongoing elevated readings despite lifestyle interventions.

If this patient had initial fasting plasma glucose of 7 mmol/L or more, insulin should be started. The vignette shows a patient with initial fasting glucose lower than this (6.8 mmol/L), however, if her blood glucose is not controlled by diet or metformin, she will need insulin.

If there is no improvement (or improvement is not to an adequate level) within 1-2 weeks, the patient should be started on metformin. If metformin is inadequate, the patient will then be started on insulin too.

Women who are pregnant should not be aiming to lose weight. Women are advised to maintain a balanced diet, high in fruit, vegetables, and unrefined foods. This option is also incorrect as gestational diabetes is caused by insulin insensitivity which affects women across the BMI spectrum.

It is inappropriate to advise the patient to only monitor blood glucose at home for 2 weeks without any interventions (such as diet and exercise). The patient has been flagged to have elevated blood glucose and this is unlikely to change without any lifestyle intervention. While it is part of the management, it is not an exclusive intervention that should be offered.

Question:

A 65-year-old woman presents to the emergency department after a fall. She is orientated to person, place and time with a GCS of 15. She tripped whilst walking around the house, falling onto her back. She denies any paraesthesia, weakness or pain radiating down her leg, as well as any bowel or bladder dysfunction. There is no evidence head trauma. She also denies any history of fever or weight loss. The patient has longstanding dyspepsia, for which she has been taking omeprazole for 4 years.

Her observations are normal. On examination, there is marked spinal tenderness at the L2-L3 level. Neurological examination is unremarkable, with 5/5 power in both the upper and lower limbs.

What is the most appropriate, first-line investigation?

A.CT thorax, abdomen and pelvis (CT TAP)

B.CT head

C.MRI of the lumbar spine

D.MRI of the whole spine

E.X-ray of the spine

Answer:X-ray of the spine

Explanation:

X-ray of the spine is the first-line investigation for a suspected osteoporotic vertebral fracture

Important for meLess important

Based on clinical findings, this woman has likely suffered from an osteoporotic fracture, probably in her lumbar spine given the location of the tenderness on examination. Long-term proton-pump inhibitor use, in this case omeprazole, is a risk-factor for the development of osteoporosis. The most practical way to assess for such a fracture is to look at a radiograph of the spine.

CT TAP is incorrect. The question asks for the 'most appropriate first-line investigation. If malignancy was suspected, CT TAP might be useful down the line.

CT head is incorrect but could be considered if the patient had experienced head trauma or if the patient was on anticoagulation or showed signs of cognitive deterioration.

MRI of the lumbar/whole spine is incorrect. MRI would useful if cauda equina syndrome was suspected; however, the history does not highlight any red flags of this condition, such as saddle anaesthesia, incontinence, or bilateral sciatica.

Question:

A 54-year-old man presents to his GP complaining of strange symptoms affecting his vision.

He explains that, 4 days ago, he was watching television in the evening when he experienced a 'curtain closing' from the left side of his vision which left him with a crescent of blackness on his left. This seemed to resolve after around 5 minutes. However, he had a very similar episode last night while driving which is why he came to see his GP. He experienced no pain during either episode.

What is the most likely underlying cause of this presentation?

A.Atherosclerosis of the left external carotid

B.Atherosclerosis of the left internal carotid

C.Atherosclerosis of the right external carotid

D.Atherosclerosis of the right internal carotid

E.Left-sided optic neuritis

Answer:Atherosclerosis of the left internal carotid

Explanation:

Amaurosis fugax is a form of stroke that affects the retinal/ophthalmic artery

Important for meLess important

Atherosclerosis of the internal carotid artery is by far the most common cause of amaurosis fugax (literally translated to 'fleeting darkness'), a form of stroke that affects the retinal artery. This patient is describing painless, transient monocular visual loss which is typical of amaurosis fugax. The atherosclerotic internal carotid artery can throw off emboli that can lodge in the retinal artery, a direct tributary of the internal carotid. As this patient's symptoms were on the left side, the left internal carotid would have thrown off the embolus. Had the embolus originated from the right internal carotid, one would expect the patient to experience the crescent of blackness on the right side as opposed to the left (as the right eye would be affected).

Atherosclerosis of the left/right external carotid is incorrect. The external carotid arteries do not supply any blood to the eye, and thus external carotid emboli would not cause amaurosis fugax.

Optic neuritis is not linked with amaurosis fugax. It can cause monocular vision loss but this is typically associated with pain, which this patient denies.

Question:

Which one of the following statements regarding amiodarone is correct?

A.Has a half-life of 7-14 days

B.Should not be given to asthmatics

C.Is a class II antiarrhythmic agent

D.Is a common cause of hypokalaemia

E.Is a common cause of thrombophlebitis

Answer:Is a common cause of thrombophlebitis

Explanation:

Intravenous amiodarone should ideally be given into central veins to reduce the risk of injection site reactions.

Question:

A mother attends the GP with her 14-year-old daughter. She is concerned as her daughter has not yet started her periods although suffers cyclical pain. On examination the daughter looks well. What is the most likely diagnosis?

A.Mullerian agenesis

B.Constitutional delay

C.Turner syndrome

D.Pregnancy

E.Imperforate hymen

Answer:Imperforate hymen

Explanation:

This question concerns the topic of primary amenorrhoea. In this scenario the patient appears well but is suffering cyclical pain with no evidence of menstruation. This rules out a number of answers such as mullerian agenesis and constitutional delay which are both classically painless. Turner syndrome is an unlikely answer as these patients often have distinctive features and associated health problems such as the 'webbed neck', 'lymphoedema', 'shield chest' and 'widely spaced nipples'. Although pregnancy must always be considered it is unlikely in this scenario as the patient has not entered menarche and has cyclical pain, thus imperforate hymen is the most likely diagnosis.

Amenorrhoea is the absence of menstruation. It can be primary i.e. menarche has never occurred or secondary i.e. the patient has had no periods for >6 months but has had periods in the past.

Primary amenorrhoea is diagnosed if the patient if the patient has not had a period by the time they are 14 with no secondary sexual characteristics, or over 16 if secondary sexual characteristics are present.

Causes of primary amenorrhoea:

Constitutional delay i.e. a late bloomer, has secondary sexual characteristics

Anatomical i.e. mullerian agenesis (patient develops secondary sexual characteristics and has variable absence of female sexual organs)

Imperforate hymen (characterised by cyclical pain and the classic bluish bulging membrane on physical examination)

Transverse vaginal septae (characterised by cyclical pain and retrograde menstruation)

Turner syndrome (XO chromosome)

Testicular feminisation syndrome (XY genotype, no internal female organs)

Kallmann syndrome (failure to secrete GNRH)

Causes of secondary amenorrhoea:

Pregnancy

Patient is using contraception

Menopause

Lactational amenorrhoea

Hypothalamic amenorrhoea (suppression of GnRH due to stress, excessive exercise, eating disorder)

Endocrinological (hyperthyroidism, polycystic ovary disease, Cushing's syndrome, hyperprolactinaemia, hypopituitarism)

Premature ovarian failure (autoimmune, chemotherapy, radiation therapy)

Asherman's syndrome (iatrogenic intrauterine adhesions/cervical stenosis)

Investigations will depend on the likely diagnosis but some useful tests to consider are:

Pregnancy test

FSH/LH (if FSH is >20 in a woman <40 may suggest premature ovarian failure, if both are low it suggests a hypothalamic cause)

Thyroid function tests

Prolactin

Pelvic USS

Management will depend on the cause. Hormone replacement therapy is recommended for women with premature ovarian failure until the age of natural menopause.

Question:

A 35-year-old woman with a 1 year history of rheumatoid arthritis presents to your clinic with an acute flare up of her symptoms. The patient has noticed increased pain in her joints, general fatigue and hasn't been able to undertake her usual daily activities as effectively due to the swelling and stiffness in her hands. She admits that she has recently been under a lot of stress at work and is worried about her financial stability. Aside from this, she is well and has a normal set of physical observations.

She is currently taking methotrexate 7.5mg intramuscularly weekly.

What treatment option is most effective at managing this presentation?

A.Increasing the current dose of methotrexate

B.Intramuscular methylprednisolone acetate

C.Naproxen

D.Paracetamol

E.Vancomycin

Answer:Intramuscular methylprednisolone acetate

Explanation:

Intramuscular steroids such as methylprednisolone are used to manage the acute flares of rheumatoid arthritis

Important for meLess important

An effective short term treatment option for acute flare ups of rheumatoid arthritis are glucocorticoids. These could be administered via an intra-articular injection into a specific joint, intramuscularly into the gluteal muscle or orally. Options include methylprednisolone acetate and triamcinolone acetonide.

Disease modifying anti-rheumatic drugs (DMARDs) such as methotrexate can take around 2-3 months to become effective. Therefore, although changing DMARD therapy or increasing the dose may be beneficial to the long term management of her rheumatoid arthritis, it will not be effective in treating her acute flare up of symptoms.

Non-steroidal anti-inflammatory drugs (NSAIDs) such as naproxen can be included in management of flare ups, but only for a short course. They are not as effective at treating an acute flare up compared to steroids, but can be helpful in reducing pain and inflammation. However the potential side effects and risk factors must be considered. It is good practice to prescribe with a proton pump inhibitor such as omeprazole.

Paracetamol will be helpful in treating pain, however it will not contribute to reducing the inflammation associated with rheumatoid arthritis. Therefore, it is not the most effective treatment option.

Vancomycin is a glycopeptide antibiotic which would certainly be an effective treatment option if this presentation was due to septic arthritis. However this patient is afebrile and is generally well. It is not suspected that this presentation is due to an infection, so using an antibiotic would not be indicated.

Question:

A 31-year-old woman is reviewed following investigations she had for menorrhagia, abdominal bloating, and fatigue. The patient presented 1-week ago complaining of a several-year history of heavy periods and worsening fatigue. The patient has no plans to conceive.

Her blood results are shown below:

Hb 101 g/L Male: (135-180)

Female: (115 - 160)

Platelets 155 \* 109/L (150 - 400)

WBC 6.7 \* 109/L (4.0 - 11.0)

Ferritin 11 ng/mL (20 - 230)

Vitamin B12 210 ng/L (200 - 900)

Folate 4.2 nmol/L (> 3.0)

A transvaginal ultrasound scan shows numerous uterine fibroids with no distortion of the uterine cavity.

What is the most appropriate treatment at this stage?

A.Ferrous sulphate

B.Levonorgestrel intrauterine system (LNG-IUS)

C.Mefenamic acid

D.Myomectomy

E.No treatment but regular monitoring of growth

Answer:Levonorgestrel intrauterine system (LNG-IUS)

Explanation:

Menorrhagia, anaemia, bulk-related symptoms e.g. bloating/urinary frequency →? uterine fibroids

Important for meLess important

Levonorgestrel intrauterine system (LNG-IUS) is correct. As stated in the stem, this patient has uterine fibroids that are causing menorrhagia, anaemia, and abdominal bloating. The management option for fibroids (as long as there is no uterine cavity distortion) causing menorrhagia is treatment with an LNG-IUS. Therefore, this option is correct.

Ferrous sulphate is incorrect. This option would help to treat the iron deficiency anaemia this patient is experiencing. However, it would not treat the underlying cause - the fibroids. Therefore, this answer is incorrect.

Mefenamic acid is incorrect. Mefenamic acid is an NSAID that can be considered to treat dysmenorrhoea. This patient is not experiencing painful periods and so, therefore, would not require treatment with mefenamic acid. She could trial tranexamic acid for menorrhagia. But, there would be little basis for trialling mefenamic acid.

Myomectomy is incorrect. This treatment option is an invasive surgical option that could be considered down the line. However, at this stage, there are many more options to try before surgical intervention is considered.

No treatment but regular monitoring of growth is incorrect. This would be the recommended treatment option for fibroids found incidentally that are causing no symptoms. However, this patient is experiencing heavy periods and bloating combined with an iron deficiency anaemia and so, therefore, requires treatment.

Question:

A 27-year-old primigravida 1+0 presents at 35 weeks gestation with a blood pressure of 165/120mmHg, and 3+ of proteinuria on dipstick testing. Prior to becoming pregnant, her blood pressure was stable at around 115/75mmHg and her only past medical history is well-controlled asthma.

With regards to her management, which of these is true?

A.IV magnesium sulphate is the only curative treatment for her condition

B.Same-day delivery should not be considered, as she is not past 36 weeks gestation

C.Following treatment with nifedipine into the post-natal period, the patient should be advised not to breastfeed

D.In induced labour, epidural anaesthesia should help reduce blood pressure

E.Antenatal hypertensive treatment should be discontinued in labour

Answer:In induced labour, epidural anaesthesia should help reduce blood pressure

Explanation:

1. Delivery is the only cure for pre-eclampsia. IV magnesium sulphate is used for eclampsia (seizure) prophylaxis.

2. After 34 weeks, same day delivery is an option.

3. Nifedipine is safe to prescribe while breastfeeding. (Note labetalol is first-line anti-hypertensive, but beta-blockers should be avoided in this scenario due to patient's history of asthma.)

4. Correct, epidural anaesthesia should reduce blood pressure.

5. Hypertensive treatment should be continued throughout labour to control blood pressure.

See NICE guideline - Hypertension in pregnancy - diagnosis and management

Question:

A 74-year-old woman is taking ramipril, digoxin, metformin, quinine and bisoprolol. She has recently been complaining of slightly swollen ankles. An echo has demonstrated moderate-severe aortic stenosis, and she has been referred urgently to cardiology.

Which or her medications should be stopped?

A.Bisoprolol

B.Digoxin

C.Metformin

D.Quinine

E.Ramipril

Answer:Ramipril

Explanation:

Moderate-severe aortic stenosis is a contraindication to ACE-i

Important for meLess important

The finding of moderate to severe aortic stenosis means that angiotensin-converting enzyme inhibitors (ACE inhibitors) such as ramipril are contra-indicated. This is because it is thought that the vasodilator effect of an ACE inhibitor might lead to a reduction in the coronary perfusion pressure, and therefore lead to cardiac ischaemia in these patients. This patient should therefore have her ramipril stopped whilst she awaits cardiology review.

Bisoprolol reduces cardiac workload by decreasing contractility and the need for oxygen through competitive inhibition of β1-adrenergic receptors. It is not contra-indicated in the presence of aortic stenosis.

Digoxin is prescribed to improve cardiac contractility. It is not contra-indicated in the presence of aortic stenosis but should be stopped if there are defects with the cardiac conducting system, such as heart block. It may be important to continue digoxin in this elderly patient to maintain her cardiac output.

Metformin should be used with caution in patients who have chronic heart failure but is not contra-indicated in patients with valvular disease.

Quinine is not contra-indicated in the presence of aortic stenosis but should be stopped if there are defects with the cardiac conducting system, such as heart block.

Question:

The next parent arrives with her 2-year-old son. He was diagnosed with cow's milk protein allergy (CMPA) when he was 3 months old and got much better after it was first recognised. He has been on a dairy excluding diet and has been fed hydrolysed milk up until 1 year of age. He was tried on the milk ladder and successfully made it onto raw milk in the past month without further reaction or diarrhoea. His mother wonders whether this is normal, or if he was misdiagnosed when he was younger. IgE testing had been done and found to be normal.

What would you advise the boy's mother?

A.Further testing is needed

B.Lactose intolerance is more likely

C.Milk tolerance is common by 3 years

D.Milk tolerance is unusual by 3 years

E.The most likely reason is misdiagnosis

Answer:Milk tolerance is common by 3 years

Explanation:

Most children with non-IgE-mediated cow's milk protein allergy will be milk tolerant by 3 years of age

Important for meLess important

Milk tolerance is common by 3 years - most children with non-IgE-mediated CMPA will be milk tolerant by 3 years of age. Gabriel has normal IgE levels and has been exposed to a variety of increasing levels of milk protein through his diet. This is the goal of the milk ladder.

Further testing is needed - no further testing is required. CMPA is diagnosed clinically based on symptoms (growth faltering, constipation, irritability) and withdrawal of cow's milk protein-containing substances followed by a period of re-exposure.

Lactose intolerance is more likely - lactose intolerance is uncommon under 3-years-old.

Milk tolerance is unusual by 3 years - milk tolerance is only unusual in IgE mediated cow's milk protein allergy.

The most likely reason is misdiagnosis - cow's milk protein allergy is said to be overdiagnosed, but in the presence of past symptoms and recovery on a cow's milk-free diet, then we should attribute the problem to cow's milk protein allergy.

Question:

A 17-year-old female presents with a sore throat. On examination she is noted to have bilaterally enlarged tonsils associated with tender cervical lymphadenopathy. From reviewing her notes you can see that this is her 7th episode of tonsillitis in the past year. She reports having missed days at college due to her sore throats over the past 12 months. Her Centor score is 3/4 and you therefore elect to prescribe a course of penicillin V. What other management option should be considered?

A.Advise her to take vitamin C and zinc supplements

B.Check her serum immunoglobulin levels

C.Refer to ENT for consideration of a tonsillectomy

D.Prescribe penicillin at a prophylactic dose following the acute course of penicillin

E.Screen for infectious mononucleosis

Answer:Refer to ENT for consideration of a tonsillectomy

Explanation:

Tonsillectomies are performed much less often nowadays than they were 20-30 years ago. This reflects a greater awareness of the potential complications and the modest benefits. However, in this scenario the patient fits the referral criteria as specified by NICE.

Question:

A 35-year-old man presents to the GP with a 2-day history of a swollen, erythematous calf. He has recently returned to the UK from a holiday to North America. He reports fatigue, arthralgia, and fevers. On examination, there is a circular target-shaped rash on his calf. There are no known drug allergies.

What is the most appropriate management?

A.IV ceftriaxone

B.Oral amoxicillin

C.Oral azithromycin

D.Oral cefuroxime

E.Oral doxycycline

Answer:Oral doxycycline

Explanation:

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

Important for meLess important

This patient has Lyme disease, a tick-borne disease caused by Borrelia burgdorferi. The correct answer is oral doxycycline, as this patient has signs of early Lyme disease such as erythema migrans.

IV ceftriaxone is incorrect. Ceftriaxone is the first-line treatment for Lyme disease when there is central nervous system involvement. Lyme meningitis is an example of central nervous system involvement which can cause fever, headache, light sensitivity, and stiff neck.

Oral amoxicillin is incorrect. Amoxicillin can be used for the treatment of Lyme disease, but it is used as an alternative to doxycycline when there are contraindications. An example of a contraindication to doxycycline use is in pregnancy due to the risk of tooth discolouration and its effects on skeletal development.

Oral azithromycin is incorrect. Azithromycin is not routinely prescribed for the treatment of Lyme disease, but it can be given in situations where both doxycycline and amoxicillin are contraindicated. This use is unlicensed.

Oral cefuroxime is incorrect. Cefuroxime is rarely used in the treatment of Lyme disease.

Question:

A 71-year-old man presents with dysphagia which has been getting progressively worse for the past few months. He is generally fit and well other than a history of chronic obstructive pulmonary disease. On occasions he has regurgitated some food after eating a large meal.

On examination of his abdomen, no masses are noted. A barium swallow with fluoroscopy is arranged:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Cystic hygroma

B.Pharyngeal pouch

C.Thyroglossal cyst

D.Oesophageal cancer

E.Achalasia

Answer:Pharyngeal pouch

Explanation:

During swallowing an outpouching of the posterior hypopharyngeal wall is visualised at the level C5-C6, right above the upper oesophageal sphincter.

Question:

Tracey is a 28-year-old woman who presented to her GP with green vaginal discharge and pain during intercourse. She is on the combined pill and therefore does not always remember to use condoms. Her periods are regular and her last period was 10 days ago. She recently started a new relationship one month ago.

You suspect that she could have a sexually transmitted infection and therefore ask her to do a self swab. The results come back as positive for Neisseria gonorrhoeae. Tracey is not keen to have an injection.

What is the next best treatment option for Tracey?

A.Oral metronidazole and oral azithromycin

B.Oral doxycycline

C.Oral metronidazole

D.Oral co-amoxiclav

E.Oral cefixime and oral azithromycin

Answer:Oral cefixime and 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

NICE guidelines advise that patients with a positive gonorrhoea test should be referred to a sexual health clinic for management and follow up.

The first-line treatment is a single dose of IM ceftriaxone.

If the patient refuses an injection then oral cefixime 400mg and 2g azithromycin can be given as a single dose. Oral azithromycin can be given by itself, however, there is a high level of azithromycin resistance.

Doxycycline can be used to treat Chlamydia trachomatis. However, it is not recommended for gonorrhoea due to a high level of resistance.

Metronidazole and co-amoxiclav are not recommended for the treatment of gonorrhoea.

Metronidazole is used to treat bacterial vaginosis and pelvic inflammatory disease.

Question:

A 72-year-old woman presents to the emergency department with severe shortness of breath. She complained of a productive cough which started yesterday. Her past medical history includes hypertension and two recent episodes of myocardial infarction. On examination, she appears to be anxious, breathless and sweaty. Jugular venous pressure is increased. Auscultation of the chest reveals widespread end-inspiratory crackles. Her pulse rate is 120 beats per minute, respiratory rate is 33 breaths per minute and oxygen saturation is 88% on room air.

Based on the likely diagnosis, which of the following is the best pharmacological treatment for this patient?

A.Intravenous diuretics

B.Oral diuretics

C.Intravenous nitrates

D.Sublingual nitrates

E.Oral antibiotics

Answer:Intravenous diuretics

Explanation:

Acute pulmonary oedema is a complication of myocardial infarction

Important for meLess important

The most likely diagnosis in this patient is acute pulmonary oedema or heart failure due to past history of myocardial infarction. Intravenous diuretics such as furosemide is the best pharmacological treatment for this patient as this method of administration has better bioavailability since the patient is severely dyspnoeic with very poor vital signs. IV diuretics are also recommended by NICE guidelines for the treatment of acute heart failure. Nitrates are not routinely offered. Oral antibiotics are not required as there are no signs of infection and the clinical presentation is in keeping with acute pulmonary oedema.

Question:

A 23-year-old woman sees her GP the day after an encounter leading to unprotected sexual intercourse (UPSI). She is requesting emergency contraception; she forgot to take her progesterone-only pill (POP) for a few days prior to the encounter. The woman agrees to book into the local sexual health clinic for appropriate screening.

After discussion and counselling, the GP prescribes her levonorgestrel.

How long after this does the patient have to wait before restarting her POP?

A.She doesn't - can start immediately

B.2 days

C.5 days

D.7 days

E.14 days

Answer:She doesn't - can start immediately

Explanation:

Hormonal contraception can be started immediately after using levonorgestrel (Levonelle) for emergency contraception

Important for meLess important

After using levonorgestrel for emergency contraception, hormonal methods can be started immediately. This is the correct option.

The other oral emergency contraceptive method, ulipristal acetate, can impact the efficacy of hormonal contraception methods. After taking ulipristal, women using hormonal contraceptives should use barrier method precautions or abstain from intercourse for 5 days after the ulipristal prior to restarting their hormonal contraceptive.

Question:

During a surgical ward round you are asked to request a nurse cleans a patient's surgical wound when the dressing is changed. The patient is 36 hours post surgery. According to NICE guidelines, what is the most appropriate substance to use to clean the wound?

A.Iodine solution

B.Sterile saline

C.Patient may shower

D.Alcohol swabs

E.Sterile water

Answer:Sterile saline

Explanation:

NICE recommend the following regarding postoperative wound cleansing:

Use sterile saline for wound cleansing up to 48 hours after surgery.

Advise patients that they may shower safely 48 hours after surgery.

Use tap water for wound cleansing after 48 hours if the surgical wound has separated or has been surgically opened to drain pus.

Source: NICE guideline CG74 section 1.4.

Question:

You review a 9-month-old who has parents of Jamaican origin. His parents have noticed a small swelling around his umbilicus. He is a well child who is on the 50th centile. On examination you note a small, reducible umbilical hernia which is less than 1 cm in size. What is the most appropriate management?

A.Contact the local Child Protection Officer

B.Admit to paediatrics

C.Reassure the parents that the vast majority resolve by the age of 4-5 years

D.Refer to paediatric surgeon

E.Refer to a paediatrician for a sweat test

Answer:Reassure the parents that the vast majority resolve by the age of 4-5 years

Explanation:

Congenital hernias

inguinal: repair ASAP

umbilical: manage conservatively

Important for meLess important

This little boy has an umbilical hernia. The vast majority are managed conservatively as usually (>90%) resolve spontaneously.

Question:

Low molecular weight heparin has the greatest inhibitory effect on which one of the following proteins involved in the coagulation cascade?

A.Factor IXa

B.Factor XIa

C.Factor Xa

D.Thrombin

E.Factor XIIa

Answer:Factor Xa

Explanation:

Question:

A 34-year-old man is reviewed in the neurology clinic. He has been established on sodium valproate for primary generalised epilepsy. Despite now taking a therapeutic dose he continues to have seizures and is troubled by weight gain since starting sodium valproate. He asks to stop his current medication and try a different drug. Which one of the following drugs would be the most appropriate second-line treatment?

A.Lamotrigine

B.Ethosuximide

C.Pregabalin

D.Gabapentin

E.Tiagabine

Answer:Lamotrigine

Explanation:

Monotherapy with another drug should be attempted before combination therapy is started. Caution should be exercised when combining sodium valproate and lamotrigine as serious skin rashes such as Steven-Johnson's syndrome may be provoked

Question:

A 6-month-old baby who was born in Bangladesh is brought to surgery. Around one week ago he started with coryzal symptoms. His mother reports he has not been feeding well for the past two days and has started to vomit today. Her main concern is a cough which occurs in bouts and is so severe he often turns red. No inspiratory or expiratory noises are noted. Clinical examination reveals an apyrexial child with a clear chest. What is the most likely diagnosis?

A.Bronchiolitis

B.Mycoplasma pneumonia

C.Pertussis

D.Afebrile pneumonia syndrome

E.Tuberculosis

Answer:Pertussis

Explanation:

The inspiratory 'whoop' is uncommon in patients this young.

Question:

You are consulting with a 25-year-old male who is having problems with his erections. He is normally fit and well, doesn't smoke and drinks 10-12 units of alcohol a week. He has had a girlfriend for 5 years but this issue is starting to affect their relationship.

You go on to take a full psychosexual history before offering him some advice.

What history findings from the list below would suggest an organic rather than a psychogenic cause for his problem?

A.A sudden onset

B.Self stimulated or waking erections

C.A normal libido

D.Premature ejaculation

E.Relationship problems

Answer:A normal libido

Explanation:

Having a normal libido is suggestive of an organic cause of ED

Important for meLess important

Erectile dysfunction (ED) is the persistent inability to attain and maintain an erection sufficient to permit satisfactory sexual performance. It is a symptom and not a disease and the causes can broadly be split into organic, psychogenic and mixed. It can also be caused by certain drugs.

Symptoms that suggest a psychogenic cause include:

Sudden onset.

Early collapse of erection.

Self-stimulated or waking erections.

Premature ejaculation or inability to ejaculate.

Problems or changes in a relationship.

Major life events.

Psychological problems.

Symptoms that suggest an organic cause include:

Gradual onset.

Normal ejaculation.

Normal libido (except hypogonadal men).

Risk factors in medical history (cardiovascular, endocrine or neurological).

Operations, radiotherapy, or trauma to the pelvis or scrotum.

A current drug recognised as associated with ED.

Smoking, high alcohol consumption, use of recreational or bodybuilding drugs.

Therefore, the only correct answer is option 3.

Question:

A 76-year-old female with stage 4 endometrial cancer is admitted to a hospice for end-of-life care. She has her nausea managed with cyclizine, any agitation managed with midazolam and her increased respiratory secretions managed with hyoscine hydrobromide. Her pain has been self-reported as well-controlled on 240mg a day of oral codeine phosphate tablets.

The hospice has decided that all the medications can stay at the same doses, but wish to convert the codeine phosphate to an equivalent dose of oral morphine.

What dose of morphine per day should be prescribed?

A.12mg

B.24mg

C.60mg

D.80mg

E.120mg

Answer:24mg

Explanation:

Codeine to morphine - divide by 10

Important for meLess important

24mg is the correct answer as oral codeine to oral morphine is a divide by 10 calculation, thus 240/10 = 24mg.

12, 60, 80 and 120mg are all incorrect conversions for the 240mg daily dose of codeine phosphate.

Question:

A 62-year-old woman presents to her GP with an itchy rash of several weeks' duration. She describes the rash as being present on her hands and around the elbows. She is otherwise well and has no past medical history except for hypertension.

On examination, a papular, polygonal, violaceous, flat-topped rash is present on the palms, in her elbow creases and on the soles of her feet.

Given the likely diagnosis, what is the first-line treatment?

A.Oral acitretin

B.Oral azathioprine

C.Oral prednisolone

D.Topical clobetasol

E.Topical emollient

Answer:Topical clobetasol

Explanation:

Potent topical steroids are the first-line treatment for lichen planus

Important for meLess important

The diagnosis here is that of lichen planus, given the history and examination findings. In the first instance, a potent topical steroid should be used - and so topical clobetasol is the correct answer. Weaker steroids, such as hydrocortisone, are often ineffective.

Oral acitretin is incorrect. This is a retinoid, a second-line alternative to oral steroids if topical steroids are not effective. However, this patient should try topical steroids first.

Oral azathioprine is incorrect - this is an immunosuppressant and comes with significant side effects of its own. This will be used in significant, refractory disease if other oral measures have failed.

Oral prednisolone is incorrect - this is a second-line option if topical steroids fail to control the rash.

Topical emollients are incorrect. Whilst useful in alleviating itch and general symptoms, they will not help to resolve the disease.

Question:

A fifty-five-year-old man presents to his general practitioner (GP) complaining of recurrent headaches and pain in his limbs. This has been ongoing for six months. He has been taking ibuprofen and paracetamol but this has not helped.

There are no preceding symptoms before the headaches, they last for under an hour and he does not feel dizzy or nauseated during this time. They recur 4-6 times per day.

He mentions that he has also begun to lose hearing in his left ear during this time.

The GP carries out some blood tests which demonstrate the following: raised alkaline phosphatase (ALP), normal calcium, normal phosphate and normal thyroid hormone.

Given the most likely diagnosis, what is the most appropriate treatment?

A.Calcium supplements

B.Bisphosphonates

C.Triptans

D.Codeine

E.Cochlear implant

Answer:Bisphosphonates

Explanation:

Paget's disease of the bone is treated with bisphosphonates

Important for meLess important

This patient has Paget’s disease. This is indicated by his presentation of bone pain, headaches and hearing loss with a raised ALP. Importantly, calcium, phosphate and thyroid hormone levels are normal. Paget’s disease is a condition of excessive bone remodelling by osteoclasts, followed by disordered formation of new bone. The mainstay of treatment for Paget’s disease is bisphosphonates as they inhibit osteoblastic activity (2).

Calcium supplements (1) can be useful to treat hypocalcaemia and osteoporosis, but calcium levels are normal in Paget’s disease.

Triptans (3) are used to treat migraines and so will be ineffective for this patient’s condition.

Codeine (4) may help alleviate the patient’s pain, but it will not treat the cause of the pain.

A Cochlear (5) implant will not treat the cause of this patient’s hearing loss.

Question:

A 34-year-old man presents to the emergency department with a one-day history of intermittent, severe colicky left flank pain that radiates to the groin. His past medical history includes recurrent renal stones and Sjogren’s syndrome. He has no significant family history of renal problems. His blood tests show the following:

Na+ 142 mmol/L (135 - 145)

K+ 2.1 mmol/L (3.5 - 5.0)

Chloride 120 mmol/L (98 - 105)

Bicarbonate 15 mmol/L (22 - 29)

Urea 7 mmol/L (2.0 - 7.0)

Creatinine 85 µmol/L (55 - 120)

A computerised tomography scan of his kidneys, ureters and bladder (CT KUB) identifies a small left ureteric stone. An ECG is also performed, which shows U waves and flat T waves.

Given his clinical features, which is the most likely underlying diagnosis?

A.Bartter syndrome

B.Diabetic ketoacidosis

C.Fanconi syndrome

D.Renal tubular acidosis (RTA)

E.Urinary tract infection

Answer:Renal tubular acidosis (RTA)

Explanation:

Type 1 renal tubular acidosis (distal) complication - renal stones

Important for meLess important

This patient is likely to have underlying renal tubular acidosis type 1. A condition in which patients are unable to generate acidic urine (secrete H+) in the distal tubule. This condition is most likely due to the patient's hypokalaemia (shown by blood results and ECG changes), and past history of recurrent renal stones and Sjogren’s syndrome. A normal anion gap (hyperchloraemic metabolic acidosis), which is another feature of RTA, can be calculated from his blood results:

Anion gap = (Na + K) - (chloride + bicarbonate)

= (142 + 2.1) – (120 + 15)

= 9.1 (normal 8-14)

Bartter syndrome is an autosomal recessive disorder which causes renal tubular disease, characterised by hypokalaemia and, contrary to what is seen in this patient, hypochloraemia. Renal stones and metabolic alkalosis are commonly seen in this condition as well.

Diabetic ketoacidosis would cause a raised anion gap and would normally present with abdominal pain, vomiting, dehydration etc. Another clue in the question stem is this patient has no previous diagnosis of type 1 diabetes and given his age, this is unlikely to be a first presentation of the condition.

Fanconi syndrome is a type of renal tubular acidosis (type 2) which is associated with hypokalaemia and osteomalacia. Renal stones and history of autoimmune conditions is not a feature of Fanconi syndrome.

Urinary tract infection would not cause these metabolic changes and commonly presents with urinary symptoms such as dysuria, frequency and urgency and potentially other signs of systemic infection e.g. fever, hypotension, tachycardia.

Question:

Olivia is a 25-year-old woman who has presented with a rash on her cheeks and bridge of her nose. She has also been suffering from non-specific muscle and joint aches and extreme tiredness.

You decide to do some blood tests to identify any systemic causes. In particular, you are concerned about a diagnosis of systemic lupus erythematosus (SLE).

Out of the options below, which of the following blood tests if positive would be highly suggestive of this diagnosis?

A.Anti-dsDNA

B.Anti-CCP

C.Anti-La

D.ANCA

E.Anti-centromere

Answer:Anti-dsDNA

Explanation:

Anti-dsDNA is a highly specific test for SLE

Important for meLess important

Anti-dsDNA is a highly specific test for lupus and is therefore helpful to rule out systemic lupus erythematosus if it is negative.

Anti-CCP is used to diagnose rheumatoid arthritis.

Anti-La is mainly found in patients with Sjogren's syndrome. It can also be found in patients with SLE, however, it is not very specific. An interesting point is that babies of mothers with anti-La and anti-Ro antibodies are at increased risk of developing neonatal lupus.

ANCA is an antibody targeted against neutrophils. It is seen in patients with autoimmune vasculitis.

Anti-centromere antibodies are characteristic of the CREST syndrome which is the cutaneous form of systemic sclerosis. CREST stands for calcinosis, Raynaud's, oesophageal dysmotility, sclerodactyly and telangiectasia.

Question:

Jenny, a 55-year-old woman presents to your GP surgery with menopausal symptoms. Her last period was 14 months ago and she describes mood changes, irritability, hot flushes, night sweats and a reduced libido. These symptoms are getting on top of her and disrupting her work.

Jenny has 3 children and has had no previous surgery. Her friend has suggested oestrogen hormone replacement therapy (HRT) and Jenny would like to give it a go.

What is the major risk of prescribing oestrogen-only HRT instead of combined HRT for Jenny?

A.Unopposed oestrogen increases her risk of breast cancer

B.Unopposed oestrogen increases her risk of endometrial cancer

C.Unopposed oestrogen increases her risk of heart disease

D.Unopposed oestrogen increases her risk of osteoporosis

E.Unopposed oestrogen increases her risk of ovarian cancer

Answer:Unopposed oestrogen increases her risk of endometrial cancer

Explanation:

HRT: unopposed oestrogen increases risk of endometrial cancer

Important for meLess important

Unopposed oestrogen increases her risk of endometrial cancer is the correct answer. Combined oestrogen and progesterone HRT reduces the risk of endometrial cancer in patients with a uterus. Patients without a uterus should be prescribed oestrogen only HRT as combined HRT is less well tolerated.

Unopposed oestrogen increases her risk of breast cancer is an incorrect answer. Both types of HRT, combined and oestrogen-only, increase the patients risk of breast cancer. Combined HRT may increase that risk more than oestrogen-only, however.

Unopposed oestrogen increases her risk of heart disease is incorrect. Oestrogen has a protective role in inhibiting the development of atherosclerosis, therefore HRT seems to reduce patients risk of heart disease.

Unopposed oestrogen increases her risk of osteoporosis is incorrect. HRT is sometimes prescribed to prevent or treat osteoporosis in some patients. It reduces the risk of fracture instead of increasing it.

Unopposed oestrogen increases her risk of ovarian cancer is also incorrect. Both forms of HRT increase the risk of ovarian cancer, however this is a relatively small risk compared to endometrial cancer as only 1% of ovarian cancer cases are associated with HRT use.

Question:

A 62-year-old man is being considered for clozapine treatment for treatment-refractory schizophrenia. As part of the initial work-up, he has an electrocardiogram (ECG) done on the ward.

The cardiac electrophysiologist explains that his ECG shows an irregular, broad complex tachycardia of 120 beats per minute.

He is currently stable, and his vital signs are within normal range. He has had no previous health issues and is not currently on any medication.

What is the next most appropriate step in the management of his arrhythmia?

A.IV adenosine

B.Immediate DC cardioversion

C.Prescribe regular oral propranolol

D.Seek cardiology input

E.24-hour Holter monitor

Answer:Seek cardiology input

Explanation:

Expert help should be sought for stable patients with an irregular broad complex tachycardia

Important for meLess important

An irregular broad complex tachycardia is a rare rhythm, which would not be expected to be treated or handled without expert help. It is likely due to a composition of problems, such as atrial fibrillation with pre-existing bundle branch block or aberrant conduction. Due to their complexity, management should be handled by an expert cardiologist, and therefore their input is necessary here. There is no indication that he is clinically unwell currently, and therefore as he does not need any immediate intervention, it is sensible to seek help first.

IV adenosine is incorrect. It is used as a rate lowering drug used to slow supraventricular tachycardias. Since there are QRS abnormalities here, there is an indication of ventricular or conducting system pathology. Adenosine is not always appropriate in these circumstances - and expert help should be sought first.

DC cardioversion is incorrect. It may be appropriate for reverting an arrhythmia back to sinus rhythm. Unsynchronised DC cardioversion (i.e. defibrillation) is used for life-threatening tachyarrhythmias, whilst synchronised DC cardioversion is used in all other situations. There is no indication that immediate treatment is needed here as the man is stable.

Oral propranolol is incorrect. It may be used as rate control in atrial fibrillation. However, atrial fibrillation presents as an irregular narrow-complex tachycardia. Since the QRS complex is widened here, it makes this rhythm more rare and complex. It would be unwise to commence treatment without an expert review.

A 24-hour Holter monitor is incorrect. It is useful when a snapshot of the cardiac rhythm from a regular ECG is not enough. In this situation, there is enough information from the ECG to define a type of rhythm, and the first priority on recognition is to refer to cardiology.

Question:

A 31-year-old woman who gave birth two weeks ago presents for review with her husband. He is worried by her mood as she now seems depressed and is interacting poorly with the baby. He describes her mood three days ago being much different, when she was talking in a rapid and incoherent fashion about the future. The mother denies any hallucinations but states that her child has been brought into a 'very bad world'. What is the most appropriate management?

A.Start fluoxetine

B.Reassurance + review by health visitor

C.Cognitive behavioural therapy

D.Start lithium

E.Arrange urgent admission

Answer:Arrange urgent admission

Explanation:

The mother may be suffering from puerperal psychosis and needs urgent admission to allow psychiatric evaluation.

Whilst there is not a full complement of psychotic features there are a number of pointers towards significant mental health problems:

poor interaction with the baby: this is very unusual, including in women with postnatal depression

'talking in an incoherent fashion about the future'

stating that the baby 'has been brought into a very bad world' is odd and somewhat worrying

For these reasons, the mother should have an urgent psychiatric evaluation.

Question:

The x-ray below was taken from a 7-year-old child who presented to the Emergency Department with respiratory symptoms:

© Image used on license from Radiopaedia

What does the x-ray show?

A.Cystic fibrosis

B.Right upper lobe collapse

C.Lung cancer

D.Right-sided pneumothorax

E.Normal

Answer:Right upper lobe collapse

Explanation:

There is increased opacity in the right upper zone, The lateral / inferior border of the shadowing actually represents the horizontal fissure which has been 'dragged' upwards.

Question:

A 68-year-old man is admitted with severe community acquired pneumonia. A diagnosis of sepsis secondary to pneumonia is made. The sepsis 6 protocol is initiated however the patient unfortunately goes into cardiac arrest. Prompt CPR is initiated. An ECG shows pulseless electrical activity.

What should be the next step in management?

A.Administration of 1mg of intravenous adrenaline

B.Administration of 1mg of intravenous adrenaline and 300mg of intravenous amiodarone

C.Defibrillation

D.Defibrillation and 1mg of intravenous adrenaline

E.Defibrillation and 300mg of intravenous amiodarone

Answer:Administration of 1mg of intravenous adrenaline

Explanation:

Pulseless electrical activity and asystole are non-shockable rhythms and therefore are unresponsive to defibrillation. The patient should immediately receive 1mg of intravenous adrenaline whilst continuing high-quality CPR. The cause of the cardiac arrest should be identified and treated accordingly. Further adrenaline 1 mg IV should be given every 3-5 min (during alternate 2-min loops of CPR).

Question:

An 8-year-old boy presents to his GP complaining of fatigue and excess sleep. An initial set of results indicated that reticulocytes and the bilirubin level were raised. A set of further blood tests reveal,

Red blood cells 3.7x10(9)/l

Mean corpuscular volume 60fl

Red blood cell normal range 4.0-5.2x10(9)/l

Mean corpuscular volume normal Range 77-95fl

Which is the most likely diagnosis?

A.B12 deficiency

B.Parvovirus B19

C.B-Thalassaemia

D.Aplastic anaemia

E.Iron deficiency anaemia

Answer:B-Thalassaemia

Explanation:

This patient has a microcytic anaemia. Reticulocytes are low in a parvovirus B19 infection and aplastic anaemia. B12 deficiency gives a macrocytic anaemia. Iron deficiency anaemia is associated with a normal bilirubin level. This leaves B-thalassaemia which matches the results shown.

Figure 22.4 on: http://clinicalgate.com/haematological-disorders/

Question:

A 83-year-old man is admitted to the emergency department due to profound left hemiparesis. He has a background of hypertension, high cholesterol, and has had 2 previous transient ischaemic attacks. He is outside the thrombolysis window but is admitted to the stroke unit for management.

Which of these can be used to predict disability following this event?

A.Rockwood scale

B.Barthel index

C.Child-Pugh score

D.RIFLE criteria

E.Waterlow score

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

The Barthel index is a scale that measures disability or dependence in 10 different activities of daily living in stroke patients. This index can be used to assess the functional status and to monitor their improvement with ongoing rehabilitation.

The Rockwood frailty scale categorises patients into levels of frailty according to their function. It can help identify elderly patients at high risk for in-hospital mortality. It could be used in this scenario but is not as specific as the Barthel index for stroke.

The Child-Pugh score is a system for assessing prognosis in chronic liver disease. It can be used to assess severity including need for transplant.

The RIFLE criteria is a classification system for acute kidney injury (AKI).

The Waterlow score gives a risk for the development of pressure sores in a patient.

Question:

A 1-week-old baby is brought to clinic for assessment. She was born after 39 weeks of gestation, and was breast feeding normally. Her mother is now concerned that she is excessively tired. A history is taken with some basic observations recorded. Which of the following would be a concerning observation?

A.Respiratory rate 40 breaths per minute

B.Heart rate 90 beats per minute and regular

C.Head circumference in the 90th centile

D.Temperature of 37.2 Celsius

E.Mild irritability

Answer:Heart rate 90 beats per minute and regular

Explanation:

Healthy infants should have a respiratory rate between 30-60 breaths per minute, a regular pulse between 100-160 beats per minute in a newborn, temperature of around 37 Celsius, and pass urine and stool regularly.

Source: https:www.nice.org.uk/guidance/cg37/chapter/1-recommendations

Question:

A 68-year-old man presents to his GP with a one-year history of progressive 'slowing'. He describes a general loss of dexterity, smaller handwriting and his wife has described his face as being 'less expressive'. He has noticed a subtle tremor in the left hand over the past few months, which is more pronounced when sat listening to the radio.

On examination, he has mask-like facies, mild left-sided bradykinesia and cogwheel rigidity.

Given the likely diagnosis, which finding points towards idiopathic disease rather than a drug-induced disease?

A.Age of onset

B.Asymmetrical symptoms

C.Bradykinesia

D.Cogwheel rigidity

E.Micrographia

Answer:Asymmetrical symptoms

Explanation:

Asymmetrical symptoms suggests idiopathic Parkinson's

Important for meLess important

From the options above, the only answer which specifically points more towards a diagnosis of idiopathic, rather than drug-induced, Parkinson's, is the fact that the patient has asymmetrical symptoms. Drug-induced parkinsonism is generally symmetrical.

The age of onset is not a differentiating factor - the fact that the man is 68-years-old does not really tell us anything useful about whether or not this is idiopathic or drug-induced.

Bradykinesia is also not a differentiating factor - it is a classic feature of parkinsonism and seen in both idiopathic and drug-induced disease.

Cogwheel rigidity, similarly, is a classic sign of parkinsonism and seen in idiopathic Parkinson's disease, as well as drug-induced parkinsonism.

Micrographia is also seen in both idiopathic and drug-induced disease and so would not particularly help to differentiate the two.

Question:

A 65-year-old man with no significant past medical history is admitted to the Emergency Department. His ECG is consistent with an anterior myocardial infarction. Unfortunately he develops cardiac arrest shortly after arriving in the department. What is the most common cause of death in patients following a myocardial infarction?

A.Pulmonary embolism

B.Cardiogenic shock

C.Papillary muscle rupture

D.Ventricular fibrillation

E.Complete heart block

Answer:Ventricular fibrillation

Explanation:

Question:

An 8-year-old boy is reviewed in the neurology clinic. He experienced two seizures in the last two days occurring within 12 hours of one another. Each seizure was a generalised tonic-clonic seizure that lasted 20 minutes, and the second seizure was aborted with lorazepam. He has a past medical history of febrile convulsions but is otherwise developing normally.

On examination, the patient is alert and haemodynamically stable. There are no focal or peripheral neurological signs. Both his EEG and MRI are normal.

Given the likely diagnosis, what is the most appropriate long-term treatment to prescribe?

A.Carbamazepine

B.Lorazepam

C.Phenobarbital

D.Phenytoin

E.Sodium valproate

Answer:Sodium valproate

Explanation:

Epilepsy medication for males:

generalised seizure: sodium valproate

focal seizure: lamotrigine or levetiracetam

Important for meLess important

Sodium valproate is correct. The patient in the vignette has had two unprovoked (normal EEG and MRI, no history of trauma/infection) generalised tonic-clonic seizures (GTCS). This patient would therefore qualify for antiepileptic therapy. Valproate is widely used as first-line therapy for GTCS and is supported by evidence from a high-quality Cochrane review. There are also no contraindications for valproate use in this case.

Carbamazepine is incorrect. Carbamazepine is an antiepileptic that may be used to manage focal seizures but is contraindicated for GTCS and other generalised seizures as it may exacerbate seizure activity.

Lorazepam is incorrect. Lorazepam is a benzodiazepine which may be used to terminate seizures when a patient is in status epilepticus. The patient in the vignette received lorazepam on their second occasion of GTCS. However, lorazepam is not an antiepileptic drug and cannot prevent seizure recurrence.

Phenobarbital is incorrect. Phenobarbital is a barbiturate used in the management of status epilepticus if the seizure is ongoing and does not resolve with IV lorazepam. It does not play a role in the long-term management of seizure disorders.

Phenytoin is incorrect. Phenytoin is considered a second-line antiepileptic medication for GTCS due to its adverse side effects (drowsiness, lack of coordination) and its toxicity profile. Phenytoin may be considered if the patient in the vignette does not respond to valproate.

Question:

A 45-year-old woman presents to the GP with muscle weakness and a rash. Her symptoms have developed over the last month. Examination reveals symmetrical muscle weakness in the shoulders and hips and red papules over the proximal interphalangeal joints.

Given the likely diagnosis what skin manifestation is being described?

A.Gottron's papules

B.Gottron's sign

C.Heliotrope rash

D.Malar rash

E.Periungual erythema

Answer:Gottron's papules

Explanation:

Gottron’s papules, roughened red papules over the knuckles mainly, are seen in dermatomyositis

Important for meLess important

The correct answer is Gottron's papules. The patient in the question has dermatomyositis, evident from the symmetrical proximal muscle weakness and skin involvement. These are small violaceous papules, often seen on the proximal interphalangeal and metacarpophalangeal joints. They are most commonly associated with dermatomyositis, but can also be seen in other autoimmune conditions.

Gottron's sign is incorrect. Confusingly this refers to violaceous macules, sometimes with associated oedema, over the knees and elbows. This is also associated with dermatomyositis but is not being described in this case.

Heliotrope rash is incorrect in this case. This is a violaceous or dusky red rash surrounding the eye. This can affect one or both eyes and is sometimes associated with periorbital oedema. It is a highly characteristic sign of dermatomyositis.

A malar rash is incorrect. This refers to the photosensitive butterfly-shaped rash over the cheeks and nose commonly seen in patients with systemic lupus erythematosus (SLE). SLE can present with a variety of symptoms including arthralgia, weight loss, and fatigue.

Periungual erythema is incorrect. This refers to erythema around the nail bed. This is sometimes seen in dermatomyositis, however, it can also be seen in other connective tissue disorders. It can present at the same time as Gottron's papules.

Question:

A 39-year-old woman attends the GP surgery to discuss recent blood tests that have been found to be abnormal. She has a past medical history of obesity, hypercholesterolemia, recurrent urinary tract infections and chronic lower back pain. Her regular medications include atorvastatin, nitrofurantoin, paracetamol and the oral contraceptive pill. She drinks 21 units of alcohol each week.

The examination is unremarkable. Her body mass index is 34 kg/m².

Blood tests:

Bilirubin 12 µmol/L (3 - 17)

ALP 256 u/L (30 - 100)

ALT 44 u/L (3 - 40)

γGT 89 u/L (8 - 60)

Albumin 36 g/L (35 - 50)

Which substance is the likely cause of the abnormal results?

A.Alcohol

B.Atorvastatin

C.Nitrofurantoin

D.Oral contraceptive pill

E.Paracetamol

Answer:Oral contraceptive pill

Explanation:

The oral contraceptive pill is associated with drug-induced cholestasis

Important for meLess important

Oral contraceptive pill use is correct. This is the only medication listed that causes a cholestatic derangement in liver function testing. All of the other options cause a hepatocellular picture.

Atorvastatin is incorrect. This causes a hepatocellular pattern of drug-induced liver injury (DILI). Typically, in this pattern of injury, the ALT is significantly greater than the ALP. Of note, in isolated cases of a raised ALT, it is always worth checking a CK as muscle injury can also cause a raised ALT.

Nitrofurantoin is incorrect. The patient will be taking this medication for prophylaxis against recurrent urinary tract infections. This causes a hepatocellular pattern of drug-induced liver injury (DILI) where ALT > ALP. In this case, ALP > ALT and this is therefore not likely.

Paracetamol is incorrect. This causes a hepatocellular pattern of drug-induced liver injury (DILI) if taken in overdose. It does not tend to cause asymptomatic DILI abnormalities.

Alcohol is incorrect. This causes a hepatocellular pattern of drug-induced liver injury (DILI). If this is suspected, the AST level can be checked. The normal AST/ALT ratio is approximately 0.8. An AST/ALT ratio of 2.0 or higher suggests alcohol-related liver disease.

Question:

A 41-year-old male sees his GP due to erectile dysfunction and dizziness. He has a complex past medical history and is on multiple medications. On examination his heart rate does not slow on deep breathing and his lying/standing blood pressure is measured.

Lying blood pressure 151/86 mmHg

Standing blood pressure 111/59 mmHg

Which of the following in his history would most commonly cause this presentation?

A.Botulism

B.Type 2 diabetes

C.Lead poisoning

D.Vitamin B12 deficiency

E.Alcohol

Answer:Type 2 diabetes

Explanation:

Diabetes may cause postural hypotension secondary to autonomic dysfunction

Important for meLess important

These are features of autonomic neuropathy:

1. Postural hypotension

2. Loss of respiratory arrhythmia

3. Erectile dysfunction

Type 2 diabetes causes predominantly sensory and autonomic neuropathy

Botulism and lead poisoning cause predominantly motor neuropathy

Vitamin B12 deficiency and alcohol cause predominantly sensory neuropathy

Question:

A 32-year-old woman is brought to the emergency department with reduced level of consciousness. She is found to have a blood sugar of 1.2 and is treated appropriately. The paramedics say she was lying beside an insulin syringe when they found her, despite her not having diabetes. This is the third time this has happened, and the woman is not suicidal.

What condition does this woman have?

A.Conversion disorder

B.Dissociative disorder

C.Malingering

D.Munchausen's syndrome

E.Somatization disorder

Answer:Munchausen's syndrome

Explanation:

Purposefully causing symptoms, for example a diabetic taking too much insulin to cause hypos, is an example of Munchausen's syndrome

Important for meLess important

This is an example of Munchausen's syndrome- purposefully causing symptoms (hypoglycaemia).

Conversion disorder is loss of function with no cause.

Dissociative disorder is similar, but is when the loss of function is non-physical, for example loss of memory.

Malingering is faking symptoms in order for personal, usually financial, gain. There is no sign that this woman is looking for financial compensation.

Somatization disorder is when a patient complains of symptoms.

Question:

A 67-year-old man with a history of hypertension presents to the emergency department with a 24hr history of dyspnoea and palpitations. He also complains of mild chest discomfort. On examination, you note an irregularly irregular pulse of 115 beats per minute, blood pressure 95 / 70 mmHg and a respiratory rate of 20 breaths/min. He denies any regular medication and insists he has never experienced anything like this before. An ECG shows absent P waves with QRS complexes irregularly irregular intervals.

What is the most appropriate management?

A.Clopidogrel

B.Direct current cardioversion

C.Bisoprolol

D.IV adenosine

E.Digoxin

Answer:Direct current cardioversion

Explanation:

New onset AF is considered for electrical cardioversion if it presents within 48 hours of presentation

Important for meLess important

This is an individual presenting a clinical picture of new-onset atrial fibrillation. A blood pressure of 95/70 mmHg in a patient with a history of high blood pressure, who is currently not taking any blood pressure medication is quite concerning. It suggests that he is hemodynamically unstable. The most appropriate treatment for new-onset atrial fibrillation (AF) within 48hrs is DC cardioversion if unstable or either DC cardioversion or pharmacological cardioversion. Beta-blockers can be used for rate control. Clopidogrel is not a treatment of AF. Bisoprolol would be a suitable alternative if the patient was more stable. Digoxin is ideal for patients with AF and heart failure. IV adenosine is a treatment for narrow complex supraventricular tachyarrhythmias

Question:

A 54-year-old man with type 2 diabetes mellitus is reviewed in clinic. He is currently taking pioglitazone, metformin, aspirin and simvastatin. Which one of the following problems is most likely to be caused by pioglitazone?

A.Photosensitivity

B.Thrombocytopaenia

C.Myalgia

D.Peripheral oedema

E.Hyponatraemia

Answer:Peripheral oedema

Explanation:

Pioglitazone may cause fluid retention

Important for meLess important

Question:

A 72-year-old male presents to your general practice clinic for a routine appointment regarding breathlessness that has been worsening over the past 12 months. He denies any chest pain, haemoptysis or weight loss. Blood pressure is 122/78 mmHg and ECG shows normal sinus rhythm. The patient smoked 10 cigarettes a day for 5 years between the ages of 22 and 27 but has not smoked since. He previously worked as a coal miner for 38 years. There is no past medical history of note.

You decide to investigate his breathlessness with spirometry and a chest radiograph.

Spirometry:

Forced expiratory volume in 1 second: 95% of predicted value.

Forced vital capacity: 70% of predicted value.

No reversibility in spirometry results following bronchodilator therapy.

Chest radiograph: No consolidation seen. Multiple small nodular opacities seen in the upper lobes bilaterally.

As a result of these findings, what is the most likely cause of this patient's breathlessness?

A.Chronic obstructive pulmonary disease

B.Pneumoconiosis

C.Asthma

D.Bronchiectasis

E.Idiopathic pulmonary fibrosis

Answer:Pneumoconiosis

Explanation:

Pneumoconiosis is a restrictive lung condition. Therefore spirometry results will commonly show a normal or slightly reduced FEV1 and a reduced FVC

Important for meLess important

The results of this patient's spirometry show a restrictive picture ruling out COPD, asthma, and bronchiectasis as options (as these are all obstructive lung conditions).

Idiopathic pulmonary fibrosis (IPF) is a restrictive condition, as is pneumoconiosis making both fit the spirometry picture shown. IPF however typically shows a 'ground glass' chest x-ray, which is not in keeping with the results shown for this patient.

This patient previously worked as a coal-miner which puts him at risk of pneumoconiosis. The chest x-ray shows multiple nodular opacities in the upper lobes which are commonly seen in pneumoconiosis.

Question:

A 56-year-old female presents to the emergency department with muscle cramps and pains associated with tachycardia. An electrocardiogram shows tall tented T waves, flattened P waves and a shortened QT interval. The doctor commences the patient on treatment.

What is the role of calcium resonium in the management of this patient?

A.Binds potassium ions to reduce the plasma potassium concentration

B.Causes a shift of potassium from the extracellular to intracellular compartment

C.Long term stabilisation of the cardiac membrane

D.Removes potassium from the body

E.Short term stabilisation of the cardiac membrane

Answer:Removes potassium from the body

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

This patient is hyperkalaemic, evident from the electrocardiogram changes and symptoms.

Initial management of hyperkalaemia includes administration of calcium gluconate which stabilises the cardiac membrane.

Calcium resonium removes potassium from the body. Enemas as more effective than oral treatment.

Insulin/dextrose infusion causes intracellular shift of potassium ions.

Question:

Colin is a 77-year-old man who attends for a review of his left wrist in fracture clinic 2-weeks after a fall on an outstretched hand. His X-ray at the time of injury was normal but his wrist was immobilised in a Futuro splint as he was tender in the anatomical snuffbox. Follow-up imaging today reveals a fracture of the proximal scaphoid pole.

What is the appropriate definitive management of this?

A.Referral to physiotherapy

B.Removal of the Futuro splint today

C.Surgical fixation

D.Immobilisation in a below-elbow cast for a further 6 weeks

E.Remain immobilised in the Futuro splint for a further 6 weeks

Answer:Surgical fixation

Explanation:

All proximal scaphoid pole fractures require surgical fixation

Important for meLess important

Colin should be referred for surgical fixation of his injury as it is a proximal scaphoid pole fracture. These all require surgical fixation due to the risk of avascular necrosis.

Referral to physiotherapy would be inappropriate in this injury and would not be the definitive management.

It would also be inappropriate to remove the Futuro splint without further intervention as imaging taken in clinic shows that the fracture has not yet healed.

If this were an undisplaced scaphoid fracture not involving the proximal pole then it would be appropriate to immobilise his wrist either in a Futuro splint or below-elbow cast for a further 6 weeks.

Question:

A 24-year-old man presents to you, his GP, with a lump on his left testicle.

You conduct a testicular examination and you find a small lump at the top of the testicle. It feels smooth and regular, and feels like it is separate from the testicle. You can feel above the lump.

Which of the following is the most likely diagnosis?

A.Epididymal cyst

B.Hydrocele

C.Lipoma

D.Testicular Cancer

E.Varicocele

Answer:Epididymal cyst

Explanation:

An epididymal cyst is a cause of scrotal swelling which can be palpated as separate from the body of the testicle

Important for meLess important

An epididymal cyst is a small fluid-filled benign lump. It is the most likely diagnosis given its smooth regular character, and that it feels separate from the body of the testicle.

Testicular cancer is irregular in nature, and would feel like it was an extension of the testicle.

A varicocele is usually described as 'a bag of worms' since you are feeling multiple engorged veins.

A hydrocele is when fluid surrounds the testicle within the scrotum. Therefore, it is sometimes difficult to feel the testicle itself if the hydrocele is significant. It characteristically 'transilluminates' when a light is shined onto the scrotum.

A lipoma is a firm smooth lump made of fatty tissue. It feels similar to an epididymal cyst but finding a lipoma in the testicle is rare. Therefore, the epididymal cyst is the most likely diagnosis. If unsure, an ultrasound scan would aid in differentiating between the two.

Question:

A 61-year-old female presents to the emergency department after suffering from palpitations and excessive sweating over the past 72 hours. When questioned, she discloses that she regularly drinks a bottle of wine a night and has also consumed a large quantity of caffeinated energy drinks over the past week. She also has a significant past medical history of Wolff-Parkinson-White syndrome.

Observations show the patient is febrile, with a respiratory rate of 23 breaths/min, pulse of 98 beats/min, blood pressure of 106/68 mmHg and oxygen saturations of 92% on room air.

A 12-lead ECG is performed, which shows atrial fibrillation (AF).

Which of the following is a contraindication for cardioversion of this patient?

A.Her oxygen saturations

B.Her past medical history

C.Her recent consumption of large quantities of alcohol

D.Her recent excessive consumption of caffeine

E.The duration of her symptoms

Answer:The duration of her symptoms

Explanation:

For cardioversion of AF: patients must either be anticoagulated or have had symptoms for < 48 hours to reduce the risk of stroke.

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 55-year-old female with a history of cluster headaches presents to the emergency department with altered mental status over the past six hours. She was found by her partner and was reported to be disorientated and difficult to arouse. On examination her eyes are jaundiced, and there is mild tenderness in the right upper quadrant. A coagulation screen is ordered and her INR is 2.1.

The patient's temperature is 36.9 ºC, BP 139/85 mmHg, respiratory rate 18/min.

What is the most likely diagnosis?

A.Ascending cholangitis

B.Cholecystitis

C.Acute liver failure

D.Autoimmune haemolytic anaemia

E.Chronic liver disease

Answer:Acute liver failure

Explanation:

Liver failure = triad of encephalopathy, jaundice and coagulopathy

Important for meLess important

This patient is presenting with a triad of encephalopathy (impaired awareness, sleep alterations, reduced attention), jaundice, and coagulopathy (INR >1.5) which are the defining features of acute liver failure. Her previous history of cluster headaches may point towards paracetamol toxicity, which is the most common drug cause of acute liver failure.

Ascending cholangitis classically presents with jaundice, fever, and right upper quadrant pain (Charcot's triad). It can also present with hypotension and confusion (Reynold's pentad). However, as this patient is afebrile and has a raised INR, acute liver failure is more likely.

Cholecystitis typically presents with severe right upper quadrant pain and Murphy's sign.

Autoimmune haemolytic anaemia would not present with a raised INR or encephalopathy.

Chronic liver disease: acute exacerbations can present similarly however splenomegaly, spider naevi, and palmar erythema (presence of any of these features removes acute liver failure as a diagnosis).

Question:

A 12-year-old boy presents in acute renal failure. Last week he had a bad episode of bloody diarrhoea but this has now passed. A diagnosis of haemolytic-uraemic syndrome is made.

Hb 100 g/l

Platelets 110 \* 109/l

WBC 10 \* 109/l

Which of the following is the best treatment for this condition?

A.Only supportive treatment e.g. fluids and dialysis as required

B.Empirical IV antibiotics

C.Empirical oral antibiotics

D.Plasma exchange

E.IV corticosteroids

Answer:Only supportive treatment e.g. fluids and dialysis as required

Explanation:

There is no role for antibiotics in the treatment of haemolytic uraemic syndrome unless indicted my preceding diarrhoeal infection

Important for meLess important

This question is about a boy presenting with haemolytic-uraemic syndrome following diarrhoeal infection and is asking for the appropriate treatment. In most cases of haemolytic-uraemic syndrome, the mainstay of treatment is supportive, with fluids, blood transfusions and dialysis as required.

In general, antibiotics are not indicated in the treatment of haemolytic-uraemic syndrome unless the underlying diarrhoeal infection is an indication itself. As his symptoms have passed there is no indication for oral or IV antibiotics

Plasma exchange can be used in some cases of haemolytic-uraemic syndrome however it is generally used in cases where there is no diarrhoea present.

There is no place for steroids in the treatment of haemolytic-uraemic syndrome

Question:

A 26-year-old man presents with a new headache for 4 days. He complains of facial pain, fevers, dry cough, rhinorrhoea with thin yellow discharge and nasal congestion. He is afebrile at 37.4ºC and maxillary pressure reproduces the pain.

Given the likely diagnosis, what is the most appropriate treatment option?

A.Analgesia

B.Cefalexin

C.Intranasal corticosteroids

D.Intranasal decongestant

E.Phenoxymethylpenicillin

Answer:Analgesia

Explanation:

Intranasal steroids should only be considered for sinusitis if symptoms have persisted for 10 days or more

Important for meLess important

This patient is suffering from acute sinusitis, likely related to a viral trigger given his coryzal symptoms. He would most benefit from analgesia at this stage which would help reduce the facial pain.

Cefalexin is a broad-spectrum antibiotic that is not typically recommended in cases of sinusitis. It would also not typically be used in cases of sinusitis with a suspected viral trigger.

Intranasal corticosteroids are useful in cases of chronic sinusitis and where acute symptoms have persisted for 10 days or longer. This man has had symptoms for four days only therefore these should not be considered. If symptoms continue for 10 days then they could be an option.

Intranasal decongestants can be used on a short-term basis for the relief of nasal symptoms. Care should be taken given the potential for dependence on these medications when used long term. However, as per NICE CKS, there is limited evidence in their use. Therefore, simple analgesia is a more appropriate option.

Phenoxymethylpenicillin is a narrow-spectrum antibiotic that is recommended in cases of suspected bacterial sinusitis. It does not need to be given in this case given the likely viral aetiology. However, the patient should be reviewed to identify potential secondary bacterial infections which may require antibiotics.

Question:

A 5-month-old boy is under investigation due to possible seizure activity and developmental delay. His father shows you a video recording of a typical episode from his mobile phone. The boy appears to be repeatedly flexing his neck and trunk in a repetitive jerking movement, with his arms outstretched. This typically lasts a few seconds, with brief intervals of a further few seconds before the jerking starts again. The repetitions may occur up to 30 times per attack. Subsequently, an EEG was conducted which identified hypsarrhythmia.

What is the most likely diagnosis?

A.Absence seizures

B.Benign rolandic epilepsy

C.Febrile seizures

D.Infantile spasms

E.Juvenile myoclonic epilepsy

Answer:Infantile spasms

Explanation:

Hypsarrhythmia on EEG suggests infantile spasms (West's syndrome)

Important for meLess important

Infantile spasms are characterised by brief spasms of sudden uncontrolled movements including flexion of the head, trunk, limbs, and extension of the arms (Salaam attack). The typical EEG finding is hypsarrhythmia.

Absence seizures typically present in older children (onset 4-8 years), with short episodes of staring blanking into space as they lose awareness of their surroundings for a short time, but they recover quickly afterwards.

Benign rolandic epilepsy typically presents with focal symptoms including paraesthesia on one side of a child's face or mouth. The child may describe it as 'fizzy' or 'buzzing', or there can be twitching in this area on occasions.

Febrile seizures typically present with tonic-clonic movements and a loss of consciousness, with a history of fever, most commonly between the ages of 6 months and 3 years.

Juvenile myoclonic epilepsy typically presents in adolescence with infrequent generalised seizures.

Question:

A 65-year-old man has a long series of medical problems. He has severe abdominal pain following meals, has developed diabetes, has to take digestive enzymes, and describes that his faeces floats. All of these symptoms have started in the last 20 years.

What is the most likely cause of the disease this man has?

A.Chronic alcohol abuse

B.Gallstones

C.Hepatitis infection

D.Inflammatory bowel disease

E.Smoking cigarettes

Answer:Chronic alcohol abuse

Explanation:

The most common cause of chronic pancreatitis is alcohol excess

Important for meLess important

This is a typical history of chronic pancreatitis- abdominal pain following meals, pancreatic enzymes, steatorrhoea, and diabetes. By far the most common cause of chronic pancreatitis is alcohol abuse, leading to chronic inflammation affect both the exocrine and endocrine functions of the pancreas.

Question:

A 55-year-old accountant presents to the GP with a painful right elbow. He points to the medial epicondyle of the humerus. He does not recall any predisposing injury but describes exacerbation of the pain when using the arm, which can extend into the forearm. This has caused him to stop playing golf. He is otherwise well and takes no medications.

From the history alone, a particular diagnosis is suspected. Examination supports this supposition.

What examination finding is most consistent with the suspected diagnosis?

A.Fluctuant swelling over the olecranon process

B.Worsening symptoms with the wrist extended and pronated

C.Worsening symptoms with the wrist extended and supinated

D.Worsening symptoms with the wrist flexed and pronated

E.Worsening symptoms with the wrist flexed and supinated

Answer:Worsening symptoms with the wrist flexed and pronated

Explanation:

Medial epicondylitis is typically aggravated by wrist flexion and pronation

Important for meLess important

This patient is a golf player presenting with a painful elbow at the medial epicondyle. From history alone, this is likely to be medial epicondylitis. In medial epicondylitis or golfers' elbow, there is damage to the tendons of the wrist flexors caused by repetitive use of these muscles and pain is felt where the common flexor tendon attaches to the medial epicondyle of the humerus. Examination of a patient with medial epicondylitis will elicit worsening symptoms with the wrist flexed and pronated as the wrist flexor muscles are aggravated at their common attachment of the medial epicondyle of the humerus. This diagnosis is suspected from the history of pain over the medial epicondyle radiating down the forearm in an individual who plays golf.

A fluctuant swelling over the olecranon process would suggest olecranon bursitis. This occurs when the fluid-filled bursa overlying the olecranon process becomes inflamed and may be caused by repeated pressure (as in 'student's elbow'), trauma or infection. This would present with swelling, pain and tenderness over the olecranon process rather than the medial epicondyle.

Worsening symptoms with the wrist extended and pronated is incorrect. This patient is presenting with a history suggestive of medial epicondylitis, which would produce worsening symptoms when the wrist is flexed and pronated.

Worsening symptoms with the wrist extended and supinated is incorrect. This patient is presenting with a history suggestive of medial epicondylitis, which would produce worsening symptoms when the wrist is flexed and pronated, aggravating the wrist flexors at their common attachment of the medial epicondyle of the humerus. Lateral epicondylitis ('tennis elbow') would cause worsening symptoms when the wrist is extended and supinated as the wrist extensors are contracted, aggravating the point of their insertion at the lateral epicondyle of the humerus.

Worsening symptoms with the wrist flexed and supinated is incorrect. This patient is presenting with a history suggestive of medial epicondylitis, which would produce worsening symptoms when the wrist is flexed and pronated.

Question:

A 65-year-old man presents with bilateral leg pain that is brought on by walking. His past medical history includes peptic ulcer disease and osteoarthritis. He can typically walk for around 5 minutes before it develops. The pain subsides when he sits down. He has also noticed that leaning forwards or crouching improves the pain. Musculoskeletal and vascular examination of his lower limbs is unremarkable. What is the most likely diagnosis?

A.Inflammatory arachnoiditis

B.Peripheral arterial disease

C.Raised intracranial pressure

D.Spinal stenosis

E.Lumbar vertebral crush fracture

Answer:Spinal stenosis

Explanation:

This is a classic presentation of spinal stenosis. Whilst peripheral arterial disease is an obvious differential the characteristic relieving factors of the pain and normal vascular examination point away from this diagnosis.

Question:

A 10-month-old girl is brought to the GP with a 3-week history of rash. She is otherwise well, with no significant past medical history. She is developing normally and has recently started to crawl. She is up to date with her immunisations. She is feeding well and passing urine. She has no known allergies.

On general inspection, she is alert, afebrile and active. On examination, there is a symmetrical, erythematous rash with poorly defined margins on her knees and elbows.

Based on these findings, what is the most likely diagnosis?

A.Eczema

B.Impetigo

C.Pemphigus vulgaris

D.Psoriasis

E.Scabies

Answer:Eczema

Explanation:

Atopic eczema in children typically presents before the age of 2 years

Important for meLess important

Eczema is the correct answer. In infants, atopic eczema usually involves the face and extensor surfaces of the body as opposed to its classical flexural distribution. This patient is under the age of 2, with visible dermatitis in the extensor aspects of her body, and therefore a diagnosis of atopic eczema can be made clinically.

Impetigo is incorrect. Impetigo is a bacterial infection that typically affects exposed skin areas (such as the mouth's and nostril's border). It results in a vesicular eruption with an erythematous border which evolves into a characteristic 'golden crust'. This patient's findings (symmetrical dry rash involving the extensor aspects of the limbs) are more in keeping with eczema.

Pemphigus vulgaris is incorrect. This autoimmune condition results in widespread blistering, which involves oral and genital mucosa. This patient's findings (symmetrical dry rash involving the extensor aspects of the limbs) are more in keeping with eczema.

Psoriasis is incorrect. It is rare for psoriasis to affect infants. Psoriasis typically results in a plaque and silvery scale and maybe a differential in a child presenting with treatment-refractory seborrhoeic dermatitis. This patient's findings (symmetrical dry rash involving the extensor aspects of the limbs) are more in keeping with eczema.

Scabies is incorrect. This condition is the result of mite infection. Scabies can result in a generalised, intensely pruritic eruption in infants; however, there would be evidence of linear burrowing and lesions associated with papules. Scabies also has a predilection for the volar aspect of the wrist, the periumbilical region, and the interdigital webspace. This patient's findings (symmetrical dry rash involving the extensor aspects of the limbs) are more in keeping with eczema.

Question:

A 61-year-old man is referred to the ophthalmology clinic with bilateral, progressive visual loss. He feels well in himself but is concerned as he is finding it increasingly difficult to drive and mark his students' maths homework. He has no past medical history, has a 20-pack-year smoking history, and is abstinent from alcohol. On examination, visual acuity is reduced and there are drusen noted.

What is the most appropriate management for this patient?

A.High-dose beta-carotene and vitamins C and E

B.High-dose corticosteroids

C.High-dose vitamin D and omegas 3 and 6

D.Intravitreal anti-VEGF agents

E.Photodynamic therapy

Answer:High-dose beta-carotene and vitamins C and E

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

This patient is presenting with typical symptoms of age-related macular degeneration (AMD). The presence of drusen spots indicates this is likely dry AMD, the most common subtype. High-dose beta-carotene and vitamins C and E alongside zinc are used to manage dry AMD. It is believed that antioxidants can slow the progression of the disease and ameliorate the longevity of vision in patients by up to 25% compared with no supplementation.

High-dose corticosteroids are not used in the management of wet or dry AMD. These drugs are anti-inflammatory and are useful to reduce intra-ocular pressure. There are side effects from the use of ocular steroids, however, which include cataracts and glaucoma and should, thus, be used with caution. As this patient is presenting with symptoms of AMD, there is no reason that they should be prescribed steroid treatment.

High-dose vitamin D and omegas 3 and 6 are incorrect as these are not the vitamins associated with the treatment of dry AMD. The benefits of antioxidant administration may slow the progression of the disease by about 25 percent in dry AMD patients - this is with the use of beta-carotene, vitamins C and E, and zinc.

Intravitreal anti-VEGF agents are used in the management of wet AMD. This can be differentiated from dry AMD by wet AMD being more rapid in onset and the presence of growth of abnormal, leaky vessels in the subretinal space. The aim of intravitreal treatment is to slow the disease progression. This is not indicated in the management of dry AMD.

Photodynamic therapy is the second-line therapy for patients with wet AMD if they have not benefited from intravitreal anti-VEGF agents. This is only indicated for wet AMD and works by the administration of photosensitive drugs (such as verteporfin) and a low-powered laser to reduce the progression of the disease.

Question:

A 28-year-old woman has given birth vaginally 2 days ago and is now complaining of constant dizziness. She has a full blood count sent which shows:

Hb 67 g/L Male: (135-180)

Female: (115 - 160)

You decide to consent and prescribe two units of red blood cells to improve her anaemia. A midwife calls for you to come see the patient, who has just been started on a blood transfusion. After assessing the patient, you decide that she is suffering from a transfusion reaction.

Which of these signs/symptoms would you find most concerning?

A.Hypotension

B.Itching

C.Fever

D.Cough

E.Hypertension

Answer:Hypotension

Explanation:

When assessing blood transfusion reaction, hypotension is an ominous sign that suggests a serious reaction necessitating the stopping of the transfusion

Important for meLess important

Although these can all be caused by a transfusion reaction, hypotension is the most worrying sign and can indicate anaphylaxis, acute haemolytic reaction or transfusion-related acute lung injury (TRALI).

While hypertension can be a sign of transfusion-associated circulatory overload (TACO), it is less worrying in a young woman as you would rarely expect cardiac conditions in this population.

The Royal College of Obstetricians and Gynaecologists recommend transfusion discussions for women who have an Hb <70 g/L post-partum.

Question:

A 63-year-old man is brought into the emergency department after he was found collapsed on the street. He is known to services as being homeless. His current GCS is 10.

Initial observations show a heart rate of 110 beats per minute, a blood pressure of 101/57 mmHg, a respiratory rate of 21 breaths per minute, oxygen saturation of 94% on 15 litres/min and a temperature of 39.1 ºC.

On examination, he has severe cellulitis of his left leg from his foot to the upper thigh.

He is started on IV fluids.

What is the most appropriate antibiotic to prescribe?

A.IV co-amoxiclav

B.IV gentamicin

C.IV meropenem

D.IV metronidazole

E.Oral flucloxacillin

Answer:IV co-amoxiclav

Explanation:

Severe cellulitis should be treated with co-amoxiclav, cefuroxime, clindamycin or ceftriaxone

Important for meLess important

This man is significantly unwell due to his cellulitis infection. He is showing signs of sepsis. A broad spectrum antibiotic should be chosen, and given intravenously for best effect. IV co-amoxiclav would be an appropriate choice, as this offers good coverage of organisms which are commonly indicated in cellulitis infections. These include gram positive cocci (i.e. Streptococcus spp. and Staphylococcus spp.), anaerobes (i.e. Clostridium spp. and Fusobacterium spp.) and gram negative organisms (i.e. Haemophilus spp.).

IV gentamicin is incorrect. Gentamicin offers good coverage against gram negative bacilli (i.e. Escherichia coli, Haemophilus spp. and Pseudomonas aeruginosa ) and gram positive Staphylococcus spp., however, it does not cover Streptococcus spp. which is commonly causative of cellulitis.

IV meropenem is incorrect. Meropenem does have a very broad spectrum, but it is normally reserved for resistant infections due to its strength of coverage.

IV metronidazole is incorrect. This offers good anerobic cover, but it does not cover gram positive cocci (i.e. Streptococcus spp. and Staphylococcus spp.) which are the most common pathogens implicated in cellulitis infections.

Oral flucloxacillin is incorrect. Flucloxacillin is effective against the most common causes of cellulitis which are gram-positive cocci (i.e. Streptococcus spp. and Staphylococcus spp.). However, it does not offer a broad enough spectrum as may be needed for severe infection. This would be the treatment option in a less severe case of cellulitis. However, this patient is showing signs of shock and requires urgent treatment for severe cellulitis.

Question:

A 62-year-old woman with a 3-year history of rheumatoid arthritis, treated with methotrexate, is having routine blood tests done. Her past medical history is otherwise unremarkable, and she takes no other regular medications.

The routine bloods are as follows:

Hb 91 g/L Male: (135-180)

Female: (115 - 160)

Platelets 190 \* 109/L (150 - 400)

WBC 4.9 \* 109/L (4.0 - 11.0)

Her previous haemoglobin 3 months ago was 118.

Given the clinical history, what is the likely type of anaemia?

A.Hypochromic microcytic anaemia

B.Hypochromic normocytic anaemia

C.Megaloblastic macrocytic anaemia

D.Non-megaloblastic macrocytic anaemia

E.Normochromic normocytic anaemia

Answer:Megaloblastic macrocytic anaemia

Explanation:

Methotrexate therapy may result in a megaloblastic macrocytic anaemia secondary to folate deficiency

Important for meLess important

This woman is on methotrexate therapy and does not take any other regular medications. Therefore, she is not taking folate supplementation. This predisposes her to developing an anaemia secondary to folate deficiency. Folate-deficient anaemia will be megaloblastic and macrocytic. Megaloblastic refers to the cells being immature and structurally abnormal, due to problems with DNA synthesis, for which folate is important. Macrocytic refers to the cells being larger than usual, and as megaloblasts are immature and structurally abnormal, they are also large.

Hypochromic microcytic anaemia is incorrect. This refers to red blood cells which are smaller than expected and have less red colour due to less haemoglobin content. This is most likely due to iron deficiency, due to either issues with ingestion or absorption.

Hypochromic normocytic anaemia is incorrect. Hypochromic red blood cells are usually only seen in ones that are also microcytic.

Non-megaloblastic macrocytic anaemia is incorrect. As stated above, macrocytic anaemia is when the red blood cell is larger than usual. Megaloblastic refers to problems with DNA synthesis leading to immature and structurally abnormal cells - which is caused by either B12 and/or folate deficiency. The other causes of macrocytic anaemia, which are not due to megaloblasts are alcoholism, liver disease, bone marrow failure, and myelodysplastic syndromes.

Normochromic normocytic anaemia is incorrect. This is when red blood cells look the exact same as regular red blood cells, but there are less of them in the body. The main cause of this is anaemia of chronic disease, or acute blood loss. Whilst this woman does have a chronic disease with her rheumatoid arthritis, it is more likely the anaemia is due to the methotrexate use rather than her chronic disease. Other causes of this include renal failure, endocrine failure and mallow failure.

Question:

A patient who underwent abdominal surgery 8 hours ago now has a temperature of 38.1ºC. Their blood pressure is 120/80 mmHg, heart rate 65 beats per minute and respiratory rate 15 breaths/minute. The patient states that they are experiencing pain around the incisional wound. On examination, the wound looks red and their chest is clear.

What is the most likely cause of pyrexia in this case?

A.Cellulitis

B.Physiological reaction to operation

C.Pneumonia

D.Pulmonary embolism

E.Wound infection

Answer:Physiological reaction to operation

Explanation:

Isolated fever in well patient in first 24 hours following surgery? Think physiological reaction to operation

Important for meLess important

Physiological reaction to operation is the correct answer. A fever developing within 0-5 days of an operation could be the result of a physiological reaction to the operation. More specifically, a fever in the first 24 hours is most likely the result of an inflammatory response to tissue damage as a result of surgery. Further to this, with no other signs of an underlying cause, e.g. changes in BP, heart rate, respiratory rate and a clear chest, physiological reaction to the operation is the most likely cause of the pyrexia.

Cellulitis is an early cause of fever. Whilst some of the signs including red and tender wound could point towards this diagnosis, a lack of change in other vital signs make this diagnosis less likely.

Pneumonia can be the result of intubation during surgery and occurs >48 hours after, this time frame, therefore, does not fit with this scenario. If this was the underlying cause of the fever, changes in heart rate, respiratory and auscultation would have been expected in this scenario.

A pulmonary embolism can be the result of a deep vein thrombosis (DVT) travelling to the lungs following a prolonged period of bed rest which is likely after surgery. It is for this reason that a pulmonary embolism would be a cause of pyrexia around 2-10 days which is out with the time frame of this scenario. Further to this, changes in heart rate and respiratory rate would be expected which were not noted in this patient.

Wound infection is a late cause of fever in patients post-operatively and could be considered if a fever developed 5-7 days post-operatively. Whilst a red and tender wound could indicate a wound infection, it is likely that this is normal given the short time since the surgery.

Question:

A patient with known heart failure is unable to carry out any physical activity without discomfort. Symptoms of heart failure are present even at rest with increased discomfort with any physical activity. What New York Heart Association class best describes the severity of their disease?

A.NYHA Class 0

B.NYHA Class I

C.NYHA Class II

D.NYHA Class III

E.NYHA Class IV

Answer:NYHA Class IV

Explanation:

Question:

A 25-year-old man presents to the sexual health clinic with a painless penile ulcer which has been present for the last week.

On examination, there is painless inguinal lymphadenopathy. There is no penile discharge. Serological testing demonstrates the presence of Treponema pallidum and he is offered treatment.

A follow-up appointment is arranged and blood tests are performed:

T. pallidum haemagglutination test positive

Venereal Disease Research Laboratory test negative

What is the most likely explanation for the serology results shown?

A.False positive result

B.Infection still active

C.Partially-treated result

D.Reinfection

E.Successfully treated result

Answer:Successfully treated result

Explanation:

Negative non-treponemal test + positive treponemal test is consistent with successfully treated syphilis

Important for meLess important

Successfully treated result is correct. This patient has signs and symptoms consistent with syphilis (due to the presence of a painless penile ulcer, known as a chancre, and non-tender inguinal lymphadenopathy) which is caused by Treponema pallidum, a very sensitive organism that cannot be grown on artificial media and is instead diagnosed using serological testing.

Serological tests are non-treponemal (Venereal Disease Research Laboratory), and treponema-specific (T. pallidum haemagglutination test). A negative non-treponemal test and a positive treponema-specific test indicate successfully-treated syphilis. This is because non-treponemal tests are not specific for syphilis, meaning they can be positive for other situations (e.g. pregnancy, anti-phospholipid syndrome, HIV etc.). When patients have a positive non-treponemal test, they are then offered a treponema-specific test which is more specific for syphilis. Non-treponemal tests are useful for measuring the response to treatment as they provide a titre and fall when disease activity falls.

False positive result is incorrect. Since non-treponemal tests are non-specific and can be positive in other conditions, the non-treponemal test (in this case, the Venereal Disease Research Laboratory test) would be positive. If he was to be falsely positive, then he would not truly have syphilis, making the treponema-specific test (in this case the T. pallidum haemagglutination test) negative.

Infection still active is incorrect. Both the non-treponemal and treponema-specific tests (i.e. both tests used in the question) would be positive.

Partially-treated result is incorrect. Both the non-treponemal and treponema-specific tests (i.e. both tests used in the question) would be positive as there is still an active infection.

Reinfection is incorrect. Both the non-treponemal and treponema-specific tests (i.e. both tests used in the question) would be positive. The non-treponemal tests would start rising again, suggesting infection has recurred.

Question:

A 25-year-old woman is diagnosed with a urinary tract infection. She has a past history of epilepsy and is currently taking sodium valproate. Which one of the following antibiotics should be avoided if possible?

A.Co-amoxiclav

B.Nitrofurantoin

C.Cefixime

D.Trimethoprim

E.Ciprofloxacin

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin lowers the seizure threshold

Important for meLess important

Whilst many antibiotics can lower the seizure threshold, this effect is seen particularly with quinolones. The BNF advises that quinolones 'should be used with caution in patients with a history of epilepsy, or conditions that predispose to seizures'

Question:

A 58-year-old man originally from India presents with progressive shortness of breath. His history includes ankylosing spondylitis and atrial flutter for which he takes naproxen, amiodarone, and omeprazole. He is now retired but previously worked in stone and coal mines.

On examination, he appears breathless with a respiratory rate of 20/min. Chest examination reveals fine basal crepitations bilaterally.

What is the most likely underlying cause?

A.Amiodarone

B.Ankylosing spondylitis

C.Coal worker's pneumoconiosis

D.Silicosis

E.Tuberculosis

Answer:Amiodarone

Explanation:

Lower zones lung fibrosis: amiodarone

Important for meLess important

Amiodarone is the only option here that is associated with lower zone fibrosis and therefore is the most likely cause of these symptoms.

Ankylosing spondylitis is associated with fibrosis in the upper zones, unlike other rheumatological conditions.

Coal worker's pneumoconiosis and silicosis are industrial-related lung diseases from mining that are both associated with upper zone lung fibrosis rather than lower zone fibrosis.

Tuberculosis is an infective cause of lung disease which causes upper zone fibrosis.

Question:

A 29-year-old man is brought by ambulance to the emergency department following a house fire.

On the primary survey, the doctor notes regions of soot and blistering around the patient's mouth and swelling of the oropharynx. Further assessment reveals that the patient has regions of partial thickness burns across approximately 14% of their body.

A set of observations are recorded as follows:

Heart rate: 145 bpm

Respiratory rate: 29 breaths per minute

Oxygen saturation: 90%

Blood pressure 96/65 mmHg.

What is the most important next step in management?

A.Administer IV fluids

B.Administer IV morphine

C.Call anaesthetist for intubation

D.Deliver 15 litres of oxygen via a non-rebreather mask

E.Perform an arterial blood gas

Answer:Call anaesthetist for intubation

Explanation:

Early intubation should be considered in patients with severe burns, particularly if there is deep burns to the face or neck, blisters or oedema of the oropharynx, stridor etc

Important for meLess important

Assessing a patient's airway is always the first priority in any emergency setting. In this patient's case, there are signs that the airway may be compromised such as blistering, soot and oedema. As inhalation of fumes can affect the entire airway, simple airway adjuncts may not be sufficient. It is therefore most important here to call the anaesthetist for intubation.

It would be appropriate to administer IV fluids to this patient as they have suffered severe burns and are hypotensive. This should be done according to the Parkland formula. However, the signs of burns around the patient's airway indicate that protecting their airway with intubation is a higher priority than providing IV fluids.

Administration of IV morphine is a good analgesic choice for relieving the patient's pain, but this is not as important as preserving their airway.

While the patient is showing signs of poor oxygenation, choosing to deliver 15 litres of oxygen via a non-rebreather mask will not address the underlying airway compromise from the burns. It is therefore not as high a priority as calling the anaesthetist for intubation.

An arterial blood gas may provide further information about the functioning of the patient's respiratory system however it will not address the compromised airway. It is therefore not the correct answer option.

Question:

A 60-year-old man presents with left unilateral facial weakness which was first noticed this morning. He has associated left hearing loss, tinnitus and mild otalgia. His past medical history includes hypertension and type 2 diabetes.

Neurological examination of upper and lower limbs is unremarkable. He has left-sided facial weakness involving all branches of the facial nerve and is unable to fully shut his left eye. Besides a mild vesicular rash in the concha of the left ear, examination of both ears is unremarkable.

Given the most likely diagnosis, how should this patient be treated?

A.High dose aciclovir and eye protection

B.High dose aciclovir, high dose oral steroids and eye protection

C.High dose corticosteroids

D.Load with aspirin and clopidogrel

E.Oral flucloxacillin

Answer:High dose aciclovir, high dose oral steroids and eye protection

Explanation:

Treatment of Ramsay Hunt syndrome consists of oral aciclovir and corticosteroids

Important for meLess important

High dose aciclovir, high dose oral steroids and eye protection is correct. This is a classical presentation of Ramsay-Hunt syndrome (herpes zoster oticus). It can be differentiated from Bell's palsy by the presence of vesicular rash in the corresponding ear to the facial nerve palsy. It is important to treat with both steroids and antivirals. Facial weakness should be graded according to the House-Brackmann classification. Eye protection is very important in patients with facial nerve palsy who are unable to close their eye. They should have ocular lubricants and should tape the eye closed at night.

High dose aciclovir and eye protection is incorrect. High-dose steroids are required to reduce inflammation surrounding the facial nerve which may be exacerbating the facial palsy.

High-dose corticosteroids would be indicated in the case of bell's palsy. Ramsay-Hunt syndrome requires antiviral coverage (high dose oral aciclovir) in addition to steroids and eye protection.

Loading with aspirin and clopidogrel is incorrect. A stroke would present with forehead-sparing facial palsy - this is not the case.

Oral flucloxacillin would not treat his herpes zoster infection - this would be more appropriate for cellulitis secondary to otitis externa.

Question:

Jane, a 37-year-old woman presented to the GP complaining of multiple episodes of lightheadedness. She described feeling extremely lightheaded and nauseated on standing up. Her lying and standing blood pressure confirms a systolic blood pressure drop of 30mmHg. Her past medical history includes zopiclone (sleeping pill) and amlodipine

Which of the following does not contribute to orthostatic hypotension?

A.Nifedipine

B.Pregnancy

C.Zopiclone

D.Prolonged rest

E.A heavy meal

Answer:Zopiclone

Explanation:

Orthostatic hypotension may be exacerbated by venous pooling during exercise (exercise-induced), after meals (postprandial hypotension) and after prolonged bed rest (deconditioning)

Important for meLess important

Nifedipine is a dihydropyridine calcium channel blocker. It contributes to postural hypotension by causing vasodilatation of peripheral vessels. The ESC has stated that venous pooling, post-meal and prolonged bed rest contribute to orthostatic hypotension. Venous pooling is also seen in pregnant women.

Zopiclone does not typically cause a drop in blood pressure on standing.

Other causes of orthostatic hypotension:

primary autonomic failure: Parkinson's disease, Lewy body dementia

secondary autonomic failure: e.g. Diabetic neuropathy, amyloidosis, uraemia

drug-induced: diuretics, alcohol, vasodilators

volume depletion: haemorrhage, diarrhoea

Question:

A 34-year-old patient has attended the smear test clinic at her GP practice for a repeat test. Her last test was performed three months ago.

What would the results of the initial test have shown for the patient be required to have a repeat test 3 months later?

A.High risk HPV -ve and normal cytology

B.High risk HPV -ve and abnormal cytology

C.High risk HPV +ve and normal cytology

D.High risk HPV +ve and abnormal cytology

E.Inadequate sample

Answer:Inadequate sample

Explanation:

Cervical cancer screening: if smear inadequate then repeat within 3 months

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 33-year-old woman presents to the emergency department with worsening left-sided abdominal pain. She reports the pain started suddenly 5 hours ago and has been steadily getting worse. The pain started suddenly following intercourse. She is unsure about the date of her last menstrual period as she currently has the Mirena coil fitted. She denies any vaginal bleeding or discharge. Apart from the pain, she has no other symptoms and her observations are stable.

Her lower abdomen is tender on palpation but there is no guarding or rigidity. Pelvic exam including bimanual exam is unremarkable. The Mirena coil threads are clearly visualised.

Ultrasound shows free fluid in the pelvic cavity. Urinary pregnancy test is negative.

What is the most likely diagnosis?

A.Adnexal torsion

B.Mittelschmerz

C.Ruptured ovarian cyst

D.Ruptured ectopic pregnancy

E.Appendicitis

Answer:Ruptured ovarian cyst

Explanation:

Ruptured ovarian cyst: sudden onset unilateral pelvic pain precipitated by intercourse or strenuous activity

Important for meLess important

Ruptured ovarian cyst presents as sharp unilateral pain immediately following intercourse or strenuous exercise. Bimanual examination in non-severe cases is generally unremarkable but the lower abdomen is tender. Ultrasound shows free fluid in the pelvic cavity.

Ovarian or adnexal torsion can present similarly with sharp unilateral pain often associated with nausea and vomiting. There is a tender palpable adnexal mass on bimanual exam. Ultrasound shows an enlarged, oedematous ovary with impaired blood flow.

Question:

A 15 kg 3-year-old boy with a background of vomiting and passing loose stools for 5 days presents to the paediatric emergency department with increasing irritability and tiredness. He has not eaten for the past 2 days and has only been able to tolerate a minimal amount of fluid. His mother notices that he passes urine less often as well.

On examination, the boy appears to be lethargic and there is altered responsiveness. His heart rate is 160 beats per minute (95-140 /min), respiratory rate is 32 breaths per minute (25-30/min) and systolic blood pressure is 90 mmHg (80-100 mmHg). His temperature is normal.

There are no skin rashes. Capillary refill time is 4 seconds and his extremities are cold and pale. Skin turgor is reduced and the mucous membranes are dry.

What can you conclude about the hydration status of the patient and how would you manage the patient based on your conclusion?

A.The patient is clinically dehydrated but not in shock. Maintenance fluid is sufficient

B.The patient is not clinically dehydrated and not in shock. The deranged readings reflect normal physiological responses

C.There is early (compensated) shock. Maintenance fluid is sufficient

D.There is early (compensated) shock. Urgent fluid resuscitation is needed

E.There is late (decompensated) shock. Urgent fluid resuscitation is needed

Answer:There is early (compensated) shock. Urgent fluid resuscitation is needed

Explanation:

Early compensated shock in children is reversible in contrast to uncompensated shock, which may be irreversible; hypotension is a sign of late decompensated shock

Important for meLess important

The patient is in clinical shock rather than just clinical dehydration as he has the following signs:

pale and cold extremities

prolonged capillary refill time

Note: tachycardia, tachypnoea, reduced skin turgor and reduced urine output can be seen in both early shock and clinical dehydration.

Signs differentiating between early (compensated) shock and late (decompensated) shock\*:

signs early shock late shock

blood pressure normal hypotension

heart rate tachycardia bradycardia

respiration tachypnoea acidotic (Kussmaul)

extremities pale or mottled blue

urine output reduced absent

Hypotension is a late sign of shock. In early, compensated shock the blood pressure is maintained by increased heart rate and respiratory rate, redistribution of blood from venous reserve volume and diversion of blood flow from non-essential tissues (which explains why the peripheries will be cold and pale). In late or uncompensated shock, the compensatory mechanism fails, blood pressure falls and lactic acidosis increases.\*

Use glucose-free crystalloids that contain sodium in the range 131–154 mmol/litre, with a bolus of 20 ml/kg over less than 10 minutes for children and young people, and 10–20 ml/kg over less than 10 minutes for term neonates.\*\* An exception will be for children with severe diabetic ketoacidosis who are in shock, where an initial bolus of 10ml/kg of 0.9% sodium chloride is recommended and subsequent bolus to be administered if necessary after discussing with the specialist. This is to lower the risk of cerebral oedema in the patient.

\*Lissauer, T., Clayden, G., & Craft, A. (2012). Illustrated textbook of paediatrics. Edinburgh: Mosby.

\*\*Algorithm 2: Fluid resuscitation. Algorithms for IV Fluid Therapy in Children And Young People in Hospital. NICE Guidelines.

Question:

A 60-year-old man is admitted with sudden onset central, crushing chest pain on a background of angina, hypertension and type 2 diabetes mellitus. On examination, he looks pale and short of breath. His JVP is elevated. His hands feel cool and his skin appears mottled. His pulse is weak but regular at 125 bpm, blood pressure 109/60 mmHg. On auscultation, heart sounds are quiet and there are coarse crackles bibasally. There is evidence of peripheral oedema. He is saturating at 94% on 2L via nasal cannula. The catheter records 20 ml of urine output in the past hour. ECG on admission shows ST-elevation in leads V4-V6 with T-wave inversion.

Which is the following is the biggest indicator of a poor prognosis in this man's presentation?

A.Cardiogenic shock

B.Hypovolaemic shock

C.Pulmonary embolism

D.Pulmonary oedema

E.ST-segment elevation

Answer:Cardiogenic shock

Explanation:

Cardiogenic shock is a poor prognostic indicator in acute coronary syndrome

Important for meLess important

The Killip classification is a system used in individuals with acute myocardial infarction (MI), taking into account physical examination and the development of heart failure in order to predict and stratify the risk of mortality. This patient is in shock as evidenced by tissue hypoperfusion and oliguria. This is most likely cardiogenic due to the presentation of an acute MI. Cardiogenic shock is classified as Killip Class IV, associated with 81% mortality in 30 days.

A systolic blood pressure of <90mmHg with a presentation of hypovolaemic shock would also be concerning and classified as Killip Class IV. However, this patient's blood pressure is 110/65 mmHg.

The clinical presentation in this scenario is much more likely to be of a cardiac nature rather than a pulmonary embolism. A pulmonary embolism would present with sudden onset breathlessness and pleuritic chest pain. You would not expect to see ST-elevation on the ECG and there would be little to find on physical examination of the chest.

Pulmonary oedema is Killip Class III, with an associated 30-day mortality of 38%. This patient certainly has an element of heart failure playing a role in his deterioration, but the overall clinical picture points to that of systemic shock.

ST-segment elevation is part of the presentation and diagnostic criteria of acute coronary syndrome but is not used as a prognostic indicator.

Question:

A 24-year-old woman who is 33 weeks pregnant presents to the Emergency Department with sudden onset abdominal pain and some very light vaginal bleeding which has subsequently stopped. On examination her abdomen is tense and tender. The mother says she has not noticed any reduction in foetal movements. Her vital signs are as follows:

HR 110bpm

BP 115/80mmHg

Temperature 36.9ºC

Respiratory Rate 21min-1

Cardiotocography (CTG) was performed and showed a foetal heart rate of 135bpm, with beat-beat variability of 2-25bpm and 2 accelerations were seen in a 20 minute period.

Ultrasound demonstrates normal foetal biophysical profile and liquor volume. There is a small collection of retroplacental blood.

Which of the following is the best course of action for this patient?

A.Administer vitamin K and admit to monitor maternal and foetal condition

B.Admit for caesarean section

C.Admit for IV antibiotics and monitor maternal and foetal condition

D.Admit for IV corticosteroids and monitor maternal and foetal condition

E.Monitor in the Emergency Department for 24h with CTG

Answer:Admit for IV corticosteroids and monitor maternal and foetal condition

Explanation:

Management of placental abruption when the fetus is alive, <36 weeks and not showing signs of distress is to admit and administer steroids

Important for meLess important

The vignette points towards a small placental abruption, which is confirmed by the ultrasound finding of retroplacental blood. There are no signs of foetal distress on CTG or ultrasound. Management of placental abruption when the fetus is alive, <36 weeks and not showing signs of distress is to admit and administer steroids.

Vitamin K can be administered to help blood clotting and is often given to infants at birth to prevent vitamin K deficiency bleeding, however it is not the best option in this setting.

A caesarean section is not required immediately as there are no signs of foetal distress and the foetus is <36 weeks.

There is no obvious indication for antibiotics here as the patient is afebrile and there are no signs of infection.

Monitoring with CTG for 24h is not the best option in this scenario as the foetus is not showing any signs of distress on CTG at initial presentation. Similarly, the mother has not reported a reduction in foetal movements.

Question:

A patient is noted to have an absent biceps reflex. Which nerve root does this correspond to?

A.C3-C5

B.T3-T5

C.T7-T8

D.C5-C6

E.C7-C8

Answer:C5-C6

Explanation:

Question:

A 46-year-old woman presents to her GP with a new lesion on her right anterior shin that she noticed one month ago. This lesion is occasionally itchy, although there is no discomfort and it does not bleed. The lesion is pictured below and it dimples when pressure is applied.

© Image used on license from DermNet NZ

The patient grew up in Australia but explains that she has always used suncream. She also explains that she used sun beds occasionally during her youth.

What is the likely diagnosis?

A.Amelanotic melanoma

B.Basal cell carcinoma

C.Dermatofibroma

D.Epidermoid cyst

E.Seborrhoeic keratosis

Answer:Dermatofibroma

Explanation:

This image shows a light pink / brown, well-defined, symmetrical nodule. Although not evident in the picture, the 'dimple' sign is described in the brief. This is when a lesion dimples when it is pinched. This sign is typically associated with dermatofibromas, which are common, benign, fibrous nodules. Like in this case, these lesions are typically found on the lower limbs and may form in relation to trauma such as insect bites. These lesions are often asymptomatic but may be associated with mild pain or itch.

Given the history of sun exposure, it is important to consider melanoma in this patient. Although this lesion is not pigmented, amelanotic melanoma is a possibility, although these are uncommon. Reassuring features about this lesion include the fact it is well-defined, symmetrical and one colour. The dimple sign when pressure is applied differentiates this lesion from a nodular melanoma, which would not dimple. The dimple sign is often diagnostic of dermatofibroma.

Basal cell carcinoma must also be considered, given the sun exposure history. However, unlike this lesion, nodular basal cell carcinomas typically have a shiny surface with blood vessels crossing the surface. There may be a central depression so that the edges of the lesion appear rolled. These features are not present in this lesion, which is uniform and symmetrical. Furthermore, basal cell carcinomas would not cause a positive dimple sign.

An epidermoid cyst is another benign raised skin lesion. These are derived from hair follicles and present as a skin-coloured dome-shaped nodule with a central punctum, which is not seen in this lesion. They typically occur on the face, neck or trunk, rather than the legs, and are not associated with a dimple sign.

Seborrhoeic keratoses are another type of benign lesion, becoming increasingly common with age. Although they can vary widely in appearance and shape, they are often patchy (rather than nodular, as the lesion above is) and typically look 'waxy' and 'stuck-on'. Unlike the lesion above, they do not dimple when pressure is applied.

Question:

A 27-year-old woman goes to the emergency department because of a headache. She describes a frontal headache associated with some blurring of her vision and she also reports light being very uncomfortable. She feels sick and has vomited twice since the headache came on. On examination she has no cranial nerve deficits, reactive pupils and her blood pressure is 134/84 mmHg.

Which of the following clinical features, in addition to the above, would indicate the need for an urgent CT head?

A.Family history of malignancy

B.Family history of subarachnoid haemorrhage

C.Confusion and not opening her eyes until spoken to

D.Tachycardia and tachypnoea

E.Pupillary diameter discrepancy of 1 mm

Answer:Confusion and not opening her eyes until spoken to

Explanation:

Reduction in consciousness and vomiting more than once are sinister signs in headache: urgent CT head is indicated

Important for meLess important

Distinguishing which headaches are sinister and which are not can often be difficult so an easy set of rules was created by NICE which indicate a high possibility of a sinister headache and suggest further imaging is needed. The main five you will see are:

Vomiting more than once with no other cause.

New neurological deficit (motor or sensory).

Reduction in conscious level (as measured by the Glasgow coma score).

Valsalva (associated with coughing or sneezing) or positional headaches.

Progressive headache with a fever.

NICE suggest that if two or more of the ‘red-flag’ criteria are present then an urgent CT scan should be performed as the likelihood of a serious intracranial pathology being the cause of a presentation is high. From this list, the only feature which would be classed as a 'red flag' is confusion and opening eyes to speech, which would give this woman a Glasgow coma score of 13 for E3 V4 M6, and therefore be classed as a reduction in conscious level. In combination with her vomiting, this indicates a need for a scan as the likelihood of her symptoms being due to an intracranial pathology such as hydrocephalus or a space occupying lesion is high.

Question:

A 4-year-old boy is brought to the emergency department experiencing lip swelling and wheezing after blowing up a latex balloon.

On examination, he has visibly swollen lips and an urticarial rash. His respiratory rate is 40/min and he has bilateral wheezing on auscultation.

After initial emergency treatment, what is the correct follow-up?

A.Prescribe a 300 microgram adrenaline injector

B.Referral for patch testing

C.Referral to a specialist allergy clinic

D.Regular antihistamines

E.Serum tryptase levels

Answer:Referral to a specialist allergy clinic

Explanation:

All patients with a new diagnosis of anaphylaxis should be referred to a specialist allergy clinic

Important for meLess important

Referral to a specialist allergy clinic is the correct management following an episode of anaphylaxis. Specialist input will be needed for this boy and his caregivers, and possibly some education for the school.

Prescribe a 300 microgram adrenaline injector is incorrect. This is the incorrect dose for this child's age, and two injectors should be given. He should be given two 150 microgram adrenaline injectors, with appropriate training provided for his caregivers.

Referral for patch testing is incorrect. This is appropriate for some allergies with lesser manifestations, but more rigorous follow-up is needed following anaphylaxis.

Regular antihistamines might be warranted if the patient was experiencing ongoing symptoms such as urticaria, but there is no suggestion of this in the question stem.

Serum tryptase levels is incorrect. These can be done if there is uncertainty regarding whether a patient has had true anaphylaxis, but in this case, there is no doubt.

Question:

A 61-year-old man presents with persistent diarrhoea and abdominal pain. During the last week, he had several days of reduced bowel movements. On further questioning, he admits to having occasional blood in his stools.

On examination, he has a heart rate of 86bpm and a temperature of 37.9ºC. There is lower left quadrant tenderness. He is admitted and treated.

A CT chest, abdomen, and pelvis shows mural thickening of the colon and the presence of pericolic fat stranding in the sigmoid colon.

What lifestyle advice can help manage the likely diagnosis?

A.Fluid restriction to 1.5L

B.Increase fruit and vegetables in his diet

C.Reduce alcohol intake

D.Smoking cessation

E.Stress reduction activities

Answer:Increase fruit and vegetables in his diet

Explanation:

Increased dietary fibre intake is helpful in diverticular disease

Important for meLess important

Increase fruit and vegetables in his diet is the correct answer. This man has diverticular disease, supported by altered bowel habits and blood in his stools. The CT scan is typical for the presence of diverticulitis (mural thickening of the colon and the presence of pericolic fat stranding in the sigmoid colon) indicating there is current inflammation and infection building. This would imply he has acute diverticulitis (inflammation of a diverticulum). This is supported by a low-grade fever. The CT findings are limited to the sigmoid colon allowing you to elicit diverticular disease as the commonest cause of inflammation in this area of the colon. Ulcerative colitis begins in the rectum, Crohn's is most commonly found at the terminal ileum and gastroenteritis is unlikely to be limited to a small area of the bowel. A common cause of diverticulosis is constipation, therefore patients are advised to increase their dietary fibre intake (fruit and vegetables) to help keep water in the bowel and reduce the likelihood of constipation.

Fluid restriction to 1.5L is incorrect. This would increase the incidence of constipation in this man, worsening his diverticular disease.

Reduce alcohol intake is incorrect. Whilst this is a beneficial lifestyle measure for general health, alcohol is not associated with the worsening of symptoms in diverticular disease.

Smoking cessation is incorrect. Smoking directly aggravates Crohn’s disease and can increase the number of relapses and length of flares in patients. However, this patient has diverticular disease, so smoking cessation will aid his general health, but not his condition directly.

Stress reduction is incorrect. Once again, this is helpful in the management of inflammatory bowel disease. Due to the most likely diagnosis being diverticular disease and inflammation, stress reduction will not be helpful for this patient.

Question:

Benjamin is a 60-year-old man who has recently been diagnosed with atrial fibrillation after experiencing some palpitations. He has no other medical history and only takes atorvastatin for high cholesterol. He has no symptoms currently and his observations are stable with a heart rate of 75 beats per minute. His CHA2DS2-VASc score is 0.

What is the next step in managing this patient?

A.Start him on rivaroxaban

B.Start him on aspirin

C.Arrange for an echocardiogram

D.Start him on digoxin

E.Arrange for a chest X-ray

Answer:Arrange for an echocardiogram

Explanation:

In AF, if a CHA2DS2-VASc score suggests no need for anticoagulation do an echo to exclude valvular heart disease

Important for meLess important

The CHA2DS2-VASc score is used to assess the risk of stroke in a patient with atrial fibrillation.

NICE guidelines state that anticoagulant treatment is generally indicated by a score of two or more, and treatment should also be considered for males with a score of one or more.

Rivaroxaban can be used as an anticoagulant in AF, however, in this scenario the patient does not meet the criteria for anticoagulation. Aspirin should not be used to prevent stroke risk in atrial fibrillation.

It is advised that a transthoracic echo should be arranged in patients with AF, especially if it may change their management, or refine their risk of stroke and need for anticoagulation.

If a patient requires rate control for fast AF, a beta-blocker is the first line. Digoxin is only used to control the rate of a patient who has a more sedentary lifestyle. Neither drug protects against stroke.

Question:

A primigravid 43 year-old woman, who is at 27 weeks gestation, presents to the maternity unit with regular weak contractions. Examination reveals her cervix is 3 cm dilated and membranes are intact. What would be the most appropriate management?

A.Admit and administer syntocinon

B.Admit and administer tocolytics and steroids

C.Reassure send home with GP follow-up

D.Admit for urgent c-section

E.Admit and administer tocolytics and antibiotics

Answer:Admit and administer tocolytics and steroids

Explanation:

This woman is now in premature labour, although at 3cm dilated it is still in an early stage. Therefore, it may be stopped by administering tocolytic medication. In case the labour continues and delivery is required, steroids are given as a pre-emptively to help the foetal lungs mature. Antibiotics are not required as there is no indication of an infection. Syntocinon injection contains oxytocin which strengthens the contractions of the uterus!

Question:

You review a 34-year-old man who has had ulcerative colitis for the past 20 years. He describes a one week history of passing three bloody stools per day. Despite this he is eating well and denies abdominal pain. Abdominal examination is unremarkable. What is this episode most likely to represent?

A.Severe exacerbation of ulcerative colitis

B.Infective exacerbation of ulcerative colitis

C.Mild exacerbation of ulcerative colitis

D.Moderate exacerbation of ulcerative colitis

E.Colorectal cancer secondary to longstanding ulcerative colitis

Answer:Mild exacerbation of ulcerative colitis

Explanation:

Question:

A 20-year-old man presents with recent episodes of severe, stabbing pain in the right eye. These episodes typically occur once a day and last around 30 minutes. His wife reports him pacing around and shouting with the pain. She also reports that his right eye appears red and that he has clear nasal discharge during the episodes.

Given the likely diagnosis, which one of the following should you advise the patient to avoid to help prevent further episodes?

A.Opioid medications including codeine

B.Stress

C.Alcohol

D.Sunlight

E.Excessive exercise

Answer:Alcohol

Explanation:

Alcohol is a common trigger for cluster headaches

Important for meLess important

This is a typical history of cluster headaches, including the age and gender of the patient.

Question:

A 26-year-old man slips down a flight of stairs and subsequently lands on his back. Upon history, examination and imaging it is determined that he has a stable spinal fracture secondary to osteoporosis.

What test is most appropriate to investigate the source of his osteoporosis?

A.Calcitonin levels

B.Carbon monoxide breath test

C.Rheumatoid Factor

D.Testosterone levels

E.Vitamin C

Answer:Testosterone levels

Explanation:

Osteoporosis in a man - check testosterone

Important for meLess important

Low testosterone levels are associated with higher bone turnover therefore osteoporosis. In a man with a fragility fracture associated with this condition, it is imperative to check testosterone levels.

Calcitonin levels are not routinely measured to determine osteoporosis; however, calcitonin may be used in the treatment of osteoporosis.

A carbon monoxide breath test is sometimes used to check adherence to smoking cessation. Cigarette smoking is associated with osteoporosis, therefore this test could be utilised to check whether the patient has indeed cut down and therefore reduced this risk. However, the question does not state whether the patient smokes or not, and in the absence of this information testosterone levels are more appropriate in the first instance.

Rheumatoid Factor is associated with rheumatoid arthritis, which as a condition is an independent factor associated with osteoporosis. The presence of rheumatoid arthritis is used to calculate the FRAX score. However, there is little to suggest a risk of inflammatory arthritis in this patient therefore this would not be the most appropriate first-line option.

Vitamin C does not play a big role in bone remodelling. Vitamin D is more appropriate.

Question:

A seventy-four-year-old female presented to the emergency department having tripped whilst getting out of her car this morning and landing on her left side. She is unable to weight bear on her left hand side and is complaining of pain in her groin.

On examination her left leg is shortened and externally rotated.

Given the most likely diagnosis what classification system should be used to classify this patient’s injury?

A.Gartland

B.Salter-Harris

C.Ottowa

D.Garden

E.Weber

Answer:Garden

Explanation:

The Garden classification system is used to classify neck of femur fractures

Important for meLess important

The correct answer is the Garden classification system (4). The patient has fallen onto her left hand side and now has a painful, shortened and externally rotated leg that is highly indicative of a neck of femur fracture. The Garden classification system is used to classify these:

1. Incomplete stable fracture

2. Complete but non-displaced

3. Complete and partially displaced

4. Complete and completed displaced

Gartland (1) is used to classify supracondylar fractures in children.

Salter-Harris (2) is used to classify fractures about the growth plate in children.

The Ottawa Rules (3) are used to detect possible ankle fractures in patients

Weber (5) is used to classify ankle fractures about the syndesmosis.

Question:

You are called to theatres for the forceps delivery of a baby of 38 week gestation who developed fetal distress during labour.

The obstetrician hands you the baby for resuscitation. What is the first step?

A.Open the airway and give 5 inflation breaths

B.Gain IV access

C.Dry the baby

D.Assess tone, breathing and heart rate

E.Start chest compressions

Answer:Dry the baby

Explanation:

This is a question about newborn resuscitation.

The UK resuscitation council has an algorithm for newborn resuscitation.

Following birth, the first step is to dry the baby maintain temperature and start the clock.

Following this you assess tone breathing and heart rate.

If gasping or not breathing, you open the airway to give 5 inflation breaths.

You then reassess for an increase in the heart rate. If there is no increase in the heart rate you ensure the inflation breaths you are giving are adequate by checking chest movement.

If the chest is not moving you assume the inflation breaths are inadequate and recheck head position, consider 2-person airway control and other manoeuvers and repeat inflation breaths then look for a response.

If the chest is moving but the heart rate is still undetectable or less than 60 beats per minute you start chest compressions at a ratio of 3 compressions to 1 inflation breath (3:1).

You reassess heart rate every 30 seconds, and if it is still undetectable or very slow, you consider IV access and drugs.

Question:

A 32-year-old man is involved in a house fire and sustains extensive partial thickness burns to his torso and thigh. Two weeks post operatively he develops oedema of both lower legs. The most likely cause of this is:

A.Iliofemoral deep vein thrombosis

B.Venous obstruction due to scarring

C.Hypoalbuminaemia

D.Excessive administration of intravenous fluids

E.None of the above

Answer:Hypoalbuminaemia

Explanation:

Loss of plasma proteins is the most common cause of oedema developing in this time frame.

Question:

A 73-year-old female presents to her GP with left shoulder and arm pain which came on quite suddenly a week ago and has been worsening. The pain is now unmanageable with regular co-codamol. The GP also notes that the patient's left pupil is smaller than the other side and the eyelid is lagging slightly. Which question would most likely aid in diagnosing this lady?

A.Exposure to pathogens

B.Exercise history

C.Smoking history

D.Alcohol history

E.Recent flu-like illness

Answer:Smoking history

Explanation:

This patient is presenting with Pancoast's syndrome. Symptoms are caused by an apical malignant neoplasm of the lung. These include ipsilateral invasion of the sympathetic cervical plexus leading to Horner's syndrome with shoulder and arm pain due to Brachial Plexus invasion. A smoking history is the most important of the above questions to ask, as 90% of cancers are caused by smoking. Alcohol, exercise or exposure to pathogens will not directly affect this patients presentation of Pancoast's syndrome.

Question:

A 35-year-old man presents to the emergency department with abdominal pain. He had been visiting a shop that sells tropical pets when he was stung by a scorpion. He has no past medical history.

On examination, he has severe abdominal pain that radiates to his back. There is epigastric tenderness and guarding.

Given the likely diagnosis, what factor is predictive of a more severe disease course?

A.Hypercalcaemia

B.Hypocalcaemia

C.Hypoglycaemia

D.Raised amylase

E.Raised lipase

Answer:Hypocalcaemia

Explanation:

Whilst hypercalcaemia can cause pancreatitis, hypocalcaemia is an indicator of pancreatitis severity

Important for meLess important

Hypocalcaemia is correct. Severe abdominal pain radiating to the back after a scorpion sting suggests acute pancreatitis. This is one of the rarer causes of this condition. More commonly it is caused by an obstructing gallstone, alcohol, or trauma. Hypocalcaemia is part of the Glasgow pancreatitis score, which predicts the severity of pancreatitis.

Hypercalcaemia is incorrect. This can cause pancreatitis but a raised calcium is not predictive of severity.

Hypoglycaemia is incorrect. It is hyperglycaemia rather than hypoglycaemia that predicts severity.

Raised amylase is incorrect. This is used to aid in the diagnosis of acute pancreatitis with levels typically being raised at least 3-4 times the normal range.

Raised lipase is incorrect. This is also used in the diagnosis of acute pancreatitis and is actually a more specific marker of pancreatitis than amylase. It does not predict severity.

Question:

A 23-year-old female boxer presents to her GP practice with itchy feet/toes and scaling of the skin between her toes. A positive culture of skin scrapings taken when she first presented 4 weeks ago confirmed athlete's foot and she has now completed a 4 week course of topical imidazole without resolution of her symptoms.

What treatment is now indicated?

A.Reassure, give advice regarding foot hygiene and prescribe a further 4 weeks of topical imidazole

B.Prescribe a course of topical flucloxacillin

C.Prescribe a course of oral terbinafine

D.Prescribe a further 4 weeks of topical imidazole and a topical corticosteroid

E.Prescribe a course of oral flucloxacillin

Answer:Prescribe a course of oral terbinafine

Explanation:

If initial topical treatment for athlete's foot fails, oral antifungal treatment is indicated

Important for meLess important

As initial topical treatment has failed oral terbinafine is indicated, continuing topical treatment is not best practice, the other option would be to refer her to a dermatologist.

Combination with topical corticosteroids is only indicated for severely inflamed and irritant infections to provide symptomatic relief.

Flucloxacillin is an antibiotic and therefore not indicated.

Question:

A 23-year-old is brought in via ambulance following a road traffic accident.

His primary survey has shown no C-spine injury, no flail chest, and no evidence of cardiac tamponade. On neurological examination, there is reduced sensation of all types below the xiphisternum and ipsilateral lower limb weakness.

While awaiting MRI, he is noted to have a blood pressure of 220/175mmHg and begins to feel clammy and sweaty in his upper torso and face. He becomes agitated. Soon after, he develops unilateral facial weakness and slurred speech.

What is the most likely underlying reason for the patient's deterioration?

A.Anterior cord syndrome

B.Autonomic dysreflexia

C.Complete cord transection

D.Extradural haemorrhage

E.Thrombotic stroke

Answer:Autonomic dysreflexia

Explanation:

Stroke is a life-threatening event associated with autonomic dysreflexia

Important for meLess important

Autonomic dysreflexia is the correct answer. This patient presented with a spinal cord injury around the level of T4/T5, characterised by reduced sensation and unilateral limb weakness below the level of the lesion. He later develops symptoms of autonomic dysreflexia associated with severe hypertension, sweating above the level of the lesion, and agitation. Autonomic dysreflexia is associated with haemorrhagic stroke as severe hypertension can lead to spontaneous haemorrhage, which explains the subsequent facial weakness and slurred speech.

Anterior cord syndrome is incorrect. This is a specific cord lesion affecting the anterior 2/3 of the cord. One would expect to see complete motor paralysis below the level of the lesion, loss of pain/temperature sensation, and intact proprioception/vibration sensation.

Extradural haemorrhage is incorrect. This would not explain the stroke symptoms. Typically, extradural haemorrhages presents with loss of consciousness followed by a lucid period and subsequent deterioration.

Thrombotic stroke is incorrect. There is nothing to suggest that this patient has suffered a thrombotic stroke, which are often seen in elderly patients with comorbidities such as atrial fibrillation and vascular disease. It is far more likely that this patient has had a haemorrhagic stroke as a result of the severe hypertension.

Question:

A 25-year-old male is brought to the emergency department having been found confused and drowsy at home by his parents. They report they had seen him earlier in the day and he was well physically although he has been very low in mood for the past few weeks.

The patient has a past medical history of epilepsy, chronic back pain and depression following a traumatic brain injury several years ago. His medications include regular diazepam, amitriptyline, propranolol and sodium valproate.

On examination, the patient is tachycardic, sweaty and has a fluctuating GCS. All other observations are normal. An ECG is performed as shown below.

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

What management should be commenced given the patient’s likely diagnosis?

A.Adenosine

B.Flumazenil

C.Glucagon

D.Sodium bicarbonate

E.Synchronised cardioversion

Answer:Sodium bicarbonate

Explanation:

This patient has clear evidence of a tricyclic antidepressant (TCA) overdose with the hallmark ECG changes. The ECG shows sinus tachycardia with a widened QRS and prolonged QT interval classically seen in TCA toxicity. The patient is on amitriptyline and has a confirmed history of depression and has been reported to be very low in mood recently. The patient also has the typical symptoms of TCA toxicity: acute onset tachycardia, sweating, and a fluctuating GCS. In TCA overdose if there is evidence of an arrhythmia (as with this patient) or hypotension then first-line management is IV sodium bicarbonate. Bicarbonate has been shown to resolve metabolic acidosis and cardiovascular complications in TCA overdose.

Adenosine is a class V antiarrhythmic agent used to terminate supraventricular tachycardia (SVT). This patient has a broad-complex tachycardia most likely secondary to a TCA overdose therefore adenosine has no role in management. IV bicarbonate should be given urgently.

Flumazenil is used in the reversal of iatrogenic benzodiazepine overdose. Although the patient is established on a benzodiazepine (diazepam), which he may also have taken, flumazenil is only to be used when an accidental benzodiazepine overdose occurs in a clinical setting. This is because flumazenil can cause seizures if given in mixed overdose and therefore must be avoided in all but iatrogenic cases.

Glucagon is given in suspected beta-blocker overdose. This patient has no sign of a beta-blocker overdose as he has a tachyarrhythmia and his blood pressure is normal, therefore it is unlikely he has overdosed on propranolol.

Synchronised cardioversion can be considered in unstable patients with tachyarrhythmias. The four key indicators of cardiac instability are: heart failure, myocardial ischaemia, syncope or shock. Although the patient has a fluctuating GCS this is a neurological effect from the TCA overdose and not syncope; the patient is not hypotensive nor does he have any clear signs of ischaemia or cardiac failure therefore cardioversion is not currently required. IV bicarbonate is a better first-line management option.

Question:

A 30-year-old is experiencing menorrhagia and dysmenorrhoea. This is causing her to miss work and is resulting in significant distress. She does not have any children and does not feel ready to start a family, but would like to in the future.

She has an ultrasound of the pelvis to investigate further. This demonstrates a 2cm intramural fibroid and is otherwise within normal limits.

What is the most appropriate treatment for her symptoms?

A.Combined oral contraceptive pill (COCP)

B.Hysterectomy

C.Hysteroscopic resection of fibroid

D.Myomectomy

E.No treatment

Answer:Combined oral contraceptive pill (COCP)

Explanation:

If a uterine fibroid is less than 3cm in size, and not distorting the uterine cavity, medical treatment can be tried (e.g. IUS, tranexamic acid, COCP etc)

Important for meLess important

Combined oral contraceptive pill (COCP) would be the most appropriate answer here. Fibroids under 3cm can be treated with medical management. Other options for medical management include other forms of contraception (e.g. the intrauterine system and oral progesterone) alongside other hormonal methods. In some cases, gonadotropin-releasing hormone agonists, such as goserelin can be used.

Hysterectomy would be inappropriate as this patient would like to try for children in the future. This may be a definitive treatment in patients that do not wish to retain their fertility and have been unsuccessful with other treatments.

Hysteroscopic resection of fibroid would not be recommended here as the fibroid is <3cm in size and does not distort the uterine cavity. This treatment may be recommended for submucosal fibroids in women wishing to retain their fertility.

Myomectomy would not be recommended here before medical therapies (COCP, tranexamic acid, levonorgestrel intrauterine system) have been trialled. It may be an appropriate treatment for larger fibroids.

No treatment would be inappropriate here as the patient is symptomatic.

Question:

A 17-year-old girl presents to her GP as she has not started menstruating. On examination, you note her short stature and webbed neck.

What would you expect to hear on auscultation of her heart?

A.Continuous machinery murmur

B.Ejection systolic murmur

C.Late systolic

D.Mid-late diastolic murmur

E.Pansystolic murmur

Answer:Ejection systolic murmur

Explanation:

Turner's syndrome is associated with an ejection systolic murmur due to bicuspid aortic valve

Important for meLess important

Ejection systolic murmur. This is correct. The patient has Turner's syndrome, as noted by her amenorrhea, short stature and webbed neck. Turner's syndrome is associated with a bicuspid aortic valve which causes an ejection systolic murmur.

Continuous machinery murmur. This is incorrect. A continuous machinery murmur is associated with a patent ductus arteriosus. This normally closes spontaneously in the first few days of life. Patent ductus arteriosus is less common than a bicuspid valve in a patient with Turner's syndrome.

Late systolic murmur. This is incorrect. Late systolic murmurs are caused by mitral valve prolapse and aortic coarctation. These conditions are less common than a bicuspid aortic valve in a patient with Turner's syndrome.

Mid-late diastolic murmur. This is incorrect. Mid-late diastolic murmurs are caused by mitral stenosis, which is not commonly associated with Turner's syndrome. Mitral stenosis is caused by rheumatic fever.

Pansystolic murmur. This is incorrect. Pansystolic murmurs are caused by mitral and tricuspid regurgitation and ventricular septal defects.

Question:

You are on placement in a GP surgery and a 33-year-old female comes in to see you. She attended 4 weeks ago, and saw your colleague, due to concerns about a breast lump. It was a suspected fibroadenoma but she was asked to reattend for a checkup. When you examine her you offer her a chaperone, she seems shocked by this and very happy to accept. When reviewing her notes you see that there is no documentation of her being previously offered a chaperone. What do you do?

A.Explain to the patient it is good practice to offer chaperones and offer to follow this up with the lead partner

B.Explain to the patient it is good practice to offer chaperones and offer to follow this up with the practice manager

C.Explain to the patient it is good practice to offer chaperones and document this in her notes

D.Explain to the patient it is good practice to offer chaperones and offer to follow this up with your colleague

E.Do nothing about this and alter the previous notes to say your colleague offered a chaperone

Answer:Explain to the patient it is good practice to offer chaperones and offer to follow this up with your colleague

Explanation:

The GMC have written guidelines on intimate examinations and chaperones. Intimate examinations involve the breast, genitalia and rectum.

They state that you should always offer a chaperone regardless of if you are the same gender as the patient. In addition, chaperones should be a health professional. You must record any discussions about chaperones and if they dont want one record that it was offered and declined.

It is important to speak to the patient about this to understand what happened, thus doing nothing about this and alter the previous notes to say your colleague offered a chaperone is not only dishonest but also fails to deal with the situation.

At this stage it is important to also speak to the doctor concerned as they will have more insight into the encounter, Thus speaking with the lead partner or practice manager is unnecessary at this stage. In addition just documenting it in her notes will not help the current situation.

Question:

A 46-year-old man presents to the emergency department, alongside his wife, with multiple painful lesions across his back. The patient is very confused but his wife tells you he has had a progressively worsening fever for the last hours.

The doctor examines the lesions and finds that with pressure, they begin to separate. The lesions have spread across the patient’s entire body including their mouth. One of the lesions is pictured below.

© Image used on license from DermNet NZ

He has a past medical history of gout which he recently started allopurinol for. He has no known allergies.

How should this condition be managed first-line?

A.Blood cultures

B.Move the patient to the intensive care unit

C.Refer to ophthalmology

D.Start IV antibiotics

E.Start immunosuppressive therapy

Answer:Move the patient to the intensive care unit

Explanation:

This image shows a widespread peeling and blistering of a patient's back. The epidermis of the skin has come away from the dermis indicating a positive Nikolsky sign. This sign is seen in several dermatological conditions including Steven Johnson syndrome and toxic epidermal necrolysis, which this photo highlights.

Move the patient to the intensive care unit is correct. The patient has toxic epidermal necrolysis and requires close monitoring. The above image shows the patient has a positive Nikolsky sign so moving them to intensive care is the priority where they can be monitored and treated for any electrolyte loss.

Blood cultures is incorrect. The above image shows the patient has widespread peeling and blistering of the skin. Blood cultures will not help in the management of this person's condition as toxic epidermal necrolysis is caused by a drug reaction most likely due to starting on allopurinol. The patient's fever could indicate a potential infection however, a fever is a common feature of this drug reaction so blood cultures are not required.

Refer to ophthalmology is incorrect. The image shows widespread erythema and peeling of the patient's back however, the condition also usually affects the mucosal membranes such as the eyes or the mouth. The patient hasn't complained of any vision loss. Referral to ophthalmology is not the first-line management. The patient needs to begin treatment urgently to monitor their vitals. Once stable, the patient can be referred to ophthalmology.

Start IV antibiotics is incorrect. This is not a bacterial infection; it is a drug reaction so this is incorrect. The image shows the widespread detachment of the epidermis of the skin which is referred to as a positive Nikolsky sign. This is a typical feature of toxic epidermal necrolysis which is a drug reaction so you would not need to need to deliver antibiotics initially although they may be administered later on in treatment if an infection presents.

Start immunosuppressive therapy is incorrect. The image shows the patient has a widespread rash where the skin has begun to peel. As a result, the patient needs to be urgently moved from the emergency department to intensive care to be monitored. Immunosuppressive therapy can be used as a treatment option for this condition however it is not a typically used first-line - intravenous immunoglobulin is commonly used first-line.

Question:

A 65-year-old lady presents to the GP as she has noticed some small spots on her shoulder. She describes small lesions with a number of tiny blood vessels radiating from the middle. On examination you can press down on them, causing them to go white and then refill from the centre.

Which of the following conditions is this lesion associated with?

A.Diabetes

B.Hereditary hemorrhagic telangiectasia

C.Liver failure

D.Psoriasis

E.Addison's disease

Answer:Liver failure

Explanation:

Spider naevi can be differentiated from telangiectasia by pressing on them and watching them fill. Spider naevi fill from the centre, telangiectasia from the edge

Important for meLess important

This question is asking about a woman presenting with a lesion that sounds like a spider naevi. It is a small lesion surrounded by tiny blood vessels radiating from the middle. When compressed it refills from the centre, a fact used to differentiate it from telangiectasia, that would fill from the edge. Given this is a spider naevus the correct answer is liver failure which this is associated with.

Question:

You have a routine telephone consultation booked with Mrs McGoldrick, a 53-year-old lady who has been seeing the health-care assistant for blood pressure (BP monitoring). The health care assistant booked the appointment as readings have been consistently around 150/90mmHg. You look at the records and see she was commenced on amlodipine as she is of Caribbean origin, and she is taking 10mg once a day. Her only other medication is atorvastatin 20mg. The health care assistant has commented in the record that the patient confirms she does take her medications as prescribed.

What is the next step in managing Mrs McGoldrick's hypertension, according to NICE, bearing in mind her ethnic origin?

A.Alpha-blocker

B.Angiotensin II receptor blocker

C.Angiotensin-converting enzyme inhibitor

D.Spironolactone

E.Increase dose of atorvastatin

Answer:Angiotensin II 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

Alpha-blocker. Incorrect, this is normally a 4th-line option.

Angiotensin II receptor blocker. Correct, one of the changes in the 2019 update to the NICE guidelines on hypertension is that an angiotensin II receptor blocker (ARB) be considered in preference to an angiotensin-converting enzyme inhibitor (ACE inhibitor) in patients of black African/Caribbean family origin.

Angiotensin-converting enzyme inhibitor. Incorrect, one of the changes in the 2019 update to the NICE guidelines on hypertension is that an angiotensin II receptor blocker (ARB) be considered in preference to an angiotensin-converting enzyme inhibitor (ACE inhibitor) in patients of black African/Caribbean family origin.

Spironolactone. This is a possible 4th-line option.

Increase dose of atorvastatin. Incorrect answer as increasing her lipid modifying medication will not treat her hypertension.

Question:

A patient in the emergency department waiting room collapses after feeling unwell. When he is brought through to resus he is found to have a heart rate of 38bpm and a blood pressure of 86/60mmHg.

What is the first management step for this patient?

A.Amiodarone 300mg IV

B.Atropine 500micrograms IV

C.Bisoprolol 10mg

D.DC cardioversion

E.IV normal saline

Answer:Atropine 500micrograms IV

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 with signs of shock and an episode of syncope. Therefore this patient is unstable and requires atropine. This is given in boluses of 500micrograms up to 3mg.

Amiodarone is used in tachycardias.

Bisoprolol is used in rate control of longstanding tachycardias.

DC cardioversion is used in tachycardia. If this patient does not respond to atropine then transcutaneous pacing may be used but this is a different process to cardioversion.

IV saline would not be useful in this patient as his hypotension is due to his bradycardia as opposed to hypovolaemia.

Question:

You are a doctor working in the Emergency Department on Christmas Day. Your next patient is a 73-year-old female who presents with burning when passing urine. She has a past medical history of COPD and congestive cardiac failure. Seven days ago she completed a round of chemotherapy for breast cancer.

Observations:

Temperature 38.3ºC

Heart rate 74/min

Respiratory rate 22/min

Blood pressure 134/86mmHg

Oxygen saturations 91%

Examination is unremarkable except suprapubic tenderness and bilateral pitting oedema to the knees.

You are awaiting routine blood results.

What is the next stage of your immediate management?

A.Bladder scan

B.Add a D-Dimer to the bloods

C.Begin immediate empirical antibiotic therapy before receiving blood results

D.Prescribe a five day course of nitrofurantoin 50mg QDS

E.Request an urgent cardiology review

Answer:Begin immediate empirical antibiotic therapy before receiving blood results

Explanation:

A marker of neutropenic sepsis includes a known cause of neutropenia and a temperature of > 38 degrees

Important for meLess important

NICE guidelines for neutropenic sepsis (2016) state that neutropenic sepsis should be suspected in a person with a known cause for neutropenia (recent cancer treatment), presumed or confirmed infection, temperature >38ºC and respiratory rate >20 breaths per minute. Guidelines in the link below state it is important to not delay the administration of antibiotics whilst waiting for blood results. The choice of antibiotic used is dependent on local trust policy but usually involves piperacillin/tazobactam.

As there is not a history of retention a bladder scan would not be required.

A D-dimer would be raised in malignancy therefore is of little diagnostic value.

A cardiology review would be indicated here though this would not be in the immediate management of the patient.

https://cks.nice.org.uk/neutropenic-sepsis#!diagnosissub

http://www.christie.nhs.uk/media/3525/guidelinesforthemanagementofsepsisincludingneutropenicsepsis.pdf

Question:

A 36-year-old woman attends pre-conception counselling with her GP as she intends to begin trying for a baby. She currently feels fairly well but has a number of pre-existing conditions. She is quite obese (grade 2) and suffers from type 2 diabetes (managed with metformin), hypertension (ramipril), gastro-oesophageal reflux (ranitidine) and allergic rhinitis (loratadine). She also suffers from back pain and so takes paracetamol almost daily.

Which of her medications is contraindicated in pregnancy?

A.Paracetamol

B.Metformin

C.Ramipril

D.Ranitidine

E.Loratadine

Answer:Ramipril

Explanation:

ACE inhibitors are contraindicated in pregnancy (they cause foetal abnormalities and renal failure)

Important for meLess important

ACE inhibitors such as ramipril are contraindicated in pregnancy due to an increased risk of birth defects. They are thought to inhibit foetal urine production causing oligohydramnios. There is also an increased risk of cranial and cardiac defects.

None of the other medications are known to cause harm in pregnancy and therefore can be continued if indicated.

Question:

Which one of the following statements regarding the use of aspirin in patients who have ischaemic heart disease is correct?

A.Any patient with a 15% 10-year risk of a further cardiovascular event should take aspirin if there is no contraindication

B.Any patient with a 20% 10-year risk of a further cardiovascular event should take aspirin if there is no contraindication

C.Any patient with a 10% 10-year risk of a further cardiovascular event should take aspirin if there is no contraindication

D.Any patient over the age of 40 years should take aspirin if there is no contraindication

E.All patients should take aspirin if there is no contraindication

Answer:All patients should take aspirin if there is no contraindication

Explanation:

All patients with ischaemic heart disease should take aspirin if there is no contraindication. However, following recent changes to the guidelines patients who have other forms of cardiovascular disease (e.g. stroke and peripheral arterial disease) should be offered clopidogrel first-line.

Question:

An 85-year-old woman presents with a long history of poorly controlled type 2 diabetes mellitus presents to her GP complaining of a swollen right foot. She describes it as a 'gammy' foot and says she is always tripping over it. The pain is described as being 2 out of 10. The patient also describes reduced sensation up to her ankles.

On examination she has reduced sensation in both feet. The right midfoot is swollen, warm and slightly erythematous but there is no ulcer present. The dorsalis pedis pulse is difficult to feel on the right hand side.

An x-ray is requested:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Septic arthritis of the 1st metatarsophalangeal joint

B.Osteomyelitis

C.Charcot joint

D.Critical ischaemia of the right foot secondary to peripheral arterial disease

E.Gout

Answer:Charcot joint

Explanation:

The x-ray shows extensive bone remodeling / fragmentation involving the midfoot. In combination with the presence of a swollen, red, warm joint in a patient with a history of poorly controlled diabetes is highly suggestive of a Charcot's joint.

The x-ray findings are not consistent with osteomyelitis and questions would often give other clues such as an overlying ulcer, which is not present in this case.

Question:

A 42-year-old woman presents with fatigue and an inability to lose weight. Her thighs feel incredibly weak which has stopped her from being as active as usual. She has no past medical history and takes no regular medication. On examination, there is truncal obesity and abdominal striae. A low-dose dexamethasone test is ordered which shows elevated cortisol.

Subsequently, a high dose dexamethasone test is ordered which shows the following:

Cortisol 95 nmol/L (137 – 429 nmol/L)

ACTH 12 (0-50 ng/L)

Previous results show:

Cortisol 653 nmol/L (137 – 429 nmol/L)

ACTH 83 (0-50 ng/L)

What is the most likely cause of her presentation?

A.Adrenal adenoma

B.Adrenal insufficiency

C.Excess glucocorticoid use

D.Pituitary adenoma

E.Small cell lung cancer

Answer:Pituitary adenoma

Explanation:

In Cushing's disease, cortisol is not suppressed by low-dose dexamethasone but is suppressed by high-dose dexamethasone

Important for meLess important

Pituitary adenoma is correct. This patient has presented with signs and symptoms consistent with Cushing's syndrome (elevated cortisol, truncal obesity, abdominal striae, and myopathy). Dexamethasone suppression testing is used to help differentiate the cause of the raised cortisol levels. A low dose of dexamethasone can be given to the patient which mimics the effects of cortisol. The normal response would be for a reduction in cortisol via the negative feedback loop of the adrenal axis. However, in patients with Cushing's syndrome, the cortisol remains elevated. However, when given a higher dose of dexamethasone (8mg), the high level of dexamethasone is enough to act on the adrenal axis resulting in lower adrenocorticotrophic hormone (ACTH) levels and subsequently lower cortisol. This is known as Cushing's disease which is most commonly caused by a pituitary adenoma.

Adrenal adenoma is incorrect. This is a non-ACTH-dependent cause of Cushing's syndrome. Therefore under high-dose dexamethasone testing, although ACTH would be suppressed, cortisol levels will remain high which is not consistent with the findings in the stem.

Adrenal insufficiency is incorrect. This would cause reduced cortisol levels as opposed to the high levels of cortisol this patient has due to their Cushing's disease.

Excess glucocorticoid use is incorrect. The patient isn't taking any long-term steroids, this would not be the cause for the raised cortisol levels.

Small cell lung cancer is incorrect. The tumour in small cell lung cancer produces ectopic ACTH which under high dose dexamethasone testing would remain elevated along with cortisol and not be suppressed like this patient. Furthermore, the patient hasn't presented with any symptoms associated with lung cancer such as haemoptysis or persistent cough and has no smoking history.

Question:

A 40-year-old man is investigated for back pain. For the past few months he has been troubled with pain in his lower back which is typically worse in the morning and better by the end of the day. There is some radiation of pain to the right buttock but no leg pains. An x-ray of his lumbar spine is shown below

© Image used on license from Radiopaedia

What is the most likely cause of his back pain?

A.Lumbar disc prolapse at multiple levels

B.Osteopetrosis

C.Calcification of the vertebral artery

D.Spinal stenosis

E.Ankylosing spondylitis

Answer:Ankylosing spondylitis

Explanation:

This image shows the typical appearance of bamboo spine with a single central radiodense line related to ossification of supraspinous and interspinous ligaments which is called dagger sign. Ankylosing is detectable in both sacroiliac joints.

Note the history of morning pain is typical for an inflammatory arthritis such as ankylosing spondylitis.

Question:

A patient has been on an anti-psychotic drug for several years now. They have also recently started fluoxetine. They have presented to their GP complaining of disturbing symptoms including lip smacking, difficulty swallowing and excessive blinking. What is the most likely diagnosis?

A.Neuroleptic malignant syndrome

B.Malignant hyperthermia

C.Acute dystonia

D.Tardive dyskinesia

E.Serotonin syndrome

Answer:Tardive dyskinesia

Explanation:

Tardive dyskinesia presents after taking antipsychotics for a long period of time

Important for meLess important

This patient has presented with tardive dyskinesia which is a side-effect of antipsychotics after being on the drug for several years. The recently started fluoxetine is a red herring.

Neuroleptic malignant syndrome and acute dystonia - these symptoms usually present in the first few days/weeks of starting an anti-psychotic drug. As the patient has been on the drug for a few years, they are unlikely.

Malignant hyperthermia is a side effect of anaesthetic drugs

Serotonin syndrome presents with agitation, hyperthermia, hyperreflexia, sweating and dilated pupils.

Question:

A 24-year-old patient has had a sexual encounter and is concerned about his risk of acquiring a sexually transmitted Infection (STI). He has had one incidence of unprotected sex in the last 3 months - an encounter with a new, asymptomatic male partner, during which they both engaged in anilingus (oro-anal sex). They did not have penetrative sex.

Which STI is this patient most at risk of acquiring?

A.HIV

B.Hepatitis C

C.Hepatitis B

D.Hepatitis A

E.Oral candidiasis

Answer:Hepatitis A

Explanation:

Although Hepatitis B is associated with sexual transmission, anal-oral sex is responsible for the transmission of Hepatitis A

Important for meLess important

Although hepatitis B is generally associated with sexual transmission, anal-oral sex is responsible for the transmission of hepatitis A (transmitted through a faecal-oral route)

Hepatitis C is most commonly spread by exposure to contaminated blood or needles.

Candida is rarely transmissible, especially via oro-anal sex, and oral candidiasis should prompt a review of possible immunosuppression.

It would be incredibly unlikely for HIV to be transmitted in this way. HIV is not spread through saliva, and there would need to be bloody sores/wounds in both partners for transmission to be able to occur.

Question:

An 81-year-old woman is admitted to hospital with a urinary tract infection and subsequently diagnosed with stage 2 acute kidney injury (AKI). Her regular medications include aspirin 75mg daily, naproxen 250mg four times a day, lansoprazole 30mg daily, paracetamol 1g four times a day, metformin 500mg twice daily, lithium carbonate 1g daily and simvastatin 20mg at night. Some of her recent blood tests are shown below.

Na+ 137 mmol/L (135-145 mmol/L)

K+ 4.8 mmol/L (3.5-5.0 mmol/L)

Urea 8.3 mmol/L (2.0-7.0 mmol/L)

Creatinine 167 umol/L (55-120 umol/L)

eGFR 57 ml/minute (>90 ml/minute)

Which of her medications should be stopped due to a risk of worsening renal function?

A.Aspirin

B.Lithium

C.Metformin

D.Naproxen

E.Simvastatin

Answer:Naproxen

Explanation:

NSAIDs should be stopped in AKI except aspirin at cardio-protective dose

Important for meLess important

The correct answer is naproxen.

Naproxen is a non-steroidal anti-inflammatory drug (NSAID) that must be stopped in patients with an AKI.

Although aspirin is also an NSAID, this patient is taking a cardio-protective dose which should be continued.

Lithium is a mood stabiliser that should be reviewed in AKI and may need to be stopped. However, this is due to the increased risk of toxicity, it does not directly worsen renal function.

Metformin does not directly worsen renal function but patients with AKI are at an increased risk of lactic acidosis. The threshold for stopping metformin in AKI is usually an eGFR <45 ml/minute.

Simvastatin should be used with caution in patients with deteriorating kidney function, however, this is normally only considered an issue with an eGFR of <10 ml/minute. As this patient's eGFR is 57 it can be continued.

Question:

A 12-hour-old full-term neonate is trying to be fed by her mother. She has tried breastfeeding her but the neonate is unable to keep any contents down. You also notice that the vomit is green - leading you to think that it is bile stained. There were no complications at birth and it was a normal vaginal delivery. The baby looks healthy otherwise and is haemodynamically stable.

What is the likely diagnosis?

A.Intestinal atresia

B.Malrotation

C.Meconium ileus

D.Milk allergy

E.Necrotising enterocolitis

Answer:Intestinal atresia

Explanation:

Bilious vomiting on the first day is likely due to intestinal atresia

Important for meLess important

Bilious vomiting on the first day of life is likely going to be intestinal atresia, either duodenal atresia or ileal/jejunal atresia. This patient requires an ultrasound to confirm the diagnosis.

Malrotation usually presents on the 3rd day with haemodynamic instability. This patient is only within the first 24 hours of life so this is unlikely. It is still possible but it is not the best answer out of the options as intestinal atresia is more likely.

Meconium ileus usually presents with abdominal distention in the first 48 hours. The scenario states that the patient does not have any abdominal distention.

A milk allergy is unlikely as the vomiting is bile stained in the scenario. Milk allergies do not tend to present with bilious vomiting.

Necrotising enterocolitis usually presents with vomiting in the second week of life. The patient is only in the first 24 hours of life so whilst this is possible, there is a better answer which could be chosen.

Question:

A 68-year-old man is brought into the emergency department with sudden onset epigastric pain which he describes as burning in nature, radiating into his back. He has had an episode of vomiting and reports feeling nauseated still. His only past medical history is recurrent gallstones and is awaiting a semi-elective cholecystectomy. He takes no regular medications. On examination, he has jaundiced sclera. His abdomen is diffusely tender with guarding and there is some periumbilical superficial oedema and bruising. Bowel sounds are decreased on auscultation.

Given the likely diagnosis, what is an important feature of this patient's immediate management?

A.Aggressive fluid resuscitation

B.Immediate IV antibiotics (start with broad-spectrum if no culture sensitivity)

C.Strict input/output monitoring with cautious, slow fluid resuscitation

D.Strictly keep patient nil by mouth

E.Urgent total parenteral nutrition

Answer:Aggressive fluid resuscitation

Explanation:

Early fluid resuscitation is an important aspect of acute pancreatitis management

Important for meLess important

This vignette shows several features which point towards a diagnosis of acute pancreatitis:

Past medical history of gallstones.

Epigastric pain that is burning in nature, radiating into the back.

Nausea and vomiting.

Examination findings of jaundice and periumbilical bruising (known as Cullen's sign).

Abdominal tenderness with guarding.

Decreased bowel sounds on auscultation.

Observations that would be expected in this patient are tachycardia, fever, tachypnoea, hypotension, and potentially oliguria - depending on severity.

One of the key management protocols in acute pancreatitis is early and aggressive fluid resuscitation which is to correct the third space losses and increase tissue perfusion with the aim of preventing severe inflammatory response syndrome which can lead to pancreatic necrosis.

Antibiotic administration is a contentious topic in the management of acute pancreatitis and currently, the guidelines do not mandate urgent administration. There have been several studies showing contradictory information as to whether antibiotic prophylaxis protects against the development of pancreatic necrosis or not (see Johnson, 2005). At present, there is no consensus and, as such, this is not the most important feature in the management of a patient with acute pancreatitis.

Cautious fluid resuscitation is inappropriate in acute pancreatitis patients due to the high risk of developing SIRS secondary to third space losses, which can lead to pancreatic necrosis. Management of these patients should be with large volumes of IV fluids (which can be >3 litres per day). There should be input/output monitoring, however, fluid resuscitation should not be slow.

Keeping the patient nil by mouth is not strictly required in the management of pancreatitis. NICE 2018 guidelines that a patient with acute pancreatitis should not be made 'nil-by-mouth' or have food withheld unless there is a clear reason (such as vomiting). Historically, it was believed that the patient should 'rest' the pancreas and remain without food, however, this is no longer believed to be optimal as patients have increased caloric demands during infection.

Total parenteral nutrition is not a mainstay treatment for all patients with pancreatitis. This should only be offered to patients with severe or moderately severe disease (such as the patient in this vignette) if enteral feeding has failed or is contraindicated. It is evident that this patient has moderate to severe pancreatitis which will mean he requires enteral nutrition within 72 hours of admission, but he may not require parenteral nutrition.

Question:

A 48-year-old man with known stable angina is reviewed in the cardiac clinic. He takes aspirin and a statin and is established on a maximum dose calcium channel and beta-blocker however he is still experiencing chest discomfort on exertions requiring the use of his sublingual glyceryl trinitrate spray.

He is to be started on a third medication however due to the potential of tolerance with the standard-release form of this medication, an asymmetrical dosing regime is required. The regime and potential side effects are explained to the patient.

What medication is the patient due to be started on?

A.Isosorbide mononitrate

B.Ivabradine

C.Nicorandil

D.Ranolazine

E.Vardenafil

Answer:Isosorbide mononitrate

Explanation:

Asymmetric dosing regimes should be used for standard-release ISMN to prevent nitrate tolerance

Important for meLess important

This patient has presented with ongoing stable angina with symptoms precipitated by some form of activity. All angina patients should receive aspirin and a statin with a sublingual glyceryl trinitrate for acute episodes. Patients should initially be commenced on either a calcium channel blocker or a beta-blocker and if symptoms persist both in combination. If, as in this case, symptoms continue, a third agent such as isosorbide mononitrate (ISMN) can be considered. Unfortunately, many patients commenced on standard-release nitrates such as ISMN can develop tolerance and reduced efficacy and so NICE recommends that they be taken in an asymmetric dosing interval regime to maintain a daily nitrate-free time of 10-14hours. This reduces the risk of tolerance developing and the need for increased dosing.

Ivabradine is a hyperpolarisation-activated cyclic nucleotide-gated (HCN) channel blocker that produces a negative chronotropic effect in the sinoatrial (SA) node, reducing the heart rate and therefore symptoms of angina. Ivabradine reduces the heart rate via a separate mechanism than both calcium channel and beta-blockers and so can be used with the two agents. There is no clear evidence of ivabradine tolerance therefore an asymmetrical regime is not required.

Nicorandil is an anti-anginal agent with both nitrate and potassium channel agonist properties. Again, it can be used along with both calcium channel blockers and beta-blockers. Tolerance to nicorandil is rare so a standard dosing regime can be used.

Ranolazine affects sodium channels within the cardiac muscle reducing intracellular calcium levels. This in turn lowers the tension of the heart wall resulting in a reduction in oxygen requirements and angina symptoms. Ranolazine is not associated with tolerance and therefore does not require the use of an asymmetrical regime.

Vardenafil is a phosphodiesterase V (PDE5) inhibitor, a class of drug originally produced to treat angina and heart failure. Postproduction further studies found they provided sub-optimal cardiac symptom relief and instead caused vasodilation of other smooth muscles and pulmonary vessels. As such, PDE5 inhibitors are mainly used for conditions such as erectile dysfunction and pulmonary hypertension; they are no longer recommended for angina management. Tolerance is not associated with this agent.

Question:

A 64-year-old man with a history of type 2 diabetes mellitus presents to his GP with diplopia. He is usually fit and well, and manages his diabetes with metformin and a basal-bolus insulin regime.

On examination, he is unable to raise his left upper eyelid fully.

His blood results are shown below:

HbA1c 103 mmol/mol (26-41)

Given the likely cranial nerve involved, what other clinical signs would be present?

A.Absent oculocephalic reflex

B.Esotropia of the left eye

C.Head tilt

D.Inferolateral deviation of the left eye

E.Miosis of the left eye

Answer:Inferolateral deviation of the left eye

Explanation:

Ptosis - CN III

Important for meLess important

If ptosis is mentioned, think oculomotor nerve palsy. Diabetes, particularly if poorly controlled, is a risk factor for nerve palsies due to microangiopathy related neuropathy. A HbA1c of 103 mmol/mol indicates poor control.

Inferolateral deviation of the left eye is the correct answer. In a patient with oculomotor nerve palsy, there is unopposed activity from the lateral rectus and superior oblique muscles causing a 'down and out' eye.

Head tilt is seen in trochlear nerve palsy. These patients commonly present with vertical diplopia that is worse on looking in an inferomedial direction due to paralysis of the superior oblique muscle. Patients commonly develop a head tilt away from the lesion to compensate.

Esotropia is the term for an eye that is deviated inwards. This is the case in patients with abducens nerve palsy where there is paralysis of the lateral rectus muscle meaning the affected eye cannot abduct.

Miosis is incorrect. Mydriasis rather than miosis is seen in an oculomotor nerve palsy. Miosis is seen in Horner's syndrome, a disruption of the sympathetic nerve supply to the eye. You can also get ptosis with Horner's, but this is partial ptosis caused by disruption of sympathetic supply to Muller's muscle. Because the oculomotor nerve is still intact it is not complete ptosis.

Absent oculocephalic reflex is used to assess for brain stem death. A patient's head is rapidly turned from side to side, pausing at the end of each turn briefly. The eyes are held open and if they move in the opposite direction to the head turn we can conclude the brainstem (CN3, 6, 8) is functioning. This patient is not brain dead.

Question:

A 66-year-old man is diagnosed with a 3cm sliding hiatus hernia during an oesophagogastroduodenoscopy. He initially presented with 'burning' chest pain, halitosis and frequent belching. The patient does not smoke or drink alcohol and has a BMI of 34 kg/m².

What is the most appropriate management plan for this patient?

A.Lifestyle advice

B.Lifestyle advice and omeprazole

C.Omeprazole

D.Omeprazole and referral for laparoscopic fundoplication

E.Referral for laparoscopic fundoplication

Answer:Lifestyle advice and omeprazole

Explanation:

The vast majority of patients with hiatus hernias do not require surgical repair

Important for meLess important

Lifestyle advice and omeprazole is the correct answer. The patient's symptoms are best managed with lifestyle advice and proton pump inhibitors because they have a symptomatic hiatus hernia (acid reflux, 'burning' pain, halitosis and frequent belching).

Lifestyle advice is incorrect. Whilst this will form part of the management plan, this patient is symptomatic and therefore would likely benefit from pharmacological treatment.

Omeprazole is incorrect. Whilst this would provide symptomatic relief to this patent, they should also be informed of the benefits of weight loss and diet changes to their condition.

Omeprazole and referral for laparoscopic fundoplication is incorrect. Most patients with hiatus hernias do not require surgical intervention. This patient has only just been diagnosed with a sliding hernia and it is, therefore, appropriate to manage the patient with PPIs and lifestyle changes as a first-line intervention.

Referral for laparoscopic fundoplication is incorrect. The majority of patients with hiatus hernias can be managed without surgery. This patient is presenting with a sliding hiatus hernia without complications e.g. upper GI haemorrhage or necrosis. It is therefore appropriate to manage him with lifestyle and pharmacological interventions first line.

Question:

Mr Willow is a 75-year-old man who takes warfarin for atrial fibrillation. You have prescribed a new medication for him as treatment for an infection. A repeat INR was taken 3 days after starting his treatment. The level was 6.5.

Which of the following medications is most likely to have caused this?

A.Amikacin

B.Nitrofurantoin

C.Fluconazole

D.Vancomycin

E.Clindamycin

Answer:Fluconazole

Explanation:

Warfarin interacts with fluconazole and careful monitoring of INR is required

Important for meLess important

Fluconazole results in an increase in INR when taken with warfarin.

Amikacin, vancomycin, clindamycin and nitrofurantoin have no effect on the INR.

Question:

A 38-year-old woman is referred by the general practitioner as her recent blood test showed elevated creatinine and urea levels. Other blood test results are normal. She is oliguric but could produce enough sample for urine dip. Her urine is negative for red cells, nitrites and leucocytes. She was recently started on Ramipril for hypertension 3 weeks ago.

She is otherwise well. Her observations are within normal limits. The renal ultrasound shows two normal-sized kidneys with an unobstructed urinary system. Duplex ultrasound showed stenotic renal arteries. Subsequent MR angiography confirmed the diagnosis with the finding of 'string of beads' appearance of the renal arteries.

What is the most likely cause of this presentation?

A.Glomerulonephritis

B.Pyelonephritis

C.Fibromuscular dysplasia

D.Nephrotic syndrome

E.Nephrolithiasis

Answer:Fibromuscular dysplasia

Explanation:

Consider fibromuscular dysplasia in young female patients who develop AKI after the initiation of an ACE inhibitor

Important for meLess important

In young female patients who develop AKI after initiation of an ACE inhibitor, fibromuscular dysplasia should be suspected. In older persons, suspect atherosclerosis of renal arteries.

Fibromuscular dysplasia describes the proliferation of cells in the walls of the arteries causing the vessels to bulge or narrow. This most commonly affects women. These patients are susceptible to AKI after the initiation of an ACE inhibitor. The classic description is 'string of beads' appearance.

The normal urine dip results ruled out glomerulonephritis and nephrotic syndrome as the cause of kidney failure. Glomerulonephritis typically presents with haematuria with the presence of red cell casts. Nephrotic syndrome presents with heavy proteinuria, oedema and hypoalbuminaemia.

Nephrolithiasis typically presents with painful loin-to-groin pain. It does not cause acute kidney injury unless both kidneys are affected. This was ruled out by the renal ultrasound.

Question:

A 6-week old infant is reviewed in the GP surgery. He was delivered vaginally in breech position at 38+4 weeks gestation. There were no intrapartum complications. Two days after birth, he was noticed to be jaundice and had phototherapy which appeared to resolve the symptoms. The newborn physical examination (NIPE) was otherwise unremarkable. His mother has a history of anaemia, asthma, and coeliac disease. Today, the infant appears happy and is progressing well along the 45th centile.

What investigation should the GP refer the infant for due to his history?

A.Anti-TTG serum antibodies

B.Full blood count

C.Serum bilirubin levels

D.Ultrasounds of pelvis

E.Serum interleukin-6 (IL-6) and matrix metalloproteinase-9 (MMP-9)

Answer:Ultrasounds of pelvis

Explanation:

All breech babies at or after 36 weeks gestation require USS for DDH screening at 6 weeks regardless of mode of delivery

Important for meLess important

The correct answer is an ultrasound of the pelvis. This infant was delivered breech at 38+4 weeks and requires an ultrasound of the hips to assess for developmental dysplasia of the hips six weeks post-partum. Babies in the breech position have increased pressure on the hip joints which can lead to a greater risk of hip instability (hence, developmental dysplasia of the hips) than those in cephalic presentation.

The international hip dysplasia institute also notes that cultures that keep infant hips extended (on cradleboards or papoose boards) have higher rates of hip dysplasia in comparison with cultures that hold infants with their hips apart. Health visitors should, therefore, promote hip-safe methods of swaddling and advise carers to avoid swaddling the infant with the hips extended to reduce the pressure on hip joints.

Anti-TTG serum antibodies are useful to assess for coeliac disease in patients who consume gluten and are displaying symptoms of gluten intolerance. At 6-weeks, the infant should be exclusively consuming a milk diet (breast or formula-fed) and should not be consuming gluten. As such, it would be inappropriate to test the infant for this. Furthermore, there is no indication of malnourishment that would support a coeliac disease diagnosis.

A full blood count is an unnecessary test and is not indicated in this infant. While the infant's mother has a past medical history of anaemia, there is no evidence in the vignette that this baby is unwell or anaemic warranting a full blood count.

Serum bilirubin levels are useful in infants who are jaundiced. This infant was initially jaundiced (with jaundice appearing after 48 hours which indicates likely physiological jaundice) which resolve with phototherapy. There is no ongoing evidence of jaundice so it would be inappropriate to assess for hyperbilirubinaemia.

Serum IL-6 and MMP-9 are used in the assessment of severe asthma patients and are not used routinely in clinical practice for the assessment of the likelihood of developing asthma.

Question:

Toby, an 18-month-old baby boy, is brought to the general practitioner (GP) by his mother.

Toby first presented 6 months ago when his mother was concerned about a birthmark on his face. Examination at the time noted that the birthmark was macular, red in colour and had a poorly defined border. On repeat examination today, the birthmark appears to have resolved.

What is the most likely diagnosis for Toby's birthmark?

A.Café au lait spot

B.Infantile hemangioma

C.Mongolian blue spot

D.Port-wine stain

E.Salmon patch

Answer:Salmon patch

Explanation:

Salmon patches are a vascular birthmark which usually self resolve

Important for meLess important

Café au lait spots are macular and light-brown in colour. They do not fade with age and can increase in size with weight gain.

Infantile hemangioma is a benign condition due to proliferating endothelial cells. They can keep growing up to 18 months, and begins to involute over the next 3-10 years.

Mongolian blue spots are benign, macular congenital birthmarks. The discolouration usually spontaneously resolves by 4 years of age.

Port-wine stains are capillary malformations seen at birth. These persist throughout life.

Salmon patches are congenital capillary malformations seen at birth. They are often small, flat patches of pink or red skin with poorly defined borders. These tend to resolve by 18 months of age.

Question:

Which one of the following is least recognised as a cause of vertigo?

A.Gentamicin

B.Meniere's disease

C.Acoustic neuroma

D.Multiple sclerosis

E.Motor neuron disease

Answer:Motor neuron disease

Explanation:

Question:

You are seeing a G3P1 12-weeks pregnant woman in the GP surgery. She is worried because she developed postpartum psychosis in her previous pregnancy which resulted in a hospital admission.

How likely is she to develop this condition again?

A.It depends on the baby's sex

B.No increased risk as postpartum psychosis is very rare

C.5 %

D.25-50 %

E.95-100 %

Answer:25-50 %

Explanation:

The recurrence rate of postnatal psychosis is 25-50%

Important for meLess important

Postpartum psychosis is relatively rare in the general population, its incidence is 2 in 1000. However, if a woman has had a psychotic episode in the past, she has a 25-50 % chance of having postpartum psychosis.

This woman therefore needs a specialist referral to a perinatal mental health team in order to be monitored throughout her pregnancy and the postnatal period.

Ideally, she should have been referred for preconception advice before this pregnancy.

The baby's sex does not affect the recurrence rate.

Question:

A 67-year-old male presents to his GP with a 6-month history of progressive shortness of breath. He is now needing to stop a few times on the way to the corner shop to catch his breath, which is not normal for him. He smokes 25 cigarettes a day and has done so for the past 50 years, and drinks no alcohol. His only medication is atorvastatin.

On auscultation, there is a bilateral wheeze and coarse crackles at the lung bases.

A chest x-ray is requested by the GP which shows flattening of the diaphragm bilaterally, but is otherwise normal.

Spirometry is carried out, with the following results:

Result Reference Range

FEV1 (of predicted) 76% >80%

FEV1:FVC 0.64 >0.7

Based on the likely diagnosis, what is the most appropriate management?

A.Beclomethasone

B.Ipratropium

C.Montelukast

D.Salmeterol

E.Tiotropium

Answer:Ipratropium

Explanation:

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

Important for meLess important

Based on the history, examination and the obstructive spirometry results, this man most likely has chronic obstructive pulmonary disease (COPD). His smoking history is particularly relevant. Malignancy is an important differential, but the chest x-ray has excluded this.

NICE recommends offering a short-acting beta-2 agonist (SABA) or short-acting muscarinic antagonist (SAMA) as the first-line pharmacological treatment in COPD, to relieve breathlessness and improve exercise tolerance. Ipratropium is a SAMA, and so is the most appropriate treatment option here. Salbutamol (SABA) is also another option but is not mentioned.

Beclomethasone is an inhaled corticosteroid and is used second line with a long-acting beta-2 agonist (LABA), for those with asthmatic features or features of steroid responsiveness.

Montelukast is a leukotriene receptor antagonist (LTRA) used third line in asthmatic patients.

Salmeterol is a LABA and is used second line in COPD patients.

Tiotropium is a long-acting muscarinic antagonist (LAMA) and is used second line in COPD patients without asthmatic features or features of steroid responsiveness.

Question:

A 23-year-old male presents to the general practitioner with a 3-month history of worsening red, scaly patches predominantly affecting the posterior aspect of both forearms and his scalp. Management with topical corticosteroids and a vitamin D analogue provides significant improvement in his symptoms.

Which of the following would exacerbate this patient's likely diagnosis?

A.Exposure to Malassezia furfur

B.Lithium use

C.Recent streptococcal infection

D.Spicy food

E.Sun exposure

Answer:Lithium use

Explanation:

Psoriasis: lithium may trigger an exacerbation

Important for meLess important

Given the patient's presentation of scaly patches on the extensor surfaces of both forearms and scalp and their positive response to topical corticosteroids and vitamin D analogue, the most likely diagnosis is chronic plaque psoriasis. A common exacerbating factor of chronic plaque psoriasis is lithium use.

Exposure to Malassezia furfur is incorrect as this fungus causes seborrhoeic dermatitis, an autoimmune condition characterised by eczematous lesions on the scalp associated with otitis externa.

Recent streptococcal infection is incorrect as this commonly triggers guttate psoriasis, a condition characterised by teardrop papules on the trunk and limbs.

Spicy food is incorrect as this more commonly aggravates rosacea and gastro-oesophageal reflux disease (GORD).

Sun exposure is incorrect as this is usually beneficial in chronic plaque psoriasis. This does however aggravate rosacea.

Question:

A 2-month-old child with Down's syndrome is brought to the general practitioner by his parents who are concerned about him intermittently 'turning blue' and breathing quickly, particularly when he is upset or hurt. On two occasions this has caused him to lose consciousness. His parents inform you he has a congenital heart condition.

What condition is this history suggestive of?

A.Aortic stenosis

B.Atrial septal defect

C.Left ventricular hypertrophy

D.Overriding vena cava

E.Tetralogy of Fallot

Answer:Tetralogy of Fallot

Explanation:

Tetralogy of Fallot - infants may experience episodic hypercyanotic 'tet' spells that can result in loss of consciousness

Important for meLess important

This child is presenting with hyper cyanotic 'tet' spells, which occur due to near occlusion of the right ventricular outflow tract in Tetralogy of Fallot (TOF). Children with Down's syndrome are at higher risk of developing this congenital heart condition. The four features of tetralogy of Fallot are: ventricular septal defect (VSD), right ventricular hypertrophy, right ventricular outflow tract obstruction and an overriding aorta.

An atrial septal defect(ASD) can been in those with Down's syndrome. Approximately half of the children with Down's syndrome have congenital heart disease; most commonly an atrioventricular septal defect, then a ventricular septal defect. More rarely children with Down's syndrome have an ASD or TOF. However the history is very suggestive of tet spells, which are associated with TOF. ASD's are typically asymptomatic, with small defects usually closing spontaneously in childhood. Large defects that do not close spontaneously may present as exercise intolerance, cardiac dysrhythmias, or palpitations.

Aortic stenosis is not commonly associated with Down's Syndrome and unlikely to present in this manner. The symptoms of aortic stenosis vary, depending on the severity of the stenosis and age of the child. An infant may have trouble feeding and may not gain weight.

Left ventricular hypertrophy is not commonly associated with Down's Syndrome. It is rarely seen in children, however can be a marker of target organ damage in children with hypertension, obesity and chronic kidney disease.

An overriding vena cava is not a common cardiac abnormality. An overriding aorta is a feature of TOF.

Question:

A 23-year-old man is admitted with knife wounds to his back and buttocks following a fight. He refuses to talk to the police about the incident and asks that you not tell the police. As the emergency department doctor, what should you do?

A.Notify the police without telling the patient but withhold the patients personal details at this stage

B.Notify the police and give full details of the patient, the incident and the patients refusal regarding police involvement

C.Follow the patients wishes and don't notify the police

D.Tell the patient that you must notify the police but will not give their personal details to them at this stage

E.Tell the patient that you will withhold all treatment until they let you call the police as this is a public health issue

Answer:Tell the patient that you must notify the police but will not give their personal details to them at this stage

Explanation:

You should always tell a patient if you intend to break their confidentiality and attempt to explain why even if they do not agree with your decision.

GMC Guidelines state that you must notify the police in case of knife wounds caused as a result of a violent attack. This allows the police to assess the risk to the patient, the hospital staff and other members of the public, and the risk of further events. It also allows the police to gather statistical information about knife crime in the area.

Personal information about the patient should not usually be disclosed in the initial contact with the police, and they will respond even if the patient's identity is not disclosed.

Treatment should never be withheld from a patient who requires treatment unless there is a direct risk to medical staff.

Question:

A 56-year-old female presents with a new onset cough and wheeze. She also reports having a runny and blocked nose. On examination there is widespread bilateral expiratory wheeze on chest examination. Nasal polyps are also evident. A chest x-ray demonstrated pulmonary infiltrates.

What is the most appropriate test from the options below?

A.Anti-CCP (cyclic citrullinated peptide) antibody

B.Anti-Ro / Anti-La antibodies

C.ANCA (anti-neutrophil cytoplasmic antibody)

D.Anti-Jo1

E.Anti-dsDNA antibody

Answer:ANCA (anti-neutrophil cytoplasmic antibody)

Explanation:

Churg-Strauss syndrome - positive pANCA serology

Important for meLess important

The clinical features are suggestive of Churg-Strauss syndrome (also known as eosinophilic granulomatosis with polyangiitis). A positive ANCA (anti-neutrophil cytoplasmic antibody) can assist in making the diagnosis.

Question:

A 31-year-old female (P0 G1) is 30 weeks pregnant. She has recently been informed that her baby is in the breech position. A consultant has discussed the possible options with her, which include the external cephalic version (ECV). She wants to know when is the earliest time she can be offered ECV.

A.Immediately

B.39 weeks

C.37 weeks

D.36 weeks

E.38 weeks

Answer:36 weeks

Explanation:

As this lady is only 30 weeks pregnant, it would be advised to wait until she is 36 weeks to see if the baby has moved. In nulliparous women, like the lady in question, ECV should be offered from 36 weeks if the baby is still breech.

If the lady was multiparous ECV would be offered from 37 weeks.

RCOG ECV guidance

https://www.rcog.org.uk/globalassets/documents/guidelines/gt20aexternalcephalicversion.pdf

Question:

A 73-year-old man presents to his general practice with episodes of fever over the last 5 days. He has also noticed he has lost weight over the last month. On further questioning, he mentions a cough productive of white sputum which he has had for about 2 years. He also remembers having a sore throat about 2 weeks ago, which has now improved.

Past medical history consists of of chronic obstructive pulmonary disease, chronic lymphocytic leukaemia, hypertension, and type 2 diabetes.

On examination, his chest has mild wheeze without crackles. His throat appears clear and he has some lymph nodes palpable in his neck which are non-tender.

What investigation is most likely to reveal the diagnosis?

A.Blood culture

B.Direct Coombs' test

C.Lymph node biopsy

D.Sputum sample for MC&S

E.Throat swab

Answer:Lymph node biopsy

Explanation:

New B-symptoms in CLL -> Richter's transformation

Important for meLess important

This man has developed new B-symptoms on the background of existing chronic lymphocytic leukaemia (CLL). B-symptoms consist of fever, weight loss and night sweats. This should raise suspicion of Richter's syndrome, where CLL transforms into a more aggressive form of large cell lymphoma. This is often accompanied by the acute increase in lymph node size (usually painless) and splenomegaly. Richter's syndrome is diagnosed by lymph node biopsy, which allows it to be differentiated from a simple progression of the existing disease.

A blood culture would be used if infection was suspected. Weight loss and fever can be some of the presenting symptoms of certain infections, such as Tuberculosis (TB). Although you wouldn't be wrong to do a blood culture to investigate for infection, it is unlikely to be diagnostic in this case. It is more likely his symptoms are due to the progression of an existing condition (his CLL), rather than a new one, especially when paired with the new cervical lymphadenopathy. In infection, there may be a hint towards a potential source, such as a new cough or haemoptysis to suggest TB.

Although the patient has cervical lymphadenopathy, his doesn't complain of a sore throat. This makes a diagnosis of pharyngitis less likely, and so a throat swab less likely to be helpful in diagnosis.

A Direct Coombs' test looks antibodies attached to the surface of red blood cells. CLL is associated with warm autoimmune haemolytic anaemia, which would provide a positive result on Direct Coombs' test. However, this would present predominantly with symptoms of anaemia, such as fatigue and dyspnoea, rather than the symptoms in this case.

This patient has chronic obstructive pulmonary disease (COPD). Patients with COPD often have a chronic cough which is non-infective, which makes doing a sputum sample less likely to helpful in making the diagnosis.

Question:

A 42-year-old woman is investigated for lethargy and diarrhoea. Investigations reveal positive anti-endomysial antibodies. Each of the following food stuffs should be avoided, except:

A.Beer

B.Rye

C.Maize

D.Bread

E.Pasta

Answer:Maize

Explanation:

Question:

A 14-year-old girl attends the GP concerned that she has yet to start getting periods like the rest of her peers.

On examination, she is 144cm tall and has multiple melanocytic naevi on her arms, which she holds at a wide carrying angle at rest. Cardiovascular examination is normal and she has no relevant family history.

What is the most likely diagnosis?

A.Familial atypical multiple mole melanoma syndrome

B.Imperforate hymen

C.Noonan syndrome

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 correct. This girl has primary amenorrhoea, short stature, skeletal abnormalities and multiple melanocytic naevi, which are all signs of Turner's syndrome. Turner's syndrome is caused by either the presence of only one sex chromosome (X) or a deletion of the short arm of one of the X chromosomes. Other features include a webbed neck and shield chest. People with Turner's syndrome are also at higher risk of other abnormalities such as a bicuspid aortic valve, coarctation of the aorta and horseshoe kidney.

Familial atypical multiple mole melanoma syndrome is incorrect. This is an autosomal dominant condition, hence unlikely because in this scenario there is no family history of multiple malignant melanomas. Nor would this account for her short stature and amenorrhea.

Imperforate hymen is incorrect. This is rare, and patients with this would likely develop significant pain and bloating upon menstruation. Further, it would not account for her skeletal abnormalities and multiple melanocytic naevi.

Noonan syndrome is incorrect. This may also cause short stature and other dysmorphic features, however, it would not explain her primary amenorrhea.

Polycystic ovarian syndrome is incorrect. This could account for primary amenorrhea but would not explain the other signs such as short stature. In contrast to Turner's syndrome, girls with PCOS would be more likely to have advanced pubertal development due to hyperandrogenism. Therefore, Turner's syndrome is more likely in this scenario.

Question:

Polycystic ovarian syndrome (PCOS) increases the long-term risk of which of the following conditions?

A.Cervical cancer

B.Osteoporosis

C.Endometrial cancer

D.Endometriosis

E.Vulval intra-epithelial neoplasia

Answer:Endometrial cancer

Explanation:

PCOS is a common disorder, which is often complicated by chronic anovulation and hyperandrogenism.

Long-term complications include:

Subfertility

Diabetes mellitus

Stroke & transient ischaemic attack

Coronary artery disease

Obstructive sleep apnoea

Endometrial cancer

These complications are further increased in patients who are obese.

The increased risk of endometrial hyperplasia and carcinoma is due to oligo/amenorrhoea in the presence of pre-menopausal levels of oestrogen. This risk is greatest in women who have menstrual cycle lengths of >3months. This risk can be reduced by inducing a withdrawal bleed every 1-3 months (using a combined contraceptive pill or cyclical medroxyprogesterone) or with insertion of a mirena coil. Optimising BMI in overweight patients will help to regulate menstrual cycles, thereby reducing the risk of endometrial hyperplasia.

There is no increased risk of osteoporosis because there is no oestrogen deficiency.

RCOG Greentop guidelines. Long-term consequences of polycystic ovary syndrome.

Question:

A 40-year-old gardener presents with a 2-week history of gradually worsening pain in the left elbow. When the elbow is straight, the pain is worse on resisted wrist extension and supination.

What is the most likely diagnosis?

A.Anterior interosseous syndrome

B.Carpal tunnel syndrome

C.Lateral epicondylitis

D.Medial epicondylitis

E.Olecranon bursitis

Answer:Lateral epicondylitis

Explanation:

Lateral epicondylitis: worse on resisted wrist extension/suppination whilst elbow extended

Important for meLess important

The correct answer is lateral epicondylitis. This is caused by repetitive arm movements. Typically, the pain is worse on wrist extension against resistance, when the elbow is straightened.

Anterior interosseous syndrome is caused by damage to the anterior interosseous nerve, a branch of the median nerve. It usually presents with pain in the forearm and weakness of flexion of the index finger and the distal phalanx of the thumb.

The description is not typical of carpal tunnel syndrome, which would characteristically present with numbness or altered sensation, and/or pain in the distribution of the median nerve.

Medial epicondylitis is also known as golfer’s elbow. Pain is worse on flexion and pronation of the wrist.

Olecranon bursitis characteristically presents with both pain and swelling over the tip of the elbow.

Question:

A 68-year-old woman is found with a decreased level of consciousness at home by a neighbour. She has a past medical history of dyslipidaemia. She is on atorvastatin regularly. She lives alone and is a retired health care assistant.

She is brought to the emergency department via ambulance. On arrival, her observations are temperature 33.2ºC, heart rate 43 beats per minute, blood pressure 82/48 mmHg, respiratory rate 12/minute and oxygen saturations 93% on air.

On examination, she is cool to touch. Her Glasgow coma scale is E2V2M4 (8/15). Chest auscultation is normal. She has normal heart sounds and no murmur is audible. There is no peripheral oedema. Abdominal examination is unremarkable.

She is resuscitated initially with intravenous fluids, antibiotics and oxygen is administered. Despite this, she remains hypotensive (BP 85/51 mmHg), bradycardic (44 beats per minute) and hypothermic (34.2C). Her oxygen saturations are 96% on 1L.

Blood tests:

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

Female: (115 - 160)

Platelets 175 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 127 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 68 µmol/L (55 - 120)

CRP 3 mg/L (< 5)

TSH 38miU/L (0.2 - 5.5)

FT4 1.3 pmol/L (10 - 24.5)

What is the most appropriate management?

A.IV thyroid hormone replacement

B.IV thyroid hormone replacement + IV hydrocortisone

C.IV thyroid hormone replacement + IV noradrenaline

D.IV thyroid hormone replacement + IV terlipressin

E.IV thyroid hormone replacement + IV NaCl 1.8%

Answer:IV thyroid hormone replacement + IV hydrocortisone

Explanation:

If myxedema coma is suspected, IV corticosteroids should be given alongside IV thyroid replacement until coexisting adrenal insufficiency has been excluded

Important for meLess important

IV thyroid hormone replacement is incorrect. This woman has presented with myxedema coma (confusion, bradycardia, hypothermia and profoundly hypothyroid) so she will intravenous thyroid replacement.Both liothyronine (T3) and levothyroxine (T4) are required. However, administering intravenous thyroid hormone replacement can precipitate an Addisonian crisis in someone with co-existing adrenal insufficiency and so intravenous hydrocortisone must be administered at the same time.

IV thyroid hormone replacement + IV hydrocortisone is the right answer. In a patient with myxedema coma, it is important to administer intravenous hydrocortisone at the same time as intravenous thyroid hormone replacement, to avoid precipitating an Addisonian crisis.

IV thyroid hormone replacement + IV noradrenaline is incorrect. While noradrenaline would raise this patient's blood pressure if an Addisonian crisis were precipitated it would not correct some of the other physiological abnormalities that would result e.g. hypoglycaemia.

IV thyroid hormone replacement + IV terlipressin is incorrect. IV terlipressin is a synthetic vasopressin analogue that causes vasoconstriction. It is principally used in the management of variceal bleeding. While this patient's haemoglobin is a little low, her urea is normal, she is not tachycardic and there is no clinical evidence of melena or haematemesis, making a variceal bleed quite unlikely.

IV thyroid hormone replacement + IV NaCl 1.8% is the wrong answer. The patient does not present as a case of life-threatening hyponatraemia. The use of hypertonic saline is typically reserved for those cases of low sodium (typically < 125mmol/L) that present with seizures. In any case, if the cause of low sodium was adrenal insufficiency, hydrocortisone replacement would correct the underlying pathophysiology.

Question:

A 53-year-old female patient has recently been diagnosed with tuberculosis. She has attended clinic today to undergo a review ahead of starting drug therapy. Importantly, during this consultation, she must have her visual acuity checked, as one of the medications that will be used can cause visual disturbances.

Which medication may cause this potential adverse effect?

A.Isoniazid

B.Ethambutol

C.Pyrazinamide

D.Clarithromycin

E.Rifampicin

Answer:Ethambutol

Explanation:

Visual acuity must be tested prior to initiating treatment with ethambutol

Important for meLess important

Optic neuritis is an extremely important adverse effect of ethambutol to remember. This can significantly impact a patient’s life, so in order to prevent this from occurring, visual acuity should be checked before, and during, the treatment of tuberculosis.

The other answers are associated with the following adverse effects:

1 - Isoniazid - hepatitis, agranulocytosis

3 - Pyrazinamide - hepatitis, arthralgia, myalgia, gout

4 - Clarithromycin - GI upset, cholestatic jaundice - used for various mycoplasma infections e.g. mycoplasma pneumoniae

5 - Rifampicin - hepatitis, orange bodily secretions

Specifically, in this case, ethambutol is the only medication to cause visual problems as an adverse effect.

Question:

A 2-year-old boy presents to the emergency department with a 2 day history of vomiting intermittently. He has been generally unwell but has had episodes of inconsolable crying. Parents have become concerned following a dirty nappy that contained both stool and blood. They have brought this nappy with them and on inspection there appears to be formed stool with streaks of jelly like blood.

On examination the boy is quiet and pale. His capillary refill time is 2-3 seconds peripherally. He has very mild increased work of breathing with normal heart sounds on auscultation. His abdomen is tender on palpation with guarding centrally. You are unable to palpate any obvious masses.

His observations are as follows-

Blood pressure 90/50 mmHg

Heart rate 145 bpm

Respiratory rate 32/min

Saturations 95% in air

Following stabilisation of the child, which investigation would be the most helpful in confirming a diagnosis for ongoing management?

A.Abdominal CT

B.Abdominal X-ray

C.Abdominal ultrasound scan

D.Barium enema

E.Chest X-ray

Answer:Abdominal ultrasound scan

Explanation:

Ultrasound is the investigation of choice for intussusception

Important for meLess important

Abdominal ultrasound scan is the investigation of choice as has very specificity and sensitivity rates and does not use any ionising radiation. A classic target or bull's eye sign is seen.

There is no indication for a CT scan to diagnosis intussusception, which is the most likely diagnosis in a child with vomiting, intermittent abdominal pain and/or distress and a redcurrant jelly like stool. Whilst it does demonstrate classical features of the condition, its ionising radiation can be avoided using other imaging modalities.

Abdominal X-ray may show a mass in the upper right quadrant with a crescent lucency of gas, or perforation. However it cannot exclude intussusception and may be falsely reassuring.

Traditionally a barium enema would be the investigation of choice for both diagnostic and therapeutic reasons. However, it is associated with a risk of bowel perforation, whilst abdominal USS is safer, more comfortable for the child, and less invasive, and so is preferable to confirm diagnosis prior to reduction by air insufflation.

A chest x-ray may rule out perforation, but will not indicate an intussusception itself.

Question:

A 30-year-old woman attends an ultrasound scan at 36 weeks due to gestational diabetes. This shows a breech presentation. She has a successful external cephalic version (ECV) at 37 weeks and her baby is born vaginally at 40+5 weeks. On the initial postnatal check, both Ortolani's and Barlow's tests are negative. Mums' blood glucose levels return to normal after birth.

Which of the below investigations will be required?

A.Ultrasound hips of baby at 6 weeks

B.X-ray hips of baby at 6 weeks

C.Ultrasound hips of baby within 48 hours of birth

D.X-ray hips of baby within 48 hours of birth

E.75g 2-hour oral glucose tolerance test (OGTT) for Mum at 6 weeks

Answer:Ultrasound hips of baby at 6 weeks

Explanation:

All breech babies at or after 36 weeks gestation require USS for DDH screening at 6 weeks regardless of mode of delivery

Important for meLess important

All breech babies at or after 36 weeks gestation, irrespective of presentation at delivery and mode of delivery, require an ultrasound scan of their hips at 6 weeks to screen for developmental dysplasia of the hip (DDH). Although this baby had normal Ortolani's and Barlow's tests, they still require an ultrasound as DDH might still develop and sometimes is missed on examination. Although an ultrasound should be performed, it needs to be done within 6 weeks of delivery, not 48 hours.

An X-ray is not the imaging modality used to screen for DDH as an ultrasound scan is used.

Mum will require repeat testing of her blood glucose at 6-13 weeks post-birth due to her gestational diabetes. This is done using a fasting plasma glucose test and not an OGTT. If not performed by 13 weeks a fasting plasma glucose test should still be offered.

Question:

A 46-year-old lady had some bloods done as she was feeling tired all the time. All blood tests were normal except for her thyroid function test (TFT) which showed:

TSH 12.5 mU/l

Free T4 7.5 pmol/l

What is the most appropriate management?

A.Carbimazole

B.Carbimazole + levothyroxine (block and replace)

C.Levothyroxine

D.Radioactive iodine

E.Iodine supplementation

Answer:Levothyroxine

Explanation:

The TFTs show hypothyroidism and the treatment is levothyroxine. Carbimazole is used to treat hyperthyroidism and would not be appropriate in this case. Levothyroxine must be taken 30 minutes before food as it's absorption may be affected by food, caffeine or other medications.

Question:

An 18-month-old boy is brought to the emergency department with a 1-day history of rectal bleeding. His parents describe noticing fresh blood in his nappies mixed with his stool.

On general inspection, he is alert, active, afebrile and hemodynamically stable. He has non-specific abdominal tenderness without guarding. There is no active bleeding.

An abdominal ultrasound is performed, which is unremarkable.

A diagnosis of Meckel's diverticulum is suspected.

Based on these findings, what is the next best investigation for this patient?

A.Abdominal X-ray

B.Faecal calprotectin

C.Routine barium study

D.Stool culture

E.Technetium scan

Answer:Technetium scan

Explanation:

A technetium scan is the investigation of choice for stable children with suspected Meckel's diverticulum

Important for meLess important

Technetium scan is the correct answer. The most sensitive study is a Meckel radionucleotide scan (also known as a technetium-99m pertechnetate scan). In symptomatic Meckel's, intestinal epithelium alongside gastric and sometimes pancreatic tissue is seen in the protrusion. The mucoid cells in the protrusion will accumulate the technetium, allowing it to be visualised on the scan. The patient in the vignette is stable, does not have peritonism, is less than 2 years old and has had rectal bleeding. Meckel's diverticulum should be suspected as it accounts for over 50% of all lower GI bleeds in children under the age of 2. Meckel's diverticula increase the risk of intussusception, however, the patient is stable and does not have the characteristic red-jelly stools described in the vignette.

Faecal calprotectin is incorrect. This test is used when there is suspicion of inflammatory bowel disease. There is no evidence to suggest that the patient in the vignette has inflammatory bowel disease as there would be a chronic history of diarrhoeal illness and failure to thrive. Inflammatory bowel disease is also very rare in infancy and Meckel's diverticulum must be ruled out first.

Abdominal X-ray is incorrect. An abdominal X-ray would be indicated in a child with suspected perforation if there was evidence of peritonism (guarding, rebound tenderness, shock). This child is described to be clinically well. Plain abdominal radiographs are of no value in the diagnosis of Meckel's diverticulum as the protrusion would not be visualised, and therefore the diagnosis cannot be ruled in or out.

Routine barium study is incorrect. Barium studies are used when there is suspicion of oesophageal motility disorders, strictures, or perforation. The patient in the vignette does not have a history of swallowing difficulty or signs/symptoms of peritonism. Furthermore, the barium study rarely fills the diverticulum and as a result, Meckel's diverticulum cannot be ruled in or out.

Stool culture is incorrect. A stool culture would be indicated if the presentation is suspicious of infectious colitis (diarrhoea associated with intake of contaminated food/water, with/without fever, with/without diarrhoea). Typically, there would also be a prodrome of non-bloody diarrhoea, followed by bloody diarrhoea. There is no evidence in the vignette to suggest that the patient has infectious colitis as they are afebrile and the abdominal ultrasound is normal.

Question:

A patient presents with gum problems. His dentist has told him that the appearances may be related to his long-term medication.

© Image used on license from DermNet NZ

Which one of the following medications is most likely to be responsible?

A.Cyclophosphamide

B.Ciclosporin

C.Methotrexate

D.Sulfasalazine

E.Diclofenac

Answer:Ciclosporin

Explanation:

Gingival hyperplasia: phenytoin, ciclosporin, calcium channel blockers and AML

Important for meLess important

Question:

You have just assisted with the normal vaginal delivery of a baby girl, during the delivery there was a large amount of meconium. On observation of the baby just after the birth the presence of which of following would prompt you to get the baby seen by the neonatal team?

A.Respiratory rate 75/minute

B.Baby crying

C.Heart rate of 145/min

D.Capillary refill of <3 seconds

E.Temperature of 36.5 ºC

Answer:Respiratory rate 75/minute

Explanation:

The correct answer here is a respiratory rate of 75/min. As per the NICE guidelines if any of the following are observed after any degree of meconium, then baby must be assessed by the neonatal team;

respiratory rate above 60 per minute

the presence of grunting

heart rate below 100 or above 160 beats/minute

capillary refill time above 3 seconds

temperature of 38°C or above, or 37.5°C on 2 occasions 30 minutes apart

oxygen saturation below 95%

presence of central cyanosis

Question:

You are a doctor on a general surgery ward. You are asked to review an elderly 50kg female who is recovering from a left hemicolectomy which finished approximately 24 hours ago. Her medical history includes hypertension and hyperlipidaemia.

Intra-operatively there was significant blood loss and the patient was transfused two units of packed red blood cells. The patient is catheterised and has passed 240mL of urine since the operation.

You review her drug chart to find that she has not been prescribed maintenance fluids and she is nil by mouth.

Her U&Es from this morning are as follows.

Na+ 140 mmol/L

K+ 5.0 mmol/L

Corrected Ca2+ 2.6 mmol/L

Urea 30 mmol/L

Creatinine 120μmol/L

Which of the following is the most likely diagnosis?

A.Acute kidney injury stage 1

B.Acute kidney injury stage 2

C.Acute kidney injury stage 3

D.Chronic kidney disease stage 1

E.Chronic kidney disease stage 2

Answer:Acute kidney injury stage 3

Explanation:

KDIGO AKI stage 3

↑ creatinine >3.0 times, or

↓ urine output <0.3 mL/kg/hr for ≥ 24 hours

Important for meLess important

Acute kidney injury is staged by KDIGO using either creatinine or urine output. When considering this patient's urine output, weight, and duration of time since the operation on average she has passed 0.2mL/kg/hr of urine since the operation (urine output divided by the number of hours divided by weight in kilograms = 240mL divided by 24 hours divided by 50kg = 0.2mL/kg/hr). Thus, despite her creatinine not meeting the criteria, she is considered to have a stage 3 acute kidney injury based upon her urine output alone.

There is insufficient evidence to ascertain whether this patient has chronic kidney disease or not however, there is no mention of it in the past medical history. If possible, previous medical records and blood tests would be reviewed to ascertain the patient's baseline kidney function.

Question:

A 23-year-old woman presents with a two month history of cough and intermittent fever. Her chest x-ray is shown below:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Pneumonia

B.Tuberculosis

C.Bronchiectasis

D.Lung cancer

E.Aspergilloma

Answer:Tuberculosis

Explanation:

The two month history makes a diagnosis of pneumonia less likely.

Question:

A baby is born by elective Caesarean section at 38 weeks performed due to pregnancy-induced hypertension. At one hour the female baby is noted to be grunting with mild intercostal recession. Oxygen saturations are 95-96% on air. What is the most likely cause of her respiratory distress?

A.Surfactant deficient lung disease

B.Congenital pneumonia

C.Transient tachypnoea of the newborn

D.Persistent pulmonary hypertension of the newborn

E.Pulmonary hypoplasia

Answer:Transient tachypnoea of the newborn

Explanation:

Question:

A mother brings her 6-year-old son into surgery. He is not doing well at school and she worries he may be 'hyperactive'. Which one of the following features is not consistent with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD)?

A.Poor concentration

B.Impulsiveness

C.Uncontrolled activity

D.Repetitive behaviour

E.Extreme restlessness

Answer:Repetitive behaviour

Explanation:

Repetitive behaviour is not part of the diagnostic criteria for ADHD and may suggest a disorder on the autistic spectrum.

Question:

A 73-year-old man with metastatic prostate cancer is undergoing active treatment under urology and oncology. He complains that over the last few months, he has developed breasts. He finds the appearance bothersome.

What is the most likely cause of his symptoms?

A.Brachytherapy

B.Dexamethasone

C.Docetaxel

D.Leuprorelin

E.Zoledronic acid

Answer:Leuprorelin

Explanation:

GnRH agonists (e.g. goserelin) used in the management of prostate cancer may result in gynaecomastia

Important for meLess important

Leuprorelin is correct. Leuprorelin, an LHRH agonist, is used in prostate cancer to achieve androgen deprivation (a treatment that lowers testosterone levels). This acts to block the stimulating effects of androgens on prostate cancer cell growth. Gynaecomastia is therefore a common complication of hormonal treatment for prostate cancer. Treatment options include tamoxifen and radiation therapy.

Brachytherapy is incorrect. Brachytherapy is a type of radiotherapy in which the radiation is given using either permanently implanted radioactive seeds (low dose rate) or temporarily inserted radioactive sources (high dose rate) directly into the prostate. Common side effects are therefore locally related - including erectile dysfunction, infertility and bowel/bladder symptoms.

Dexamethasone is incorrect. Similar to docetaxel, corticosteroids (e.g. dexamethasone) are a treatment option for hormone-refractory prostate cancer. Common side effects include weight gain, indigestion, sleep disturbance and mood changes.

Docetaxel is incorrect. As per NICE CKS guidelines, docetaxel is a chemotherapeutic agent used (in combination with prednisolone) for hormone-resistant metastatic prostate cancer. Side effects are similar to other chemotherapy drugs, including the risk of infection, anaemia, bruising/bleeding, nausea, loss of appetite, sore mouth, diarrhoea, hair loss, skin and nail changes, and peripheral neuropathy.

Zoledronic acid is incorrect. Bisphosphonates such as zoledronic acid should be offered to people who are having androgen deprivation therapy and have osteoporosis. They can also be considered for pain relief in people with hormone-refractory prostate cancer when other treatments (including analgesics and palliative radiotherapy) have failed. Side effects include flu-like symptoms, bone pain, tiredness, headaches, nausea and diarrhoea.

Question:

A 45-year-old woman is prediabetic (HbA1c 44 mmol/mol) and is enquiring about being prescribed liraglutide which she has heard about from a friend.

Given she is prediabetic, what other criteria must she meet to be considered for liraglutide under NICE guidance?

A.BMI > 25 kg/m2

B.BMI > 35 kg/m2

C.BMI >30 kg/m2

D.Being prediabetic is the only criteria

E.Hypertension

Answer:BMI > 35 kg/m2

Explanation:

Liraglutide should be considered as an adjunct for weight loss in obese class II patients who are prediabetic

Important for meLess important

BMI >35 kg/m2 is correct. Current NICE criteria for the use of liraglutide requires the person to have a BMI of at least 35 and to have prediabetic hyperglycaemia (e.g. HbA1c 42 - 47 mmol/mol).

BMI > 25 kg/m2 and > 30 kg/m2 is incorrect as the NICE guidelines state that the person must have a BMI of at least 35 to be considered for liraglutide.

Being prediabetic is the only criteria is incorrect as the BMI is also considered.

Hypertension is incorrect as this is not currently one of the criteria that needs to be met for the use of liraglutide.

Question:

You are shadowing a registrar on the acute medical unit, who is asked to help their consultant confirm a suspected case of brain stem death.

Which of the following would the doctors be assessing for?

A.Babinski reflex

B.Moro reflex

C.Corneal reflex

D.Ankle jerk reflex

E.Jaw jerk reflex

Answer:Corneal reflex

Explanation:

There are 6 tests to confirm brain death; pupillary reflex, corneal reflex, oculo-vestibular reflex, cough reflex, absent response to supraorbital pressure, and no spontaneous respiratory effort

Important for meLess important

There are 6 tests to confirm brain death. Corneal reflex is the only reflex of this list to be tested for in suspected brain stem death.

Babinski reflex is a test of upper motor neuron damage

Moro reflex is a primitive reflex tested for in neonates

Ankle jerk reflex is deep tendon reflex and tests cutaneous innervation, motor supply, and cortical input at the S1 level

Jaw jerk reflex is a cranial nerve reflex, but is not routinely tested for in suspected brain stem death

Question:

A 55-year-old man attends the emergency department with sudden-onset central chest pain. The pain radiates to his left arm, neck and back. He has a background of hypertension for which he takes ramipril 10mg and amlodipine 10mg each day.

On examination, he is sweating profusely. He has a heart rate is 99bpm with a blood pressure of 198/110mmHg. His left hand is cold with a capillary refill time of 6 seconds and absent radial pulse. On auscultation, chest sounds are clear with saturations of 92% on room air. There is an audible diastolic murmur.

Investigations:

Troponin 12 ng/L ( < 14)

D-Dimer 22,050 ng/mL (< 400)

CRP 3 mg/L (< 5)

ECG: ST-elevation in II, III and aVF.

Which of the following is the investigation of choice to confirm the likely diagnosis?

A.CT aortic angiogram

B.CT pulmonary angiogram

C.Chest x-ray

D.Coronary angiography

E.Echocardiogram

Answer:CT aortic angiogram

Explanation:

CT angiography is the investigation of choice for suspected aortic dissection (depending on stability of patient)

Important for meLess important

This patient is having an aortic dissection. The classical history of severe chest pain radiating to the back is given here. A history of hypertension is common and high blood pressure may be seen on clinical examination. Other features include a prolonged capillary refill time, absent peripheral pulses, narrow pulse pressure and diastolic murmur. It is common to see a raised D-dimer with a normal troponin. Additionally, in aortic dissection, ST-elevation can be seen in the inferior leads secondary to dissection of the right coronary artery. The imaging of choice is a CT aortic angiogram.

A CT pulmonary angiogram would be more appropriate if the suspecting diagnosis was a pulmonary embolism. A raised D-dimer can suggest a pulmonary embolism. However, a significantly raised result should also raise suspicion of a dissection particularly if the patient presents with chest pain radiating to the back.

A chest x-ray could potentially should a widened mediastinum that may help aid the diagnosis of an aortic dissection. However, it is much less sensitive than a CT aortogram and is therefore not the investigation of choice.

Transfer to the cardiac catheter lab for a coronary angiography would be an appropriate choice if this patient was having a myocardial infarction. It should always be considered when a patient’s ECG features ST-segment elevation. However, the ECG combined with the clinical history of chest pain radiating to the back, an audible diastolic murmur and raised D-dimer is more suggestive of an aortic dissection.

An echocardiogram can be used in the diagnosis of an aortic dissection, particularly in a haemodynamically unstable patient. However, this patient's blood pressure is raised rather than demonstrating hypotension making a CT aortic angiogram the more appropriate choice.

Question:

A 70-year-old female attends the emergency department with her daughter who reports a 2-week history of confusion (misplacing items and using the oven to boil an electric kettle) and left-sided leg weakness. The patient's daughter believes these symptoms have led to her falling twice in the past week. The patient's daughter is upset as she has been away for the past two weeks and thinks the twice-daily carers attending in her absence should have brought her mother in sooner. The patient's only past medical history is chronic alcoholism but she has now been sober for 5 years. Bloods are sent and a CT head shows a hypodense crescentic lesion seen on the right side.

What is the most appropriate management for this patient?

A.Burr hole evacuation

B.Conservative management

C.Decompressive craniectomy

D.High dose steroids

E.Nimodipine

Answer:Burr hole evacuation

Explanation:

Burr hole evacuation is the most likely operation to be done for symptomatic chronic subdural bleeds

Important for meLess important

This patient is presenting with symptomatic subdural haemorrhage - she is experiencing symptoms of altered mental state and a neurological deficit. Neurological deficits in subdural haemorrhage are typically contralateral (as in this instance where the lesion is seen on the right side of the head, but the patient is experiencing left-sided symptoms). 74% of patients with chronic subdural haemorrhage will have a reported history of falls - it is known that falls are a risk factor for chronic subdural haemorrhage but falls may also increase in frequency following the bleed due to altered mental state and/or neurological deficit. Management for symptomatic chronic subdural haemorrhage is with the evacuation of the blood through burr holes.

If the patient was asymptomatic and the subdural haemorrhage was found incidentally, there may be a preference for conservative management. As there is evidence of a rapidly worsening ability to perform normal activities of daily living (ADLs), it would be preferable for the patient to have surgery to attempt to return her to a level similar to her baseline.

A decompressive craniectomy is the management choice for symptomatic acute subdural haemorrhage. This is a more invasive surgery than a burr hole procedure and is not necessitated in most cases of chronic subdural haemorrhage. Decompressive craniectomy can be useful if there is reaccumulation of blood or there is a solid haematoma that cannot be removed via burr hole evacuation.

High dose steroids is a potential management option that was explored in a 1970s study of patients presenting with asymptomatic, chronic subdural haemorrhages. However, the cohort used in this study was a small number and there were limited supporting studies to allow this to become a mainstream management option. As the vignette shows a patient with relatively extensive symptoms, conservative management with a limited beneficial adjuvant drug would be inappropriate.

Nimodipine is a calcium channel antagonist used in the management of subarachnoid haemorrhage with the aim of preventing secondary cerebral ischaemia. It acts to increase cerebral vasodilation to prevent this complication from occurring. As the patient has not had a subarachnoid haemorrhage, this is an inappropriate answer.

Question:

A 43-year-old female presents to the general practitioner with a 5-month history of feeling generally unwell, weakness, weight loss and salt craving. She has a past medical history of tuberculosis infection (TB). Examination identifies hyper-pigmentation of the palmar creases.

What is the most likely pathological process of this patient's presentation?

A.Alcohol excess

B.Catecholamine excess

C.Hypercortisolism

D.Primary hyperaldosteronism

E.Primary hypoaldosteronism

Answer:Primary hypoaldosteronism

Explanation:

Addison's disease - hyperpigmentation of the palmar creases

Important for meLess important

The correct answer is primary hypoaldosteronism (Addison's disease). This patient is presenting with symptoms of weakness, weight loss and salt craving. When considered in combination with the examination findings of hyperpigmentation of the palmar creases a diagnosis of primary hypoaldosteronism is likely. Given her past medical history, this is likely secondary to TB reactivation.

Alcohol excess is incorrect. This can mimic Cushing's syndrome and is therefore likely to produce symptoms that are the opposite of what this patient is presenting with (e.g. central obesity, abdominal striae and a bull neck) and would not explain the examination findings. There is also no mention of alcohol excess in the history.

Catecholamine excess is more suggestive of a pheochromocytoma, which would present with headaches, palpitations, and diaphoresis. The examination would also be likely to identify hypertension and not hyperpigmentation of the palms.

Hypercortisolism (Cushing's syndrome) is incorrect, because this is likely to produce symptoms that are the opposite of what this patient is presenting with (e.g. central obesity, abdominal striae and a bull neck) and would not explain the examination findings.

Primary hyperaldosteronism (Conn's syndrome) is incorrect. While this may cause weakness, it is also likely to produce increased urination and thirst, neither of which are seen in this patient. This diagnosis is also likely to produce hypertension and not hyperpigmentation of the palms.

Question:

A 4-year-old boy presents to the GP with the sudden onset of limp. He is otherwise well. On examination, he has an antalgic gait.

An MRI scan shows reduced perfusion to the right hip. The doctor suspects Perthes' disease.

What is the most appropriate management?

A.Pavlik harness

B.Oral flucloxacillin

C.Send to emergency department for IV flucloxacillin

D.Surgical repair

E.Observation

Answer:Observation

Explanation:

Perthes' disease presenting under the age of 6 years has a good prognosis requiring only observation

Important for meLess important

Hip pain with a limp can be caused by Perthes' disease, which is confirmed in this question by the demonstration of reduced perfusion to the hip on MRI.

Surgical repair of Perthes' disease is only indicated in children age >6. In those age <6, the prognosis is good with no intervention.

Flucloxacillin is indicated in septic arthritis, which is not the diagnosis as the patient is systemically well. A Pavlik harness is used in developmental dysplasia of the hip.

Question:

A 35-year-old man with a history of asthma presents to his GP with a 6-month history of bilateral nasal obstruction with rhinorrhoea. There is no blood-stained discharge or epistaxis. He is otherwise well. His asthma is well controlled with a medium-dose inhaled corticosteroid. He has tried saline nasal washes from the pharmacist and is wondering if there is anything else he can try.

On examination, his observations are within the normal range. His ears and throat are unremarkable. You can see suspected nasal polyps in both nostrils.

What is the most appropriate initial management?

A.Increase inhaled corticosteroid to high dose

B.Intranasal antihistamine spray

C.Intranasal steroid spray or drops

D.Urgent referral to the ear, nose and throat (ENT) team

E.A course of oral prednisolone for 5-10 days

Answer:Intranasal steroid spray or drops

Explanation:

Topical corticosteroids can be used to shrink nasal polyps

Important for meLess important

Intranasal corticosteroid spray or drops can be used to shrink nasal polyps. Options include intranasal mometasone furoate, fluticasone furoate, or fluticasone propionate. Drops may be preferred if there is severe obstruction. Intranasal corticosteroids should be trialled for 4-6 weeks.

If topical steroids do not work oral steroids may be considered whilst awaiting ENT review.

All patients with suspected nasal polyps should be referred routinely to the ENT team. Urgent referral is recommended if there are unilateral symptoms or blood-stained discharge as this increases suspicious of cancer.

Intranasal antihistamine spray and is licensed for allergic rhinitis, not nasal polyps.

Increasing his inhaled corticosteroid if his asthma is well controlled is not clinically indicated and is not management for nasal polyps.

Question:

A 53-year-old man with a history of type 2 diabetes mellitus is reviewed in the diabetes clinic. Twelve months ago his HbA1c was 83 mmol/mol (9.7%) despite maximal oral hypoglycaemic therapy. Insulin was started and his most recent HbA1c is 66 mmol/mol (8.2%). He is considering applying for a HGV licence and asks for advice. What is the most appropriate advice?

A.He cannot drive a heavy goods vehicle if he is taking insulin

B.He may be able to apply for a HGV licence if he meets strict criteria relating to hypoglycaemia

C.He should stop insulin and start meglitinide

D.As under 55 years of age there is no requirement to inform the DVLA

E.He needs to have been stable on insulin for at least 5 years before applying

Answer:He may be able to apply for a HGV licence if he meets strict criteria relating to hypoglycaemia

Explanation:

Patients on insulin may now hold a HGV licence if they meet strict DVLA criteria

Important for meLess important

Question:

A 72-year-old woman is investigated for shortness of breath. Auscultation of the lungs reveals fine bibasal crackles. Which one of the following set of results would be most consistent with a diagnosis of pulmonary fibrosis?

A.FEV1 - reduced, FEV1/FVC - reduced

B.FEV1 - increased, FEV1/FVC - reduced

C.FVC - increased, FEV1/FVC - increased

D.FEV1 - normal, FEV1/FVC - reduced

E.FVC - reduced, FEV1/FVC - normal

Answer:FVC - reduced, FEV1/FVC - normal

Explanation:

Question:

A 79-year-old woman presents to the Emergency Department with fluctuating consciousness, speaking with incoherent statements. Her grandson mentions that she has a 5-year history of dementia and lives alone. On history and examination, the most likely diagnosis appears to be delirium secondary to a urinary tract infection. However, the patient resists all forms of care.

What must be done before the patient can be treated under the Mental Capacity Act (MCA)?

A.A formal capacity assessment must be performed and documented before treatment under the Mental Capacity Act (MCA)

B.A psychiatric consultation must be requested as the Mental Health Act is more applicable in this scenario

C.Treatment can be commenced immediately as lack of capacity can be assumed in this scenario

D.The patient does not fulfil the criteria to be treated under the Mental Capacity Act

E.The patient needs to be briefly assessed with no documentation necessary before treatment initiation

Answer:A formal capacity assessment must be performed and documented before treatment under the Mental Capacity Act (MCA)

Explanation:

A formal capacity assessment stating the patient does not have capacity must be documented before a patient can be treated under the MCA

Important for meLess important

The completion and documentation of a formal capacity assessment before the patient can be treated under the Mental Capacity Act is the correct answer. This means that the patient lacks the capacity for this specific treatment decision.

The Mental Health Act is the incorrect framework as it deals with primary psychiatric disorders. The Mental Capacity Act is the correct framework that should be used as delirium secondary to an infection is a physical illness that has affected brain function.

Lack of capacity cannot bet assumed in this situation. This may be assumed in a life-threatening situation when there is not sufficient time for a formal capacity assessment, which is a separate common law framework.

The statement that the patient does not fulfil the criteria for treatment under the Mental Capacity Act is incorrect as the patient likely has a disturbance in the functioning of their brain secondary to a physical illness. This results in impaired decision-making capacity and hence fulfils the criteria to be treated under the Mental Capacity Act.

Documentation must be done before the patient can be treated under the Mental Capacity Act.

Question:

You see a 4-year-old boy in clinic with his parents. His parents are concerned that he is having difficulty growing.

On examination of his growth chart he has slipped from the 80th percentile for height and weight to the 20th percentile in the last six months. They also mention that their son has been very lethargic in the last month. On examination you note some abdominal distention.

You suspect that this child may have coeliac disease. Which blood test from the list below is the most appropriate to aid a diagnosis coeliac disease at this time?

A.Total IgA + IgA tTG

B.IgG EMA + IgG DGP

C.Total IgG + IgG tTG

D.Human leukocyte antigen DQ2 (DQ2.2 and DQ2.5)

E.Anti-Saccharomyces cerevisiae mannan antibodies (ASCA)

Answer:Total IgA + IgA tTG

Explanation:

NICE guidance suggest that serological testing should be offered to those with:

persistent unexplained abdominal or gastrointestinal symptoms

faltering growth

prolonged fatigue

unexpected weight loss

severe or persistent mouth ulcers

unexplained iron, vitamin B12 or folate deficiency

type 1 diabetes, at diagnosis

autoimmune thyroid disease, at diagnosis

irritable bowel syndrome (in adults)

first-degree relatives of people with coeliac disease.

NICE also advises that IgA and IgA tTG antibody testing is the first line test of choice.

Question:

A 40-year-old woman presents to her general practitioner with concerns about her voice. She is a professor at a University and has noticed her voice becomes quieter as lectures progress. There has been one occasion where at the end of her lecture she couldn't speak at all for an hour. This is not associated with any pain or hoarseness of voice.

She has also noticed her facial expression appears more sad than usual. She has drooping eyelids, her jaw sometimes hangs down allowing her mouth to open, and she cannot hold a smile for long.

She has a past medical history of coeliac disease and type 1 diabetes.

Given her likely diagnosis, what test should be carried out for diagnosis?

A.Antibody screen

B.Chest X-ray

C.Electromyography

D.MRI head

E.PHQ-9

Answer:Antibody screen

Explanation:

Myasthenia gravis - antibodies against acetylcholine receptors

Important for meLess important

This patient presents with progressive hypophonia and weakness of facial muscles, including the 'hanging jaw sign. These are both signs of muscle weakness that occurs with use - which is the typical presentation of myasthenia gravis. The muscle weakness in myasthenia gravis becomes progressively worse during periods of activity (i.e. giving a lecture or holding facial expressions) and improves after periods of rest.

Myasthenia gravis is an autoimmune condition in which there are antibodies against acetylcholine receptors in the neuromuscular junction. The diagnosis is made more likely due to the presence of coeliac disease and type 1 diabetes, which are other autoimmune conditions. This woman is the correct age for typical presentation too - it is expected in women under 40, and men over 60.

The diagnostic investigation is a blood test to look for the specific antibodies against the acetylcholine receptors - therefore an antibody screen is the correct answer.

A chest x-ray is incorrect. It may indicate a large thymus, or a thymoma, which is commonly associated with myasthenia gravis, but it is not necessarily diagnostic. Equally, a chest x-ray could be used to look for Lambert-Eaton syndrome, which is similar to myasthenia gravis but is a paraneoplastic syndrome of small-cell lung cancer. In the absence of other symptoms, this diagnosis is very rare, and myasthenia gravis is more likely.

Electromyography is incorrect. It can be used to observe the slowness of some muscle fibres to respond to stimulation. It is considered the most sensitive test for myasthenia gravis, but not the most specific, and is not usually used for diagnosis.

MRI head is incorrect. It may be used if Parkinson's disease was the most likely diagnosis. This disease presents with hypophonia and blunted affect - which is similar to this presentation. However the key difference is the progressive nature of the hypophonia, and progressive muscle weakness described.

PHQ-9 is incorrect. It would be carried out if depression was considered to be the diagnosis. Psychomotor retardation may present similarly to this case, however more predominant mood symptoms would need to be present for this to be more likely than myasthenia gravis.

Question:

A 57-year-old nulliparous female is seen in the gynaecology outpatient department with a 2-month history of postmenopausal bleeding. She has a past medical history of type 2 diabetes mellitus. Her last menstrual period was 4 years ago.

Transvaginal ultrasound shows an endometrial thickness of 8mm and the results of a pipelle biopsy are reported as follows:

'There is evidence of increased gland-to-stroma ratio, with some evidence of nuclear atypia'.

What is the most appropriate management option?

A.Endometrial ablation

B.Hysterectomy alone

C.Hysterectomy with bilateral salpingo-oophorectomy

D.Mirena coil

E.Observation alone

Answer: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

Hysterectomy with bilateral salpingo-oophorectomy is the recommended management for postmenopausal women with atypical endometrial hyperplasia due to increased risk of ovarian malignancy if bilateral salpingo-oophorectomy is not performed.

Endometrial ablation is not recommended in the management of endometrial hyperplasia due to the risk of intrauterine adhesion formation and irreversible destruction of the endometrium.

Hysterectomy alone may be considered in premenopausal patients with atypia, or those without atypia who fail to respond to medical management or have persistent bleeding. However, the royal college of obstetrics and gynaecology green-top guidelines state that bilateral salpingectomy should still be considered in these patients due to the risk of further ovarian malignancy.

A levonorgestrel-releasing intrauterine system such as the Mirena coil is the first-line treatment in hyperplasia without atypia.

Observation alone may be acceptable in patients without atypia, as in the majority of cases the disease will regress spontaneously. However, patients should be informed that the rate of disease regression is higher with progestogen treatment.

Question:

A 22-year-old asthmatic woman has been admitted to the emergency department after developing seizures during her pregnancy. She is currently 36 weeks pregnant and has been diagnosed with pregnancy-induced hypertension by her GP. She is currently taking oral medication to help control this. Urinalysis shows proteinuria (3+) and her blood pressure is noted to be raised at 170/115 mmHg. The child is thus delivered and the patient's seizures have consequently stopped.

What treatment option for her seizures is most appropriate following delivery, considering her most likely diagnosis?

A.Labetalol

B.Magnesium sulphate for 12 hours after delivery/last seizure

C.Magnesium sulphate for 24 hours after delivery/last seizure

D.Magnesium sulphate for 48 hours after delivery/last seizure

E.Nifedipine

Answer:Magnesium sulphate for 24 hours after delivery/last seizure

Explanation:

Magnesium treatment should continue for 24 hours after delivery or after last seizure

Important for meLess important

Magnesium sulphate for 24 hours after delivery/last seizure is the correct answer. Magnesium sulphate should continue for 24 hours after delivery or after the last seizure. This is used to treat and prevent seizures in a mother with eclampsia. The patient in this case is presenting with the features required for a diagnosis of eclampsia. There is a large amount of protein in the patient's urine and she is more than 20 weeks gestation and has pregnancy-induced hypertension. Thus, she is required to be admitted due to her seizures and hypertension, and knowing that it is best she has her child delivered she is required to continue magnesium treatment for 24 hours after the delivery or last seizure. Magnesium itself is useful for seizures in pregnancy as it relaxes smooth muscle tissues which help to prevent seizures and slow uterine contractions.

Labetalol is the incorrect answer. The question asks what should be given to treat her symptoms following delivery considering her likely diagnosis. This is commonly given during pregnancy for pregnancy-induced hypertension. The patient in this case requires magnesium sulphate for 24 hours after delivery last seizure. It is likely her blood pressure will begin to stabilise over time and she will no longer require long-term medication such as labetalol. The patient in this case is also asthmatic, so she may likely have been taking nifedipine (with hydralazine) to treat her high blood pressure as this would be more suitable.

Magnesium sulphate for 12 hours after delivery/last seizure is the incorrect answer. Guidelines recommend that the most appropriate time to continue treatment for magnesium sulphate for seizures following delivery is 24 hours and not 12 hours.

Magnesium sulphate for 48 hours after delivery/last seizure is the incorrect answer. The guidelines suggest that the most appropriate time to continue magnesium sulphate for eclampsia-induced seizures is 24 hours after delivery/last seizure. The patient's seizures have stopped post-delivery, so 24 hours is the most appropriate answer from the options available.

Nifedipine is the incorrect answer. This is usually given during pre-eclampsia for pregnancy-induced hypertension. The patient has not developed severe eclampsia. The question also asks what is most appropriate for her seizures post-delivery; likely, she will no longer require pregnancy-induced hypertension medications to help control her high blood pressure. However, nifedipine would be the most likely medication the patient could have been taking before her diagnosis of eclampsia for her hypertension due to being asthmatic.

Question:

A 28-year-old pregnant woman wishes to receive the measles, mumps and rubella (MMR) vaccination. She has never received any MMR vaccination and is worried that her baby may be infected as a result. She is currently 12-weeks pregnant and there are no sick contacts around her.

Which of the following is the correct response in this scenario?

A.Give her an one-off dose of MMR vaccine during her current visit

B.Give her separated doses of measles, mumps and rubella vaccines at 2 weeks interval

C.Advise her to come back at 24 weeks pregnant to receive a one-off dose MMR vaccine

D.Give her the measles and mumps vaccines during her current visit, but refrain from giving the rubella vaccine at any stage of her pregnancy

E.Refrain from giving her any MMR vaccination now and at any stage of her pregnancy

Answer:Refrain from giving her any MMR vaccination now and at any stage of her pregnancy

Explanation:

MMR vaccines should not be administered to women known to be pregnant or attempting to become pregnant; to avoid becoming pregnant for 28 days after receipt of MMR vaccine (CDC 2013)

Important for meLess important

MMR vaccine is a type of live attenuated virus. It should not be administered to women known to be pregnant or attempting to become pregnant, be it separately or combined. Women should be advised to avoid becoming pregnant for 28 days after receipt of the MMR vaccine. [CDC 2013]

The patient should be informed that the MMR vaccine is contraindicated in pregnancy. Pregnant mothers who are not immuned towards MMR should instead be advised to stay away from people with one of these diseases.

Inadvertent MMR vaccination in the periconception period or in early pregnancy should not be considered an indication for termination of pregnancy. [ACOG]\*

\*Practice Advisory: Management of Pregnant and Reproductive-Aged Women during a Measles Outbreak. The American College of Obstetricians and Gynecologists

Question:

A 58-year-old depressed male takes ciclosporin after a recent liver transplant. Two weeks later, he develops flu-like symptoms, a fever of 39ºC, and a reduced urine output.

Which of the following substances is likely to account for his presentation?

A.Fluvoxamine

B.Amiodarone

C.St John's-wort

D.Cimetidine

E.Ciprofloxacin

Answer:St John's-wort

Explanation:

St John's Wort is an inducer of the P450 system and can decrease ciclosporin levels, leading to transplant rejection

Important for meLess important

St John's-wort is an inducer of the P450 system and would decrease ciclosporin levels, ultimately leading to transplant rejection.

All the other options are inhibitors of the P450 system and would increase ciclosporin plasma levels.

Question:

A 52-year-old woman attends clinic for investigation of abdominal pain and constipation. On examination you note blue lines on the gum margin. She mentions that her legs have become weak in the past few days. What is the most likely diagnosis?

A.Acute intermittent porphyria

B.Lead poisoning

C.Constipation

D.Guillan Barre syndrome

E.Rectal carcinoma

Answer:Lead poisoning

Explanation:

Abdominal pain, constipation, neuropsychiatric features, basophilic stippling → lead poisoning

Important for meLess important

The combination of abdominal pain and a motor periperal neuropathy, should indicate this diagnosis. The blue line along the gum margin can occur in up to 20% patients with lead poisoning.

Question:

A 32-year-old woman attends her general practice for a routine asthma review. She has had no acute exacerbations in the past 3 years and has reported not using her blue reliever inhaler for the past 6 months.

She has currently prescribed salbutamol as required and a once-daily Seretide 500/50 (fluticasone propionate/salmeterol).

The asthma nurse is considering beginning to step down her treatment.

What is the most appropriate prescription today?

A.As required salbutamol and Seretide 250/25

B.As required salbutamol and Seretide 250/50

C.As required salbutamol and Seretide 500/25

D.As required salbutamol only

E.Seretide 250/25 only

Answer:As required salbutamol and Seretide 250/50

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

The correct answer is as required salbutamol and Seretide 250/50. This prescription keeps her as required salbutamol since asthmatics should always have a supply of this in case of flares, or for occasional usage. It reduces the inhaled corticosteroid (ICS) component of her combination inhaler by 50% (from 500 to 250), which is the appropriate step-down level. It additionally keeps the salmeterol (long-acting beta-agonist (LABA)) static, which is recommended by NICE in step-down guidance.

As required salbutamol and Seretide 250/25 is incorrect. Whilst this is the correct reduction for her inhaler corticosteroids, and it correctly leaves her with her as required salbutamol, it is inappropriate to reduce her LABA before attempting to reduce the ICS.

As required salbutamol and Seretide 500/25 is incorrect. This changes the LABA component without changing the ICS component which is not advised by NICE.

As required salbutamol only is incorrect. Switching from a high dose of both ICS and LABA to no preventer inhalers would risk provoking an exacerbation. ICS and LABA should be stepped down slowly.

Seretide 250/25 only is incorrect. Removing the reliever inhaler from her prescription would be dangerous as it would mean if she were to have an attack, she wouldn't have medication to help her.

Question:

While working in an emergency department you are called to resus to see a 7-year-old who has come in with an allergic reaction. Her teacher is present. She had been on a school trip when another pupil gave her a peanut and she started to become short of breath, pale, sweaty and experienced tingly and swollen lips and tongue. Based on your observations she is in anaphylactic shock and requires emergency treatment.

Her teacher informs you that her parents refuse any 'modern medicine'. They have threatened the school with litigation if they ever give her any such treatments.

What is the most appropriate course of action?

A.Wait until your senior dealing with a major haemorrhage is free to give advice

B.Try to contact her parents by phone to obtain their consent for treatment

C.Consult the pharmacist for alternative medical therapies for anaphylaxis

D.Provide the emergency treatment immediately

E.Try to support her with only oxygen and fluids

Answer:Provide the emergency treatment immediately

Explanation:

The key to answering this question is understanding that Anaphylactic shock is an Emergency.

This makes any delay in treatment unacceptable as in 1 and 3.

It also means that incorrect treatment will not be sufficient and may lead to death, as in 5.

This leaves you with 2 and 4. As above, it is important to understand that the key to this situation is that you are dealing with an emergency and that not treating it will likely lead to serious deterioration for the child or even death. The GMC states that you do not need consent to provide Emergency Treatment to a child or young person if it means saving their life or avoiding such deterioration.

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidance2223makingdecisions.asp

Question:

A 57-year-old woman has breast cancer and, among her other treatments, she is being given trastuzumab. Which of the following is a reason for treating breast cancer with trastuzumab?

A.ER +ve

B.HER2 +ve

C.Radiotherapy is contraindicated

D.She is postmenopausal

E.Tumour stage 3 or above on TNM staging system

Answer:HER2 +ve

Explanation:

HER2 +ve women can be given herceptin (trastuzumab)

Important for meLess important

Only women who are HER2 +ve can be given herceptin (trastuzumab). ER +ve women can be given tamoxifen or aromatase inhibitors (depending on their menopausal status).

Question:

A 16 year old girl presents to her GP with abdominal pain which occurs at the end of each month. She has not started her periods yet, but has secondary sexual characteristics. Pregnancy test is negative and she is not sexually active. Which is the most likely diagnosis?

A.Imperforate hymen

B.Bicornuate uterus

C.Pelvic Inflammatory Disease

D.Dermoid cyst

E.Endometriosis

F.7%

Answer:Imperforate hymen

Explanation:

The above history suggests there is an obstruction to menstrual flow (since other secondary sexual characteristics have developed and due to the cyclical abdominal pain). Bicornuate uterus, dermoid cysts, endometriosis and pelvic inflammatory disease are not causes of primary amenorrhoea.

Question:

A 37-year-old man presents to your clinic with otalgia. He was seen in the emergency department 2 days previously but was discharged with advice only. He has now had otalgia for 5 days.

On examination, he has a temperature of 38.5ºC, and he has a red bulging ear drum on the right. How should you manage this gentleman?

A.Advise on regular paracetamol and return if no better

B.Start erythromycin

C.Start penicillin V

D.Start amoxicillin

E.Start co-amoxiclav

Answer:Start amoxicillin

Explanation:

This is a case of otitis media. Although 50% of these cases are viral, and 60% improve without antibiotics, guidelines would advocate treatment after a delay of 2-3 days if there is no improvement in symptoms. Especially in this case, where the gentleman has a temperature and therefore evidence of systemic involvement. Therefore, advising regular paracetamol is not correct in this case.

Erythromycin is a useful alternative to patients who are penicillin allergic, and especially as a syrup in children (as it costs less than some alternatives!) but would not be first line in someone who can take penicillin.

Penicillin V is the first line antibiotic for tonsillitis due to amoxicillin having the potential to cause a rash in cases of glandular fever. However, it is not generally used in otitis media.

Amoxicillin is the correct first-line medication for treating otitis media at 500mg TDS for 7 days.

Co-amoxiclav is used as a second line agent if amoxicillin doesn't work, but wouldn't be used first line according to current guidelines.

References: NICE Guidelines, Clinical Knowledge Summaries

Question:

A man is admitted from the angiography suite after the cardiologist discovered severe triple vessel disease. He awaits transfer to a tertiary hospital for a coronary artery bypass graft. Around 48 hours into his admission you are called to see him as he has become confused, sweaty, tremulous, and agitated.

His observations show a pyrexia at 37.9ºC, heart rate of 105 bpm, and blood pressure 175/98mmHg.

You review his record and note a history of asthma, variceal bleed, and cirrhosis secondary to alcohol excess.

Given the likely diagnosis, what would be the most appropriate immediate intervention?

A.CT head

B.Chlordiazepoxide

C.IV antibiotics

D.Intravenous hydration

E.Pabrinex

Answer:Chlordiazepoxide

Explanation:

Chlordiazepoxide or diazepam are used in the treatment of delirium tremens/alcohol withdrawal

Important for meLess important

Alcohol withdrawal usually presents within hours to days of alcohol cessation. Symptoms include agitation, confusion, autonomic dysfunction (e.g. high blood pressure, sweating and pyrexia, raised heart rate), hallucinations, and tremors.

Chlordiazepoxide is the correct answer. Chlordiazepoxide, diazepam, and lorazepam are used to treat alcohol withdrawal.

IV antibiotics are not the best answer here. Although confusion, sweating, and agitation can be signs of potential infection when we take into account the alcohol history for this patient the most likely diagnosis is delirium tremens as a result of alcohol withdrawal. If there were any concerns regarding infection it would not be unreasonable to give antibiotics, but this would not treat alcohol withdrawal. The blood pressure is high, rather than low as is often the case in infection, which is a hint.

Intravenous hydration is important if patients are diaphoretic with high insensible fluid losses. In this case, it is not the best answer as it would not treat the main problem which is alcohol withdrawal.

Pabrinex does have a role in the treatment of alcohol withdrawal in that it can help prevent the development of Wernicke's encephalopathy (manifested by confusion, ataxia, and ophthalmoplegia). It does not, however, have any effect on the symptoms of delirium tremens and does not reduce the risk of alcohol withdrawal-related seizures. Chlordiazepoxide is therefore the most correct answer.

CT head is not the best answer here. In this case, we have an agitated patient and this can be an indication for a CT head to exclude an intracranial cause. There is no history of trauma, no mention of any focal neurological finding, and there is a good alternative explanation for the presentation. CT head would therefore not be the best immediate intervention.

Question:

A 27-year-old man presents to the emergency department with severe abdominal pain and vomiting. He is visibly distressed. His heart rate is 97bpm, his blood pressure is 106/66 mmHg and his respiratory rate is 25/min with oxygen saturation of 96% on room air.

His venous blood gas shows the following:

pH 7.13 7.35 - 7.45

pO2 6.2 kPa 4.0 - 5.3

pCO2 3.6 kPa 5.5 - 6.8

HCO3 12.3 mmol/L 22.0 - 28.0

Base excess 3.6 mEq/L -2 - +2

Na 148 mmol/L 135 - 145

K 5.0 mmol/L 3.5 - 5.0

Glucose 25.7 mmol/L 4.0 - 11.0

Lactate 6 mmol/L 0.5 - 1.6

Blood ketones are 3.7 mmol/L.

What first-line treatment should be commenced?

A.1L of IV 0.45% sodium chloride over 1 hour

B.1L of IV 0.9% sodium chloride over 1 hour

C.500ml of IV 0.45% sodium chloride over 5 minutes

D.500ml of IV 0.9% sodium chloride over 5 minutes

E.IV insulin infusion at 0.1 unit/kg/hour

Answer:1L of 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

This patient has diabetic ketoacidosis, confirmed by his blood gas and blood ketones. He is severely acidotic but his systolic blood pressure is not less than 90 mmHg. In DKA patients will typically be in a fluid deficit of around 7 litres. Treatment typically should replace 50% of fluid within the first 12 hours of treatment when patients are not at risk of developing fluid overload. Hence initial management should be 1L 0.9% sodium chloride administered over 1 hour.

If his blood pressure were to be less than 90mmHg a 500ml of 0.9% sodium chloride over 5 minutes would be appropriate for initial management. Given that his blood pressure is above 90mmHg systolic, this is the incorrect answer.

1L of 0.45% sodium chloride over 1 hour should only be administered in an intensive care setting and would not be appropriate initial management. 0.9% sodium chloride should always be tried initially.

500ml of IV 0.45% sodium chloride over 5 minutes would not be appropriate, both because 0.45% sodium chloride is only administered in intensive care settings, but also this form of fluid would not usually be given in the form of boluses as it risks rapid shifts in sodium concentration.

Insulin infusion would be appropriate for this patient, however, as per the joint British diabetes societies DKA guidelines, sodium chloride should always be the first-line management, even before insulin.

Question:

Your next patient in an antenatal clinic is a woman who is 30 weeks pregnant. Which of the following findings during your examination would you be concerned with?

A.Fundus palapable above the umbilicus but below the xiphisternum

B.Fundal height growth of 2cm per week

C.Breech presentation

D.Able to auscultate the foetal heart

E.Free head on palpation

Answer:Fundal height growth of 2cm per week

Explanation:

The correct answer here is a fundal height growth of 2cm per week. After 24 weeks you would only expect the fundal height to increase by 1cm a week. You would, therefore, be concerned that either there is an unknown multiple pregnancy or the baby is big for dates and further investigations should be carried out.

You would expect the fundus to be palpable at the umbilicus from 20 weeks and at the xiphoid sternum from 36 weeks.

You would expect the head to be free on palpation until about 37 weeks in a nulliparous woman, but often in multiparous women, the head engages just before labour starts.

Breech presentation is common before 34 weeks and only becomes a concern in women who go into preterm labour

Question:

Which of the following anaesthetic agents has the strongest analgesic effect?

A.Sodium thiopentone

B.Ketamine

C.Midazolam

D.Etomidate

E.None of the above

Answer:Ketamine

Explanation:

Ketamine has a moderate to strong analgesic effect. It may be used for emergency procedures outside the hospital environment to induce anaesthesia for procedures such as emergency amputation.

Question:

A 29-year-old woman presents to the emergency department after being found at home having taken an overdose. She tells you that she took two packets of paracetamol 500mg tablets (32 tablets in total) around six hours ago. She is admitted to the observation unit for IV n-acetylcysteine.

In this scenario, which of the following factors is not associated with an increased risk of developing hepatotoxicity?

A.Acute alcohol intake

B.Carbamazepine

C.Chronic alcohol excess

D.Malnutrition

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

The following groups of patients are at an increased risk of developing hepatotoxicity following a paracetamol overdose:

Patients taking liver enzyme-inducing drugs (rifampicin, phenytoin, carbamazepine, St John's Wort)

Patients with a history of chronic alcohol excess

Malnourished patients (e.g. anorexia nervosa) or patients who have not eaten for a few days, due to depletion of glutathione.

Acute alcohol intake is not associated with an increased risk of developing hepatotoxicity and may actually be protective.

Question:

A 56-year-old man with a longstanding history of chronic kidney disease (CKD) undergoes a renal transplant. The operation is successful, but four weeks later he notices blurring of his vision in his right eye. He is currently taking prednisolone and tacrolimus maintenance therapy. On fundoscopy, a mixture of cotton-wool spots, infiltrates and haemorrhages can be seen in the right eye. What is the most likely diagnosis?

A.Transient ischaemic attack

B.Prednisolone-induced cataract

C.Open-angle glaucoma

D.Cytomegalovirus (CMV) retinitis

E.Central retinal vein occlusion

Answer:Cytomegalovirus (CMV) retinitis

Explanation:

Cytomegalovirus (CMV) infection is important to consider in renal transplant patients. The 'mixture of cotton-wool spots, infiltrates and haemorrhages' is referring to the characteristic 'pizza-pie' appearance on fundoscopy. Cataracts due to steroid therapy are common, however, the funds appearance makes CMV retinitis more likely (the red reflex would be absent in cataract). Central retinal vein occlusion - while thrombophilia is a recognised feature in renal transplant patients, this is not the most likely, given the fundus appearance (in CRVO a 'stormy sunset' appearance is seen, with haemorrhages, vein dilatation and disc swelling). TIA is also unlikely given the disc appearance, although a neurological examination should be performed to rule this out.

Question:

A 75-year-old man finds a painless enlarged lymph node in the lower neck. He is diagnosed with Hodgkin's lymphoma and sent for a CT scan to help with staging. He is told that he has stage 2 Hodgkin's and asks you what this means.

What is the most appropriate response?

A.He has a single lymph node region that is twice its normal size

B.There is involvement of lymph node regions on two sides of the diaphragm

C.There are two or more regions on the same side of the diaphragm that are affected

D.There is involvement of extra nodal sites

E.A single lymph node region is involved

Answer:There are two or more regions on the same side of the diaphragm that are affected

Explanation:

Two or more lymph nodes on the same side of the diaphragm is classed as stage 2 Hodgkin's lymphoma

Important for meLess important

This question is asking about the staging of Hodgkin's lymphoma. In this case, the patient is asking you the meaning of stage 2 Hodgkin's lymphoma. Therefore the correct answer is option 3 as two or more lymph nodes on the same side of the diaphragm is classed as stage 2.

Question:

A 39-year-old man presents with six months of polyuria and polydipsia. He has also been experiencing fleeting episodes of arthralgia and lethargy. Past medical history is unremarkable and he is not on any medications. When asked about family history, he states that his parents are okay but remembers his grandma had to have regular removal of her blood throughout her life. He is not sure why as she died from heart disease when he was a child.

Nothing abnormal is found on examination and blood glucose is within range. Blood tests are then performed and the results are given below.

Full blood count:

Hb 181 g/L Male: (135-180)

Female: (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 5.1 \* 109/L (4.0 - 11.0)

Urea & electrolytes:

Na+ 151 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 4.5 mmol/L (2.0 - 7.0)

Creatinine 99 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Liver function tests:

Bilirubin 14 µmol/L (3 - 17)

ALP 90 u/L (30 - 100)

ALT 42 u/L (3 - 40)

γGT 33 u/L (8 - 60)

Albumin 40 g/L (35 - 50)

Osmolality tests:

Serum osmolality 301 mOsmol/kg (285 - 295)

Urine osmolality 272 mOsmol/kg

After water deprivation:

Urine osmolality 241 mOsmol/kg

After desmopressin is given:

Urine osmolality 853 mOsmol/kg

Which test will confirm the diagnosis?

A.Serum ferritin

B.Short synacthen test

C.Anti-Ro & Anti-La

D.HbA1c

E.Caeruloplasmin

Answer:Serum ferritin

Explanation:

Hereditary haemochromatosis is a cause of cranial diabetes insipidus

Important for meLess important

Blood tests show hypernatraemia with high serum osmolality and low urine osmolality that only returns to normal upon administration of desmopressin. Together with the presented urinary symptoms, this is diagnostic of central diabetes insipidus. The question then: what is the cause?

Lethargy and arthralgia are a common first presentation of hereditary haemochromatosis, which may cause central diabetes insipidus. The family history is also suggestive. This disease is autosomal recessive so skips generations (in this question, parents are unaffected but grandparent affected). The biggest clue is that regular removal of blood is the treatment of haemochromatosis, with the aim of preventing iron toxicity. Also, these patients often die of heart disease due to iron deposition, which can be seen on autopsy as grey pigmentation of the myocardium.

Even without this knowledge, the other choices do not fit the test results, so you may deduce that haemochromatosis is the most likely cause and that ferritin is therefore the correct answer.

The short synacthen test is for adrenocortical insufficiency, which is a cause of nephrogenic diabetes insipidus (i.e. urine osmolality does not return to normal with desmopressin). In addition, adrenal insufficiency causes hyponatraemia and hyperkalaemia due to a lack of aldosterone, which is the opposite of what is seen here.

Anti-Ro and Anti-La are tested for Sjogren's syndrome, which is also a cause of nephrogenic diabetes insipidus. Remember that nephrogenic diabetes insipidus does not respond to desmopression. The patient does not have any symptoms of Sjogren's either e.g. xerostomia and xerophthalmia.

HbA1c is for diabetes mellitus, which is not related to diabetes insipidus and would instead cause hyponatraemia due to osmotic loss. Moreover, blood glucose is not deranged here, making this option unlikely.

Caeruloplasmin is the test for Wilson's disease, which does not cause diabetes insipidus.

Question:

A mother brings her 8-month-old infant to the GP due to the development of a nappy rash. On examination an erythematous rash with flexural sparing is seen. What is the most likely cause?

A.Irritant dermatitis

B.Psoriasis

C.Seborrhoeic dermatitis

D.Candida infection

E.Atopic eczema

Answer:Irritant dermatitis

Explanation:

Question:

A 35-year-old man is admitted to the emergency department after a 2.5m fall from a ladder about 20 minutes ago. His wife reports that he lost consciousness for about 30 seconds, before coming around.

The paramedics who attended the scene reported that he vomited once and had a GCS of 14 due to confused speech. His GCS is still 14.

On inspection he has a laceration on his head, several lacerations across his body and his arm is clearly broken. On examination his cranial nerve, upper limb and lower limb neurological examination are normal.

What aspect of his current presentation is an indication for a head CT?

A.His GCS is still 14

B.Loss of consciousness

C.Loss of consciousness and height of fall

D.Loss of consciousness and vomiting

E.Vomited once

Answer:Loss of consciousness and height of fall

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

Loss of consciousness and height of fall is the correct answer. The NICE guideline suggests that individuals who have experienced loss of consciousness and the additional risk factor of the dangerous mechanism of injury (fall from a height of >1m) should have a head CT within 8 hours of the injury.

His GCS is still 14 is incorrect. A GCS of under 13 on initial assessment or under 15 two hours after the injury would be an indication for head CT within 1 hour. Although his GCS is under 15, it hasn't been 2 hours since the injury, so this is not yet an indication for head CT.

Loss of consciousness is incorrect. His short period of loss of consciousness alone is not an indication for head CT. If an additional risk factor is present (dangerous mechanism of injury, age over 65, bleeding disorder/anticoagulant use or more than 30 minutes retrograde amnesia) then it would be an indication for head CT within 8 hours.

Loss of consciousness and vomiting is incorrect. Loss of consciousness plus one episode of vomiting is not an indication for head CT. Loss of consciousness plus dangerous mechanism of injury, age over 65, bleeding disorder/anticoagulant use or more than 30 minutes retrograde amnesia is an indication for head CT within 8 hours.

Vomited once is incorrect. More than one episode of vomiting is an indication for a head CT within 1 hour, but just one episode is not an indication.

Question:

You are asked to see a 32-year-old G1P0 woman who is 40 weeks pregnant. She has had an uncomplicated pregnancy so far. After discussion with the obstetrician she agrees to undergo induction of labour.

Which of the following medications would be given for this?

A.Ergometrine

B.Magnesium sulphate

C.Mifepristone

D.Oxytocin

E.Terbutaline

Answer:Oxytocin

Explanation:

Syntocinon , uses include: induction of labour

Important for meLess important

The correct answer is oxytocin.

The synthetic version of oxytocin, called Syntocinon, is typically used to induce labour. It can also be used in the active management of the third stage of labour as it causes the uterus to contract.

Ergometrine is an alternative medication that may be used in the third stage of labour, it helps to reduce blood loss by causing vascular smooth muscle within the uterus to contract. However, it is not indicated for the induction of labour.

Magnesium sulphate may be used in women with pre-eclampsia or as a neuro-protective agent in pre-mature birth. However, this patient is at full term and has had no issues in her pregnancy so far, so this would not be indicated.

Mifepristone is a prostaglandin analogue that causes uterine contractions. It may be used in the termination of pregnancy and is not used for induction of labour.

Terbutaline is used as a tocolytic drug to stop the progression of labour, as such it would not be useful in inducing labour in this patient.

Question:

A 35-year-old swimmer attends his GP for persistent tingling in his right hand. He has also noticed a worsening performance during his swimming practice since his right arms seem to be tiring more easily. In terms of his past medical history, he has asthma, and a cervical rib which was identified from a chest x-ray performed last year.

From the history above, what is the most likely diagnosis?

A.Golfer's elbow

B.Neurogenic thoracic outlet syndrome

C.Radial nerve palsy

D.Arterial thoracic outlet syndrome

E.Tennis elbow

Answer:Neurogenic 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

This patient seems to regularly overuse overhead motions being a swimmer and given his background of cervical rib puts him at higher risk of developing thoracic outlet syndrome which is the correct answer.

Golfers elbow is other known as medial epicondylitis and is usually due to repetitive strain on this area. It can cause pain and tenderness in this region. Numbness and tingling can sometimes occur in the hands but tends to be on the ring and little finger.

Radial nerve palsy can classically cause wrist drop which this patient has not been experiencing so is not the likely answer to this question.

Arterial thoracic outlet syndrome is the least common subtype of thoracic outlet syndrome and would often cause pain, cold sensitivities and poor circulation in the hands which are not suggested in the text and so would not be the most likely answer.

Question:

A mother brings her 6-day old son to see you as she is concerned that her son has lost weight. He was born at term and there were no complications around the time of birth. He is exclusively breastfed. The infant has had a normal amount of wet nappies so far today and is not in any distress. Observations are all within normal limits and he is well hydrated. His birth weight was 3000g and today he weighs 2680g.

What would be the most appropriate next step in managing this infant's weight loss?

A.Referral to midwife-led breastfeeding clinic

B.Refer to paediatric clinic for review

C.Commence bottle feeding alongside breast feeding

D.Arrange for the infant to be weighed twice daily until he returns to his birth weight

E.Re-weigh the child in 6 months time

Answer:Referral to 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

A baby who is exclusively breastfed and loses >10% of their birth weight within the first week of life should be referred to a midwife-led breastfeeding clinic. Infants commonly lose weight in the first 3-4 days of life but this usually stops after around day 3 or 4, and they should be back to their birth weight by the time they are 3 weeks old. The purpose of referral to a feeding service is for direct observation of feeding and support from an appropriately trained person (i.e a member of the midwifery team).

It would not be appropriate to admit this infant to the hospital as he is clinically well with no signs of dehydration. If on the clinical assessment you felt that there were signs that the baby was unwell or dehydrated, then referral to the paediatric on-call team would be advised. Referral to paediatric clinic might take a long time if the request is for a routine appointment, and would therefore be inappropriate in this case.

Suggesting starting bottle feeding is inappropriate because this mother has chosen to exclusively breastfeed. Supplementary feeding may help the infant to gain weight but often results in the cessation of breastfeeding. It would be more appropriate to provide breastfeeding support in the first instance.

It would not be appropriate (nor practical) for the child to be re-weighed twice daily. NICE guidance specifically states that in the case of an infant who has lost weight in the first week of life weights should be carried out regularly on the basis of clinical need, but not more than daily.

Reweighing the child in 6 months time is an inappropriate answer because this infant has lost >10% of his birth weight within the first week of life and more urgent action needs to be taken to support his feeding.

Question:

A patient you are looking after is started on imipramine for depression. Which combination of side-effects is most likely to be seen in a patient taking this class of antidepressants?

A.Dry mouth + urinary frequency

B.Hypertension + sweating

C.Gastrointestinal bleeding + dyspepsia

D.Headache + myoclonus

E.Blurred vision + dry mouth

Answer:Blurred vision + dry mouth

Explanation:

These antimuscarinic side-effects are more common with imipramine than other types of tricyclic antidepressants.

Question:

A 72-year-old woman with a past medical history of immune thrombocytopenia is admitted to the emergency department after a fall. On examination, she is eye-opening to voice, not orientated to place or time but can follow commands. A CT head is performed with the results shown below:

CT head There is a right-sided convexity acute subdural haematoma measuring 4mm at its maximum depth with local mass effect and 2mm midline shift. The basal cisterns are patent and no skull fractures are visible.

Which of the following values for this patient’s platelet count would indicate a need for platelet transfusion?

A.90 x 109/L

B.110 x 109/L

C.120 x 109/L

D.145 x 109/L

E.200 x 109/L

Answer:90 x 109/L

Explanation:

Platelet thresholds for transfusion are higher (maximum < 100 x 10 9) for patients with severe bleeding, or bleeding at critical sites, such as the CNS

Important for meLess important

The patient is presenting with a head injury and a GCS of 13/15 (E3/4, V4/5, M6/6) with a CT demonstrating significant intracranial bleeding. Her past medical history pre-disposes her to severe bleeding episodes due to a low platelet count. The normal threshold for platelet transfusion is relatively low compared to other blood components as the risk of spontaneous bleeding with thrombocytopenia is low. The threshold in asymptomatic patients is a platelet count < 10 x 109. In cases of clinically relevant bleeding, transfusion should be performed if the platelet count is < 30 x 109. However, in severe or life-threatening bleeding, or cases of CNS haemorrhage, the threshold is might higher with a count < 100 x 109 indicating a need for transfusion. Therefore a platelet count of 90 x 109 in this patient would indicate a need for transfusion.

All the other options are over the threshold to indicate a need for transfusion. Additionally, a platelet count of 200 x 109 is normal.

Question:

A 24-year-old sexually active woman presents to the GP complaining of itching in the genital region accompanied by a white discharge. Vulvar erythema is seen on examination, as well as a white vaginal discharge. Vaginal pH is found to be 4.25.

What is the likely cause of this woman’s presentation?

A.Candida albicans

B.Chlamydia trachomatis

C.Gardnerella vaginalis

D.Neisseria gonorrhoea

E.Trichomonas vaginalis

Answer:Candida albicans

Explanation:

Vaginal candidiasis: Diagnosis does not require a high vaginal swab if the symptoms are highly suggestive

Important for meLess important

The presence of genital itching and white discharge should raise suspicion of vaginal candidiasis, caused by Candida albicans. Vaginal candidiasis presents with a “cottage cheese”-like discharge and inflammation, which can cause erythema, along with itching. The vaginal pH is normal in such patients (around 4.0-4.5 in women of reproductive age, although this can vary slightly). Given how common vaginal candidiasis is, a strong clinical suspicion based on the examination can be sufficient to diagnose it and start treatment.

The other options are incorrect:

Gardnerella vaginalis is a part of the normal vaginal flora, but overgrowth can lead to bacterial vaginosis. Although it also presents with white discharge, this is thinner than that in vaginal candidiasis. A fishy odour is also present in bacterial vaginosis, made stronger by adding potassium hydroxide. Furthermore, the vaginal pH would be raised (> 4.5).

Trichomonas vaginalis causes trichomoniasis. This would present with a frothy, yellow-green discharge that smells foul, and would also result in a raised vaginal pH (> 5.0).

Chlamydia trachomatis and Neisseria gonorrhoea both present with features such as urethritis and cervicitis, and can cause pelvic pain and bleeding. They are also associated with pelvic inflammatory disease. Neither Chlamydia trachomatis nor Neisseria gonorrhoea appear to have a strong association with vaginal pH. Chlamydia trachomatis can present with a light yellow discharge, whilst Neisseria gonorrhoea can present with a thick green/yellow discharge.

Question:

A 25-year-old man was brought to the emergency department after a road traffic accident. He was in a deep coma and later declared brain dead.

Which of the following is correct regarding the diagnosis?

A.Abnormal electrolytes is one of the criteria for brain death testing

B.Brain death testing includes testing knee jerk reflex

C.Brain death testing should be undertaken by two separate doctors on separate occasions

D.Brain death testing should be undertaken by two separate doctors on separate occasions, one of them must be a member of the intensive care team

E.Doctors performing brain stem death testing should have at least 3 years of post-graduate experience

Answer:Brain death testing should be undertaken by two separate doctors on separate occasions

Explanation:

Brain death testing should be undertaken by two separate doctors on separate occasions

Important for meLess important

The correct answer is brain death testing should be undertaken by two separate doctors on separate occasions. These two doctors should be experienced in performing brain stem death testing and have at least 5 years of post-graduate experience.

Patients tested for brain death should have normal electrolytes and no reversible causes. Other criteria include deep coma of known aetiology and no sedation.

Knee jerk reflex is not used for testing brain death. Corneal reflex and oculo-vestibular reflexes (no eye movements following the slow injection of at least 50ml of ice-cold water into each ear in turn (the caloric test)) are tested instead.

Brain death testing should be undertaken by two separate doctors on separate occasions, but neither can be a member of the transplant team (if organ donation is contemplated).

Doctors performing brain stem death testing should have at least 5 years of post-graduate experience.

Question:

A 7-month-old infant is brought to the emergency department with a 2 day history of vomiting and diarrhoea. Vomit and stools are both unremarkable. His father describes the infant as lethargic and unsettled for the last 3 days. The infant has also had 6 episodes of uncontrollable crying where he draws his legs up to his chest for a few minutes at a time. He is afebrile. On examination the infant appears pale and lethargic and a small mass is palpated in the right upper quadrant. You decide to investigate with a plain abdominal x-ray which shows no sign of obstruction and an ultrasound scan which shows a target sign. What is the most likely diagnosis?

A.Pyloric stenosis

B.Small bowel obstruction

C.Intussusception

D.Gastroenteritis

E.Meckel's diverticulum

Answer:Intussusception

Explanation:

This question focuses on gastrointestinal conditions in children. Although there are many causes of vomiting and diarrhoea, the child in this scenario has signs of Intussusception. A classical sign is the episodic crying and drawing of the legs towards the chest. The presence of a small mass in the right upper quadrant and a target sign on ultrasound point to the diagnosis alongside the vomiting, diarrhoea and pain.

The vomit and stool are unremarkable and the absence of a fever suggests it is not an infective episode.

Pyloric stenosis would not usually present in this way.

Before an abdominal ultrasound x-ray is done, a small bowel obstruction cannot be ruled out, however there are no signs of obstruction on x-ray.

Although Meckel's diverticulum is a possible option, this usually presents with rectal bleeding and offensive stools, which is not the case here.

Question:

A 67-year-old man presents to your GP practice with significant bone pain. He claims that the pain has come on gradually and is now affecting most of his body. He has a past medical history of chronic kidney disease stage 4 for which he is taking a wide range of medications. His examination is unremarkable however. You request some blood tests:

Calcium 2.9 mmol/L (2.2-2.6)

Phosphate 0.9 mmol/L (0.74-1.40)

Parathyroid Hormone 29.8 pmol/L (1.6-6.9)

Alkaline Phosphatase 476 u/L (60-350)

What is the most likely cause of the abnormal blood results?

A.Bone metastases

B.Paget's disease of bone

C.Primary bone cancer

D.Primary hyperparathyroidism

E.Tertiary hyperparathyroidism

Answer:Tertiary hyperparathyroidism

Explanation:

Tertiary hyperparathyroidism is characterised by extremely high serum PTH with moderately raised serum calcium

Important for meLess important

Tertiary hyperparathyroidism is the most likely diagnosis in this case. This condition occurs almost exclusively in patients with chronic kidney disease. It results from the ongoing hyperplasia of the parathyroid glands as a result of previous kidney disease. This condition results in excess parathyroid hormone causing accelerated breakdown of bone leading to bone pain, fractures and kidney stones.

Bone metastases and primary bone cancer are not the most likely explanations in this case. Bony metastases would not be uncommon in this patient group, however it would be less likely to result in the widespread bony pain so quickly. A past medical history of chronic kidney disease makes a diagnosis of tertiary hyperparathyroidism more likely. These diagnoses would also fail to explain the extremely high parathyroid hormone levels.

Paget's disease of the bone is a condition characterised by excessive bone growth leading to deformed bones. This is less likely to cause global bone pain and more likely to show deformity on examination. Paget's disease would not result in a raised parathyroid hormone.

Primary hyperparathyroidism occurs commonly as a result of a benign tumour of the parathyroid gland. In this case the calcium levels would be much higher and the patient would typically display more signs of hypercalcaemia (e.g. fatigue, confusion, constipation). Additionally, the parathyroid hormone levels in primary hyperparathyroidism are generally significantly lower than those of tertiary hyperparathyroidism.

Question:

A 45-year-old with known alcohol dependence presents with central abdominal pain and steatorrhoea progressively increasing over the last few months. The patient denies any clear trigger to his symptoms.

The patient has been admitted several times in the past with acute pancreatitis.

Blood tests are shown below.

Hb 130g/L 130–180

WCC 5x109/L 4.5-11

Creatinine 100 μmol/L 53–106

AST 14 U/L 12–38

Bilirubin 16 μmol/L 2–17

Amylase 30 U/L 25–125

What is the preferred test to confirm the patient’s suspected diagnosis?

A.Abdominal ultrasound

B.CT pancreas

C.Endoscopic retrograde cholangiopancreatography (ERCP)

D.Faecal elastase

E.Urine amylase

Answer:CT pancreas

Explanation:

CT pancreas is the preferred diagnostic test for chronic pancreatitis - looking for pancreatic calcification

Important for meLess important

This patient has a history of acute pancreatitis but has now presented with features and investigations in keeping with chronic pancreatitis. Chronic pancreatitis results from long-standing inflammation of the pancreas, commonly following several episodes of acute pancreatitis. Patients may present with a further episode of acute inflammation in a previously injured pancreas or with symptoms of persistent pain and malabsorption. The normal serum markers associated with acute presentations are often normal. CT pancreas is the diagnostic test of choice, detecting pancreatic calcification. CT has a higher sensitivity and specificity than other imaging modalities or serum tests and is readily available and therefore is the preferred diagnostic test.

Abdominal ultrasound may show some signs in keeping with chronic pancreatitis such as calcification. However, it is not a suitably sensitive test when compared to CT.

Endoscopic retrograde cholangiopancreatography (ERCP) is typically indicated to relieve biliary obstruction caused by stones, strictures or malignancy. It is not commonly used to diagnose chronic pancreatitis but is a well-recognised cause of acute pancreatitis. This procedure is also relatively timely, costly and invasive when compared to CT and therefore is not the diagnostic test of choice.

Faecal elastase testing is used for the detection of exocrine pancreatic dysfunction and not to diagnose chronic pancreatitis.

Urine amylase may be used in the diagnosis of acute pancreatitis. A raised level indicates damage and some research indicates that it may be more sensitive at detecting chronic pancreatitis than serum testing. However, its sensitivity is low.

Question:

A 42-year-old man presents to the Emergency Department with central crushing chest pain that came on suddenly whilst attending a party. He appears diaphoretic and clammy, describing his pain as 10/10. He has no significant past medical history, no significant family history, however discloses he has snorted a significant amount of cocaine whilst at the party. An ECG is performed which shows ST elevation of 4mm in anterior leads.

In addition to standard acute coronary syndrome (ACS) treatment, what else is indicated in the management of this patient?

A.IV glucagon

B.IV labetalol

C.IV lidocaine

D.IV lorazepam

E.IV verapamil

Answer:IV lorazepam

Explanation:

Patients with MI secondary to cocaine use should be given IV benzodiazepines as part of acute (ACS) treatment

Important for meLess important

ACS in the context of cocaine use is often secondary to coronary artery vasospasm, however can also be thrombotic. Standard ACS pathways should be used, with the addition of IV benzodiazepines. Benzodiazepines reduce CNS sympathetic outflow, ameliorating the toxic effects of cocaine, and drastically improving myocardial ischaemia, particularly in the context of vasospasm. As always, there is always a risk of benzodiazepine toxicity as well, so cautious dosing is advised.

IV glucagon is indicated in the management of beta-blocker overdose then there is haemodynamic instability.

IV labetalol can be indicated in the management of a hypertensive emergency or for blood pressure control in aortic dissection. Historically, beta-blockers have been avoided in cocaine overdose due to the risk of unopposed alpha-adrenergic activity. However, recent studies have shown that it is likely safe, although its use in cocaine overdose is still widely avoided.

IV verapamil can be considered for the management of supraventricular tachycardia in cocaine overdose, however, adenosine is still the first line.

Although rare, IV lidocaine is occasionally indicated in the management of ventricular tachycardia in cocaine overdose, when refractory to sodium bicarbonate or cardioversion.

Question:

A 45-year-old woman presents with a six-month history of joint pain with associated stiffness. Her knee and ankle joints are primarily affected. She is otherwise fit and well. There is no history of any chest symptoms. She smokes 5 cigarettes per day. She has no other medical history. On reviewing her record, she was recently seen by another GP in the surgery with painful red lesions over the extensor aspect of both legs four weeks ago. The diagnosis of erythema nodosum was given at the time. Following this finding, further investigations were arranged which include a chest x-ray and blood tests.

The x-ray shows bilateral hilar lymphadenopathy and blood results are as follow:

Hb 123 g/L Female: (115 - 160)

Platelets 410 \* 109/L (150 - 400)

WBC 11.7 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Calcium 2.92 mmol/L (2.1-2.6)

Phosphate 0.81 mmol/L (0.8-1.4)

ESR 89 mm/hr Women: < ((age + 10) / 2)

Which of the following features in the history would support the initiation of corticosteroid treatment for this patient?

A.Hypercalcaemia

B.Age of onset

C.Erythema nodosum

D.Raised ESR

E.Hilar lymphadenopathy on chest x-ray

Answer:Hypercalcaemia

Explanation:

Indications for corticosteroid treatment for sarcoidosis are: parenchymal lung disease, uveitis, hypercalcaemia and neurological or cardiac involvement

Important for meLess important

The correct answer is hypercalcaemia. The history of polyarthralgia, erythema nodosum and hilar lymphadenopathy on chest x-ray suggest the diagnosis of sarcoidosis. Hypercalcaemia is an indication for corticosteroid treatment.

The presence of hilar lymphadenopathy alone with no chest symptoms do not warrant corticosteroid treatment at this stage. Hence the answer “hilar lymphadenopathy on chest x-ray” is incorrect.

As per NICE guideline, other indications for corticosteroid treatment for sarcoidosis include features of extrapulmonary disease such as uveitis, neurological and cardiac involvement. Hence, the answer “age of onset”, “erythema nodosum” and “raised ESR” are incorrect.

Question:

A 50 year old man presents to his GP with a swollen scrotum. This had not troubled him but his wife insisted he had it seen to. On examination there is a left sided swelling of the scrotal sac which is non-tender and fully transluminates. The testicle is not palpable. What is the most likely cause?

A.Direct inguinal hernia

B.Epididymal cyst

C.Varicocele

D.Hydrocele

E.Epididymo-orchitis

Answer:Hydrocele

Explanation:

This man has a swelling confined to the scrotal sac. It is non-tender and fully transluminates. The only option from the above that fits this criteria is a hydrocele - a collection of serous fluid in the tunica vaginalis. This fluid surrounds the testes which is why it is not able to be palpated.

Question:

An 84-year-old female presents to the emergency department complaining of pain in the right hemithorax following a fall at home.

The patient is generally frail, and has a past medical history of chronic obstructive pulmonary disease and osteoarthritis.

On examination, you note visible bruising and tenderness upon palpation overlying the right hemithorax.

A chest x-ray is ordered, confirming a complete disruption of the bony contour of the right 7th rib. There is no disruption of the pleura or lung parenchyma.

What is the most appropriate management of this injury?

A.Conservative management with adequate analgesia

B.Conservative management with rib belt

C.Insertion of a chest drain

D.Start IV bisphosphonate

E.Surgical fixation

Answer:Conservative management with adequate analgesia

Explanation:

The majority of simple rib fractures are managed conservatively

Important for meLess important

The majority of simple rib fractures are managed conservatively with appropriate analgesia, ranging from NSAIDs to opioids and intercostal nerve blocks. Analgesia is vital to ensure breathing is not affected by pain, avoiding complications such as atelectasis and pneumonia.

Rib belts are contraindicated in the management of simple rib fractures as they may compromise respiratory function.

As the chest x-ray does not identify any intrathoracic complication of the rib fracture such as haemothorax or pneumothorax, there is no indication for the insertion of a chest drain.

IV bisphosphonates have no role in the management of traumatic rib fractures. The commencement of oral bisphosphonate, however, may be contemplated at a later date following considerations on loss of bone mineral density experienced by the patient.

Surgical fixation is not the immediate management for simple rib fractures. However, it can be considered to manage pain if this is still an issue and the fractures have failed to heal following 12 weeks of conservative management.

Question:

A 25-year-old man presents to the emergency department after multiple episodes of coughing blood. He is normally fit and well, other than having a productive cough 5 weeks ago. Bloods are taken and the urea & electrolyte levels are as below.

Na+ 136 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 10.8 mmol/L (2.0 - 7.0)

Creatinine 212 µmol/L (55 - 120)

A urine dip is also performed which showed +++ for blood and protein.

What is the most likely diagnosis?

A.Anti-GBM disease

B.Focal segmental glomerulosclerosis

C.IgA nephropathy

D.Minimal change glomerulonephritis

E.Post-streptococcal glomerulonephritis

Answer:Anti-GBM disease

Explanation:

Anti-GBM disease typically presents with haemoptysis + AKI/proteinuria/haematuria

Important for meLess important

This question describes a 25-year-old man presenting with haemoptysis, an acute kidney injury, haematuria, and proteinuria. With this constellation of symptoms, the most likely diagnosis is anti-GBM disease (also sometimes referred to as Goodpasture's syndrome). This is a syndrome in which there is autoimmune damage to the glomerular basement membrane - affecting both the kidneys and lungs.

Focal segmental glomerulosclerosis (FSGS) is an incorrect answer. FSGS is scarring of the glomeruli, which can cause nephrotic syndrome, which classically includes a triad of oedema, hypoalbuminaemia, and proteinuria. It would not be typical for the patient to also have haematuria and haemoptysis.

IgA nephropathy is not the most likely diagnosis. IgA nephropathy is a cause of nephritic syndrome, which can present with proteinuria and haematuria. It typically occurs soon after infection, with a typical presentation including a recent sore throat or cold. However, an infection approximately 5 weeks ago would be likely too long ago to be linked. Also, the presence of haemoptysis makes anti-GBM a more likely answer.

Minimal change glomerulonephritis is another cause of nephrotic syndrome, which typically does not include haematuria or haemoptysis, making it a less likely diagnosis than anti-GBM disease.

Post-streptococcal glomerulonephritis is not the most likely diagnosis. Post-streptococcal glomerulonephritis is a cause of nephritic syndrome, which can occur after a streptococcal infection, however, a presentation 5 weeks after a productive cough and haemoptysis makes the diagnosis less likely.

Question:

A 19-year-old woman is referred to gastroenterology with a two-month history of unexplained weight loss and diarrhoea.

She undergoes a colonoscopy with biopsies. The results are below:

Colonoscopy Deep ulceration affecting terminal ileum and colon, with skip lesions

Biopsy sample from terminal ileum Granulomatous inflammation extending from serosa to mucosa

Which of the following options is most appropriate to induce remission of her disease?

A.Azathioprine

B.Infliximab

C.Mesalazine

D.Methotrexate

E.Prednisolone

Answer:Prednisolone

Explanation:

Glucocorticoids (oral, topical or intravenous) are generally used to induce remission of Crohn's disease

Important for meLess important

The correct answer is prednisolone.

The results of this patient's colonoscopy and biopsy strongly suggest a diagnosis of Crohn's disease. Crohn's disease is a disease of granulomatous inflammation which can affect anywhere along the gastrointestinal tract, most commonly affecting the terminal ileum. Unlike ulcerative colitis (UC), it is transmural (can affect all layers of bowel from serosa to mucosa) and can have 'skip lesions'. Other colonoscopy features which could have been present include the presence of strictures and fistulas and goblet cell depletion. First-line for inducing remission in Crohn's disease is glucocorticoid therapy, usually in the form of 300mg prednisolone. This can be done alongside a polymeric diet, which is especially successful in younger children. All of the alternative options can be used in the management of Crohn's disease. However, they are not specifically first line to induce remission.

Azathioprine is very useful in maintaining remission, once achieved. It can also be used to induce remission on failure of steroids or aminosalicylates.

Infliximab is used in refractory or fistulating Crohn's disease and is often used alongside methotrexate or azathioprine.

Mesalazine is an aminosalicylate and can be trialled to induce remission on failure of steroids. Aminosalicylates are generally first-line for reducing remission in ulcerative colitis.

Methotrexate, like azathioprine, can be used in combination with steroids or aminosalicylates to reduce remission if monotherapy has failed. Methotrexate is generally used as second-line in maintaining remission if azathioprine is not proving effective.

Question:

A 28-year-old female presents to her general practitioner seeking contraception. She has a past medical history of depression and spina bifida, for which she uses a wheelchair. She has a family history of ovarian cancer and regularly smokes 15 cigarettes per day.

Which of the following would be a contraindication for starting the combined oral contraceptive pill (COCP) in this patient?

A.Her past history of depression

B.Her family history of ovarian cancer

C.Her smoking history

D.Her wheelchair use

E.No contraindications exist

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 past history of depression is incorrect. While the COCP is associated with mood swings, it has not been reported to significantly worsen depression or increase the risk of suicidal thoughts/behaviours.

Her family history of ovarian 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 over 35 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:

You have a telephone consultation with a 17-year-old male who has a 6-month history of acne. He has never consulted about this before. He started a college course 3 months ago and thinks that the acne has worsened since then. His older sister had a similar problem and received specialist treatment from a dermatologist.

You review the photo he has sent in and note open and closed comedones on his face with sparse papules. There are no pustules or scarring and no other body areas are affected.

Given the likely diagnosis, which of the following is the best management option?

A.Benzoyl peroxide gel

B.Clindamycin 1% lotion

C.Frequent face washing throughout the day

D.Oral lymecycline and benzoyl peroxide gel

E.Refer to dermatology

Answer:Benzoyl peroxide gel

Explanation:

Use non-antibiotic topical treatment first line for the management of acne

Important for meLess important

From the listed options, benzoyl peroxide gel is the correct answer. Non-antibiotic topical treatment is first-line for the management of acne. The main adverse effects to inform him about include irritation, he should try a patch test first prior to applying it over his whole face.

Clindamycin 1% lotion is a topical antibiotic and should be prescribed in combination with benzoyl peroxide to prevent bacterial resistance. It can be considered for use after topical benzoyl peroxide has not had an adequate effect.

Frequent face washing throughout the day is incorrect. Overcleaning the skin should be avoided as it may cause dryness and irritation. Acne is not caused by poor hygiene.

Oral lymecycline and benzoyl peroxide gel is incorrect. An oral antibiotic should be co-prescribed with benzoyl peroxide or a topical retinoid when people with moderate acne are not responding to topical treatment. In this case, it can be used as second line treatment for the likely possibility of treatment failure with just benzoyl peroxide.

Refer to dermatology is incorrect at this stage. There are several options that can be commenced in primary care prior to referral including topical benzoyl peroxide, retinoids, antibiotics and oral antibiotics. This may become necessary later if there is scarring or treatment resistance.

Question:

An 81-year-old man presents to his optometrist complaining of gradual changes to his vision in his right eye. He has a past medical history of type 2 diabetes mellitus, hypertension and hypercholesterolaemia.

What is the likely diagnosis?

A.Mild non-proliferative diabetic retinopathy

B.Moderate non-proliferative diabetic retinopathy

C.Proliferative diabetic retinopathy

D.Retinal detachment

E.Wet macular degeneration

Answer:Moderate non-proliferative diabetic retinopathy

Explanation:

The correct answer is moderate non-proliferative diabetic retinopathy.

It is important to assess the entire fundoscopic image. The optic disc sits on the nasal side of the retina - as it is on the right in this image, this is the right eye. There is no sign of any cupping of the optic disc or obvious pallor. Towards the left of the image yellow, hard exudates are visible. Haemorrhages are also visible across the image. Hard exudates and blot/flame haemorrhages are signs of diabetic retinopathy. In this case, it is classified as moderate due to the presence of hard exudates. It is non-proliferative as there is no sign of neovascularisation (new blood vessel growth). Therefore, this is moderate non-proliferative diabetic retinopathy.

Mild diabetic non-proliferative retinopathy is incorrect. Visual changes are rare in mild non-proliferative retinopathy, characterised by the presence of 1 or more microaneurysms. Further, hard exudates are only seen in moderate or more severe forms of diabetic retinopathy.

Proliferative diabetic retinopathy is incorrect. This condition is characterised by neovascularisation (new blood vessel growth) visible on fundoscopy which cannot be seen here.

Retinal detachment is incorrect. This is a medical emergency as it can be sight-threatening and would likely present with acute loss of vision. Further, retinal detachment would not explain the exudate and haemorrhages seen on fundoscopy.

Wet macular degeneration is incorrect as neovascularisation (new blood vessel growth) would be seen on fundoscopy.

Question:

A 29-year-old primiparous woman is in a prolonged labour following an induction at 41 weeks gestation. She is 6 cm dilated and the fetal head is 1 cm above the ischial spines. The midwife calls you to look at her CTG. The fetal heart rate is progressively dropping, it is now below 100 beats per minute, and it has not recovered for more than 3 minutes.

What is the next best step in management?

A.Category 1 Caesarean section

B.Trial of instrumental delivery in theatre

C.Fetal ABG

D.Terbutaline infusion

E.Review in 15 minutes

Answer:Category 1 Caesarean section

Explanation:

Whilst it is unlikely that you will be expected to read and interpret fetal CTGs as a medical student, you will be expected to have some general knowledge regarding their purpose and important features.

A cardiotocogram (CTG) measures fetal heart rate and uterine contractions. It is used when there are risk factors for fetal hypoxia, such as pre-eclampsia, post-dates gestation, induction of labour, epidural use and prolonged labour. CTGs are not specific and do increase medical intervention, but changes should be taken seriously as changes in fetal heart rate are an indicator of fetal distress.

The following mnemonic is helpful in interpreting CTGs; DR C BRA VADO:

DR- define risk: why is this patient on a CTG monitor? e.g. pre-eclampsia, antepartum haemorrhage, maternal obesity, maternal ill health

C- contractions. Look at the bottom of the trace, each contraction is shown by a peak. In established labour you would expect 5 contractions in 10 minutes. Each large square = 1 minute duration, so count the number of contractions in 10 squares.

BRA- baseline rate. The fetal baseline rate should be approximately 110-160 beats per minute. Each large square = 10 beats and each small square = 5 beats. A fetal bradycardia is below 110 beats per minute and a fetal tachycardia is above 160 beats per minute.

V- baseline variability. The fetal heart rate should vary between 5 to 25 beats per minute. Below 5 beats per minute, the variability is said to be reduced.

A- accelerations. Are there accelerations in fetal heart rate? Accelerations are a rise in fetal heart rate of at least 15 beats lasting for 15 seconds or more. There should be 2 separate accelerations every 15 minutes. Accelerations typically occur with contractions.

D- decelerations. Are there decelerations in fetal heart rate? These are a reduction in fetal heart rate by 15 beats or more for at least 15 seconds. Decelerations are generally abnormal and should prompt senior review. In particular, late decelerations, which are slow to recover are indicative of fetal hypoxia.

O- overall impression/diagnosis. As a medical student it is important to be aware of two features- terminal bradycardia and terminal decelerations. A terminal bradycardia is when the baseline fetal heart rate drops to below 100 beats per minute for more than 10 minutes. A terminal deceleration is when the heart rate drops and does not recover for more than 3 minutes. These make up a 'pre-terminal' CTG and are indicators for Emergency Caesarean section.

Other changes (late decelerations, reduced variability, fetal tachycardia or bradycardia) are usually investigated with fetal scalp blood sampling and an ABG, looking for acidosis. The NICE guidelines on fetal monitoring give a useful table for what should be done for different CTG features, depending on whether the CTG is considered normal, non-reassuring or abnormal:

Description Baseline Baseline variability Decelerations

Normal 100-160 5 or more accelerations None or early

Non-reassuring 161-180 Less than 5 accelerations for 30-90 minutes Some variable decelerations or short late decelerations

Abnormal Above 180 or below 100 Less than five for >90 minutes Persistent variable decelerations, prolonged late decelerations, bradycardia or single prolonged deceleration lasting >3 minutes

Category Definition Management

Normal All 3 features are normal Continue CTG and normal care

Non-reassuring, conservative measures indicated 1 non-reassuring feature and 2 normal features Inform senior, move to left lateral position, encourage fluids

CTG is abnormal, conservative measures and further testing indicated 1 abnormal feature or 2 non-reassuring features Inform senior, start conservative measures, offer fetal blood sampling

CTG is abnormal and indicates need for urgent intervention Bradycardia or a single prolonged deceleration with baseline below 100/min for >3 minutes Inform senior, start conservative measures, make preparations for urgent birth (Category 1 Caesarean Section)

NICE guidelines: https:www.nice.org.uk/guidance/cg190/resources/guidance-intrapartum-care-care-of-healthy-women-and-their-babies-during-childbirth-pdf

Research paper on the association of terminal decelerations and terminal bradycardia with fetal acidosis: http:journals.lww.com/greenjournal/Fulltext/2013/11000/TerminalFetalHeartDecelerationsandNeonatal.20.aspx

Question:

A 24-year-old female with a history of anxiety is taken to the Emergency Department following an acute onset of shortness of breath. On examination the chest is clear to auscultation but the respiratory rate is raised at 40 breaths per minute. A diagnosis of hyperventilation secondary to anxiety is suspected. Which of the following arterial blood gas results (taken on room air) are consistent with this?

A.pH = 7.56; pCO2 = 2.9 kPa; pO2 = 9.6 kPa

B.pH = 7.24; pCO2 = 8.4 kPa; pO2 = 12.7 kPa

C.pH = 7.34; pCO2 = 2.7 kPa; pO2 = 15.4 kPa

D.pH = 7.54; pCO2 = 2.4 kPa; pO2 = 12.8 kPa

E.pH = 7.54; pCO2 = 4.9 kPa; pO2 = 13.3 kPa

Answer:pH = 7.54; pCO2 = 2.4 kPa; pO2 = 12.8 kPa

Explanation:

Hyperventilation will result in carbon dioxide being 'blown off', causing an alkalosis.

Whilst the gases in answer A show a respiratory alkalosis the hypoxia could not be explained by hyperventilation

Question:

During the neonatal check for a young baby boy, the lead midwife notices that the urethral meatus appears to be opening partway down the ventral aspect of the shaft of the baby’s penis. Closer examination shows a subcoronal hypospadias. There are no other abnormalities, and the penile length is within normal range.

What is the most important piece of information to give the parents regarding this child’s condition?

A.Circumcision is indicated as soon as possible to prevent urinary tract infections as these infants are at increased risk of urinary tract infection

B.Circumcision should be avoided because the foreskin is used in the surgical corrective procedure

C.Hypospadias is a relatively common condition but it is unlikely the child’s siblings will be affected

D.Hypospadias is considered an intersex disorder, so a referral should be made to a pediatrician for further discussion about management

E.The corrective management of hypospadias is surgical which is usually performed in the first two weeks after birth

Answer:Circumcision should be avoided because the foreskin is used in the surgical corrective procedure

Explanation:

Circumcision should not be performed for infants with hypospadias - the foreskin may be used in the corrective procedure

Important for meLess important

The correct answer is that circumcision should be avoided because the foreskin is used in the surgical corrective procedure. The management of hypospadias is surgical correction using the foreskin remnant, therefore parents must be informed that circumcision should be avoided until after the surgery is completed. If circumcision is being done for religious reasons, the parents should be advised to consult a trusted religious leader who is often reasonably well-informed about this kind of situation and may be able to give convincing advice about the prioritization of their child's health.

Circumcision is indicated as soon as possible to prevent urinary tract infections as these infants are at increased risk of urinary tract infection is incorrect. Surgery to correct hypospadias is usually done after 6 months of age when penile growth is minimal and it is safer for the child to be under general anaesthesia. The efficacy of circumcision in preventing childhood UTI is minimal and only recommended for those at high risk.

Hypospadias is a relatively common condition but it is unlikely the child’s siblings will be affected is incorrect. Occurring in around 1 in 300 male births, hypospadias is a relatively common condition where the opening of the urethral meatus is abnormally located along the ventral aspect of the male genitalia. It can be an isolated finding but can also be associated with other congenital abnormalities and can have a hereditary component. The risk of subsequent siblings having the condition is 12%. With appropriate surgical correction and reassurance of parents, it is unlikely to have any lasting impact on the affected person’s later life, both for urinary and reproductive functioning. While it is important to provide reassurance to parents, the most critical piece of information to convey is that the foreskin must be kept intact to allow surgical correction.

Hypospadias is considered an intersex disorder, so a referral should be made to a pediatrician for further discussion about management is incorrect. A subcoronal hypospadias is a subset of anterior hypospadias, where the urethral meatus is located at the base of the glans of the penis. Other types include middle and posterior hypospadias, based on the location of the urethral meatus. Other congenital abnormalities are more strongly associated with posterior hypospadias; this type of hypospadias is regarded as an intersex disorder but middle and anterior are not.

The corrective management of hypospadias is surgical which is usually performed in the first two weeks after birth is incorrect. Surgery to correct hypospadias is usually done after 6 months of age, not two weeks.

Question:

A 31-year-old female with no past medical history of note is admitted to hospital with dyspnoea and fever. She has recently returned from holiday in Turkey. A clinical diagnosis of pneumonia is made. On examination she is noted to have an ulcerated lesion on her upper lip consistent with reactivation of herpes simplex. Which organism is most associated with this examination finding?

A.Legionella pneumophilia

B.Staphylococcus aureus

C.Streptococcus pneumoniae

D.Pneumocystis carinii

E.Mycoplasma pneumoniae

Answer:Streptococcus pneumoniae

Explanation:

Pneumonia caused by Streptococcus pneumoniae is associated with cold sores

Important for meLess important

Streptococcus pneumoniae commonly causes reactivation of the herpes simplex virus resulting in 'cold sores'

Question:

A 52-year-old lady with a body mass index of 32kg/m² and type 2 diabetes mellitus comes to see you. She has had a Mirena coil (levonorgestrel-releasing intrauterine system) in place for the last 4 years and has been amenorrhoeic since 3 months post insertion. Over the last month, she has had a 3-day episode of vaginal bleeding and 2 episodes of post-coital bleeding. What is the most appropriate next step in management?

A.Watch and wait

B.Refer to postmenopausal bleeding clinic for endometrial biopsy

C.Reassure

D.Change the Mirena coil

E.Discuss starting HRT

Answer:Refer to postmenopausal bleeding clinic for endometrial biopsy

Explanation:

The answer in this case is to refer the patient to the postmenopausal bleeding clinic for endometrial biopsy. Guidance from the Faculty of Sexual and Reproductive Health suggests that 'endometrial biopsy should be considered in women aged 45 years using hormonal

contraception who present with persistent problematic bleeding or a change in bleeding

pattern'. In this case, this patient is also obese and has type two diabetes which are both risk factors for endometrial malignancy, therefore watchful waiting and giving reassurance are not appropriate answers. At 4 years post insertion, the Mirena may be coming to the end of its lifespan and this may result in bleeding, however this cannot be ruled as the cause unless underlying pathology is excluded. HRT would not be indicated in this patient at this time.

Question:

A 75-year-old man presents with a 'sore' on his lip. This has been present for around four months and has been getting slowly worse. His past medical history includes ischaemic heart disease and chronic obstructive pulmonary disease. He still smokes around 20 cigarettes per day.

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What is the most likely diagnosis?

A.Actinic keratosis

B.Leukoplakia

C.Squamous cell carcinoma

D.Mucocoele

E.Bowen's disease

Answer:Squamous cell carcinoma

Explanation:

The May 2013 AKT feedback report made the following comment: 'There was difficulty with items requiring recognition of skin lesions. Candidates should be familiar with typical features of both common and less common skin lesions, particularly those that are potentially serious. '

Question:

A 60-year-old man presents to the urgent care centre in the evening complaining of a fluttering feeling in his chest, accompanied by a sense that his heart is beating irregularly. The symptoms started over two nights ago and are uncomfortable but not debilitating. He mentions that these symptoms have never occurred before.

On assessment, he does not look unwell and is haemodynamically stable. ECG shows atrial fibrillation. A decision is made to electively electrically cardiovert the patient.

Before cardioverting the patient, which of the following, if any, should be done first?

A.Administer heparin and cardiovert immediately

B.Conduct a transoesophageal echocardiogram

C.No prior optimisation is required

D.Prescribe one week of oral dabigatran

E.Prescribe two weeks of oral warfarin

Answer:Conduct a transoesophageal echocardiogram

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

Conduct a transoesophageal echocardiogram is the correct option. This patient has a first presentation of haemodynamically stable atrial fibrillation. Given that his symptoms started over 48 hours ago, precautions to reduce the incidence of an ischaemic stroke must be taken before cardioversion is attempted. This can be through administering an anticoagulant for at least three weeks before cardioversion. Alternatively, a transoesophageal echocardiogram (TOE) could be conducted to exclude a left atrial appendage thrombus, and if no thrombus is found, patients can be immediately heparinised and cardioverted.

The other options are incorrect.

Administering heparin and cardioverting immediately is incorrect as the patient presented after 48 hours of the onset of the atrial fibrillation. European Society of Cardiology guidelines suggest that anticoagulation in these patients should be sustained for at least three weeks before cardioversion, or a TOE should be offered. If a patient presents within 48 hours of AF onset, heparin can be offered immediately before cardioversion with or without TOE.

Not conducting any optimisation before cardioversion is incorrect as there is a risk of a thrombus formation due to the atrial fibrillation, often in the left atrial appendage, which could embolise and cause an ischaemic stroke.

Prescribing one week of oral dabigatran is incorrect as it is insufficient; guidelines state that a minimum of three weeks of anticoagulation is required before cardioversion if a transoesophageal echocardiogram is not conducted.

Similarly, two weeks of oral warfarin is incorrect as it would also be insufficient.

Question:

A 57-year-old female has noticed that the skin on her hands has become very tight and that her fingers sometimes turn blue. She has also had difficulty swallowing both solids and liquids. What autoantibody is most associated with these symptoms?

A.Anti-centromere

B.Anti-topoisomerase (anti-Scl-70)

C.Anti-double-stranded DNA (anti-dsDNA)

D.Anti-cyclic citrullinated peptide (anti-CCP)

E.Anti-mitochondrial (AMA)

Answer:Anti-centromere

Explanation:

This female has limited cutaneous systemic sclerosis. This is indicated as the scleroderma is limited to the distal extremities only, however, the face may also be involved also. Limited systemic sclerosis is associated with anti-centromere antibodies.

Anti-Scl-70 antibodies are associated with diffuse systemic sclerosis. In diffuse systemic sclerosis, scleroderma involves the trunk and proximal limbs.

Anti-dsDNA antibodies are associated with systemic lupus erythematosus (SLE). SLE generally presents with non-specific symptoms such as, fatigue, fever, oral ulcers, joint pain and a rash.

Anti-CCP antibodies are associated with rheumatoid arthritis. Rheumatoid arthritis typically presents with joint pain.

AMA is associated with primary biliary cirrhosis (PBC). PBC is often asymptomatic in the early stages but may present as fatigue, pruritus and jaundice.

Question:

A 25-year-old woman attends the haematology day unit for a blood transfusion. She has a history of acute lymphoblastic leukaemia, and her last haemoglobin, taken 2 days ago, was 69 g/dL. Two units of blood have been prescribed.

As the first unit of blood is transfused, she develops shortness of breath.

On examination, she has a temperature of 37.5ºC with a heart rate of 99 beats/min and a blood pressure of 90/55mmHg. Her oxygen saturations are 96% on air with a respiratory rate of 22 breaths/min. There is a bilateral wheeze on auscultation.

What complication is the most likely explanation of this patient's symptoms?

A.Acute haemolytic reaction

B.Anaphylaxis

C.Bacterial contamination

D.Minor allergic reaction

E.Transfusion associated lung injury

Answer:Anaphylaxis

Explanation:

Hypotension, dyspnoea, wheezing, angioedema during a blood transfusion → anaphylaxis

Important for meLess important

Anaphylaxis is correct. This patient has developed hypotension, shortness of breath, and wheeze during a blood transfusion. This is in keeping with anaphylaxis, a severe and life-threatening allergic reaction to the blood product. Other features include angioedema and stridor. Treatment of choice includes immediately stopping the transfusion and administering intramuscular adrenaline.

Acute haemolytic reaction is incorrect. This occurs secondary to the transfusion of ABO-incompatible blood and features include fever, abdominal pain, and hypotension. This does not explain the patient's dyspnoea and wheeze.

Bacterial contamination is incorrect. Bacterial contamination of packed red blood cells is very uncommon as it is refrigerated up until it is transfused. Symptoms include fever and those associated with sepsis including tachycardia and hypotension. Although some of these features are seen in this scenario, given the rarity of bacterial contamination and the presence of wheeze, anaphylaxis is the more likely complication.

Minor allergic reaction is incorrect. This presents as urticaria and pruritis but does not cause hypotension, dyspnoea, or wheeze.

Transfusion associated lung injury (TRALI) is incorrect. TRALI causes hypoxia, hypotension, and pulmonary infiltrates that can be seen on a chest x-ray. The development of TRALI is seen within 6 hours of the blood transfusion and is clinically indistinguishable from acute respiratory distress syndrome. Hypoxia is a predominant feature of TRALI. This patient is not hypoxic making TRALI unlikely.

Question:

At her booking visit, a woman mentions to her midwife that she has been previously diagnosed with immune thrombocytopenic purpura (ITP). Which procedure carries the greatest risk of haemorrhage in the newborn?

A.External cephalic version

B.Forceps delivery

C.Prolonged ventouse delivery

D.Fetal blood sampling

E.Caesarean section

Answer:Prolonged ventouse delivery

Explanation:

Immune thrombocytopenia (ITP) is an autoimmune condition that can occasionally complicate pregnancies, especially if there is placental passage of maternal antiplatelet antibodies.

The high pressure exerted by the vacuum during a ventouse delivery can cause bleeding in the neonate. Cephalohaematoma or more severely, subgaleal haemorrhage, can be exacerbated in the context of neonatal thrombocytopenia. Fetal blood sampling and forceps might be used with caution but would not be as high-risk. A Caesarean section would pose a greater risk to the mother, rather than the neonate.

Question:

A woman with known pregnancy-induced hypertension presents at 36 weeks gestation with chest pain, leg swelling, and a headache. A urine dip confirms proteinuria.

Before management can be commenced the patient collapses and starts to have a tonic-clonic seizure.

What adverse effect should be monitored for while providing the first-line treatment indicated?

A.Blood pressure

B.Cardiac monitoring

C.Potassium level

D.Respiratory rate

E.Temperature

Answer:Respiratory rate

Explanation:

Magnesium sulphate - monitor reflexes + respiratory rate

Important for meLess important

The patient has presented with eclampsia having developed seizures with pre-eclampsia features including pregnancy-induced hypertension and proteinuria. Magnesium sulphate should be used as a treatment for eclampsia whilst a delivery plan is made. A well-recognised side effect of magnesium sulphate treatment is respiratory depression and for this reason, the patient’s respiratory rate must be monitored.

Although a treatment for eclampsia, magnesium sulphate has little effect on a patient’s blood pressure and therefore does not further complications of hypertension or result in hypotension. Although blood pressure should be monitored it is not to identify adverse effects of magnesium sulphate treatment.

Magnesium sulphate can be used as an antiarrhythmic agent for certain cardiac dysrhythmias as well as a treatment for eclampsia. Cardiac issues resulting from magnesium sulphate treatment are therefore rare and cardiac monitoring is not required to identify potential side effects.

Hypokalaemia is frequently associated with magnesium deficiency and therefore this should be checked for in these patients. The use of magnesium sulphate however is not associated with significant alterations in potassium levels and therefore it is not required to monitor potassium levels when providing magnesium treatment.

Magnesium sulphate is not associated with significant changes in temperature and so again although it should be monitored in all unwell patients, it is not required to specifically monitor for adverse effects.

Question:

What is the most common identified trigger of anaphylaxis in children?

A.Hair dye

B.Wasp venom

C.Medication

D.Food

E.Blood products

Answer:Food

Explanation:

The most common triggers for anaphylactic reactions in children are food items

Important for meLess important

Question:

A 20-year-old female is admitted with acute abdominal pain. Examination reveals a diffusely tender abdomen. During laparoscopy multiple fine lesions are noted between her liver and abdominal wall, her appendix appears normal. What is the most likely diagnosis?

A.Appendicitis

B.Pelvic inflammatory disease (Fitz-Hugh-Curtis)

C.Small bowel obstruction

D.Mesenteric infarction

E.Pancreatitis

Answer:Pelvic inflammatory disease (Fitz-Hugh-Curtis)

Explanation:

Hepatic adhesions are specific for Fitz-Hugh-Curtis syndrome. The symptoms in the question are not enough to make a diagnosis and it is, therefore, the lesions that give the diagnosis, as they would not be present in any of the other options. It is a complication of PID causing inflammation of the liver capsule forming 'Glisson's Capsule'.

Question:

A 56-year-old woman presents to the emergency department with acute-onset right-sided groin pain. The pain is severe and she has no known past medical history.

She is afebrile, her pulse rate is 85 bpm, and her blood pressure is 132/75 mmHg. On examination, an irreducible lump is present that is inferior and lateral to the pubic tubercle that is extremely tender to the touch.

What is the most likely diagnosis?

A.Incarcerated femoral hernia

B.Incarcerated inguinal hernia

C.Strangulated femoral hernia

D.Strangulated inguinal hernia

E.Strangulated obturator hernia

Answer:Strangulated femoral hernia

Explanation:

Irreducible, painful lump inferolateral to the pubic tubercle → ?strangulated femoral hernia

Important for meLess important

Strangulated femoral hernia is correct. The presence of a lump that is inferior and lateral to the pubic tubercle suggests the presence of a femoral hernia. Hernias can be described as incarcerated (where they are irreducible, but no pain or any other symptoms are present), which predisposes them to become strangulated (where the blood supply to the herniated tissue becomes compromised risking ischaemia and necrosis). Since this patient has an extremely painful irreducible hernia, this suggests that it is strangulated.

Incarcerated femoral hernia is incorrect as although the type of hernia is correct, this patient is experiencing severe pain, suggesting that the blood supply to the herniated tissue has been cut off, therefore making it a strangulated hernia. If this patient were to only have an irreducible lump without any other symptoms, this would be the case.

Incarcerated inguinal hernia is incorrect. As mentioned above, this would be an incarcerated hernia if the lump was only irreducible with no pain or any other symptoms. An inguinal hernia would be likely if the lump was superior and medial to the pubic tubercle, which is not the case here.

Strangulated inguinal hernia is incorrect. Although this hernia is strangulated due to the presence of severe pain, an inguinal hernia is superior and medial to the pubic tubercle, which is not the case here.

Strangulated obturator hernia is incorrect as although this patient's hernia is strangulated, obturator hernias pass through the obturator foramen, which is not the case here.

Question:

A 52-year-old Afro-Caribbean woman presents to the dermatology department. She has noticed a patch of pigmented skin on her toe, which has been slowly enlarging over the past five months. On examination, she has pigmentation of the nail bed of her great toe, affecting the adjacent cuticle and proximal nail fold. Which subtype of melanoma would you expect to present in this manner?

A.Superficial spreading melanoma

B.Acral lentiginous melanoma

C.Lentigo maligna melanoma

D.Nodular melanoma

E.Amelanotic melanoma

Answer:Acral lentiginous melanoma

Explanation:

Acral lentiginous melanoma: Pigmentation of nail bed affecting proximal nail fold suggests melanoma (Hutchinson's sign)

Important for meLess important

Acral lentiginous melanoma is the rarest form of melanoma overall, but the commonest form of melanoma in people with darker skin. Hence it is important to be able to recognise.

Acral lentiginous melanoma mostly affects people over the age of 40 and is equally common in males and females. It is not related to sun exposure. It typically presents as an enlarging discoloured skin patch on the palms, fingers, soles or toes with the characteristics of other flat forms of melanoma. It can arise in the nail unit, appearing as general discolouration or irregular pigmented bands running longitudinally along the nail plate and is called subungual melanoma when it arises in the matrix.

This patient has subungual acral lentiginous melanoma with an important clinical clue of this called 'Hutchinson's nail sign'. This sign is characterised by extension of the nail bed, matrix and nail plate pigmentation to the adjacent cuticle and proximal or lateral nail folds.

The other forms of melanoma are less likely to present in this way and are described in more detail in the notes below.

Question:

An 80-year-old man is found to have bradykinesia and a resting tremor.

These have been present for 4 months. His wife recounts that for 2 years he has been getting lost in the local park, and has forgotten how to make a cup of tea. He occasionally notes that there are strangers sitting at their breakfast table, but his wife has never seen anyone else. On questioning, he scores 4/10 on an abbreviated mental test score.

He is started on co-careldopa, and there is little improvement of his symptoms.

What is the most likely diagnosis?

A.Dementia with Lewy bodies

B.Parkinson's disease dementia

C.Multisystem atrophy

D.Pick's disease

E.Alzheimer's disease

Answer:Dementia with Lewy bodies

Explanation:

Lewy body dementia can be differentiated from idiopathic Parkinson's disease dementia by the time of onset of the dementia compared to the motor symptoms

Important for meLess important

A combination of Parkinsonism with dementia leads to a differential of Lewy body dementia, or Parkinson's disease dementia.

Lewy body dementia is more likely if dementia starts before or within 1 year of the onset of the parkinsonian symptoms. Lewy body dementia also commonly causes visual hallucinations of people. The poor response to co-careldopa is also a clue, as the 'Parkinson's plus' syndromes are often less responsive to classical antiparkinsonian drugs.

Parkinson's disease dementia is more likely if dementia occurs around 4-5 years after motor symptoms (but at the very least should be 1 year after).

Alzheimer's disease is the most common degenerative dementia, but is less likely alongside the parkinsonian symptoms.

Pick's disease would present with behaviour change alongside dementia, often in a middle-aged rather than elderly patient.

Multisystem atrophy does not have such significant cognitive features, but autonomic involvement is more common.

Question:

A 69-year-old male patient is brought to the emergency department with confusion. He also has rashes that started 10 days back which are mainly located over his palms, soles, dorsum of hands and the extensor surfaces. Furthermore, he is febrile and breathless. He was prescribed some tablets for trigeminal neuralgia 3 weeks ago. On examination, he is tachycardic and hypotensive. Oral examination revealed erythema, oedema, and sloughing of the mucosa.

Which of the following medications is the most likely cause of these symptoms?

A.Amitriptyline

B.Carbamazepine

C.Gabapentin

D.Pimozide

E.Tizanidine

Answer:Carbamazepine

Explanation:

Carbamazepine may cause Steven-Johnson syndrome

Important for meLess important

This is a case of Stevens-Johnson syndrome (SJS), which is a rare but life-threatening reaction, almost always associated with drugs such as carbamazepine, lamotrigine, allopurinol, sulfonamide, phenobarbital.

Other drugs most commonly associated with SJS:

Phenytoin

Salicylates

Sertraline

Imidazole antifungal agents

Nevirapine

Question:

A 47-year-old man attends the emergency department after falling from his bike. The patient explains he feels completely well himself and denies any vomiting, seizures, loss of consciousness or any other symptoms since his fall.

His past medical history is significant for a tricuspid valve replacement, for which he takes warfarin.

On examination, there is a small 1cm laceration on his left temple that is no longer bleeding. A GCS score is 15/15 and a full neurological exam is performed with no abnormality detected.

What is the most appropriate management?

A.Admit the patient for 12 hours of neurological observations

B.Discharge patient with safety netting advice

C.Perform a CT scan within 1 hour

D.Perform a CT scan within 8 hours

E.Perform an MRI scan within 8 hours

Answer:Perform a CT scan within 8 hours

Explanation:

Any person on anticoagulants with a head injury must receive a CT head within 8 hours

Important for meLess important

As this patient is taking an anticoagulant such as warfarin and has received a head injury, the most appropriate management is to perform a CT scan within 8 hours. Patients in this category are more likely to develop intracranial bleeds following a head injury and these may have a delayed onset of presentation, and therefore meet the criteria for a CT scan within 8 hours.

While neurological observations should be performed, it would not be appropriate to only admit the patient for 12 hours of neurological observations as it is necessary to perform a CT scan in this case due to the patient's use of anticoagulant medication.

It would be inappropriate to discharge the patient with safety netting advice as they might have developed a serious intracranial bleed due to having a head injury while on anticoagulant therapy.

This patient does not meet the criteria for it to be correct for it to be necessary to perform a CT scan within 1 hour . This is because they deny key symptoms such as post-traumatic seizures or vomiting. Performing a CT scan with an incorrect level of urgency is inappropriate as it might delay other more urgent cases being performed.

It would not be correct to perform an MRI scan within 8 hours as this is not the imaging modality of choice for head injuries. A CT scan should be performed instead.

Question:

A 39-year-old female has a pigmented mole removed from her leg, which histology shows to be a malignant melanoma. What is the single most important prognostic marker?

A.Number of episodes of sunburn before the age of 18 years

B.Age of patient

C.Diameter of melanoma

D.Depth of melanoma

E.Mutation in the MC1R gene

Answer:Depth of melanoma

Explanation:

Melanoma: the invasion depth of the tumour is the single most important prognostic factor

Important for meLess important

Question:

A 40-year-old woman complains of feeling tired all the time and putting on weight. On examination a diffuse, non-tender goitre is noted. Blood tests are ordered:

TSH 15.1 mU/l

Free T4 7.1 pmol/l

ESR 14 mm/hr

Anti-TSH receptor stimulating antibodies Negative

Anti-thyroid peroxidase antibodies Positive

What is the most likely diagnosis?

A.Pituitary failure

B.Primary atrophic hypothyroidism

C.De Quervain's thyroiditis

D.Hashimoto's thyroiditis

E.Grave's disease

Answer:Hashimoto's thyroiditis

Explanation:

Hashimoto's thyroiditis = hypothyroidism + goitre + anti-TPO

Important for meLess important

This patient has Hashimoto's thyroiditis, as evidenced by the hypothyroidism, goitre and anti-thyroid peroxidase antibodies. De Quervain's thyroiditis typically causes a painful goitre and a raised ESR. Around 90% of patients with Grave's disease have anti-TSH receptor stimulating antibodies.

Question:

You are a doctor in the emergency department investigating a 65-year-old man presenting with new sudden onset vertigo associated with a headache. He has a medical history of alcohol dependence and hypertension. Two weeks ago, he suffered from coryzal symptoms and an associated fever, which resolved spontaneously.

These are the results of your initial assessment:

Head impulse Loss of fixation with corrective saccades when head turned to the right

Nystagmus Unidirectional, Beating

Test of skew Grossly absent

Hearing No deficits

What is the most likely diagnosis based on these findings?

A.Multiple sclerosis

B.Ménière's disease

C.Posterior circulation stroke

D.Vestibular neuronitis

E.Viral labyrinthitis

Answer:Vestibular neuronitis

Explanation:

The HiNTs exam can be used to distinguish vestibular neuronitis from posterior circulation stroke

Important for meLess important

The correct answer is vestibular neuronitis. This man has presented with sudden onset vertigo and has risk factors for both central and peripheral causes of vertigo. A HiNTs exam is required in this scenario to distinguish whether this is a central or peripheral cause of vertigo. The results in the HiNTs exam are consistent with a peripheral cause of vertigo. A history of recent viral illness associated with sudden onset peripheral vertigo without hearing loss makes vestibular neuronitis the most likely diagnosis.

Ménière's disease is not the most likely diagnosis as a diagnosis requires recurrent episodes of vertigo associated with tinnitus and sensorineural hearing loss. In this vignette, the sudden onset of vertigo is new.

Posterior circulation stroke is not the most likely diagnosis as the HiNTs exam results are all consistent with a peripheral cause of vertigo even though this patient has risk factors such as alcohol dependence and hypertension. Furthermore, posterior circulation strokes typically present with other features, such as limb weakness, ataxia, or nystagmus.

Viral labyrinthitis is not the most likely diagnosis as it is associated with sudden onset vertigo combined with hearing loss following a recent viral illness.

Multiple sclerosis is a potential cause of central vertigo. Furthermore, multiple sclerosis is episodic or 'relapsing-remitting' in nature and typically presents with optic neuritis, making this option incorrect.

Question:

A 25-year-old woman presents to the emergency department with acute-onset abdominal pain and vaginal bleeding. Her last period was 7 weeks ago. She is sexually active, does not use any hormonal contraception, and has no other past medical history.

Her heart rate is 85 bpm, and her blood pressure is 126/76 mmHg. Palpation of the right iliac fossa elicits pain. A urinary pregnancy test is positive and further investigations are performed:

Serum b-hCG 5200 IU/L

Ultrasound 38 mm right adnexal mass present, no heartbeat present

What is the most appropriate step in her management?

A.Expectant management and monitoring

B.Laparoscopic salpingectomy and monitoring

C.Laparoscopic salpingotomy and monitoring

D.Methotrexate and monitoring

E.Vaginal misoprostol and monitoring

Answer:Laparoscopic salpingectomy and monitoring

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

Laparoscopic salpingectomy and monitoring is correct. This patient has acute-onset abdominal pain and vaginal bleeding after 6-8 weeks following her last period which should raise suspicion of an ectopic pregnancy. The positive pregnancy tests and ultrasound findings confirm this diagnosis. Given that the size of the ectopic pregnancy is greater than 35 mm, and the beta-hCG levels are higher than 5000 IU/L, the most appropriate step in this patient's management is surgical, either via a laparoscopic salpingectomy (removal of the affected tube) or salpingotomy (removal of the ectopic pregnancy material and retaining the tube). The preferred method depends on the status of the other tube and the woman's desire for future fertility. Given that there is nothing to suggest the contralateral tube is affected, the ideal choice in management would be a salpingectomy, as a salpingotomy may require further treatment with methotrexate and may not remove the ectopic pregnancy entirely. There is no evidence to suggest that a salpingotomy is better than a salpingectomy if the contralateral tube is normal, therefore it would be more appropriate to perform a salpingectomy.

Expectant management and monitoring is incorrect. This would be an appropriate option if the size of the ectopic pregnancy was less than 35 mm, the beta-hCG levels were less than 1000 IU/L, no foetal heartbeat was present, and the patient was asymptomatic. Except for the absence of a foetal heartbeat, these do not apply to this patient, therefore making expectant management less appropriate.

Laparoscopic salpingotomy and monitoring is incorrect. This would be appropriate if this patient had a past medical history of a condition affecting the contralateral tube or reducing her fertility, such as a previous salpingectomy or pelvic inflammatory disease. The reason for this is that this would preserve future fertility if desired. Since this patient has none of these present in her history, the most appropriate step would be a salpingectomy, as a salpingotomy may not entirely remove all the tissue and further treatment with additional methotrexate may be necessary.

Methotrexate and monitoring is incorrect. This would be appropriate if the patient had no significant pain, the size of the ectopic pregnancy was <35 mm, the beta-hCG was less than 1500 IU/L, and no foetal heartbeat was present. Except for the absence of a foetal heartbeat, these do not apply to this patient, therefore making medical management with methotrexate inappropriate.

Vaginal misoprostol and monitoring is incorrect. This is used in the medical management of a miscarriage. Misoprostol is used to expedite the miscarriage. Misoprostol plays no role in the management of an ectopic pregnancy as the pregnancy tissue is not present in the uterus.

Question:

A 21-year-old female football player comes to the walk in clinic with severe left knee pain. She states that she has landed awkwardly on her knee during a football game. She heard a 'snapping sound' when she injured her knee which was followed by significant swelling around the left knee joint. Physical examination reveals increased laxity on anterior drawer of the left tibia relative to the femur. Which of the following tests would be most appropriate in confirming the diagnosis?

A.Left knee x-ray

B.Left knee posterior drawer test

C.Left knee McMurray's test

D.Left knee Apley's test

E.Left knee magnetic resonance imaging (MRI)

Answer:Left knee magnetic resonance imaging (MRI)

Explanation:

Ligamentous injuries of the knee joint are best confirmed through magnetic resonance imaging (MRI)

Important for meLess important

The football player in the above scenario is likely to have suffered an anterior cruciate ligament (ACL) injury. ACL injuries often occur in sports that require pivoting or rapid changes in direction. Such patients will often complain of a popping sensation followed by rapid onset haemarthrosis. The appropriate test of choice to confirm this diagnosis is a left knee MRI.

A left knee x-ray would be useful if a fracture or knee osteoarthritis was being considered in the diagnosis. Although the patient does have a recent history of trauma, the mechanism of the injury and the popping sensation followed by the swelling is more indicative of a ligamentous injury for which a plain radiography would have limited diagnostic ability.

The posterior drawer test is used to clinically diagnose posterior cruciate ligament (PCL) injuries. The patient in the above scenario is more likely to be suffering from an ACL injury.

Left knee McMurray's test is clinical test used if a meniscal tear was being considered. The patient in the above question is more likely to be suffering from an ACL injury.

Apley's test is also a clinical test used when a meniscal injury is suspected. It is not likely to helpful in a patient with an ACL injury.

Question:

An 80-year-old man is admitted to hospital with confusion and abdominal pain that has worsened over the past 6 days. His vision also appears to have deteriorated over this time, with reduced acuity and altered colour perception. Prior to this episode, he had suffered from a brief bout of vomiting and diarrhoea that had affected many others at his nursing home and since then staff report that he has produced very little urine.

His past medical history includes atrial fibrillation, hypertension, hypercholesterolaemia and depression.

His blood tests are as follows:

Hb 185 g/l

Platelets 435 \* 109/l

WBC 11 \* 109/l

Na+ 144 mmol/l

K+ 5.3 mmol/l

Urea 28 mmol/l

Creatinine 170 µmol/l

Given the patient's symptoms and blood results, which of his regular medications may be causing his current presentation?

A.Propranolol

B.Digoxin

C.Amlodipine

D.Atorvastatin

E.Citalopram

Answer:Digoxin

Explanation:

Impaired renal function can provoke digoxin toxicity

Important for meLess important

Digoxin is mostly excreted renally and thus any drop in renal function can lead to its accumulation and hence toxicity, especially in elderly patients. In this scenario, dehydration from the previous vomiting and diarrhoea has lead to an acute kidney injury and caused serum levels of digoxin to rise. The characteristic symptom of digoxin toxicity is visual disturbance (yellowing of vision - xanthopsia, as well as reduced acuity) as well as many non-specific symptoms such as confusion, nausea and vomiting, and lethargy.

The other possible answers do not accumulate and cause toxicity in renal failure.

Question:

Each one of the following is a feature of subacute thyroiditis, except:

A.Good prognosis

B.Increased iodine uptake on scan

C.Painful goitre

D.Hyperthyroidism

E.Elevated ESR

Answer:Increased iodine uptake on scan

Explanation:

In De Quervain's thyroiditis there is globally reduced uptake of iodine-131 during thyroid scintigraphy

Important for meLess important

Subacute (De Quervain's) thyroiditis is associated with decreased iodine uptake on scan

Question:

A 35-year-old woman who is 8 weeks postpartum and currently breastfeeding comes to see you, complaining of a 'fishy smell' down below. Microscopy reveals the presence of clue cells.

Given the likely diagnosis which one of the following treatments would you advise?

A.Metronidazole 400mg bd for 5 days

B.Metronidazole 2g stat dose

C.Fluconazole 150mg stat

D.Azithromycin 1g PO stat

E.Clarithromycin 1g PO stat

Answer:Metronidazole 400mg bd for 5 days

Explanation:

Bacterial vaginosis: oral metronidazole

Important for meLess important

This patient has bacterial vaginosis the treatment for which is metronidazole.

High stat doses of metronidazole and contraindicated in breastfeeding

Fluconazole is used to treat thrush, azithromycin is used in the treatment of Chlamydia.

Clarithromycin is used to treat pneumonia, strep throat and H.pylori.

Question:

A 4-year-old boy with Down's syndrome is brought into the paediatric emergency department via a referral from their GP, who suspected dehydration secondary to gastroenteritis. He has been feeling unwell for the last three days, with significant nausea and vomiting for the previous two days. He has not been able to keep any food or liquids down for the previous nine hours. The paediatrician begins a work-up, including a venous blood gas as the cannula for fluids is being placed.

What abnormality on the blood gas would be most likely?

A.Metabolic acidosis with normal anion gap

B.Metabolic acidosis with raised anion gap

C.Metabolic alkalosis

D.Respiratory acidosis

E.Respiratory alkalosis

Answer:Metabolic alkalosis

Explanation:

Vomiting / aspiration - metabolic alkalosis

Important for meLess important

The correct answer is metabolic alkalosis. Here, vomiting has caused the loss of protons, potassium and chloride ions from the body over a short time period, all of which contribute to metabolic alkalosis. The loss of protons is clear - less protons means less acid (although this is generally compensated for by the H+ <-> HCO3- buffer system). In hypokalaemia, potassium is drawn from cells to plasma in exchange for protons, further dropping serum pH. In hypochloraemia, reduced chloride ion transport through the kidney caused activation of the renin-angiotensin-aldosterone system, and aldosterone further drops pH by causing sodium reabsorption in exchange for protons. Other causes of metabolic alkalosis include diuretics, hypokalaemia, and primary hyperaldosteronism (Conn's syndrome).

Metabolic acidosis with raised anion gap: acidosis resulting from additional acidic compounds in the plasma, for example, lactic acidosis (sepsis, ischaemia), ketoacidosis (diabetic, alcoholic, starvation) or toxin ingestion (ethylene glycol, salicylates). Given the patient's vomiting (and therefore losing stomach acid), an acidosis would be very unlikely.

Metabolic acidosis with normal anion gap: this can be thought of as hyperchloraemic metabolic acidosis. Causes include gastrointestinal bicarbonate loss (chronic diarrhoea or fistula), Addison's disease, or renal tubular acidosis. As with the metabolic acidosis with a raised anion gap, the loss of stomach acid makes this very unlikely.

Respiratory acidosis: acidosis resulting from poor carbon dioxide clearance in the lungs. Can be chronic (COPD) or secondary to acute respiratory failure (life-threatening asthma, pulmonary failure, ARDS). There is no respiratory syndrome in this patient, so this would be incorrect.

Respiratory alkalosis: alkalosis resulting from increased carbon dioxide clearance by the lungs (hyperventilation). Most commonly seen in anxiety or panic attacks, but can also be seen with small pulmonary embolism. Whilst this is the correct biochemistry (alkalosis), this is caused by the loss of protons from the stomach, not respiratory CO2 release.

Question:

A 72-year-old man presents to his GP due to his wife's increasing complaints about his deafness. He maintains that she mumbles although he concedes that he can struggle to follow conversations in noisy environments. The patient says that he otherwise feels fine. His past medical history includes both hypertension and chronic obstructive pulmonary disease.

On examination, the GP finds bilateral sensorineural hearing loss. She concludes that presbycusis is the most likely cause and sends him for audiometric testing.

Which is the most likely pattern of this gentleman's audiogram?

A.Bilateral low-frequency hearing loss. Bone conduction better than air

B.Bilateral low-frequency hearing loss. Air conduction better than bone

C.Bilateral high-frequency hearing loss. Bone conduction better than air

D.Bilateral high-frequency hearing loss. Air conduction better than bone

E.Bilateral hearing loss across all frequencies. Bone conduction better than air

Answer:Bilateral high-frequency hearing loss. Air conduction better than bone

Explanation:

Presbycusis presents with bilateral high-frequency hearing loss

Important for meLess important

Age-related hearing loss (presbycusis) presents as sensorineural deafness, initially affecting high-frequency tones. Patients also typically report difficulty hearing when in noisy environments.

Air conduction is superior to bone conduction in sensorineural hearing loss (whilst the converse is true in conductive hearing loss) hence the only correct answer is 'Bilateral high-frequency hearing loss. Air conduction better than bone'.

Question:

An out-of-hospital cardiac arrest has arrived in the emergency department. After 2 minutes of chest compressions, the rhythm check shows asystole. Adrenaline 1mg is drawn up to be administered. However, after 4 failed attempts, the resuscitation team are unable to establish intravenous access with a peripheral cannula.

What is the next best site to use for drug delivery?

A.Deltoid muscle

B.Endotracheal tube

C.Femoral vein

D.Internal jugular vein

E.Proximal tibia

Answer:Proximal tibia

Explanation:

In ALS, if IV access cannot be achieved then drugs should be given via the intraosseous route (IO) - the tracheal route is no longer recommended

Important for meLess important

In a cardiac arrest, if peripheral intravenous access cannot be achieved, intraoesseous access should be gained by using an intraosseous drill at a number of potential sites including the proximal humerus, proximal tibia, and distal tibia. Access via the femur and iliac crest is also possible.

Intramuscular delivery via the deltoid muscle is not a means of delivering adrenaline +/- amiodarone in a cardiac arrest scenario. Furthermore, additional treatments such as intravenous fluids, dextrose, insulin/dextrose, alteplase, may need to be given and cannot be administered intramuscularly.

Drug delivery via endotracheal tube is no longer recommended in the resuscitation guidelines and would not be the most appropriate method to consider in this patient.

Central line insertion to establish access to the internal jugular vein or femoral vein is a lengthy process that should be carried out aseptically and with ultrasound guidance. It is not an appropriate means of achieving access in a cardiac arrest scenario.

Question:

A 71-year-old man presents with sudden painless loss of vision in his left eye: Fundoscopy shows the following:

What is the most likely diagnosis?

A.Ciliary body rupture with lens dislocation

B.Vitreous haemorrhage

C.Ischaemic optic neuropathy

D.Central retinal artery occlusion

E.Retinal detachment

Answer:Retinal detachment

Explanation:

Question:

A patient presents as she has a strong family history of cancer. Which one of the following cancers is least likely to be inherited?

A.Colorectal cancer

B.Breast cancer

C.Gastric cancer

D.Endometrial cancer

E.Ovarian cancer

Answer:Gastric cancer

Explanation:

Between 5 and 10% of all breast cancers are thought to be hereditary. Mutation in the BRCA1 and BRCA2 genes also increase the risk of ovarian cancer. For colorectal cancer around 5% of cases are caused by hereditary non-polyposis colorectal carcinoma (HNPCC) and 1% are due to familial adenomatous polyposis. Women who have HNPCC also have a markedly increased risk for developing endometrial cancer - around 5% of endometrial cancers occur in women with this risk factor.

Question:

A 2-year-old boy is brought to the emergency department by his mother with bruising after a fall. On assessment, there is a global developmental delay. He crawls and walks with difficulty, is able to pincer grip, and is playing with toys during the consultation. There are some bruises on his abdomen, left elbow, and left forearm, at different stages of healing.

His mother says these are from him falling due to clumsiness for the past few months and she herself once had bruising which required oral steroids and thinks he has developed the same condition.

What is the next most appropriate step in his management?

A.Coagulation screen and coagulopathy testing

B.Immediately contact safeguarding lead

C.Oral prednisolone

D.Urgent full blood count within 48 hours

E.Urgent paediatric haematology referral

Answer:Immediately contact safeguarding lead

Explanation:

Delayed presentation is sometimes suggestive of non-accidental injury

Important for meLess important

Immediately contact safeguarding lead is correct. This infant has multiple bruises at different stages of healing which should raise suspicion of non-accidental injury. In general, it is unlikely for a child to have this many bruises occurring after falling due to clumsiness, and the fact that he has been brought a few months after them occurring should also add to the suspicion of non-accidental injury. The presence of multiple bruises at different stages of healing suggests that these bruises have occurred over a long timeframe and have not been addressed. Even if this infant were to have a coagulopathy leading to these bruises, presenting after a few months is unusual and suspicious. In all age groups, a delayed presentation may sometimes be suggestive of non-accidental injury.

Coagulation screen and coagulopathy testing is incorrect. Although these may be performed down the line to investigate for any other causes of the bruising, the history is more suggestive of non-accidental injury and needs immediate assessment.

Oral prednisolone is incorrect. Although this is used in immune thrombocytopenia (ITP) in adults, which his mother may have had, it is not first-line in children. The history is more suggestive of non-accidental injury and needs immediate assessment.

Urgent paediatric haematology referral is incorrect. Although haematology input may be needed down the line to investigate for any other causes of the bruising, the history is more suggestive of non-accidental injury and needs immediate assessment.

Urgent full blood count within 48 hours is incorrect. Although this is performed in unexplained bruising to look for haematological malignancy, the history is more suggestive of non-accidental injury and needs immediate assessment.

Question:

A 42-year-old male presents to his general practice with loss of libido and erectile dysfunction. He is also concerned that he has grown breast tissue over the past 2 months and he has had some change to his vision. Blood tests are performed.

Prolactin 39,000mIU/L (<300mIU/L)

A pituitary MRI reveals a large 27mm pituitary macroadenoma with compression of the optic chiasm. Visual assessment shows bitemporal hemianopia.

What is the most appropriate first-line management?

A.Cabergoline

B.Observation only

C.Octreotide

D.Sellar radiotherapy

E.Trans-sphenoidal surgery

Answer:Cabergoline

Explanation:

Dopamine agonists (e.g. cabergoline, bromocriptine) are first-line treatment for prolactinomas, even if there are significant neurological complications

Important for meLess important

This man has a macroprolactinoma, characterised by prolactinaemia and confirmed by MRI. He has classical symptoms of prolactinaemia in males, including loss of libido, erectile dysfunction and gynaecomastia. He also has bitemporal hemianopia due to compression of the optic chiasm caused by the macroadenoma (>10mm). NICE guidance recommends that medical treatment with dopamine agonists should be used as first-line management for prolactinomas in men and women. Cabergoline is the dopamine agonist of choice, and bromocriptine is used as a second-line option. Dopamine agonists are used to reduce the tumour size and subsequently reduce prolactin levels.

Observation only is not appropriate in this case, as this man has significant symptoms associated with his prolactinoma.

Octreotide is a somatostatin analogue that may be used in the management of acromegaly. It has no role in the management of prolactinomas.

Sellar radiotherapy is used as third-line management of symptomatic prolactinomas when medical and surgical management has failed. It is associated with significant complications such as hypopituitarism, optic nerve damage and cognitive deterioration.

Trans-sphenoidal surgery should be considered as a second-line option if medical management with a dopamine agonist is unsuccessful or not tolerated.

Question:

A 48-year-old female with no significant past medical history was recently diagnosed with a deep vein thrombosis. She has no risk factors for deep vein thrombosis or any precipitating events. The patient was treated with dalteparin which resolved the clot and her symptoms. Subsequently, a thrombophilia screen revealed moderately raised anticardiolipin antibodies on two occasions, twelve weeks apart.

What is the most appropriate long-term management of this patient?

A.Low molecular weight heparin

B.Unfractionated heparin

C.Warfarin

D.No treatment required

E.Rivaroxaban

Answer:Warfarin

Explanation:

After the first VTE, patients with antiphospholipid syndrome should be on lifelong warfarin

Important for meLess important

This patient has elevated anticardiolipin antibodies on two occasions twelve weeks apart which is diagnostic for antiphospholipid syndrome. Long-term anticoagulation is indicated in patients with unprovoked thrombosis, with warfarin being the preferred option.

Low molecular weight heparin or unfractionated heparin is indicated for an acute episode of thrombosis but not long-term anticoagulation in antiphospholipid syndrome.

Unfractionated heparin or low molecular weight heparin is indicated for an acute episode of thrombosis but not long-term anticoagulation in antiphospholipid syndrome.

Warfarin is the preferred long-term anticoagulant in patients with antiphospholipid syndrome patients who have had previous unprovoked thrombosis.

Patients with antiphospholipid syndrome have a high risk of recurrent thrombosis without anticoagulation and therefore not giving the patient any treatment is inappropriate.

The medicines and healthcare products regulatory authority (MHRA, 2019) has advised that direct-acting oral anticoagulants (e.g. rivaroxaban) should not be used for long-term therapy in patients with antiphospholipid syndrome as more thrombotic events occur in these patients when compared to those on warfarin. Therefore rivaroxaban is not the most appropriate management option.

Question:

A 76-year-old woman presents to her GP after looking after her grandchild yesterday, who was ill with chickenpox at the time. She doesn't think she has had chickenpox before. She is worried since she knows she has a weakened immune system due to long term methotrexate treatment for rheumatoid arthritis. On examination, there is no rash or systemic upset and she feels well in herself. Her varicella antibodies are checked and are negative.

What is the most appropriate management?

A.Oral aciclovir

B.Oral ganciclovir

C.Varicella vaccination

D.Varicella zoster immunoglobulin

E.No treatment necessary

Answer: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

This woman has presented with long-term immunosuppression and chickenpox exposure. Her varicella antibodies confirm that she has never been exposed to chickenpox before, meaning if she was to become ill, it would be a primary infection. NICE recommends that at-risk groups who may develop a primary infection should be given varicella zoster immunoglobulin as prophylaxis, and therefore, this is the correct answer.

Oral aciclovir may be given if an immunocompromised individual develops a primary chickenpox infection. However, this woman has no evidence of a rash or systemic upset and therefore this is inappropriate.

Oral ganciclovir may be given as an alternative to aciclovir for primary infection, however as stated above, this is not indicated.

Varicella vaccination is contraindicated in immunocompromised individuals as it is a live-attenuated vaccination. Additionally, it will not provide immunity for the exposure that just occurred. Therefore, it is inappropriate.

It is inappropriate to offer no treatment, as the risk of primary infection in an immunocompromised individual may lead to devastating and fatal complications if left untreated.

Question:

A 60-year-old man presents with sudden-onset chest pain that is worst in the centre of his chest. He has a past medical history of angina and high blood pressure. There was high troponin on admission and the repeated test. An ECG shows tall R-waves in leads V1 and V2.

What is the most likely cause of the ECG changes?

A.Anterior myocardial infarction

B.Inferior myocardial infarction

C.Posterior myocardial infarction

D.Right bundle branch block

E.Right ventricular hypertrophy

Answer:Posterior myocardial infarction

Explanation:

Posterior MI typically present on ECG with tall R waves V1-2

Important for meLess important

Posterior MI is the correct answer. The history is suggesting an acute cardiac event and tall R waves in leads V1 and V2 on ECG should raise your suspicion of a posterior MI.

Right bundle branch block (RBBB) is incorrect. RBBB is often an incidental finding on ECG. Although it can be present following ischaemic changes to the heart, it is not the cause of this patient's ECG changes or their presenting complaint. RBBB appears on ECG as a wide QRS complex, RSR' pattern in V1, and wide, slurred S waves in V6.

Right ventricular hypertrophy (RVH) is incorrect. It is usually the result of chronic right heart strain such as PE or pulmonary hypertension. The history for this patient did not suggest he has right heart strain rather suggest an acute event. ECG changes in RVH do include dominant R wave in V1, but also include dominant S wave in V6 and right axis deviation.

Inferior infarction is incorrect. ECG changes in inferior MI normally affect II, III, and aVF.

Anteroseptal infarction is incorrect. An anteroseptal MI would exhibit ECG changes such as ST elevation in leads V1 and V2 (septal) and V3 and V4 (anterior).

Question:

A 71-year-old man is reviewed following an ischaemic stroke. He is known to be intolerant of clopidogrel. What is the most appropriate therapy to help reduce his chance of having a further stroke?

A.Aspirin + dipyridamole. Stop dipyridamole after 2 years

B.Dipyridamole. Stop dipyridamole after 2 years

C.Aspirin lifelong

D.Warfarin

E.Aspirin + dipyridamole lifelong

Answer:Aspirin + dipyridamole lifelong

Explanation:

Please see the 2010 NICE guidelines for more details. The 2-year limit has now been removed.

Question:

A 6-year-old girl is seen in the Paediatric Emergency Department with a fever and a rash. She has been feeling unwell for 6 days with consistently high temperatures. On examination, she has cracked lips, a bright red tongue, a widespread erythematous maculopapular rash and peeling of the skin on the hands and feet. She has bilateral conjunctivitis.

Given the most likely diagnosis, what investigation is essential to screen for a potential complication?

A.Cardiac magnetic resonance angiography

B.Chest x-ray

C.Coronary angiography

D.Echocardiogram

E.Lumbar puncture

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

This patient is presenting with features of Kawasaki disease. In order for a diagnosis to be made, 4 of the following 5 features must be present along with a fever for >5 days:

Bilateral conjunctivitis

Cervical lymphadenopathy

Polymorphic rash

Cracked lips/strawberry tongue

Oedema/desquamation of the hands/feet

This patient has a rash, conjunctivitis, mucosal involvement and desquamation of the hands and feet. An important complication to screen for in Kawasaki disease is coronary artery aneurysms using an echocardiogram.

Cardiac magnetic resonance angiography provides a non-invasive alternative to coronary angiography and does not use ionising radiation. It can provide a more accurate picture of coronary artery aneurysms than ultrasound, but it would not be first-line as it is expensive and less widely available, so an echocardiogram would be performed in the first instance.

Chest x-ray is a possible investigation to consider in Kawasaki disease, however, it is not essential. The rationale for requesting a chest x-ray could be to look for cardiomegaly that could indicate pericarditis or myocarditis. These are both potential complications of Kawasaki disease but they can be diagnosed with echocardiography without the need for radiation.

Coronary angiography is an invasive procedure where an arterial catheter is passed into the radial or femoral artery and radiopaque contrast is injected into the catheter to show a detailed picture of the coronary arteries with an x-ray. This could be required if large coronary artery aneurysms were seen on echocardiography, however, it is not first-line as it is invasive, carries a risk of stroke and myocardial infarction and involves ionising radiation.

A lumbar puncture would not be essential in this case. It might be considered if the patient was displaying symptoms of meningitis, but at this stage, it would not be indicated.

Question:

A 64-year-old man presents to the GP with a new lump he has noticed on his abdomen. On examination, there is a single visible protrusion 5cm above the umbilicus in the midline. It appears pink and is painless with no signs of necrosis. There are bowel sounds present.

What is the most likely diagnosis?

A.Epigastric hernia

B.Femoral hernia

C.Para-umbilical hernia

D.Spigelian hernia

E.Umbilical hernia

Answer:Epigastric hernia

Explanation:

Epigastric hernia: lump in the midline between umbilicus and the xiphisternum

Important for meLess important

Epigastric hernia is correct - an epigastric hernia is a lump seen in the midline between the umbilicus and the xiphisternum. This patient has presented with a single visible protrusion 5cm above the umbilicus in the midline which fits the description of an epigastric hernia.

Femoral hernia is incorrect - these are typically seen below and lateral to the pubic tubercle. This patient has presented with a protrusion 5cm above the umbilicus in the midline so does not fit the description of a femoral hernia.

Para-umbilical hernia is incorrect - these are typically an asymmetrical bulge directly above or below the umbilicus. This patient has presented with a protrusion 5cm above the umbilicus in the midline so does not fit the description of a para-umbilical hernia as it is not directly above the umbilicus and we do not know if it is symmetrical or asymmetrical.

Spigelian hernia is incorrect - these are seen lateral to the umbilicus. This patient has presented with a midline hernia so Spigelian hernia is incorrect.

Umbilical hernia is incorrect - these are typically a symmetrical bulge directly below the umbilicus. This patient has presented with a hernia above the umbilicus so umbilical hernia is incorrect.

Question:

A 23-year-old woman is brought into the emergency department with a 72-hour history of vomiting and a worsening rash on her palms and soles of her feet.

She has no relevant past medical history, reports no allergies, and is currently on her period. She takes no medications. On examination, the skin on her palms and soles are erythematous with small areas of desquamation on the edges. Her observations include a heart rate of 124 BPM, blood pressure of 97/64 mmHg, and temperature of 39.4ºC.

Her blood results include:

Na+ 138 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 13.0 mmol/L (2.0 - 7.0)

Creatinine 380 µmol/L (55 - 120)

What is the most likely cause of this patient's presentation?

A.Erythroderma

B.Haemolytic uraemic syndrome

C.Hand, foot, and mouth disease

D.Meningococcal meningitis

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

This scenario describes an acutely unwell woman, with evidence of fever, hypotension, a desquamating rash, and an acute kidney injury. Given this presentation, the most likely cause from the provided options is staphylococcal toxic shock syndrome. A common source of infection causing this syndrome is retained tampons, which correlates with her history of currently being on her period.

Staphylococcal toxic shock syndrome is a rare multi-system condition caused by a large immune response to toxins produced from a Staphylococcal aureus infection. Literature often describes retained, infected tampons as a cause, however, this syndrome can also occur in males and from other infection sources. The syndrome is characterised by fever, hypotension, and a desquamating rash (which typically affects the palms and/or soles, initially appears like sunburn, and progressing to desquamation (peeling)). The rash typically appears 1-2 weeks after symptoms, but can occur earlier. In addition to this, one of the definitions for toxic shock syndrome states that 3 or more organ systems must be involved, such as renal, hepatic, gastrointestinal, or central nervous systems. Urgent management would be to remove any retained tampons, investigate for any other potential sources of infection, and to start immediate intravenous fluids and antibiotics.

Erythroderma is a less likely cause of the patient's presentation. Erythroderma is a rare condition that presents with diffuse erythema of the skin as a result of inflammatory skin disease. Occasionally, complications may arise due to heat and fluid loss from the disrupted skin, causing hypotension and dehydration. However fever would be an unlikely finding, and it would be unusual for a patient with no pre-existing skin conditions or medications to present with erythroderma.

Haemolytic uraemic syndrome (HUS) is not the correct answer. HUS is a rare syndrome associated with Escherichia coli O157 infection. It presents with a classic triad of haemolytic anaemia, uraemia (due to acute kidney injury), and thrombocytopenia. HUS would not typically present with a history of a desquamating rash, and instead may feature petechiae due to bleeding into the skin.

Hand, foot, and mouth (HFM) disease is incorrect. HFM is a common, contagious viral infection (caused by organisms such as some coxsackievirus and enterovirus species) that typically affects infants less than 5-years-old. It presents with coryzal symptoms (such as a runny nose, sore throat), fever, and loss of appetite. After 1-2 days, a characteristic erythematous rash can present, typically on the hands and feet. Given the age of the patient and severity of illness, HFM is an unlikely cause.

Meningococcal meningitis is not the most likely diagnosis. Whilst patients with meningococcal meningitis may present acutely unwell with a rash, characteristic symptoms of neck stiffness and photophobia may also be described. Furthermore, the rash seen in meningococcal meningitis is often non-blanching, rather than a desquamating rash.

Question:

A 32-year-old pregnant woman presents to the maternity department at 41 weeks gestation. A decision is made for her to undergo an artificial rupture of the membranes. Shortly after this procedure, during an examination, the umbilical cord is noted to be palpable vaginally.

Given this development, which of the following is the correct position for the woman to adopt?

A.Head-end tilted down

B.Head-end tilted down and legs separated

C.Legs hyper-flexed tightly to abdomen

D.Legs separated and raised in stirrups

E.On all fours

Answer:On all fours

Explanation:

The correct position for women who have a cord prolapse is on all fours, on knees and elbows

Important for meLess important

The diagnosis here is that of cord prolapse. The presenting part of the fetus may be pushed back inside to avoid compression, but the cord itself should not be pushed back in (although should be kept warm and moist). The correct answer is for the patient to go on all fours - the 'knee-chest position' - whilst preparations for an immediate caesarian section are made.

Tilting the head end of the bed downwards refers to the Trendelenburg position. It is commonly used in laparoscopic surgery and abdominal surgery to use gravity to shift abdominal contents superiorly.

Both tilting the head-end of the bed downwards and separating the legs refers to the Lloyd Davis position. It is used in rectal and pelvic surgery where access is required both perineally and abdominally.

Hyper-flexing the legs tightly to the abdomen refers to McRoberts manoeuvre. This is a position used when shoulder dystocia is complicating vaginal delivery. It would not be used for cord prolapse.

The legs being separated and raised in stirrups refers to the lithotomy position, commonly used in obstetrics and gynaecology for many situations, including instrumental delivery and surgery. However, in the specific case of cord prolapse, it is not used.

Question:

A 53-year-old comes to the GP complaining of an ulcer in his mouth which has been present for 6 weeks. He believes it first started when he went out with his colleagues for some Indian food, which was quite spicy. He reports that the area is painful at times. He reports feeling otherwise well. On examination a 1cm by 1cm lesion is seen with irregular edging.

Which one of the following is the most suitable course of action?

A.Bonjela to be applied as needed, up to 4 times a day

B.Routine referral to dental hygienist

C.Urgent referral to dentist

D.Routine referral to maxillo-facial surgery

E.2 week wait referral to oral surgery

Answer:2 week wait referral to oral surgery

Explanation:

All mouth ulcers persisting for greater than 3 weeks should be sent to oral surgery as a 2 week wait referral.

2 week wait referrals to oral surgery should be done in all of the following cases:

Unexplained oral ulceration or mass persisting for greater than 3 weeks

Unexplained red, or red and white patches that are painful, swollen or bleeding

Unexplained one-sided pain in the head and neck area for greater than 4 weeks, which is associated with ear ache, but does not result in any abnormal findings on otoscopy

Unexplained recent neck lump, or a previously undiagnosed lump that has changed over a period of 3 to 6 weeks

Unexplained persistent sore or painful throat

Signs and symptoms in the oral cavity persisting for more than 6 weeks, that cannot be definitively diagnosed as a benign lesion

The level of suspicion should be higher in patients who are over 40, smokers, heavy drinkers and those who chew tobacco or betel nut (areca nut).

For more information visit http://publications.cancerresearchuk.org/downloads/product/GP1.pdf

Question:

A 24-year-old air stewardess presents to the emergency department complaining of pleuritic chest pain and shortness of breath, after arriving to London from Bangkok. On examination she has a swollen left calf, with tenderness over the deep venous system. Her observations are as follows: heart rate 101 bpm, blood pressure 108/73 mmHg, sats 94% on room air and temperature 37.5ºC. Chest xray is unremarkable.

You request a CTPA as you are concerned about a pulmonary embolus. The radiologist agrees but states it will be about 90 minutes until the scan can happen. What should you do next?

A.Wait for the scan and monitor the patient closely

B.Give treatment dose apixaban whilst waiting for the scan

C.Move to resus and thrombolyse

D.Order D-Dimer and give the patient oxygen

E.Give 300 mg aspirin

Answer:Give treatment dose apixaban whilst waiting for the scan

Explanation:

Strong suspicion of PE but a delay in the scan: start on treatment dose anticoagulant meanwhile

Important for meLess important

The patient has a history suggestive of a pulmonary embolus (PE) and a Wells' score of at least 7.5 (DVT clinically, heart rate greater than 100 bpm and PE most likely diagnosis) from the information provided. NICE guidance is that with a Wells' score of greater than 4 they should have a CTPA or V/Q scan, and if this is delayed the patient should be treated as if a PE has been confirmed.

A D-Dimer is not required in this situation, as a positive or negative result, will not change the management plan.

Question:

You are an F2 doctor working on your GP rotation. You are carrying out your lunchtime home visits when you go to see a pleasant 79-year-old female patient whom you're very fond of and have come to know very well over the past few months. You assess the patient and put a management plan in place but as you go to leave she gently pulls your arm and presses £50 into your hand. She says it's a thank you for all your help as she knows you are moving on to your next rotation soon and wants to show her appreciation, she refuses to accept the money back. What is the most appropriate response?

A.Accept the £50 as you know she would be offended otherwise

B.Suggest she donate the money to a charity instead

C.Explain you cannot accept such a gift but you appreciate the gesture

D.Take the money but post it back to her as soon as you leave

E.Explain you will accept the money but put it towards the staff Christmas meal as a thank you for the entire team

Answer:Explain you cannot accept such a gift but you appreciate the gesture

Explanation:

Option 3 is correct. You should not accept substantial gifts from patients or gifts which could be seen to affect how you prescribe, treat or refer patients and so 1 is incorrect. You must not put pressure on patients to donate money to charities or organisations. Option 4 is less appropriate than option 3 and may insult the patient, as is option 5.

Question:

A 24-year-old-man books into your emergency duty clinic. He was seen by one of your colleagues four days previously and diagnosed with right sided otitis externa and started on antibiotic ear drops. He reports that despite these the pain is getting worse. For the last 24 hours he has been unable to apply the drops due to swelling of the canal.

On examination the right external auditory canal is swollen completely shut and you are unable to see any further. Examination is otherwise unremarkable. Observations are within the normal range.

What is the most appropriate management?

A.Book for ear syringing

B.Refer to on-call ENT

C.Add a steroid ear drop as well as the antibiotics

D.Prescribe a course of oral antibiotics

E.Request a CT scan of the head

Answer:Refer to on-call ENT

Explanation:

Poor response to topical antibiotics should be referred to ENT

Important for meLess important

Otitis externa can cause significant canal oedema and stenosis, preventing topical treatment with antibiotic drops. In these cases microsuction and insertion of a pope wick is needed so referral to on-call ENT is indicated.

Ear syringing is contraindicated with active infection and would be of no benefit.

Most antibiotic ear drops also include a steroid, this would be of no benefit if the drops cannot enter the ear canal.

Oral antibiotics (usually ciprofloxacin) may be used alongside topical antibiotics if there is concern of deep tissue infection. This is unlikely in a young otherwise healthy patient. The mainstay of treatment is antibiotic drops.

A CT scan may be helpful is necrotising otitis externa is suspected (in which case it would be organised by ENT) but would be of no benefit here.

Question:

A 72-year-old woman is due to have a tooth extracted next week.

Her past medical history is significant for an aortic valve replacement 2 years previously.

What antibiotic prophylaxis is recommended prior to this procedure?

A.Chlorhexidine mouthwash

B.General oral hygiene advice

C.Intravenous co-amoxiclav

D.Oral amoxicillin

E.Oral phenoxymethylpenicillin

Answer:General oral hygiene advice

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

General oral hygiene advice is correct. NICE guidance from 2008 recommended that patients undergoing dental procedures are not routinely offered infective endocarditis prophylaxis. This includes those deemed 'at risk' due to cardiac conditions such as valve replacement or structural heart disease.

Chlorhexidine mouthwash is incorrect. The BNF page 'antibacterials, use for prophylaxis' states that chlorhexidine mouthwash is not recommended for the prevention of infective endocarditis.

Intravenous co-amoxiclav, oral amoxicillin and oral phenoxymethylpenicillin are all incorrect. NICE does not routinely recommend antibiotics before dental procedures as infective endocarditis prophylaxis. This is because there is no clear association between dental procedures and infective endocarditis. Antibiotic prophylaxis, therefore, exposes patients to side effects without evidence substantiating their use.

Question:

An 8-year-old boy presents with his mother to the GP practice with a red macular rash covering his trunk and back. He has been feeling lethargic for the last two weeks. His mother recalls seeing a larger patch appear on his back initially a week ago, which was then followed by smaller red macules elsewhere on his trunk. His observations are all normal. What is the most likely diagnosis?

A.Meningococcal septicaemia

B.Scarlet fever

C.Chicken pox

D.Pityriasis rosea

E.Measles

Answer:Pityriasis rosea

Explanation:

The mother had noticed the 'herald patch' of pityriasis rosea followed a week later by additional lesions. The symptoms of lethargy and limitation of lesions to the trunk are typical.

Features of the other options:

Meningococcal septicaemia: Meningism, Non-blanching rash.

Scarlet fever: Strawberry tongue, facial sparing.

Chicken Pox: Itchy, starting on head before spreading, macular->vesicular->papular.

Measles: Starting on face, spreading to body. Koplik spots.

Question:

A 48-year-old female who has just completed a course of chemotherapy complains of difficulty using her hands associated with 'pins and needles'. She has also experienced urinary hesitancy. Which cytotoxic drug is most likely to be responsible?

A.Doxorubicin

B.Cyclophosphamide

C.Methotrexate

D.Vincristine

E.Bleomycin

Answer:Vincristine

Explanation:

Vincristine - peripheral neuropathy

Important for meLess important

Vincristine is associated with peripheral neuropathy. Urinary hesitancy may develop secondary to bladder atony.

Question:

A 60-year-old female with a history of COPD presents to the Emergency Department with shortness of breath. Blood pressure is 120/80 mmHg and her pulse is 90 bpm. The chest x-ray shows a pneumothorax with a 2.5 cm rim of air and no mediastinal shift.

What is the most appropriate management?

A.Intercostal drain insertion

B.Discharge

C.Admit for 48 hours observation and repeat chest x-ray

D.Immediate 14G cannula into 2nd intercostal space, mid-clavicular line

E.Aspiration

Answer:Intercostal drain insertion

Explanation:

Question:

A 30-year-old man with a known diagnosis of ulcerative colitis presents with a 5 day history of worsening symptoms. He has been having five episodes of uncomfortable bloody stools per day which is an increase compared to his regular bowel habits. Observations in clinic are stable but he is concerned that oral mesalazine is not controlling his disease.

What would be an appropriate medication to add in order to gain better control of his symptoms?

A.Loperamide

B.Oral metronidazole

C.Oral prednisolone

D.Intravenous hydrocortisone

E.Oral ibuprofen

Answer:Oral prednisolone

Explanation:

If a mild-moderate flare of ulcerative colitis does not respond to topical or oral aminosalicylates then oral corticosteroids are added

Important for meLess important

This case would be deemed as a mild-moderate flare of this man's ulcerative colitis. He is passing 5 bloody stools per day and we already know that he is taking mesalazine. As such, the recommendation is that oral steroids are used for flare-ups of disease. Oral steroids are not routinely permitted for use in maintaining remission.

Anti-motility drugs such as loperamide are not recommended as they are thought to increase the risk of toxic megacolon.

There is no requirement for metronidazole as there is no indication that this man is suffering with an infection.

Intravenous hydrocortisone is not required in this scenario. His observations are stable and there is no hint in the question that this patient requires an acute hospital admission at present. A severe exacerbation is generally considered when someone is passing more than 6-8 episodes of bloody stools per day.

Whilst it would be advisable to try and better control this man's discomfort, oral NSAIDs are not recommended as they can actually worsen symptoms of colitis. Paracetamol should be considered first-line.

Question:

A 45-year-old woman undergoing treatment for breast cancer presents with sudden onset chest pain as well as some swelling in her left calf. The woman follows a healthy diet, exercises regularly and reports no history of cardiovascular or respiratory disease. On examination, the patient is afebrile but has tenderness upon palpation of the left calf. An electrocardiogram (ECG) shows sinus tachycardia. Troponin is not elevated and chest X-ray is normal.

The treating physician suspects the woman may be suffering from a pulmonary embolism and promptly orders a CT pulmonary angiogram (CTPA), which does not identify any abnormality.

What is the next most appropriate step to perform?

A.Arrange a D-dimer

B.Arrange a follow-up CT pulmonary angiogram in 6 hours

C.Consider a proximal lower limb CT venography

D.Consider a proximal lower limb vein ultrasound

E.Arrange a ventilation/perfusion (V/Q) scan

Answer:Consider a proximal lower limb vein ultrasound

Explanation:

Investigating suspected PE: if the CTPA is negative then consider a proximal leg vein ultrasound scan if DVT is suspected

Important for meLess important

NICE guidelines recommend calculating a Wells score for all patients suspected of having a pulmonary embolism. This woman has a Wells score of at least 5.5 given she has an active malignancy (1 point), has clinical signs and symptoms of deep vein thrombosis (DVT) in her left calf (3 points), and has a sinus tachycardia (1.5 points). Patients with a Wells score greater than 4 are considered 'likely' to have a pulmonary embolism and should be offered a CT pulmonary angiogram (CTPA) as the first-line investigation. If the CTPA is negative and a DVT is suspected, a proximal leg vein ultrasound should be considered as the next choice of investigation.

D-dimer is used to exclude pulmonary embolism in patients with a Wells score of 4 or less. It should ideally be performed within 4 hours of presentation. D-dimer is a small protein fragment produced during clot fibrinolysis.

Performing a follow-up CTPA would not be appropriate in this circumstance given the initial negative result. If initial CTPA is negative, NICE guidelines recommend proceeding to proximal lower limb vein ultrasound if DVT is suspected. If DVT is not suspected, interim therapeutic anticoagulation should be discontinued and alternative diagnoses considered.

Proximal lower limb CT venography may be performed as a follow-up investigation to a positive proximal lower limb vein ultrasound but is not appropriate as a second-line investigation behind CTPA.

V/Q scans are offered as an alternative first-line investigation for patients with a Wells score greater than 4 who cannot tolerate CTPA due to contrast media allergy, severe renal impairment or high risk from irradiation.

Question:

A 31-year-old female intolerant of methotrexate is started on azathioprine for rheumatoid arthritis. Routine blood monitoring shows:

Hb 7.9 g/dl

Plt 97 \* 109/l

WBC 2.7 \* 109/l

Which of the following factors will predispose her to azathioprine toxicity?

A.Cimetidine

B.Rifampicin

C.Fast acetylator status

D.Thiopurine methyltransferase deficiency

E.Alcohol excess

Answer:Thiopurine methyltransferase deficiency

Explanation:

Azathioprine - check thiopurine methyltransferase deficiency (TPMT) before treatment

Important for meLess important

Thiopurine methyltransferase (TPMT) deficiency is present in about 1 in 200 people and predisposes to azathioprine related pancytopaenia

Question:

A 32 year-old builder presents with sore and itchy skin on his hands and wrists. He has noticed it gets better when he is not in work and wonders if it is something he is coming into contact with at work causing the irritation. Which of the following tests could best further investigate this theory?

A.Skin prick test

B.Radioallergosorbent test (RAST)

C.Patch testing

D.Skin biopsy

E.Skin scraping

Answer:Patch testing

Explanation:

Contact dermatitis may be irritant or allergic in nature. Patch testing is the investigation of choice for suspected allergic contact dermatitis. Various allergens are applied to the patient's back, and the skin assessed at 48 hours and 7 days for any reaction. Standard batteries of allergens are used, in addition to samples of any substances the patient suspects.

Question:

A 30-year-old woman is diagnosed with systemic lupus erythematosus after presenting with lethargy, arthralgia and a facial rash. Her rheumatologists starts her on hydroxychloroquine. Which one of the following is it most important to monitor?

A.Blood pressure

B.Blood sugar

C.QT interval on ECG

D.Visual acuity

E.Peak expiratory flow rate

Answer:Visual acuity

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

Question:

A 52-year-old male presents with central chest pain and vomiting. He has drunk a bottle of vodka. On examination, there is some mild crepitus in the epigastric region. What is the likely diagnosis?

A.Pulmonary embolus

B.Perforated peptic ulcer

C.Oesophageal perforation

D.Myocardial infarct

E.Pneumothorax

Answer:Oesophageal perforation

Explanation:

The Mackler triad for Boerhaave syndrome: vomiting, thoracic pain, subcutaneous emphysema. It typically presents in middle aged men with a background of alcohol abuse.

Question:

A 66-year-old man with secondary Cushing's as a result of long-term steroid use presents to the GP due to worsening proximal weakness. On examination, he can only flex his hips when he is turned sideways and he is pulling his knee towards his chest. When asked to flex his hip whilst lying supine he is unable to do this.

Given his presentation, what is the best description of his MRC power score?

A.Grade 1

B.Grade 2

C.Grade 3

D.Grade 4

E.Grade 5

Answer:Grade 2

Explanation:

An MRC power score of 2 indicates that the muscle can work with gravity removed

Important for meLess important

This question gives a gentleman who has muscle weakness. The explanation describes someone that can only raise his leg when gravity is removed (when he is turned sideways and lifting his knees up towards his chest). Thus the correct answer is grade 2.

MRC grading is based on the table below

Grade 0 No muscle movement

Grade 1 Trace of contraction

Grade 2 Movement at the joint with gravity eliminated

Grade 3 Movement against gravity, but not against added resistance

Grade 4 Movement against an external resistance with reduced strength

Grade 5 Normal strength

Question:

A 82-year-old woman is admitted from her nursing home following a fall. She is diagnosed with a displaced intracapsular fracture of the hip. She has hypertension, mild cognitive impairment, and osteoarthritis. She appears frail and normally walks with the aid of a zimmer frame. What is the correct surgical management?

A.Total hip replacement

B.Cement hemiarthroplasty

C.Sliding hip screw

D.Intramedullary nail

E.Conservative management only as surgery is not indicated

Answer:Cement hemiarthroplasty

Explanation:

This patient is not suitable for a total hip replacement due to her decreased mobility, cognitive impairment, and general frailty. Due to the site of her fracture, the correct treatment is a cement hemiarthroplasty with the goal of returning her back to her normal function.

After a hip fracture, the appropriate surgical management is dependent both the site of the fracture and also on the patients normal function.

Location of Fracture Patient mobility Recommended treatment

Intracapsular fracture, displaced Independently mobile, does not use more than a stick Total hip replacement

Intracapsular fracture, displaced Not independently mobile Hemiarthroplasty, cemented implants preferred

Trochanteric fracture Mobility not a factor Sliding hip screw

Subtrochanteric fracture Mobility not a factor Intramedullary nail

The purposes of hip replacement after a fracture is to allow a patient to return to their normal function by allowing them to fully weight bear postoperatively. An intracapsular fracture, sometimes referred to as a femoral neck fracture, involves the femoral head and insertion of the capsule into the joint. Replacement arthroplasty is recommended in patients with a displaced intracapsular fracture.

Patients who are clinically eligible with an intracapsular fracture should be offered a total hip replacement. Eligibility criteria includes the ability to walk independently, no cognitive impairment, and the patient must be medically fit for both anaesthesia and the procedure. If a patient does not satisfy these criteria then cemented hemiarthroplasty is preferred.

Extracapsular fractures include trochanteric fractures and subtrochanteric fractures. A sliding hip screw should be used in those patients with a trochanteric fracture. Subtrochanteric fractures should be fixed using an intramedullary nail.

Reference: NICE Guideline 124, Hip Fracture: Management, http://www.nice.org.uk/guidance/cg124

Question:

A 34-year-old woman is 37 weeks pregnant and has come to the hospital as she is experiencing contractions. She has requested vaginal birth.

She is well, alert and haemodynamically stable, however, her cardiotocography shows that the baby's heart rate is 164/min and when repeated 10 minutes later it has gone up to 170/min. The obstetrician decides to perform a caesarean section as the woman is at term.

What category of caesarean section is considered to be?

A.Category 1

B.Category 2

C.Category 3

D.Category 4

E.Category 5

Answer:Category 2

Explanation:

Category 2 caesarean sections are for maternal or fetal compromise that are not immediately life-threatening

Important for meLess important

Category 2 is the correct option. This is defined as a caesarean section performed when there is a non-immediate life-threatening emergency concerning the mother or the baby. The cardiotocography has revealed an abnormality that is an emergency but is not immediately life-threatening to the baby but would have to be undertaken within 75 minutes after the decision has been made.

The cardiotocography has revealed an abnormality that is an emergency but is not immediately life-threatening to the mother of the baby. This requires an emergency caesarean section category 2.

Category 1 is incorrect. This is an emergency caesarean section performed in a matter of 30 minutes after the decision was made. It is indicated in immediately life-threatening situations like for instance haemodynamic instability of the mother.

Category 3 is incorrect. Even though the mother is stable, the baby is in distress. This means a caesarean section needs to be performed for the non-immediate life-threatening condition of the baby. A category 3 caesarian section would be applicable in a scenario where there is a delay in labour induction.

Category 4 is incorrect. This is when the caesarian section is performed electively. That would either be due to the preference of the mother or due to past medical history suggesting this is a better option than vaginal delivery.

Category 5 is incorrect. There is no category 5 caesarean section.

Question:

A 50-year-old man presents to the GP for his diabetes review. He was diagnosed with type 2 diabetes one year ago and managed initially with lifestyle measures alone. However, his HbA1c remained high and he was subsequently started on metformin 500mg BD.

Today his HbA1c is 51 mmol/mol with his target being 48 mmol/mol.

What is the next step in managing this patient's diabetes?

A.Add a SGLT-2 inhibitor to the regime

B.Add a sulfonylurea to the regime

C.Add insulin therapy

D.Increase target HbA1c

E.Titrate up metformin

Answer:Titrate up metformin

Explanation:

If starting an SGLT-2 as initial therapy for T2DM then ensure metformin is titrated up first

Important for meLess important

Titrate up metformin is correct. The patient's HbA1c of 51mmol/mol doesn't indicate the addition of a second drug to his regimen. The patient's metformin needs to be titrated first to 500mg TDS.

Adding an SGLT-2 inhibitor is incorrect. Metformin should be titrated first before commencing on the SGLT-2 inhibitor. A second drug can be added if the HbA1c rises to 58 mmol/mol after titration.

Add a sulfonylurea to the regime is incorrect. Although the patient's HbA1c level is still above the target level and this drug may help reduce the level, the metformin dose should be adjusted first before secondary medication is added.

Increasing target HbA1c is incorrect. 48 mmol/mol is the target for type 2 diabetes. It would be inappropriate to change the target in this patient as a higher HbA1c confers a higher risk of long term complications. An HbA1c over 58mmol/mol would indicate a second drug on the regimen may be required.

Insulin therapy is incorrect. It is typically a third-line therapy used when other drug regimes haven't worked. The patient's metformin needs to be titrated first before starting any new treatment.

Question:

A 51-year-old male presents to his GP. He has been suffering from weight gain, easy bruising, hair thinning and arm weakness. The GP suspects an endocrinological diagnosis and refers the patient for a number of tests. The blood results indicate baseline elevated levels of ACTH. Cortisol levels are not suppressed by a low-dose dexamethasone stress test but are suppressed by a high-dose dexamethasone stress test.

What is the most likely underlying diagnosis?

A.Pituitary tumour

B.Hypothalamic tumour

C.Adrenal cortex tumour

D.Adrenal medulla tumour

E.Amygdala tumour

Answer:Pituitary tumour

Explanation:

The patient has presented with Cushing's syndrome. After iatrogenic causes (e.g. corticosteroid therapy), the next most common cause is a pituitary adenoma causing elevated levels of ACTH, termed Cushing's disease.

Question:

William, a 9-year-old boy, and his father attend epilepsy clinic for the first time. You are asked to take a history of his seizures before he sees the consultant. William's father tells you that during the seizures he often does unusual movements like pulling at his clothes.

What type of epilepsy is typically associated with the features described?

A.Temporal lobe seizures

B.Frontal lobe seizures

C.Generalised tonic-clonic seizures

D.Parietal lobe seizures

E.Juvenile myoclonic epilepsy

Answer:Temporal lobe seizures

Explanation:

Plucking of clothes is typically seen in temporal lobe seizures

Important for meLess important

Plucking of clothes, smacking of lips, aura and feelings of de-ja-vu are features typically associated with temporal lobe seizures.

Frontal lobe seizures is associated with motor abnormalities and Jacksonian movements.

Generalised tonic-clonic seizures are associated with loss of consciousness, stiffening and jerking of the body.

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:

An 80-year-old man has just undergone an emergency repair for a ruptured abdominal aortic aneurysm. Preoperatively he was taking aspirin and warfarin; intraoperatively he received unfractionated heparin prior to application of the aortic cross-clamp. His observation findings are heart rate 120 bpm, BP 100/60 mmHg, respiratory rate 23/min, oxygen saturation 98% on air, temperature 38ºC. His blood results on admission to the critical care unit are as follows:

Hb 110 g/L Male: (135-180)

Female: (115 - 160)

Platelets 30 \* 109/L (150 - 400)

WBC 15 \* 109/L (4.0 - 11.0)

Fibrinogen 0.5 g/L (2-4 g/L)

PT 20 seconds (10-12 seconds)

APTT 60 seconds (35-45 seconds)

FDP 60 ug/mL (<10 ug/mL)

Which of the following most likely explains the blood abnormalities seen?

A.Anastomotic leak

B.Pre-operative aspirin usage

C.Pre-operative warfarin usage

D.Disseminated intravascular coagulation

E.Heparin induced thrombocytopaenia

Answer:Disseminated intravascular coagulation

Explanation:

Deranged coagulation in sepsis -> DIC

Important for meLess important

Disseminated intravascular coagulation (DIC) is the correct answer. The combination of low platelets, increased clotting time and raised fibrin degradation products (FDPs) in this setting make DIC the most likely diagnosis. The patient underwent a major operation and now developed deranged vital signs which suggest sepsis. One critical mediator of DIC is the release of a transmembrane glycoprotein known as tissue factor. Tissue factor (TF) is present on the surface of many cell types and is not normally in contact with the general circulation, but is exposed to the circulation after vascular damage. For example, TF is released in response to exposure to cytokines (particularly interleukin 1), tumour necrosis factor, and endotoxin. This plays a major role in the development of DIC in septic conditions.

Anastomotic leak will usually happen 5 days post-op and the history is rather suggesting a more acute problem. The history and examination findings are not consistent with it.

Heparin-induced thrombocytopenia usually happens 5-14 days post-heparin exposure. It occurs due to the immune complex formation between heparin and platelets. The result is a decreased platelet count mainly. The blood results are not consistent with it.

Warfarin is a vitamin K antagonist which inhibits factors 2, 7, 9, 10. Warfarin is usually reversed before the surgery to avoid excessive bleeding during the surgery. It is unlikely to cause an increase in FDPs and a decrease in platelets. The blood results are not consistent with it.

Although aspirin is an antiplatelet and COX2 inhibitor, a rise of FDP is not seen in aspirin usage. The platelet count will not be affected in aspirin. It will however, result in an increase in bleeding time as platelet function is impaired. The blood results are not consistent with it.

Question:

A 28-year-old Caucasian male presents with itchy red spots on is abdomen, back and arms, which he reports appeared quite suddenly. He has no significant past medical history, but states he had a sore throat a few weeks ago. On examination, you notice he has a white pus-like discharge over his palatine tonsils. He states that he a similar rash last winter, when he had a sore throat.

Which of the following is the most likely diagnosis?

A.Drug eruption

B.Urticaria

C.Guttate psoriasis

D.Lichen planus

E.Discoid eczema

Answer:Guttate psoriasis

Explanation:

Streptococcal throat infection may precipitate psoriasis (particularly guttate psoriasis). Patients with frequent exacerbations of guttate psoriasis due to streptococcal throat infections may benefit from tonsillectomy

Important for meLess important

Streptococcal throat infection may precipitate guttate psoriasis. The other options are important differentials to consider, but given the relation to a sore throat, the sudden onset and the fact that the question does not mention any medications taken (drug eruption) or blanching nature of the rash (urticaria), guttate psoriasis is most likely.

Question:

You are an F1 working on a paediatric ward. You are clerking a 15-year-old boy, who arrived with his Mother, as he presented with severe nausea, vomiting and diarrhoea. You notice the Mother does most of the talking with the patient struggling to add to the conversation. At the end of your history and examination, you ask if they have any questions to which the patient replies he would like to speak to you without his Mother there. The patient's Mother firmly disagrees, saying she has already told you everything and doesn't want to waste your time and insists you 'get on with all your important work'. What is the most appropriate response?

A.Explain the next steps in the patient's care and leave

B.Politely ask the Mother to step outside for a few minutes

C.Leave the bay but wait for an opportunity to speak to the patient when his Mother is not around

D.Ask you consultant for advice

E.Explain to the patient his guardian must be present during all discussions due to his age

Answer:Politely ask the Mother to step outside for a few minutes

Explanation:

Option 2 is the correct answer. The patient has a right to speak to a doctor privately if that is what they wish and should avoid giving the impression they must have a parent present to access services. Therefore, options 1, 3 and 5 are incorrect. Option 4 is a good idea if you are unsure, however, you should be familiar with GMC guidance for 0-18-year-olds and allow the patient to talk with you in private.

GMC 0-18 years: Guidance for all doctors

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidanceindex.asp

Question:

A mother has given birth to a child with notable microcephaly and an absent philtrum. On examination there is a pansystolic murmur auscultated.

The mother did not have any ante-natal care at this hospital and is unable to recall whether there were any abnormalities noted during the ante-natal period.

Which of the following maternal ante-natal events could have contributed to the infant's presentation and abnormalities?

A.Maternal alcohol use

B.Maternal cigarette use

C.Maternal rubella infection

D.Maternal varicella infection

E.Maternal syphilis infection

Answer:Maternal alcohol use

Explanation:

Maternal alcohol use during pregnancy can cause cardiac malformations and physiological abnormalities

Important for meLess important

Foetal alcohol syndrome presents with a range of features depending on the severity of alcohol exposure:

microcephaly (small head)

short palpebral fissures (small eye opening)

hypoplastic upper lip (thin)

absent philtrum

reduced IQ

variable cardiac abnormalities.

Cigarette smoking:

Increased risk of miscarriage, stillbirth, pre-term labour and intrauterine growth retardation

Rubella infection during pregnancy:

Most at risk in first 16w of pregnancy

Classic features: cataract, deafness, cardiac abnormalities

Other possible features: jaundice, hepatosplenomegaly, microcephaly, reduced IQ

Foetal Varicella syndrome:

1% foetuses affected if mother has primary infection in weeks 3-28 due to deactivation in utero

Features: skin scarring, eye defects (small eyes, cataracts or chorioretinitis), neurological defects (reduced IQ, abnormal sphincter function, microcephaly)

Maternal syphilis infection:

Rhinitis, saddle shaped nose, deafness (sensorineural hearing loss) and Hutchinson’s incisors

Hepatosplenomegaly, lymphadenopathy, anaemia, jaundice

Question:

An 82-year-old man presents to the emergency department with confusion, reduced mobility and a new cough.

Blood results from the previous month are as follows:

Na+ 135 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 4.2 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

eGFR >60 mL/min (>60 mL/min)

Current blood results are as follows:

Na+ 135 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Bicarbonate 20 mmol/L (22 - 29)

Urea 22.7 mmol/L (2.0 - 7.0)

Creatinine 225 µmol/L (55 - 120)

eGFR 18 mL/min (>60 mL/min)

What medication should be stopped?

A.Allopurinol

B.Bisoprolol

C.Furosemide

D.Morphine

E.Omeprazole

Answer:Furosemide

Explanation:

Diuretics should usually be stopped in AKI as they may worsen renal function

Important for meLess important

Furosemide is the correct answer. The patient in the vignette has a stage 2 acute kidney injury (AKI) as indicated by the current serum creatinine (110 µmol/L), which is 2x his baseline (225 µmol/L). Therefore, nephrotoxic drugs such as ACE inhibitors, ARBs, NSAIDs and diuretics (e.g. furosemide) should be withheld. A caveat would be if the AKI were due to fluid overload and renal congestion, for which diuretics would be advantageous.

Bisoprolol is incorrect. This drug should be stopped if the patient has hypotension or bradycardia, which are absent in this vignette. It is important to remember that beta blockers can 'mask' tachycardia.

Morphine is incorrect. Toxic metabolites of opioids such as morphine can accumulate in AKI, so it would be important to monitor for opioid toxicity closely. Importantly the patient does not have CKD, as this is one of the considerations when adjusting opiate medication. In patients with CKD4 (eGFR <30), morphine should be discontinued, and an opioid which is less dependent on renal clearance of toxic metabolites should be used in its place (e.g. alfentanil).

Allopurinol is incorrect. Allopurinol requires dose modification if eGFR<50 mL/min. However, it can be used even in patients with an eGFR<10 mL/min, albeit at very small doses of 100mg daily. The patient in the vignette has an eGFR of 18 mL/min, so he should continue allopurinol at a reduced dose of 100 - 200mg daily per the renal drug handbook.

Omeprazole is incorrect. Omeprazole can be used at normal dosing regardless of the patient's eGFR as it is not known to worsen AKI or result in toxicity. There is no evidence for discontinuing omeprazole in this vignette.

Question:

A 7-year-old boy is brought to the ophthalmologist due to complaining of 'blurry vision'. His mother has noticed he often bumps into things on the left side of him whilst walking.

On examination, right eye fundoscopy is normal. Fundoscopy of the left eye is shown below:

What is the most likely diagnosis?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Cerebellar tumour

D.Optic nerve tumour

E.Retinitis pigmentosa

Answer:Optic nerve tumour

Explanation:

The image demonstrates papilloedema, characterised by the blurring of the optic disc edges and enlargement of the surrounding veins. There are small haemorrhages (patches of red) surrounding the optic disc which are also seen in papilloedema.

Optic nerve tumour is correct. When papilloedema is unilateral, this suggests something local in the eye is increasing the pressure on one side. Of the options listed, this is most likely to be an optic nerve tumour.

Central retinal artery occlusion (CRAO) is incorrect. The typical findings are a pale retina as the nerve fibre layer becomes opaque due to ischaemia. There is also a 'cherry red' spot where the fovea is because it does not have an overlying nerve fibre layer. These are not seen here and CRAO would not explain the papilloedema.

Central retinal vein occlusion (CRVO) is incorrect as fundoscopy would show tortuosity and dilatation of the retinal veins, along with haemorrhages (patches of red) across the fundus image. CRVO would not explain the optic disc swelling and blurring.

Cerebellar tumour is incorrect as this is more likely to cause bilateral papilloedema as the increased intracranial pressure is more diffuse. This child has papilloedema only in the left eye, suggesting a local problem such as an optic nerve tumour is the more likely cause.

Retinitis pigmentosa is incorrect. This is a genetic condition leading to progressive loss of vision. Fundoscopy would show dark black spots on the edges. Papilloedema is not a feature and so this diagnosis is not likely.

Question:

An 8-year-old is admitted with suspected appendicitis and has a laparoscopic appendicectomy. He is given 0.45 % sodium chloride post-operatively. When reviewed by the surgical team he has developed features of a headache, confusion, and disturbance to his gait.

Na+ 128 mmol/l

K+ 4.0 mmol/l

Urea 5 mmol/l

Creatinine 60µmol/l

Glucose 4.0mmol/l

Which of the following is the most likely diagnosis?

A.Adverse reaction to patient controlled analgesia

B.Hyperosmolar hyperglycaemic state

C.Hyponatraemic encephalopathy

D.Normal pressure hydrocephalus

E.Central pontine myelinolysis

Answer:Hyponatraemic encephalopathy

Explanation:

Avoidance of using hypotonic (0.45%) in paediatric patients - risk of hyponatraemic encephalopathy

Important for meLess important

In paediatric patients, there are at higher risk of hyponatraemic encephalopathy. This is most noted in those who receive hypotonic intravenous fluids such as 0.45% sodium chloride. There is a second reason for the hyponatraemia in this patient, a well documented cause of SIADH is trauma and stress. ADH secretion lowers serum sodium levels through opening aquaporin channels allowing water to move into the intravascular space.

Central pontine myelinolysis is a consequence of rapidly correctly hyponatraemia which is not the case here

Excessive use of patient controlled analgesia could result in a reduced conscious level and respiratory depression especially if opiates such as morphine were prescribed

Hyperosmolar hyperglycaemic state is a complication of diabetes mellitus and can result in reduced conscious level - however by analysing the blood test results the random glucose level is normal.

Gait disturbance is a feature of normal pressure hydrocephalus but in association with dementia and urinary incontinence

Question:

A 55-year-old woman presents to the GP with a 4-month history of persistent abdominal cramping, bloating, and diarrhoea. She denies passing any blood in her stools and denies any unexplained weight loss or fatigue. Her only past medical history includes obesity and there is no family history.

Her heart rate is 85 bpm, her blood pressure is 135/74 mmHg, and she is afebrile. An abdominal and pelvic examination are both unremarkable. There is no pallor or jaundice.

What is the most appropriate next step in her management?

A.Arrange a transvaginal ultrasound

B.Measure anti-TTG antibodies

C.Measure serum CA-125

D.Urgently refer to gastroenterology

E.Urgently refer to gynaecology

Answer:Measure serum CA-125

Explanation:

Suspect ovarian cancer in any woman >= 50 years of age presenting with symptoms suggestive of irritable bowel syndrome in the last 12 months. IBS rarely presents for the first time in this age group

Important for meLess important

The presence of persistent features suggesting irritable bowel syndrome (IBS, such as cramping, bloating, and diarrhoea) in female patients aged 50 or older should raise suspicion of ovarian cancer, even without constitutional symptoms such as unexplained weight loss or fatigue. This is because ovarian cancer often presents with very vague and non-specific symptoms similar to IBS, and rarely presents for the first time in patients aged 50 or older. IBS typically affects young people aged 20-39 years.

Measure serum CA-125 is correct. NICE recommends that all people with suspected ovarian cancer have an abdominal and pelvic examination carried out. If this is normal, then they recommend measuring CA-125 as the next step. Ovarian cancer cannot be ruled out if an abdominal examination is unremarkable, as the body habitus of patients can affect whether masses are picked up or not, or the ovarian cancer masses may not be large enough to be picked up via palpation.

Arrange a transvaginal ultrasound is incorrect. NICE recommends ultrasound scans of the abdomen and pelvis (as opposed to a transvaginal ultrasound) once CA-125 has been measured. If CA-125 is elevated, ultrasounds are performed. Since this patient has not yet had her CA-125 measured yet, this step may not be necessary, as if her CA-125 is normal, ovarian cancer is less likely. If these ultrasounds suggest malignancy, other ultrasounds including transvaginal ultrasound scans may be considered in secondary care under specialist guidance.

Measure anti-TTG antibodies is incorrect. This would be appropriate rule other causes of abdominal cramping, bloating, and diarrhoea, such as coeliac disease, however, IBS rarely presents for the first time in patients aged 50 or older, and particularly in female patients, this should raise suspicion of ovarian cancer.

Urgently refer to gastroenterology is incorrect. This would be appropriate if the patient had features of inflammatory bowel disease, such as bloody stools or features of iron deficiency anaemia. These features do not apply to this patient.

Urgently refer to gynaecology is incorrect as NICE recommends this if an abdominal examination demonstrates ascites or a pelvic or abdominal mass. This patient's abdominal examination was unremarkable, therefore, the most appropriate next step according to the NICE guidelines is to measure serum CA-125.

Question:

A 30-year-old woman presents to the emergency department with a severe headache. The headache started 2 days ago and has been constant since. It feels like a band around her head. She has been nauseous but has not vomited. Her headache improves when lying down. She reports no visual deficits.

There has been no recent head injury. As part of her idiopathic intracranial hypertension management, she had a lumbar puncture performed 1 week ago.

What is the most likely diagnosis explaining her symptoms?

A.Iatrogenic headache

B.Migraine

C.Persistent idiopathic intracranial hypertension

D.Subdural haematoma

E.Tension headache

Answer:Iatrogenic headache

Explanation:

A low pressure headache commonly develops following a lumbar puncture

Important for meLess important

Iatrogenic headache is the correct answer. Given there is a history of a lumbar puncture (LP), the most likely diagnosis is a post-LP headache. The headache can occur up to a week later from when the LP was taken. Her headache, although constant, lacks features of raised intracranial pressure (ICP), including nocturnal headache, exacerbated by straining/coughing and vomiting. Increased risk factors include multiple attempts at LP and increased needle size. The headache is classically alleviated by lying down, for this reason, patients are usually asked to lie down for 4-6 hours following their LP. If the headache persists for more than 3 days, then complications like subdural haematoma should be considered and an appropriate referral to neurosurgery should be made.

Persistent idiopathic intracranial hypertension is incorrect. This condition is common in young obese females with symptoms suggesting raised ICP (headache, visual disturbances, pulsatile tinnitus, vomiting). The optic nerve is commonly compressed therefore producing visual symptoms and, in 20% of patients, visual loss. This is not the case here and the presence of an identifiable cause for the patient's headache makes the diagnosis of iatrogenic headache more likely.

Migraine is incorrect. There are no classic features of migraine including aura preceding the headache (usually visual but can be focal neurological changes that are reversible), photophobia, phonophobia, or pulsating-type headache. Given the history of lumbar puncture, this is more likely to be the cause of this patient's headache.

Subdural haematoma is incorrect. This is a complication of LP, due to extensive damage to the dura. Headache post-LP is commonly benign, however, if the headache lasts for more than 3 days subdural hepatoma should be suspected. There are no red flags for her headache (no raised ICP). Treatment options include a blood patch (injection of blood at the site of the previous LP to 'seal' it) and epidural saline.

Tension headache is incorrect. This is can be thought of as a diagnosis of exclusion as it is a form of headache most likely attributed to muscle spasms rather than an abnormality inside the brain. Even though the patient presents with a headache distributed in a band-like manner, the history of lumbar puncture suggests her headache is more likely attributed to that.

Question:

A 57-year-old male patient presents with pain in the right upper quadrant which has been present for the last 6 hours.

On examination his blood pressure is 110/70 mmHg, heart rate is 80 bpm, temperature is 38.2ºC and he appears clinically jaundiced.

Given the likely diagnosis, what is the most likely causative organism?

A.Clostridium difficile

B.Klebsiella

C.Streptococcus

D.Pseudomonas

E.E. coli

Answer:E. coli

Explanation:

E. coli is the most common organism causing cholangitis

Important for meLess important

The most likely diagnosis is cholangitis given the presentation of Charcot's triad (right upper quadrant pain, fever and jaundice). The most common organism causing cholangitis is E. coli, followed by Klebsiella. Streptococcus and Pseudomonas are known causes of cholangitis but are less common. Clostridium difficile is not a known cause of cholangitis.

Question:

A 19-year-old student is brought to the Emergency Department by her friends. Around one hour ago she 'collapsed' whilst playing hockey. Her friends describe her complaining that she felt light-headed and then 'fainting' to the ground. She lost consciousness for a few seconds before returning to normal quite quickly. There is no past medical history of note other than the use of Microgynon 30 (a combined oral contraceptive pill). For the past 4-5 days the patient has experienced shortness-of-breath and a central chest pain which is worse when she coughs. On examination her pulse is 120/min, blood pressure 96/60 mmHg and chest auscultation reveals scattered wheezes. An ECG done on admission is shown below:

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

What is the most likely diagnosis?

A.Hypertrophic obstructive cardiomyopathy

B.Vasovagal attack

C.Acute coronary syndrome

D.Pulmonary embolism

E.Asthma attack

Answer:Pulmonary embolism

Explanation:

It is usual taught that pulmonary embolism (PE) presents with pleuritic chest pain, dyspnoea and haemoptysis. This combination of symptoms is however only found in less than 20% of cases. As PE is a potentially life-threatening condition it is important to be aware of the wide variety of symptoms and signs that may accompany cases.

A lot of patients who develop a PE have risk factors. There is one present in this case - combined oral contraceptive pill use. Tachycardia is also a common sign.

It would be unusual to develop an asthma attack with no previous history of asthma. Occasional wheezes are a relatively common finding in patients following a pulmonary embolism.

The ECG shows a sinus tachycardia and a partial S1Q3T3 - the S wave is not particularly convincing.

Question:

You are an F1 doctor running late for work and the morning ward when you become stuck in traffic not far from the hospital. You forgot there were going to be roadworks outside the hospital for the next few weeks otherwise, you would've made sure to have left earlier. You decide to quickly use the bus lane to get ahead of traffic only for 100 metres and make it into work. A couple days later you receive a fine in the post for inappropriately using a bus lane. What is the most appropriate course of action?

A.Pay the fine and inform the GMC

B.Pay the fine and inform your foundation school

C.Pay the fine and inform your educational supervisor

D.Pay the fine

E.Do not pay the fine initially but phone the local council and ask if the fine can be lifted due to exceptional circumstances

Answer:Pay the fine

Explanation:

Option 4 is correct. You do not need to inform the GMC of fixed penalty notices for traffic offences like this one. Therefore options 1, 2 and 3 are incorrect. Option 5 is less appropriate as you should pay your fines and take responsibility for your actions and this scenario is unlikely to count as exceptional circumstances anyway.

GMC: Reporting criminal and regulatory proceedings

http://www.gmc-uk.org/guidance/ethicalguidance/21184.asp

Question:

A 55-year-old man presents to your GP surgery with a sudden loss of hearing in his right ear. He first noticed it when waking this morning and describes a sense of fullness in the ear. He claims to not be concerned as it is not painful and is not causing any vertigo.

On examination, you can clearly visualise the tympanic membrane. The membrane appears intact and normal in appearance. His observations are all within the normal range. You decide to conduct Rinne's and Weber's tests:

Test Result

Rinne's Test - Left Air > Bone

Rinne's Test - Right Air > Bone

Weber's Test Localises to left

After your assessment, you decide to refer the patient to ENT for further management.

Following your referral, how should this patient be managed?

A.Broad spectrum antibiotics

B.High-dose oral corticosteroids

C.IV aciclovir

D.Non-steroidal anti-inflammatory drugs (NSAIDs)

E.Prochlorperazine

Answer:High-dose oral corticosteroids

Explanation:

Following referral to ENT, patients with sudden-onset sensorineural hearing loss are treated with high-dose oral corticosteroids

Important for meLess important

High-dose oral corticosteroids is the correct answer. This patient has presented with a sudden-onset sensorineural hearing loss. We can tell this as there are no signs of external or middle ear pathology in the history or otoscopy. Rinne and Weber's test also suggest a right sensorineural deficit.

Patients with sudden-onset sensorineural hearing loss are at risk of permanent hearing impairment, so rapid intervention is required. It is thought that inflammation is the main driver in this hearing loss, so high-dose steroids have be used to good effect.

Broad spectrum antibiotics is an incorrect answer. There is no evidence of bacterial infection in this case. His observations are normal, there is no pain and there are no signs of bacterial infection on otoscopy.

IV aciclovir is an incorrect answer. This is a management for Ramsay Hunt syndrome, also known as herpes zoster oticus, a severe neurological complication of the varicella zoster virus. The absence of pain, facial palsy and rash in this case make Ramsay Hunt syndrome unlikely.

Non-steroidal anti-inflammatory drugs (NSAIDs) is an incorrect answer. NSAIDs may be helpful, however they are not recommended by NICE as the mainstay of treatment in sudden hearing loss.

Prochlorperazine is an incorrect answer. It can be used to manage symptoms of labyrinthine disorders such as meniere's disease, but would not improve this patient's hearing loss.

Question:

A 72-year-old man presents to the Emergency Department. Whilst walking back from a friends house he slipped on some ice and fell backwards, landing on his right arm and banging his head on the kerb in the process. His past medical history includes atrial fibrillation for which he takes bisoprolol and warfarin. A routine INR taken four days ago was 2.2. There are no signs of any external injury to his right arm or scalp. What is the most appropriate course of action with relation to his head injury?

A.Arrange a CT head scan to be performed within 8 hours

B.Discharge with standard head injury advice

C.Admit for 24 hours of observation

D.Admit for 8 hours of observation

E.Discharge with standard head injury advice + advise he stops warfarin for 5 days

Answer:Arrange a CT head scan to be performed within 8 hours

Explanation:

Patients who've had a head injury and are on warfarin need to have a CT scan, regardless of whether they have risk factors for an intracranial injury. NICE state:

For patients (adults and children) who have sustained a head injury with no other indications for a CT head scan and who are having warfarin treatment, perform a CT head scan within 8 hours of the injury. A provisional written radiology report should be made available within 1 hour of the scan being performed.

Question:

A 34-year-old woman who is at 36 weeks gestation presents to the maternity unit for a routine appointment. Her pregnancy has been uneventful this far, and her blood pressure, urine dipstick, and her fundal height are normal. A previous examination of the abdomen reveals a vertical scar from her previous pregnancy, as the child was delivered via a caesarean section. She would like to discuss her options for delivery and would like home birth.

What is the most appropriate mode of delivery for this patient?

A.Planned caesarean section at 36 weeks gestation

B.Planned caesarean section at 37 weeks gestation

C.Planned vaginal delivery at 37 weeks gestation

D.Vaginal delivery in hospital

E.Vaginal delivery in local midwife-led centre

Answer:Planned caesarean section at 37 weeks gestation

Explanation:

Classical caesarean scar is a contraindication to vaginal birth after caesarean

Important for meLess important

Planned caesarean section at 37 weeks gestation is correct. This patient has had a previous classical caesarean section, characterised by the presence of a vertical scar on her abdomen. A vaginal delivery is contraindicated in this scenario due to the increased risk of uterine rupture which could be potentially fatal for both the mother and the baby. This patient should be offered a caesarean section at 37 weeks or more in hospital.

Planned vaginal delivery at 37 weeks gestation is incorrect. This patient has had a previous classical caesarean section, characterised by the presence of a vertical scar on her abdomen. A vaginal delivery is contraindicated in this scenario due to the increased risk of uterine rupture which could be potentially fatal for both the mother and the baby.

Planned caesarean section at 36 weeks is incorrect. The guidelines state that caesarean sections in this scenario should be at 37 weeks or more.

Vaginal delivery in hospital is incorrect. This patient has had a previous classical caesarean section, characterised by the presence of a vertical scar on her abdomen. Vaginal delivery is contraindicated in this scenario due to the increased risk of uterine rupture which could be potentially fatal for both the mother and the baby.

Vaginal delivery in local midwife-led centre is incorrect. This patient has had a previous classical caesarean section, characterised by the presence of a vertical scar on her abdomen. Vaginal delivery is contraindicated in this scenario due to the increased risk of uterine rupture which could be potentially fatal for both the mother and the baby.

Question:

A 21-year-old female comes to see you to discuss her wish to begin driving. She suffers from type-1 diabetes and this is managed with insulin. She has a good underlying control of her diabetes and checks her blood sugars regularly. She last suffered from a hypoglycaemic episode 13 months ago. There are no underlying concerns about her vision. She wishes to learn to drive a car (group 1 vehicle) but is concerned that she will not be able to because of her condition.

Which of the following pieces of advice is correct?

A.She may drive immediately. No need to inform the DVLA

B.She should switch to tablets and can then drive. No need to inform the DVLA

C.She may drive if she has adequate awareness of hypoglycaemia. No need to inform the DVLA

D.She may drive if she has adequate awareness of hypoglycaemia. Must inform the DVLA

E.She may not drive. Should not apply for a license

Answer:She may drive if she has adequate awareness of hypoglycaemia. Must inform the DVLA

Explanation:

For group 1 vehicles, diabetic patients on insulin may drive if they have hypoglycaemic awareness

Important for meLess important

All patients with diabetes who are treated with insulin MUST inform the DVLA about their medical condition.

This patient has a well-controlled diabetes and there are no underlying concerns about her health. According to the DVLA she may drive if she has adequate awareness of hypoglycaemia.

She should NOT switch to tablets. This would be medically dangerous and would risk her having episodes of diabetic ketoacidosis. Although patients with well-controlled diabetes on tablets need not inform the DVLA this patient is on insulin and should stay on insulin.

Question:

A 24-year-old woman presents to the emergency department with a 1 day history of nausea and severe constant pain localised since onset to the left iliac fossa. She had vomited once but has no other symptoms. She has a 28 day menstrual cycle, her last menstrual period started 7 days ago. She is sexually active and has always used condoms for contraception. There is no vaginal bleeding. What is the most likely diagnosis?

A.Ectopic pregnancy

B.Appendicitis

C.Mittelschmerz

D.Ovarian torsion

E.Pelvic inflammatory disease

Answer:Ovarian torsion

Explanation:

Ovarian torsion is the most likely diagnosis. This is common in women of reproductive age. Ovarian torsion is associated with iliac fossa pain that can radiate to the loin, groin or back. Nausea and vomiting are commonly associated symptoms. On examination the patient may have an adnexal mass, which is commonly an ovarian cyst or neoplasm, which has disrupted the normal lie of the ovary to cause the torsion. Patients also sometimes present with a low-grade fever, especially for longer durations of torsion where ovarian necrosis may be present.

Ectopic pregnancy is an important differential, which should be ruled out with a pregnancy test in all women regardless of reported contraception. The presence of vaginal bleeding may help to differentiate these two conditions clinically. Since the menstrual period started 7 days ago, and this patient uses condoms for contraception, ectopic pregnancy is less likely than ovarian torsion.

Appendicitis is to be considered as a cause for this presentation, but usually presents with diffuse abdominal pain that later localises to the right iliac fossa. In appendicitis, pain can be reproduced in the right iliac fossa by palpation of the left iliac fossa (Rovsings sign), but left iliac fossa pain would not be the presenting symptom.

Mittelschmerz could cause right iliac fossa pain but this would be mild, and not associated with nausea and vomiting.

Pelvic inflammatory disease would develop chronically and is unlikely in a woman who has always used condoms.

Question:

You are working in the emergency department when you assess a 6-year-old boy with a broken arm. As part of your examination, you notice some lacerations on his back. On questioning, he doesn't want to talk about it but his mother quickly reassures you this is from him playing with his friends after all, 'boys will be boys'. You are suspicious. What do you do?

A.Put the child's arm in a cast then call the police

B.Put the child's arm in a cast and discharge him then phone the GP to ask them to contact child protection

C.Put the child's arm in a cast and admit them, then contact child protection

D.Put the child's arm in a cast and discharge him

E.Put the child's arm in a cast and discharge him, then contact child protection

Answer:Put the child's arm in a cast and admit them, then contact child protection

Explanation:

The GMC good medical practice contains guidelines on protecting children and young people. Within this, they state that 'you must be open-minded when considering the possible cause of an injury or other signs that may suggest that a child or young person is being abused or neglected. For example, as part of the differential diagnosis, you should consider whether an uncommon condition, including a genetic condition, might have caused or contributed to the child's or young persons injury or symptoms. You must also make sure that the clinical needs of children and young people continue to be met and are not overshadowed by child protection concerns.

If having discussed the issues with the parents, you still have concerns that a child or young person is at risk of, or is suffering, abuse or neglect, whatever the cause, you must tell an appropriate agency.'

The question states you are still concerned. Therefore not acting on this immediately, while he is in your care, is wrong (such as in answer 2, 4 and 5). This leaves you with the option of contacting the police or contacting child protection. In this instance, it would be more appropriate to start with child protection.

Question:

A 6-year-old boy is brought to the emergency department by his mother after bruising was noticed on his arms. The bruising appeared 2 days ago and has since worsened. He has no past medical history of note and his mother only reports a slight cold 3 weeks ago. Clinical examination is unremarkable, other than extensive bruising on the upper limbs and neck.

Routine blood tests (with age-matched reference ranges) include:

Hb 82 g/L (115-145)

Platelets 72 \* 109/L (140 - 400)

WBC 18.2 \* 109/L (5.0 - 15.5)

Neutrophils 0.64 \* 109/L (1.5 - 8.0)

What is the most likely underlying diagnosis?

A.Acute lymphoblastic leukaemia

B.Acute myeloid leukaemia

C.Chronic lymphocytic leukaemia

D.Chronic myeloid leukaemia

E.Immune thrombocytopenic purpura

Answer:Acute lymphoblastic leukaemia

Explanation:

ALL is the most common childhood leukaemia and presents with anaemia, neutropaenia and thrombocytopaenia

Important for meLess important

The scenario describes a 6-year-old boy presenting with bruising (likely secondary to thrombocytopenia), anaemia, and neutropenia. Given that numerous cells produced in the bone marrow have been affected, it is most likely that he is suffering from leukaemia. Given that acute lymphoblastic leukaemia is the most common childhood leukaemia, this is the single best answer.

Acute myeloid leukaemia (AML) is an incorrect answer. Whilst AML may present with a similar history, it is not the most likely form of leukaemia to be found in children. AML more commonly affects adults and can occur following transformation from chronic myeloid leukaemia to acute myeloid leukaemia.

Chronic lymphocytic leukaemia (CLL) is incorrect. CLL is not the most likely diagnosis in this child given that CLL is typically a disease of older adults. CLL is common and is often asymptomatic or non-specific in presentation.

Chronic myeloid leukaemia (CML) is an incorrect answer. CML often presents insidiously with fatigue and mild anaemia symptoms. It is rare in children and therefore would not be the single best answer. It is important to remember that CML is associated with the Philadelphia chromosome.

Immune thrombocytopenic purpura (ITP) is incorrect. Whilst this scenario mentions a non-specific cold 3 weeks ago and the patient has low platelets, ITP is not the most likely diagnosis given that the patient also has low haemoglobin, low neutrophils, and due to the patient having bruising rather than the typically described purpuric rash.

Question:

A 64-year-old man presents with a eight-month history of generalised weakness. On examination he has fasciculation and weakness in both arms with absent reflexes. Examination of the lower limbs reveal increased tone and exaggerated reflexes. Sensation was normal and there were no cerebellar signs. What is the most likely diagnosis?

A.Progressive muscular atrophy

B.Amyotrophic lateral sclerosis

C.Vitamin B12 deficiency

D.Syringomyelia

E.Multiple sclerosis

Answer:Amyotrophic lateral sclerosis

Explanation:

'Fasciculations' - think motor neuron disease

Important for meLess important

These symptoms are typical of amyotrophic lateral sclerosis, the most common type of motor neuron disease.

Question:

A 2-year-old boy with several small bruise-like lesions is brought to the emergency department by his mother. She reports first noticing these lesions on her son's abdomen when bathing him two days ago, despite no obvious preceding trauma. The bruising does not appear to be spreading.

Notably, the child had mild coryzal symptoms one week ago, though has now recovered.

On examination, the child appears well in himself and is smiling. There are 4 small petechiae on the patient's abdomen. The examination is otherwise unremarkable.

Given the likely diagnosis, what would be an indication for bone marrow biopsy?

A.Epistaxis

B.Folate deficiency

C.Photophobia

D.Splenomegaly

E.Thrombocytopenia

Answer:Splenomegaly

Explanation:

Children with immune thrombocytopenia (ITP): bone marrow examination is only required if there are atypical features

Important for meLess important

The correct answer is splenomegaly. This patient's presentation is in keeping with idiopathic thrombocytopenic purpura (ITP), characterised by a petechial rash in an otherwise well child. ITP is an autoimmune destruction of platelets that may be triggered by a preceding viral illness. Atypical findings that may warrant bone marrow biopsy include splenomegaly, bone pain, and diffuse lymphadenopathy, which may suggest an underlying myeloproliferative malignancy.

Folate deficiency is incorrect, as this alone is not an indication for bone marrow biopsy in children with ITP. In children, folate deficiency is most frequently associated with poor diet.

Photophobia is incorrect, as while photophobia may be suggestive of meningitis when seen in a patient with a petechial rash, this would not be an indication for bone marrow biopsy.

Epistaxis is incorrect, as nosebleeds are common in young children and are a recognised consequence of ITP. Epistaxis in the context of ITP is not an indication for bone marrow biopsy.

Thrombocytopenia is incorrect, as this is an expected finding in patients with idiopathic thrombocytopenic purpura. Thrombocytopenia is not an atypical finding in ITP and therefore is not an indication for bone marrow biopsy.

Question:

A 25-year-old woman presents to the GP with a 3-day history of burning pain when passing urine. During the day, she finds she has to pass urine every 30 minutes. She is not sexually active and has no past medical history except for an allergy to penicillin.

Her temperature is 36.8ºC, her heart rate is 72 bpm, and her blood pressure is 126/74 mmHg. An abdominal examination is unremarkable and there is no costovertebral angle tenderness. A dipstick is positive for leukocytes, nitrites, and blood.

What is the most appropriate next step for the GP to make?

A.Prescribe nitrofurantoin for 3 days

B.Prescribe nitrofurantoin for 3 days and send a urine culture

C.Prescribe nitrofurantoin for 7 days

D.Prescribe nitrofurantoin for 7 days and send a urine culture

E.Refer to urology for further assessment

Answer:Prescribe nitrofurantoin for 3 days and send a urine culture

Explanation:

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

Important for meLess important

The presence of dysuria and increased frequency along with a dipstick positive for leukocytes, nitrites, and blood 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 as this is one of the first-line steps in managing UTIs in women. NICE recommends that a urine culture is also sent in patients with UTI and haematuria to confirm that the haematuria is due to a UTI and not another underlying cause, as well as providing sensitivities so the antibiotic can be changed accordingly. The urine dipstick should be repeated after treatment, and if haematuria persists, a different diagnosis causing haematuria should be considered, such as underlying urological or gynaecological cancer.

Prescribe nitrofurantoin for 3 days is incorrect as NICE recommends that urine cultures are also sent in women who have haematuria alongside their UTI. As mentioned above, this is to confirm the haematuria is due to an infection and provide sensitivities, as opposed to other causes of haematuria such as urological or gynaecological cancer.

Prescribe nitrofurantoin for 7 days is incorrect as antibiotics are given for 3 days in women. If this patient were male or pregnant, then a 7-day course would be appropriate.

Prescribe nitrofurantoin for 7 days and send a urine culture is incorrect. Similarly to the above, this would be appropriate if the patient was male or pregnant. Since this patient is female and non-pregnant, a 3-day is indicated, and a urine culture because she has haematuria.

Refer to urology for further assessment is incorrect. Although haematuria may be a sign of underlying malignancy and may necessitate a referral to urology, it can also occur in UTIs. Given that this haematuria is occurring alongside her symptoms of dysuria and increased frequency, it is likely it is due to the UTI. Referral should be considered if the haematuria persists after treatment, which has not been tried in this patient.

Question:

A 36-year-old male presents to his general practitioner requesting a sexual health screening. He reports that a sore appeared on the shaft of his penis a few days ago and is painful and red. He reports that his wife (his one regular sexual partner) has not had any symptoms.

On further questioning, he has felt tired and run down recently after a stressful situation at work which prompted an outbreak of painful mouth ulcers which were present on his gums and along the edge of his lip.

He denies any significant past medical history other than several episodes of 'gunky, painful eyes' which he managed himself at home.

On examination, there is evidence of two small, well-healing ulcers in his mouth alongside one oval sore with an erythematous border. There is a 0.5cm lesion on the patient's penile shaft which appears erythematous with no discharge.

What is the most likely diagnosis for this patient?

A.Neisseria gonorrhoeae

B.Treponema pallidum

C.Behcet's disease

D.Guttate psoriasis

E.Type 2 herpes simplex virus

Answer:Behcet's disease

Explanation:

Oral ulcers + genital ulcers + anterior uveitis = Behcet's

Important for meLess important

Behcet's disease is an autoimmune small vessel vasculitis that targets venules. It is a type 3 hypersensitivity reaction induced by immune complex deposition in small vessels. Its main clinical presentation is with recurrent oral and genital ulcers, anterior uveitis, and skin lesions (such as erythema nodosum). It is most commonly seen in people of East Mediterranean descent. Flares may be precipitated by parvovirus or herpes simplex virus.

Neisseria gonorrhoeae does not typically present with ulcers. It is usually a genital tract, sexually transmitted infection characterised by symptoms of dysuria, frequency, and change in discharge. It can also cause neonatal conjunctivitis or ophthalmia neonatorum (in neonates exposed to the bacteria in the birth canal) which may result in corneal scarring.

Treponema pallidum is the organism associated with the sexually transmitted infection, syphilis. Primary syphilis is characterised by a solitary, small and firm, painless genital chancre which spontaneously heals within a few weeks. This is due to the spirochete using its spiral shape to twist into the skin at the point of entry. There may be associated non-tender lymphadenopathy in the region. Primary syphilis is not associated with eye signs.

Guttate psoriasis presents with small, round or oval scaly papules. They may be pink or red. Lesions occur in large numbers all over the body - with particular focus on trunk and proximal limbs.

Type 2 herpes simplex virus usually presents as genital herpes following sexual activity. There are painful ulcers and vesicles associated with erythema and swelling which occur on the penis, vagina, or anus. This may be associated with fever and lymphadenopathy in the region if not treated.

Question:

A pregnant woman at 11 weeks gestation has a miscarriage. Of these five factors, which one is most associated with miscarriage?

A.Obesity

B.Bumping the abdomen

C.Having sex

D.Heavy lifting

E.Stress

Answer:Obesity

Explanation:

Obesity is the answer here because it is the only one of these factors that has been linked to miscarriage. The other factors are not associated with miscarriage.

Factors that are associated with an increased risk of miscarriage are:

Increased maternal age

Smoking in pregnancy

Consuming alcohol

Recreational drug use

High caffeine intake

Obesity

Infections and food poisoning

Health conditions, e.g. thyroid problems, severe hypertension, uncontrolled diabetes

Medicines, such as ibuprofen, methotrexate and retinoids

Unusual shape or structure of womb

Cervical incompetence

Factors that have not been associated with an increased risk of miscarriage are:

Heavy lifting

Bumping your tummy

Having sex

Air travel

Being stressed

Question:

A 61-year-old man with angina and breathlessness at rest is diagnosed with severe aortic stenosis. As he has no past medical history, he undergoes an open aortic valve replacement and a mechanical valve is implanted.

Which of the following drugs is most appropriate for long-term anticoagulation after the surgery?

A.Apixaban

B.Dabigatran

C.Dalteparin

D.Fondaparinux

E.Warfarin

Answer:Warfarin

Explanation:

Warfarin is still used in preference to DOACs for patients with mechanical heart valves

Important for meLess important

Mechanical valves are still commonly used in younger patients as they have a longer lifespan than tissue valves. However, they require life-long anticoagulation to prevent thrombosis around the valve. The only licensed and therefore most appropriate agent is warfarin for long-term anticoagulation. The INR target for aortic mechanical valves is usually 3.0 (aiming within 2.5 - 3.5).

Apixaban is a direct oral anticoagulant (DOAC) that inhibits factor Xa, preventing the conversion of prothrombin to thrombin in the common pathway of blood clotting. It is commonly used for most indications in which anticoagulation is required including pulmonary embolism (PE) and preventing stroke in atrial fibrillation (AF). It is not licensed for mechanical valves at present as the anticoagulant effect cannot be titrated as it can with warfarin.

Dabigatran is another DOAC that directly inhibits thrombin, preventing the formation of fibrin in the common pathway of blood clotting. Dabigatran is also used in thromboprophylaxis in AF and to treat PE but is not licensed for mechanical valves and is a poor choice.

Dalteparin is low-molecular-weight heparin and is given parenterally, usually through a subcutaneous injection. Although it can be used in most anticoagulation scenarios, including mechanical valves, it is a poor choice for long-term anticoagulation as it is given as an injection and this man will need to use it life-long.

Fondaparinux is a synthetic pentasaccharide that acts with antithrombin to directly inhibit factor Xa. It can be used in the treatment of PE, acute myocardial infarction and thromboprophylaxis after surgery. However, it is not licensed for mechanical valves and must be given as a subcutaneous injection so it is a poor choice.

Question:

A 50-year-old woman presents to the emergency department with deep, unrelenting pain around her right eye over the last 1 hour with an associated blurring of her vision, nausea, and vomiting. She also notices haloes around lights and has a past medical history of hypermetropia and rheumatoid arthritis controlled with methotrexate.

On examination, her eye appears as shown in the following image:

What is the most likely diagnosis?

A.Acute keratitis

B.Acute scleritis

C.Angle-closure glaucoma

D.Anterior uveitis

E.Open-angle glaucoma

Answer:Angle-closure glaucoma

Explanation:

Angle-closure glaucoma (ACG) is correct. The image shows a red eye with a normally-shaped pupil, with evidence of corneal oedema, as it is slightly hazy. This alongside the history of deep eye pain, decreased visual acuity, haloes around lights, and evidence of systemic upset (nausea and vomiting) suggests a diagnosis of ACG. Hypermetropia is also a risk factor for its development.

Acute keratitis is incorrect. Although this can cause a red, painful eye, there is no associated systemic upset. Patients often complain of grittiness and the feeling of a foreign body in their eye and this diagnosis is classically associated with contact lens use. This diagnosis would not explain the diffuse corneal haziness seen. Instead, ulcers and other focal findings would be seen on a slit-lamp examination.

Acute scleritis is incorrect as although her history of rheumatoid arthritis is a risk factor for its development, the main presenting complaint in anterior uveitis is a red eye with severe ocular pain, rather than reduced vision at its onset. Visual acuity may be decreased, however, this is more gradual compared to ACG, which occurs acutely. This diagnosis is also not associated with systemic upset and would not explain the corneal haziness seen.

Anterior uveitis is incorrect as although rheumatoid arthritis is a risk factor for its development and it can present with acute-onset symptoms, patients do not tend to have associated systemic symptoms (nausea and vomiting). As well as this, the pupil is often irregular due to sphincter muscle contraction, which is not the case here, and initially, visual acuity is normal in anterior uveitis and becomes impaired, whereas this patient's reduced visual acuity has been ongoing since the start. This diagnosis would also not explain the corneal haziness seen.

Open-angle glaucoma is incorrect as this is characterised by progressive peripheral vision loss occurring over years and does not present acutely. It is not associated with eye pain, eye redness, systemic upset, or the examination findings seen in this scenario. Unlike ACG, hypermetropia is not a risk factor for its development, however, myopia is.

Question:

A 50-year-old man has a history of recurrent mechanical falls with no loss of consciousness. He is seen in the neurology clinic by the registrar following an MRI scan. On examination he has an intention tremor and an ataxic gait, but only very minimal past-pointing. The MRI brain has revealed a lesion.

Where is the most likely location of the lesion?

A.Cerebellar hemisphere

B.Basal ganglia

C.Parietal lobe

D.Cerebellar vermis

E.Frontal lobe

Answer:Cerebellar vermis

Explanation:

Gait ataxia is caused by cerebellar vermis lesions

Important for meLess important

This is an example of cerebellar ataxia, and without limb ataxia (i.e. finger-nose ataxia) the lesion is more likely to be in the cerebellar vermis

Cerebellar hemisphere - finger-nose ataxia

Basal ganglia - Hypokinetic (e.g. Parkinsonism) or hyperkinetic (e.g. Huntington's)

Parietal lobe - sensory symptoms, dyslexia, dysgraphia

Frontal lobe - motor symptoms, expressive aphasia, disinhibition

Question:

A 35-year-old woman presents concerned because she has not had a period in 6 months. She also reports feeling increasingly fatigued and having worsening mood swings. She last had sex more than 3 weeks ago and uses condoms regularly. She has two children and does not wish to have further children in the future. Her last cervical smear result 2 years ago was unremarkable. Her observations and abdominal examination are both normal. Blood tests demonstrate a raised FSH level, normal thyroid function and prolactin results, and a negative serum HCG result.

What should be the next investigation?

A.Pelvic ultrasound

B.Repeat FSH level in 4-6 weeks

C.Repeat cervical smear test

D.Repeat serum HCG in 4-6 weeks

E.Sexually transmitted infection screening

Answer:Repeat FSH level in 4-6 weeks

Explanation:

Premature ovarian insufficiency should not be diagnosed on the basis of one raised FSH level - a further sample should be taken 4–6 weeks

Important for meLess important

Repeat FSH level in 4-6 weeks is correct. This woman has suspected premature ovarian insufficiency. Diagnosis of this would be made on the basis of repeat raised FSH results after a period of 4-6 weeks.

Pelvic ultrasound is incorrect. Diagnosis of premature ovarian insufficiency would not be made on the basis of this investigation.

Repeat cervical smear test is incorrect. Her symptoms are also not suggestive of cervical cancer, and she is up to date with her cervical smear screening.

Repeat serum HCG in 4-6 weeks is incorrect. The patient has a negative serum HCG result taken over 3 weeks since her last episode of sexual intercourse. There is therefore no indication to repeat this test.

Sexually transmitted infection screening is incorrect. The patient’s symptoms and examination findings are not suggestive of a sexually transmitted infection. Also, her use of condoms makes a sexually transmitted infection unlikely.

Question:

A 64-year-old man presents to the emergency department as he has barely urinated over the last day. He is admitted and his urine output and blood pressure are monitored. They note he is in stage 2 acute kidney injury as his urine output is <0.5ml/kg/hour for the last 13 hours however he remains normotensive all day. They send off some basic blood tests including a full blood count, urea and electrolytes and liver function tests however no cause can be identified.

Given this man's presentation what other investigation should be ordered?

A.Chest X-ray

B.Doppler ultrasound of the renal artery and veins

C.Abdominal X-ray

D.Renal ultrasound

E.Magnetic resonance angiography

Answer:Renal ultrasound

Explanation:

An ultrasound is required in the investigation of all patients presenting with an AKI of unknown aetiology

Important for meLess important

This question is asking about the investigation of a 64-year-old man presenting with stage 2 AKI. If after initial assessment there is no obvious cause of an AKI, a renal ultrasound should be ordered in all patients and therefore option 4 is correct.

A chest x-ray can be used in patients with suspected pulmonary oedema, however, this man has not complained of breathlessness and thus this is not necessary at the moment.

An abdominal x-ray can be used if renal stones are suspected, however, there is no mention of the typical loin to groin pain you would expect.

Magnetic resonance angiography can again be used to look for renal vessel occlusion, however, again this is not necessary as he is not hypertensive.

Question:

A 23-year-old motorcyclist is brought into resus after a bike versus lorry road-traffic collision. Following a primary survey, he is believed to have multiple lower limb fractures. He is scheduled for a trauma CT scan. While preparing for transfer to the imaging department, the patient becomes agitated and lashes out at the nurse caring for him. The patient has become more confused and tries to bite the doctor who has attended to review him. A decision is made to intubate the patient to prevent them from causing further self-inflicted injuries.

What medication would be most appropriate to use?

A.Atracurium

B.Isoflurane

C.Nitrous oxide

D.Pancuronium

E.Suxamethonium

Answer:Suxamethonium

Explanation:

Suxamethonium is the muscle relaxant of choice for rapid sequence induction for intubation

Important for meLess important

Rapid sequence induction (RSI) is used in patients with life-threatening injuries or illnesses who require immediate airway control. This is useful in patients, such as trauma patients, who may not be fasted or attend with an acute pathology and require rapid sedation and intubation. This patient has significant injuries and is confused and lashing out, he is likely to cause significant further injury to himself if he is not sedated and intubated. RSI involves an induction agent (to lead to unresponsiveness) and a neuromuscular agent (to allow muscular relaxation and insertion of an airway device). Suxamethonium is the neuromuscular blocking agent of choice in RSI. This is due to the rapid onset of action. An alternative option is rocuronium which can be used for any RSI with the only drawback being the risk of allergy.

Atracurium is a non-depolarising muscle relaxant which is used as a paralytic agent, however not in RSI due to its relatively long duration of onset. RSI needs to be rapid due to the acute nature of the patient's presentations (as mentioned above) requiring sedation.

Pancuronium is another non-depolarising muscle relaxant which is also used as a paralytic agent but is also not used in RSI due to a long duration of onset.

Nitrous oxide is used in the maintenance of anaesthesia however is not used to induce paralysis in RSI.

Isoflurane is a volatile liquid anaesthetic which is used in the induction and maintenance of anaesthesia. It is not used in RSI but is commonly used as an inhaled anaesthetic in obstetrics.

Question:

A pregnant 25-year-old woman attends her booking appointment. Although she is symptom-free, urine dipstick indicates a urinary tract infection. Which of the following antibiotics should be avoided in the first trimester of pregnancy?

A.Trimethoprim

B.Amoxicillin

C.Cefalexin

D.Nitrofurantoin

E.Erythromycin

Answer:Trimethoprim

Explanation:

Whether symptomatic or asymptomatic it is important to treat urinary tract infections in pregnancy to prevent progression to pyelonephritis.

As trimethoprim is a folate antagonist it should be avoided in the first trimester - this is the time when the neural tube forms and there is a risk of teratogenicity. The other antibiotics listed are not contraindicated in the first trimester. However, erythromycin is not typically used to treat urinary tract infections, and nitrofurantoin should be avoided close to full term as there is a risk of causing neonatal haemolysis.

Sulfonamides and quinolones should also be avoided in pregnancy.

(BNF 5.1.13)

Question:

A 17-year-old boy presents to his GP with a 3 month history of lower back pain which is worse in the mornings. A lumbar spine x-ray demonstrates sacroiliitis. No other joints are affected.

What is the most appropriate initial management whilst awaiting a rheumatology referral?

A.Intra-articular steroids

B.A trial of disease modifying anti-rheumatic drugs (DMARDs)

C.Physiotherapy and non-steroidal anti-inflammatories (NSAIDs)

D.Paracetamol and non-steroidal anti-inflammatories

E.Non-steroidal anti-inflammatories

Answer:Physiotherapy and non-steroidal anti-inflammatories (NSAIDs)

Explanation:

Exercise regimes and NSAIDs are the 1st line management for ankylosing spondylitis

Important for meLess important

Intra articular steroids are not first line treatment in ankylosing spondylitis (AS), though can be initiated by a rheumatologist when sacroiliitis is advanced or unresponsive to first-line therapies.

DMARDs are not appropriate to use first line for AS. They tend to be used for other rheumatological conditions such as rheumatoid arthritis, or when there is peripheral joint involvement in AS.

Paracetamol and NSAIDs or NSAIDs alone would not be effective in reducing back pain from AS.

Question:

A 43-year-old woman presents to the emergency department with a history of acute onset chest pain. She describes the pain as severe (8/10 intensity) and located in the centre of her chest. It does not radiate. She denies haemoptysis or leg swelling, and there is no clinical evidence of deep vein thrombosis (DVT). She does not take any oestrogen-containing contraceptives.

She has a past medical history of breast cancer (managed surgically by mastectomy three months previously), recurrent migraines and generalised anxiety disorder.

An ECG shows normal sinus rhythm with a rate of 80/minute. Her observations show a respiratory rate of 30/minute and are otherwise with normal limits.

The emergency department doctor considers the diagnosis of pulmonary embolism (PE) and calculates a Wells score of 4.

The patient's blood is taken as part of the management plan, including a serum D-dimer.

Hb 140 g/L (115-160)

White blood cells 5.0 x 10^9/L (4.0-11.0)

Na+ 136 mmol/L (135-145)

K+ 3.8 mmol/L (3.5-5.0)

Urea 4.5 mmol/L (2.0-7.0)

Creatinine 80 mmol/L (55-100)

eGFR >90 (>90)

D Dimer 240 ng/ml (<400)

An arterial blood gas shows:

pH 7.50 (7.35-7.45)

pCO2 3.0 kPa (4.5-6.0)

pO2 11.0 kPa (10-14)

HCO3 23 (22-29)

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

A.Re-assure the patient and ask her to take deep, focussed breaths

B.Request a CT pulmonary angiogram (CTPA)

C.Request a lower limb venous ultrasound

D.Start a direct oral anticoagulant (DOAC)

E.Repeat D-dimer measurement after 6 hours

Answer:Re-assure the patient and ask her to take deep, focussed breaths

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 a Wells score of 4 and so the doctor has correctly ordered a serum D-dimer as the next stage in the investigation. With a Wells score of ≤4, the pre-test probability of PE is 'low' and so a negative D-dimer suggests that there is an alternative diagnosis.

Her history of generalised anxiety disorder, combined with a respiratory alkalosis on ABG, is suggestive of a panic attack. For this reason, the most appropriate management is re-assurance and encouraging the patient to take deep, focussed breaths.

A CTPA is indicated if the Wells score is initially > 4, or ≤ 4 and a D-dimer is positive. In this case, the Wells score is ≤ 4 and the D-dimer is negative, so a PE is very unlikely. For this reason, a CTPA is not indicated.

For similar reasons, initiating management for a PE (i.e. a DOAC) is not appropriate.

If there were clinical suspicion of DVT then this should be assessed using the Wells score for DVT, and a lower limb venous ultrasound ordered as appropriate. In this case, there is no clinical suspicion of DVT.

A negative D-dimer effectively rules out PE in a patient where there is a low pre-test probability (i.e. a Wells score of ≤ 4) and the D-dimer does not need to be repeated.

Question:

A 17-year-old male presents to his general practitioner with a one-week history of fever and fatigue. He is normally well with no past medical history. His observations show:

Respiratory rate 16 breaths/min

Heart rate 85 beats/min

Blood pressure 120/84mmHg

Temperature 37.1ºC

Oxygen saturations 97%

On examination, you note conjunctival pallor and firm masses in the right and left upper quadrants of his abdomen.

What is the most appropriate initial management of this patient?

A.Arrange an urgent abdominal ultrasound

B.Immediate referral for specialist assessment

C.Immediate transfer to the emergency department

D.Routine referral for specialist assessment

E.Send home with safety-netting advice

Answer:Immediate referral for specialist assessment

Explanation:

Children and young people (0-24yrs): Refer for immediate specialist assessment for leukaemia if: unexplained petechiae or hepatosplenomegaly

Important for meLess important

The correct answer is immediate referral for specialist assessment.

This patient's presentation of conjunctival pallor (suggesting anaemia) and unexplained hepatosplenomegaly mean a diagnosis of acute leukaemia cannot be ruled out. Any patient under the age of 24 presenting with unexplained petechiae or hepatosplenomegaly requires an immediate referral for specialist assessment for leukaemia. Petechiae occur due to thrombocytopenia secondary to splenomegaly.

'Arrange an urgent abdominal ultrasound' is incorrect. While ultrasound may be performed, the priority is making a referral to a secondary care specialist, who may then request ultrasound.

'Immediate transfer to the emergency department' is incorrect. While this patient requires an immediate referral, he does not need to attend the emergency department.

'Routine referral for specialist assessment' is inappropriate as this patient should be referred immediately.

'Send home with safety-netting advice' is incorrect, as leukaemia needs to be excluded.

Question:

A 70-year-old man has presented to the emergency department after falling down the stairs. He presents slightly confused, but his eyes are opening spontaneously and he can move all four limbs when asked. There is some bruising over his left temple. His neurological examination is normal and his observations are within normal range.

He has a past medical history of atrial fibrillation (AF) which is anticoagulated with warfarin and rate controlled with verapamil. The warfarin has been stopped by the medical team.

His investigations are as follows:

The ECG demonstrates AF with a rate of 60bpm.

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 180 \* 109/L (150 - 400)

WBC 7.0 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

CRP 1 mg/L (< 5)

INR 3.5

His CT scan shows a diffuse subdural bleed over the left hand-side of his brain. The CT chest-abdomen-pelvis shows no other signs of bleeding.

What is the next most appropriate management?

A.Give intravenous vitamin K 1-3mg and repeat dose of vitamin K after 24 hours if INR still high, restart warfarin when INR <5

B.Give intravenous vitamin K 1-3mg and restart warfarin when INR <5

C.Give intravenous vitamin K 5mg and prothrombin complex concentrate

D.Give oral vitamin K 5mg

E.Give oral vitamin K 5mg and prothrombin complex concentrate

Answer: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

Give intravenous vitamin K 5mg and prothrombin complex concentrate is the correct answer as this is the appropriate management after stopping warfarin, of major bleeding in warfarinised patients, regardless of INR.

Give intravenous vitamin K 1-3mg and repeat dose of vitamin K after 24 hours if INR still high, restart warfarin when INR <5 is incorrect, as in cases of major bleeding prothrombin complex concentrate is required. This is the management for patients with INR > 8 and minor bleeding.

Give intravenous vitamin K 1-3mg and restart warfarin when INR <5 is incorrect as in cases of major bleeding prothrombin complex concentrate is required. This is the management for patients with an INR between 5 and 8 and minor bleeding.

Give oral vitamin K 5mg is incorrect as in cases of major bleeding intravenous vitamin K and prothrombin complex concentrate is required.

Give oral vitamin K 5mg and prothrombin complex concentrate is incorrect as intravenous vitamin K is indicated in cases of bleeding for rapid reversal of the warfarin effect on clotting.

Question:

A 60-year-old woman with known peripheral vascular disease and atrial fibrillation presents to the emergency department with acute onset dizziness and alterations in sensation.

On examination, the patient has ataxia and nystagmus. She has left-sided facial numbness and findings in keeping with Horner’s syndrome on the same side. The patient has a reduced sensation in both the arm and leg on the right side.

What blood vessel occlusion is the most likely cause of this patient’s presentation?

A.Left anterior cerebral artery

B.Left posterior inferior cerebellar artery

C.Left superior cerebellar artery

D.Right posterior inferior cerebellar artery

E.Right superior cerebellar artery

Answer:Left posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

This patient has presented with features in keeping with a lateral medullary syndrome, also known as Wallenberg’s syndrome. Patients classically presented with both cerebellar and brainstem features as the posterior inferior cerebellar artery, which supplies both areas, is occluded. These features include ataxia and nystagmus (cerebellar features) as well as ipsilateral dysphagia, reduced facial sensation, cranial nerve palsies, and contralateral limb numbness (brainstem features). As this patient’s limb sensational changes are on the right side and the facial numbness and Horner’s syndrome are on the left it is the left posterior inferior cerebellar artery that has been affected. These cross-body findings are key to making the diagnosis.

The anterior cerebral arteries (ACA) supply the medial and superior frontal and parietal lobes as well as other structures including the corpus callosum and basal ganglia. Features of ACA strokes can vary but generally present with contralateral weakness of the limbs affecting the leg more than the arm, forms of aphasia and urinary incontinence. Sensory deficits are less common but if present generally affects the contralateral side. Cerebellar and brainstem features are not associated with ACA occlusions.

The superior cerebellar artery (SCA) supplies the upper aspect of the cerebellum and parts of the midbrain. SCA infarcts/occlusions result in cerebellar signs including, ipsilateral cerebellar ataxia, contralateral superficial sensory and nystagmus towards the impaired side (i.e. an infarct of the left superior cerebellar artery will result in left ataxia and nystagmus towards the left). Other general symptoms include hearing loss as well as vertigo, dizziness and mild hemiparesis. Clinical brainstem signs are not commonly associated with SCA strokes.

Patients presenting with posterior inferior cerebellar artery occlusions presented with both cerebellar and brainstem features including ataxia and nystagmus (cerebellar features) as well as ipsilateral dysphagia, reduced facial sensation, cranial nerve palsies, and contralateral limb numbness (brainstem features). As this patient’s limb sensational changes are on the right side and the facial numbness and Horner’s syndrome are on the left it is the left vessel which is affected and not the right posterior inferior cerebellar artery.

Question:

A 6-year-old boy is noted to have pectus excavatum and pulmonary stenosis during a cardiorespiratory exam. What is the most likely diagnosis?

A.Noonan syndrome

B.Pierre-Robin syndrome

C.Edward's syndrome

D.William's syndrome

E.Patau syndrome

Answer:Noonan syndrome

Explanation:

A young boy is noted to have a webbed neck, pulmonary stenosis, ptosis and short stature. The karyotype is normal - Noonan syndrome

Important for meLess important

Question:

A 17-year-old female presents for a psychiatric follow-up appointment for her depression, complaining of losing her trail of thought often, which she believes is a result of the government stealing her thoughts.

What symptom is she exhibiting?

A.Loss of ideation

B.Thought expulsion

C.Ideas of reference

D.Tactile hallucination

E.Thought withdrawal

Answer:Thought withdrawal

Explanation:

Belief of having the removal of a thought by an external force = thought withdrawal

Important for meLess important

Thought withdrawal is the belief that an external force is extracting thoughts from your mind. It is one of Schneider's first rank symptoms of schizophrenia.

Question:

A 65-year-old gentleman with known multiple myeloma presents with abdominal pain, polydipsia and confusion. Some blood results are shown below.

Na+ 145 mmol/l

K+ 4.1 mmol/l

Albumin 35 g/l

Calcium 3.55 mmol/l

Alkaline phosphatase 120 iu/l

Urea 7.2mmol/l

Creatinine 130µmol/l

What is the most important initial management of his symptoms?

A.Salmon calcitonin

B.Chemotherapy

C.Bisphosphonates

D.Prednisolone

E.IV 0.9% saline

Answer:IV 0.9% saline

Explanation:

IV fluid therapy is the first-line management in patients with hypercalcaemia

Important for meLess important

The man has hypercalcaemia secondary to multiple myeloma. He has polydipsia, and his sodium is at the upper limit of normal so he is likely to be dehydrated. IV 0.9% saline should be the first treatment given for symptomatic hypercalcaemia to correct dehydration.

Bisphosphonates are very important especially when the hypercalcaemia is due to malignancy and is likely to recur after dehydration is corrected, as they lower calcium and prevent osteoclast resorption of bone.

Bisphosphonates are now preferred to salmon calcitonin particularly because of their longer half-life.

Question:

A 5-year-old presents with his mother and father to the emergency department with a fever and headache. On examination he looks systemically unwell, his central capillary refill is 4 seconds, heart rate is 150 beats/min, respiratory rate is 45 breaths/ min, the temperature is 38ºC and a non-blanching rash is observed on his right leg and torso.

What is the most appropriate treatment for his mother and father?

A.IM benzylpenicillin

B.IV cefotaxime

C.IV ciprofloxacin

D.Oral amoxicillin

E.Oral ciprofloxacin

Answer:Oral ciprofloxacin

Explanation:

Oral ciprofloxacin or rifampicin is used as prophylaxis for contacts of patients with meningococcal meningitis

Important for meLess important

This child is presenting with the typical features of meningococcal meningitis: systemically unwell with a fever and a non-blanching rash. The prophylactic treatment for contacts of patients with meningococcal meningitis is oral ciprofloxacin or rifampicin.

IM benzylpenicillin is the most appropriate management for this child if he presented to the GP surgery or another pre-hospital setting and meningococcal disease was suspected. However, the question is asking about the prophylaxis for contacts of the patient.

IV cefotaxime is the empirical therapy for treating a patient with meningitis. However, this question is asking about prophylaxis for the contacts of patients with meningococcal meningitis.

IV ciprofloxacin does not have a role in the management of a patient with meningitis or for prophylaxis of contacts of a patient with meningococcal meningitis.

Oral amoxicillin does not have a role in the management of a patient with meningitis or for prophylaxis of contacts of a patient with meningococcal meningitis.

Question:

An 85-year-old female is admitted under the general medical unit with acute thoracic back pain from a T6 crush fracture following a fall. She has a past history of systolic heart failure, depression and osteoporosis.

Her regular medications included aspirin, frusemide, spironolactone, bisoprolol, sertraline and calcium, vitamin D and weekly alendronate. These are continued throughout her admission.

Two days into her admission, the nurses note that she is agitated and a bit confused.

On examination, she looks flushed and is tachycardic with a heart rate of 120 beats/min and is hypertensive with a blood pressure of 185/70 mmHg, but is afebrile. Both her pupils are mildly dilated, she is mildly tremulous and is noted to have deep tendon hyperreflexia with easily inducible clonus.

Use of which of the following analgaesic medication could explain her current symptoms?

A.Paracetamol

B.Ibuprofen

C.Oxycodone

D.Tramadol

E.Hydromorphone

Answer:Tramadol

Explanation:

Serotonin syndrome is a disorder characterised by serotonin excess, usually due to the use of 2 or more serotonergic drugs. Manifestations of the syndrome include changes in mental status, neuromuscular changes and autonomic overactivity. Clinically, this can be observed as hypertension, tachycardia, flushing and sweating, hyperflexia, clonus and muscle rigidity. Other potential signs include fever and changes in mental status, including agitation.

Serotonergic drugs that are associated with serotonin syndrome include tramadol, selective serotonin reuptake inhibitors (SSRI), monoamine oxidase inhibitors (MAOI), triptans and St Johns wort.

The management of serotonin syndrome involves discontinuation of all serotonergic drugs and supportive care. If required, benzodiazepine can be administered to control agitation. In moderate to severe cases, 5-HT antagonists (e.g. cyproheptadine and chlorpromazine) are sometimes administered.

References:

Hall M, Buckley N. Serotonin Syndrome. Aust Prescr. 2003;26:62-3

Boyer EW, Shannon M. The serotonin syndrome. N Engl J Med. 2005 Mar 17;352(11):1112-20.

Question:

A 2-month-old previously healthy girl is brought into the GP by her mother who reports a change in her demeanour. She suspects her child has a fever. On examination the baby is feverish with temperature of 38.5 ºC but no other significant findings.

What is the appropriate next step?

A.Prescribe paracetamol and reassure the mother

B.Routine referral for paediatric assessment at the hospital

C.Urgent referral for paediatric assessment at the hospital

D.Reassure the mother and ask to return if the fever doesn't settle in the next two days

E.Administer benzylpenicillin and call 999

Answer:Urgent referral for paediatric assessment at the hospital

Explanation:

A child aged < 3 months with a fever > 38ºC should be assessed as high risk of serious illness

Important for meLess important

A child younger than 3 months old with temperature higher than 38ºC warrants an urgent assessment. It is a red flag in the assessment of children with fever.

NICE guidelines include a traffic light system (red, amber, green) stratifying risk to children with fever under the age of 5. This takes into account the general appearance of the child, activity, respiratory function, circulation and hydration assessment, as well as temperature.

If the child comes under the green category he or she can be managed at home with appropriate care advice.

If the child comes under the amber category the parents must be given advice and provided safe net or the child should be referred for paediatric assessment.

Children in the red category must be referred urgently to a paediatric specialist.

NICE recommends to perform the following investigations in children under 3 months with fever: blood culture, full blood count, c-reactive protein, urine testing for urinary tract infections, stool culture is diarrhoea present, and chest x-ray if there are respiratory signs.

Lumbar puncture should be performed in the following children with fever (unless contraindicated): infants under 1 month old, all infants aged 1–3 months who appear unwell, infants aged 1–3 months with a white blood cell count (WBC) less than 5 × 109/litre or greater than 15 × 109/litre. NICE recommends the administration of parenteral antibiotic administration to this group of patients.

Question:

A 32-year-old man presents with a history of fevers along with dysentery varying in severity but being profuse at times. The patient is unsure exactly but believes he may have had symptoms for nearly 6 months.

The patient has no known medical conditions and is not on any medications. On further questioning, he reports the symptoms started approximately 3 months after returning from a rural charity trip in Central Africa.

He has right upper quadrant discomfort on palpation, but examination is otherwise normal.

What is the most likely diagnosis?

A.Amoebiasis

B.Giardiasis

C.Leprosy

D.Malaria

E.Shigellosis

Answer:Amoebiasis

Explanation:

Amoebiasis should be considered in the presentation of dysentery after a long incubation period

Important for meLess important

This patient has presented with infective dysentery (bloody diarrhoea) following travel to a tropical region, with potential poor sanitation. The patient’s symptoms both started following an extended incubation period and have continued for an extended period. These timeframes, along with the common features of profuse, bloody diarrhoea, right upper quadrant pain (likely due to liver involvement) and fever are most in keeping with amoebiasis caused by Entamoeba histolytica. With its ability to form liver abscesses, amoebiasis infections can persist for months, even years and it should be considered in any dysentery case with an extended incubation period.

Giardiasis is a parasitic disease caused by Giardia duodenalis which has several features similar to amoebiasis. Giardiasis is spread via cysts within faeces contaminated food or water and therefore is common in areas with poor sanitation. Symptoms commonly include diarrhoea, fever and abdominal cramps however dysentery is not often seen with the infection and specific right upper quadrate pain and hepatomegaly is rare as the liver is not involved in the condition. Giardiasis infections can persist for several weeks or even months however the onset of symptoms is normally within a few weeks of exposure. In rare cases, the incubation period can be prolonged to 3-4 weeks but not months as in this case.

Leprosy is a chronic infection caused by Mycobacterium leprae and spread via the upper respiratory tract. Leprosy has low pathogenicity and is rarely seen in the developed world with only a few countries still having outbreaks of the condition. Leprosy can have an extended incubation period and features can slowly progress over a period of years however symptoms normally include respiratory and eye issues, skin lesions and peripheral nerve thickening/disease. Dysentery, abdominal pain and liver issues are not associated with the condition.

Malaria is a mosquito-born, parasitic infection found in tropical and subtropical regions. There are five species of the Plasmodium microorganism group that can infect humans and symptom severity can vary accordingly. Similar to amoebiasis, some forms of malaria can infect the liver cell, lying dormant for months meaning the condition can have an extended incubation period however the main symptoms of malaria are fever, headache and fatigue. In severe cases, complications include anaemia, renal failure and meningitis but dysentery is uncommon. Also, once these complications occur patients generally deteriorate rapidly and therefore severe symptoms would not persist for months as in this case.

Shigellosis is an intestinal infection caused by one of the bacteria from the Shigella genus (e.g. Shigella dysenteriae, Shigella flexneri etc) that commonly cause dysentery, fevers and generalised abdominal cramping. Specific right upper quadrant (liver) pain is uncommon as the liver is not normally affected in shigellosis and symptoms typically last 7-10 days with only rare cases persisting beyond a few weeks. Crucially the incubation period for Shigella is usually 1-3 days after exposure making it very unlikely to be the cause in this case.

Question:

A 23-year-old woman was recently seen by a colleague complaining of abdominal bloating, frequent diarrhoea and fatigue. She was sent for some blood tests which showed positive IgA tTG and low B12 and subsequently underwent a biopsy which confirmed the condition. She would like to know which foods she should avoid.

What food should she avoid?

A.Corn

B.Potatoes

C.Quinoa

D.Rice

E.Rye bread

Answer:Rye bread

Explanation:

Notable foods which are gluten-free include: rice, potatoes and corn (maize)

Important for meLess important

Rye bread is the correct answer as this contains grain (rye) which is a source of gluten. Other common sources of the protein gluten include; barley, wheat, and couscous.

Corn is incorrect as this is naturally gluten-free.

Potato is incorrect as they do not contain any gluten and can be eaten as part of a gluten-free diet.

Quinoa is incorrect as it is gluten-free.

Rice is incorrect as it is gluten-free and is safe for patients with coeliac disease to eat.

Question:

A 54-year-old man presents to clinic with an acutely painful and red big toe. He is well in himself and there is no evidence of infection or fever. He has suffered gout for some time and tells you he thinks it has recurred. He is currently taking regular allopurinol.

What is the next most appropriate option?

A.Stop allopurinol and commence colchicine

B.Continue allopurinol and commence colchicine

C.Admit the patient for same day hospital review

D.Commence the patient on aspirin and continue allopurinol

E.Stop allopurinol and commence oral steroids

Answer:Continue allopurinol and commence colchicine

Explanation:

Allopurinol should be continued during an acute attack in patients presenting with an acute flare of gout who are already established on treatment

Important for meLess important

According to current NICE CKS guidance, patients suffering gout who are already established on allopurinol should continue this during an acute attack. Therefore stopping allopurinol is incorrect.

Colchicine is a good option in the acute treatment of gout. Oral steroids can be used if patients cannot tolerate colchicine or NSAIDs, but allopurinol should be continued.

There is no indication in this case for same day hospital review as no evidence of septic joint or red flag features have been identified.

Aspirin is not indicated in the treatment of gout.

Question:

Marfan's syndrome is a multisystem disorder of the connective tissue. Patients experience abnormalities in the musculoskeletal, visual and cardiovascular systems.

This condition is characterised by a deficiency in which of the following?

A.Laminin

B.Elastin

C.Hyaluronic acid

D.Fibrillin

E.Fibrinogen

Answer:Fibrillin

Explanation:

Marfan's syndrome is caused by a mutation in a protein called fibrillin-1

Important for meLess important

The marfan syndrome gene (MSF1) on chromosome 15 codes for fibrillin, a glycoprotein and component of connective tissue. Hyaluronic acid is a glycosaminoglycan which is a component of synovial fluid. Elastin is an extracellular matrix protein found in connective tissue. Laminin is another extracellular matrix protein which makes part of the basement membrane. Fibrinogen is a glycoprotein involved in clotting.

Question:

Which one of the following vaccines is not given routinely in the first 6 months of life?

A.MMR

B.Inactivated polio vaccine

C.Pneumococcal Conjugate Vaccine

D.Tetanus vaccine

E.Meningitis B vaccine

Answer:MMR

Explanation:

Question:

A patient is admitted to the emergency department with new-onset chest pain that is radiating to their left arm. It came on shortly after performing a 5km run. The patient has a past history of angina. You perform an ECG and note the following:

ST depression in leads V1-V3

Tall R waves in leads V1-V3

Inverted T-wave in lead aVR

All other T-waves are normally oriented

What is the most likely diagnosis?

A.Unstable angina

B.Anterior STEMI

C.Aortic dissection

D.Anterior NSTEMI

E.Posterior STEMI

Answer:Posterior STEMI

Explanation:

A posterior MI causes ST depression not elevation on a 12-lead ECG

Important for meLess important

This patient has most likely experienced a posterior STEMI. On a 12-lead ECG ST-elevation would not be noticeable and so only reciprocal changes are visible in leads V1-V3. The changes associated with these leads include:

ST depression

Tall, broad R-waves

Upright T-waves

Unstable angina might cause ST-depression due to ischaemia, but the pattern on the ECG is characteristic of a posterior STEMI.

Inverted T-waves in aVR are normal and are nothing to worry about.

An anterior STEM would present with obvious ST-elevation in leads V1-V3/V4. Reciprocal changes would be seen in the inferior leads. An NSTEMI usually causes abnormal/inverted T-waves.

An aortic dissection classically presents with tearing chest pain radiating to the back.

Question:

A 26-year-old man involved in a road traffic collision is assessed by the pre-hospital trauma team. It is determined that he required intubation with rapid sequence induction to manage his condition.

Etomidate is used as the induction agent for the procedure.

What severe side effect is important to be aware of when using this anaesthetic agent?

A.Adrenal suppression

B.Hallucinations

C.Hepatotoxicity

D.Malignant hyperthermia

E.Perioral numbness

Answer:Adrenal suppression

Explanation:

Etomidate may result in adrenal suppression

Important for meLess important

Etomidate is an induction agent that can be used in rapid sequence induction in conjunction with a paralytic agent and analgesia. Adrenal suppression is an important, potentially severe side effect to be aware of when using etomidate. This occurs due to the action of etomidate on the 11-beta-hydroxylase enzyme. Inhibition of this enzyme results in decreased production and secretion of cortisol from the zona fasciculata of the adrenal gland. This can result in profound hypotension and will require treatment with steroids.

Ketamine use can cause hallucinations and behavioural changes. When using ketamine for procedural sedation, ideally it should be used in a calm, quiet environment wherever possible.

Hepatotoxicity is a possible side effect of volatile halogenated anaesthetics such as isoflurane. Etomidate is not known to cause hepatic disorders.

Suxamethonium is a depolarising neuromuscular blocking drug used in anaesthetics that can cause malignant hyperthermia. This is a dangerous side effect that can result in multi-organ failure and cardiovascular collapse. Dantrolene is used in the treatment of malignant hyperthermia.

Perioral numbness is one of the early signs of local anaesthetic toxicity.

Question:

A 14-year-old boy is brought into the emergency department by his concerned father. For the past few hours, the boy has noticed blood in his urine each time he goes to the toilet. He has no dysuria or flank pain. A urine dipstick is +++ blood and + protein, and negative for both leukocytes and nitrites.

He has a past medical history of coeliac disease and 2 days ago had some coryzal symptoms which have passed.

Blood tests show:

Hb 141 g/L Male: (135-180)

Platelets 180 \* 109/L (150 - 400)

WBC 8.9 \* 109/L (4.0 - 11.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

C3 1.2 g/L (0.8 - 2.1)

C4 0.4 g/L (0.15 - 0.5)

What is the most likely diagnosis?

A.Focal segmental glomerulosclerosis

B.IgA nephropathy

C.Lower urinary tract infection

D.Minimal change disease

E.Post-streptococcal glomerulonephritis

Answer:IgA nephropathy

Explanation:

Glomerulonephritis following a sore throat - occurs 1-2 days following, rather than 1-2 weeks with post-streptococcal glomerulonephritis

Important for meLess important

IgA nephropathy is the correct answer. This typically presents with multiple episodes of visible haematuria, 1-2 days after an upper respiratory tract infection, as seen in this boy. IgA nephropathy can have either no proteinuria, minimal proteinuria or massive proteinuria which requires further management steps. There are no associated blood abnormalities and kidney function is usually intact as seen here.

Focal segmental glomerulosclerosis is incorrect. This is a common cause of nephrotic syndrome in adults. This presents with oedema, hypoalbuminaemia and proteinuria. It is caused by scarring in the glomerulus. This boy has a nephritic picture of kidney injury (haematuria and no oedema) rather than nephrotic making this option incorrect.

Lower urinary tract infection (LUTI) is incorrect. Whilst a LUTI can cause haematuria due to irritation to the bladder wall, this boy has no dysuria and his urine dipstick is negative for leukocytes and nitrites, making this option incorrect.

Minimal change disease is incorrect. This is the most common cause of nephrotic syndrome in children. The usual presentation is that of oedema resulting in the swollen periorbital region, difficulty in breathing from pulmonary oedema and swollen ankles from peripheral oedema. It does not usually have haematuria and has proteinuria with a low albumin level. This picture does not fit this clinical scenario for this boy.

Post streptococcal glomerulonephritis is incorrect. This presents 1-2 weeks after an upper respiratory tract infection, caused by a streptococcal infection, such as streptococcal pyogenes resulting in tonsillitis. This boy complained of cold-like symptoms 1-2 days ago making the more likely diagnosis IgA nephropathy. Furthermore, post-streptococcal glomerulonephritis results in low complement. C3 and C4 are normal in this boy making this less likely.

Question:

A 55-year-old woman presents to the cardiology clinic for a check-up following a recent episode of infective endocarditis. She is recovering well but is still experiencing some general fatigue and breathlessness on exertion and lying flat.

On examination, there is a murmur which increases in intensity when the patient is making a fist. Her heart rate is 76 beats per minute with a blood pressure of 135/55mmHg. She has a collapsing pulse.

Given the likely diagnosis, what murmur would be heard?

A.Continuous machine-like murmur

B.Early diastolic murmur

C.Ejection systolic murmur

D.Low-pitched diastolic murmur

E.Pansystolic murmur

Answer:Early diastolic murmur

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

This woman has some classic signs of aortic regurgitation which is also the most common valvular defect after infective endocarditis. The correct answer is therefore early diastolic murmur.

Features of the presentation pointing towards this diagnosis are:

Intensity of the murmur is increased by the handgrip manoeuvre

Collapsing pulse

Wide pulse pressure (this is where there is a great difference between the systolic and diastolic figure of the blood pressure; it can be said to be wide if the difference is greater than 60mmHg, or if the systolic pressure is greater than 2x the diastolic pressure)

A continuous machine-like murmur is a murmur that occurs with a patent ductus arteriosus, which is a type of congenital heart defect where the ductus arteriosus does not close after birth. The murmur is caused by an existing abnormal connection between the aorta and the pulmonary artery.

An ejection systolic murmur is heard with aortic stenosis. This would cause a slow-rising pulse and a reduced pulse pressure.

A low-pitched diastolic murmur, sometimes called a rumbling murmur, is caused by mitral stenosis. This may cause a small volume pulse, a tapping apex and malar flush.

A pansystolic murmur, or holosystolic murmur, is a murmur present throughout all of systole and is typical for mitral regurgitation. This may cause a small volume pulse, a fourth heart sound and a thrill.

Question:

You are going through your daily results and notice a cervical smear test that has come back for one of your patients. She is 34 years old.

The result says: 'high-risk human papillomavirus (hrHPV) negative'. It states that this was a repeat test.

On reviewing her notes, this is her second repeat test following an abnormal result at a routine screening 2 years ago. Her last test was 12 months ago when she tested “hrHPV positive. Cytologically normal”. She has never been invited for a colposcopy.

What is the most appropriate next step?

A.Ask laboratory to check cytology on this sample

B.Recommend a repeat smear in 12 months' time

C.Repeat smear within 4 weeks' time

D.Return to routine recall (in 3 years)

E.Refer for colposcopy

Answer:Return to routine recall (in 3 years)

Explanation:

Cervical cancer screening: if 2nd repeat smear at 24 months is now hrHPV -ve → return to routine recall

Important for meLess important

The correct answer is to return to routine recall in 3 years.

This patient has had an initial abnormal smear 2 years ago - as she did not get invited for colposcopy we can assume that this showed 'hrHPV positive' only with normal cytology. She then had a repeat test at 12 months which was (also) “hrHPV positive. Cytologically normal”.

As such, she was invited for a 2nd repeat smear (at 24 months) of which we have the results above.

If she would have still been hrHPV positive, she should be referred for colposcopy. However as she is negative now, she goes back to the routine recall.

The latest cervical screening programme does not require cytology to be performed if hrHPV is negative, hence it would be inappropriate (and practically not possible) for the GP to ask the laboratory to check cytology on a sample.

It is unnecessary to repeat the smear in either 4 weeks' of 12 months' time, given that hrHPV has now self-resolved (this is a fairly regular occurrence as transient hrHPV infection is common and does not necessarily confer a high risk of cervical cancer).

Question:

A 19-year-old male is about to start chemotherapy following a diagnosis of acute lymphocytic leukaemia. Before undergoing his first round of chemotherapy, the potential risks are explained to the patient, including the risk of tumour lysis syndrome.

What drug could be prescribed to reduce the risk of developing this compilation?

A.Allopurinol

B.Ferrous sulphate

C.Methotrexate

D.Vincristine

E.Vitamin B12

Answer:Allopurinol

Explanation:

Giving allopurinol or rasburicase prior to chemotherapy is a way to reduce the risk of developing tumour lysis syndrome

Important for meLess important

Allopurinol is correct as this drug can be given before chemotherapy to reduce the risk of tumour lysis syndrome. Allopurinol works by lowering serum urate levels in order to prevent the condition.

Ferrous sulphate may be given to prevent other complications, such as anaemia, but would not be used to prevent tumour lysis syndrome.

Methotrexate is incorrect because this is a chemotherapy agent often used to treat acute lymphocytic leukaemia, therefore can be a cause of tumour lysis syndrome rather than a drug used to prevent it.

Vincristine is another chemotherapy agent and so could be a cause of tumour lysis syndrome rather than a drug used to prevent it.

Again, vitamin B12 may be used to treat anaemia but would not be useful in preventing tumour lysis syndrome.

Question:

A 19-year-old woman who is 9 weeks into her first pregnancy is seen in the early pregnancy assessment unit with vaginal bleeding. Her ultrasound scan confirms a viable intrauterine pregnancy. However, the high vaginal swab has isolated group B streptococcus (GBS). How should she be managed?

A.Treat immediately with oral benzylpenicillin only

B.Treat immediately with oral erythromycin & intrapartum intravenous benzylpenicillin

C.No treatment required now, no intrapartum antibiotics

D.Intrapartum intravenous benzylpenicillin only

E.Intrapartum oral benzylpenicillin only

Answer:Intrapartum intravenous benzylpenicillin only

Explanation:

GBS is a vaginal commensal isolated in many women. It is known to be the most frequent cause of severe early-onset infection in the newborn and can cause significant morbidity and mortality.

If it is isolated during the antenatal period, it does not require treatment immediately, as it will not reduce the likelihood of colonisation at delivery.

However, intrapartum intravenous benzylpenicillin is required to reduce neonatal transmission. An alternative would be clindamycin. This applies to GBS isolated in vaginal swabs and urine. (GBS urinary tract infection in pregnancy requires appropriate antibiotics at the time also).

There is no screening programme in the UK for GBS, vaginal swabs should be taken only when clinically indicted. Women who have had a previous baby infected with GBS are also offered intrapartum intravenous benzylpenicillin in future pregnancies.

(Source - RCOG guidelines, GBS in pregnancy).

Question:

A 55-year-old type 2 diabetic man attends an appointment to check his glycaemic control with his endocrinologist. He has a portable continuous glucose monitor from which his endocrinologist can download serum glucose data.

The data shows he typically spends 50% of the week in the target range (4-7mmol/L). He reports that if he takes his blood glucose manually it is commonly between 12-15 mmol/L. His HbA1c taken today is below:

HbA1c 40 mmol/mol (<48)

What can cause the above results?

A.Chronic alcoholism

B.Haemodialysis

C.Iron deficiency anaemia

D.Splenectomy

E.Vitamin B12 deficiency

Answer:Haemodialysis

Explanation:

Haemodialysis can give a falsely low HbA1c

Important for meLess important

Haemodialysis is correct. This patient has presented with a falsely low HbA1c reading compared to his continuous glucose monitor (CGM) and serum glucose data. This is generally caused by factors that shorten the average lifespan of an erythrocyte in circulation. Haemodialysis is the only factor listed to do this and so is correct.

Chronic alcoholism is incorrect. The patient has presented with a falsely low HbA1c. This is caused by factors that reduce the lifespan of the erythrocytes in circulation. Chronic alcoholism leads to a falsely raised HbA1c through a combination of mechanisms.

Iron deficiency anaemia is incorrect. This patient has presented with a falsely low HbA1c compared to his CGM and serum glucose data. Iron deficiency anaemia leads to a prolonged erythrocyte lifespan and so would lead to a falsely raised HbA1c instead.

Splenectomy is incorrect. The patient has presented with a falsely low HbA1c, commonly due to reduced red blood cell lifespan. Splenectomy would lead to an increased red blood cell lifespan and hence a falsely raised HbA1c, therefore is incorrect.

Vitamin B12 deficiency is incorrect. This patient has presented with a falsely low HbA1c compared to his CGM and serum glucose data. This is caused by a shortening of the red blood cell lifespan. B12 deficiency leads to the lengthening of the erythrocyte lifespan which leads to a falsely high HbA1c.

Question:

A 28-year-old British lady has been suffering from weakness, abdominal pain and vomiting recently. Her skin has become slightly darker. Her blood studies suggest hyponatremia and hyperkalemia.

Given the likely diagnosis, what is the commonest cause?

A.Idiopathic

B.Exogenous steroid use

C.Infection

D.Auto-immunity

E.Malignancy

Answer:Auto-immunity

Explanation:

The commonest cause of Addison's disease in the U.K is autoimmunity

Important for meLess important

This lady is most likely suffering from Addison's disease - primary adrenal insufficiency. In the UK the commonest cause is autoimmunity. Worldwide, however, the most common cause is infection (typically tuberculosis).

This disease is not typically idiopathic, it is known that there is an immune component to it.

Exogenous steroid use could cause a Cushing's disease picture.

Malignancy would not present in this way.

Question:

A 59-year-old patient presents to dermatology outpatients clinic with a three-month history of discolouration of the skin on his back. On examination, there are patchy areas of mild hypopigmentation covering large areas of the back. You suspect a diagnosis of pityriasis versicolor. What is the likely causative organism?

A.Epidermophyton

B.Histoplasma capsulatum

C.Micosporum

D.Trichophyton

E.Malassezia

Answer:Malassezia

Explanation:

Pityriasis versicolor is caused by Malassezia furfur

Important for meLess important

Pityriasis versicolour is caused by infection with Malassezia fungus. Initial treatment is with topical anti-fungals such as ketoconazole shampoo.

Microsporum, Trichophyton and Epidermophyton are dermatophytes and cause fungal nail infections and ringworm. Histoplasma is a fungi that can cause pneumonia in immuno-compromised patients.

Question:

A 25-year-old man presents with a painful, swollen left knee. He returned 4 weeks ago from a holiday in Spain. There is no history of trauma and he has had no knee problems previously. On examination he has a swollen, warm left knee with a full range of movement. His ankle joints are also painful to move but there is no swelling. On the soles of both feet you notice a waxy yellow rash. What is the most likely diagnosis?

A.Rheumatoid arthritis

B.Psoriatic arthritis

C.Gout

D.Reactive arthritis

E.Gonococcal arthritis

Answer:Reactive arthritis

Explanation:

The rash on the soles is keratoderma blenorrhagica. His reactive arthritis may be secondary to either gastrointestinal infection or Chlamydia.

Question:

A 66-year-old woman is reviewed due to abdominal pain and diarrhoea. She describes passing approximately 10 watery stools per day.

Her observations are as follows: blood pressure 87/50 mmHg; heart rate 118/min; respiratory rate 26/min; temperature 38.8ºC; oxygen saturations 97% on air.

Selected investigation results are shown below:

Hb 125 g/L Male: (135-180)

Female: (115 - 160)

Platelets 415 \* 109/L (150 - 400)

WBC 20.6 \* 109/L (4.0 - 11.0)

Clostridium difficile toxin Positive

Abdominal X-ray Marked colonic dilatation suggestive of toxic megacolon

What is the most appropriate medical management for this patient?

A.IV fidaxomicin

B.IV vancomycin + IV metronidazole

C.Oral fidaxomicin

D.Oral vancomycin

E.Oral vancomycin + IV metronidazole

Answer:Oral vancomycin + IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

The correct answer is oral vancomycin + IV metronidazole. This patient is severely unwell with Clostridium difficile infection. On account of her hypotension, and an abdominal X-ray suggestive of toxic megacolon, this meets the Public Health England criteria for a life-threatening Clostridium difficile infection. Life-threatening Clostridium difficile infection should be treated initially with oral vancomycin and IV metronidazole.

IV fidaxomicin is incorrect. Although fidaxomicin has utility in the treatment of Clostridium difficile infection, it is only given as an enteral preparation, not intravenous.

IV vancomycin + IV metronidazole is incorrect. Intravenous vancomycin tends not to be used in the treatment of Clostridium difficile infection, as its enteric bioavailability, and hence action against the bacterium is greatly reduced compared to oral vancomycin.

Oral fidaxomicin is incorrect. This is used as second-line management of a first-ever Clostridium difficile infection, or in the management of recurrent Clostridium difficile infection, but is not the preferred antimicrobial regimen for life-threatening Clostridium difficile infection.

Oral vancomycin is incorrect. This would be an appropriate initial treatment for more moderate clinical cases of Clostridium difficile infection, but does not provide sufficient coverage for life-threatening episodes.

Question:

A 69-year-old man presents to his GP with tiredness and some weight loss. On examination, he appears generally well but splenomegaly is noted. Blood tests are taken which show the following:

Hb 118 g/L Male: (135-180)

Female: (115 - 160)

Platelets 652 \* 109/L (150 - 400)

WBC 11.6 \* 109/L (4.0 - 11.0)

Lactate dehydrogenase (LDH) 320 U/L (140 - 280)

Uric acid 632 µmol/L (<416)

Genetic testing is carried out and he is found to be positive for JAK2 V617F mutation.

What finding on blood film is classically associated with the likely diagnosis?

A.'Pencil' poikilocytes

B.Howell-Jolly bodies

C.Schistocytes

D.Spherocytes

E.Tear-drop poikilocytes

Answer:Tear-drop poikilocytes

Explanation:

Myelofibrosis is associated with ‘tear drop’ poikilocytes on blood film

Important for meLess important

The diagnosis here is myelofibrosis, given the non-specific presentation, thrombocytosis, anaemia, and raised LDH and uric acid. The mutation also increases the likelihood of this diagnosis. Classically, this condition is associated with 'tear-drop' poikilocytes on blood film.

'Pencil' poikilocytes are usually associated with iron deficiency anaemia, rather than myelofibrosis. Given the other blood results, and the JAK2 V617F mutation, myelofibrosis is more likely.

Howell-Jolly bodies are typically associated with hyposplenism or seen post-splenectomy, rather than with splenomegaly which occurs with myelofibrosis.

Schistocytes are fragmented red blood cells and so are seen in microangiopathic, haemolytic disease. They would not be found in myelofibrosis.

Spherocytes are spherical red blood cells. These may be seen in hereditary spherocytosis, or autoimmune haemolytic anaemia.

Question:

A 27-year-old woman who is 39 weeks pregnant presents to her GP with a two day history of dysuria and suprapubic discomfort. She has had several urinary tract infections in the past and feels like she has developed another one. There is no renal angle tenderness and is apyrexial. She takes no medication and has no allergies.

A urine culture is obtained and grows Escherichia coli with the following sensitivity information:

Nitrofurantoin sensitive

Trimethoprim resistant

Amoxicillin resistant

Cefalexin sensitive

What is the most appropriate treatment?

A.Amoxicillin

B.Cefalexin

C.Doxycycline

D.Nitrofurantoin

E.Trimethoprim

Answer:Cefalexin

Explanation:

Pregnant women with a UTI: nitrofurantoin is first-line unless the woman is close to term

Important for meLess important

Cefalexin is the most appropriate antibiotic to prescribe, as the patient is pregnant, at term and has an infection resistant to amoxicillin.

Amoxicillin is inappropriate as it should only be prescribed in UTI if culture and sensitivity information shows that it is indicated.

Doxycycline is avoided in pregnancy due to its teratogenicity. In early pregnancy it can cause skeletal deformity, and in the second and third trimester it may cause discoloration of the teeth.

Nitrofurantoin is avoided at term due to the potential risk of neonatal haemolysis. Neonates have immature erythrocyte enzyme systems that increase the risk of haemolysis. It is also avoided in G6PD deficiency.

Trimethoprim is not indicated as sensitivity information shows that the organism is resistant. It is also avoided in pregnancy due to teratogenicity - it inhibits folate metabolism and can increase risk of neural tube defects. This is primarily a concern in the first trimester.

Question:

A 62-year-old woman who is known to have metastatic breast cancer presents with increasing shortness of breath. She is currently receiving a chemotherapy regime. On examination she has a third heart sound and the apex beat is displaced to the 6th intercostal space, anterior axillary line. Which one of the following chemotherapeutic agents is most likely to be responsible?

A.Paclitaxel

B.Docetaxel

C.Bleomycin

D.Dactinomycin

E.Doxorubicin

Answer:Doxorubicin

Explanation:

Anthracyclines (e.g. doxorubicin) may cause cardiomyopathy

Important for meLess important

Question:

A 78-year-old man is seen in clinic with his daughter. She mentions that over the last 7 months, his memory has become poor and his attention and consciousness are fluctuating. Occasionally, he has seen dogs and children running around in the living room. His medical history includes an 8-year history of resting tremors, rigidity and shuffling when he walks, and he generally moves very slowly.

His daughter denies any mood lability, or urinary or bowel incontinence, and on examination, no postural changes in his blood pressure are noted.

What is the most likely diagnosis?

A.Dementia with Lewy bodies

B.Frontotemporal dementia

C.Multiple system atrophy

D.Parkinson's disease dementia

E.Vascular dementia

Answer:Parkinson's disease dementia

Explanation:

Lewy body dementia can be differentiated from idiopathic Parkinson's disease dementia by the time of onset of the dementia compared to the motor symptoms

Important for meLess important

Parkinson's disease dementia (PDD) is correct. PDD and dementia with Lewy bodies (DLB) both have overlapping features (such as tremors, rigidity, postural instability, fluctuating cognition, and hallucinations), however, they can be differentiated by the time of onset of dementia compared to motor symptoms. PDD is diagnosed if a patient had a Parkinson's disease diagnosis for at least 1 year. Given that this patient has had motor symptoms ongoing for 8 years before the emergence of dementia, this patient is more likely to have PDD. This difference is important to note as the management of PDD and DLB varies massively. In many cases of PDD, levodopa is the mainstay of treatment, whereas, in DLB, rivastigmine is the drug of choice. Levodopa may be used in DLB if there are significant motor symptoms.

Dementia with Lewy bodies (DLB) is incorrect. Although the features seen in the patient can occur in both, they are differentiated based on when dementia emerges compared to motor symptoms, as their management varies significantly. Since this patient has had 8 years of preceding motor symptoms before the onset of dementia, PDD is more likely. DLB would have dementia occurring first followed by motor symptoms including tremors, rigidity, and postural instability. Treating this patient as DLB may miss out on important elements of treatment needed in patients with PDD, such as the use of levodopa, therefore, the two must be distinguished.

Frontotemporal dementia (FTD) is incorrect as this is typically associated with impulsive and socially inappropriate behaviour, along with personality changes, which are not seen here. The onset of FTD is also typically earlier in a patient's 50s and progresses more rapidly than DLB.

Multiple system atrophy is incorrect. Although this can have features of Parkinson's disease (tremors, rigidity, and postural instability), patients also have autonomic dysfunction such as orthostatic hypotension, or urinary or faecal incontinence or retention, which are not seen here.

Vascular dementia is incorrect as the decline in cognition is typically stepwise and patients often have risk factors for cardiovascular disease such as hypertension and hypercholesterolaemia, which are not present here. Patients may also have emotional lability and focal neurological deficits which are not seen here.

Question:

A 65-year-old man presents with sepsis secondary to a non-healing diabetic ulcer. He was taken to theatre for a below-knee amputation, and he is currently day 2 post-op.

His current analgesia includes regular paracetamol (1g four times daily) and morphine 10mg as required (maximum 4-hourly). He is asking for morphine every 4 hours and is still complaining of pain.

His past medical history includes type 2 diabetes mellitus, asthma and hypertension.

What treatment option is most appropriate for this patient?

A.Add regular co-codamol

B.Add regular ibuprofen

C.Continue current analgesia

D.Start patient controlled analgesia

E.Switch as required morphine to regular 4-hourly morphine

Answer:Start patient controlled analgesia

Explanation:

Patient-Controlled Analgesia (PCA) is an option for the management of pain in the post-operative period

Important for meLess important

Start patient-controlled analgesia (PCA) is the correct answer as it enables the patient to administer opioid analgesia frequently according to any breakthrough pain. It is commonly used in scenarios involving amputation.

Add regular co-codamol is incorrect as the patient is already taking the maximum dose of paracetamol (4g in 24 hours). Therefore, adding co-codamol would lead to a paracetamol overdose.

Add regular ibuprofen is incorrect as the patient is asthmatic therefore NSAIDs should be avoided. Furthermore, the patient is still experiencing breakthrough pain despite morphine, therefore according to the pain ladder, ibuprofen would do little to ease his pain.

Continue current analgesia is incorrect as the patient is complaining of pain despite his current analgesia following a significant surgery.

Switch as required morphine to regular morphine doses is incorrect as he is already utilising the 'as required' morphine every 4-hours, and so this would not alter his pain relief regime.

Question:

A 32-year-old primigravida delivers her 40+1 gestation male infant via ventouse-assisted vaginal delivery on the maternity ward. The estimated blood loss is 650ml and her uterus appears to be well contracted. During delivery, she had an episiotomy performed. Vaginal examination postpartum reveals a tear which involves perineal skin and muscle and less than 50% damage to the external anal sphincter.

What is the most appropriate management for this patient?

A.Pack perineal wound for haemostasis before perineal tear repair when no further active bleeding

B.Perineal tear healing by secondary intent

C.Perineal tear repair in theatre

D.Perineal tear repair on maternity ward immediately

E.Urgent transfusion and admission to maternal intensive care

Answer:Perineal tear repair in theatre

Explanation:

Third degree perineal tears require repair in theatre by a suitably trained clinician

Important for meLess important

All category 3 and 4 tears require perineal repair in theatre due to the risk of infection and the significance of the grade of the tear. There is a risk with grade 3 and 4 tears of faecal incontinence if there is poor healing to a perineal wound.

Pack perineal wound for haemostasis before perineal tear repair when no further active bleeding is inappropriate as haemostasis will be better achieved with the administration of sutures.

Perineal tear healing by secondary intent is inappropriate as this will likely result in poor healing, infection and faecal incontinence. Furthermore, there is a strong likelihood of ongoing haemorrhage if the wound is not healed due to the vascular nature of the perineum and anus.

Perineal tear repair on the maternity ward immediately can be performed in a category 1 tear (involving the skin only) or a category 2 tear (involving the skin and perineal muscle) if the clinician feels comfortable and there is adequate lighting for performing the procedure.

Urgent transfusion and admission to maternal intensive care is inappropriate as the patient has not lost a significant amount of blood (over 1-litre blood loss is deemed significant) and this also does not deal with the category 3 perineal wound that she has sustained which will continue to bleed until surgically repaired.

Question:

A 5-year-old boy presents to the hospital with a 2 days history of painful swelling in the left eye.

On examination, the boy appears unsettled and is crying constantly. His temperature is 38°C and other vital signs are normal. On examination of the affected eye, the eyelid is erythematous and oedematous. Proptosis of the left eye is noted and there seems to be limited ocular movement as well. The globe is not affected, and the other eye is perfectly normal. There are no signs of systemic involvement.

Which of the following imaging should be done to confirm the most likely diagnosis and to evaluate for possible complications?

A.CT venography

B.Contrast enhanced-CT scan of the orbits, sinuses and brain

C.Plain skull X-ray

D.Optical coherence tomography of the affected eye

E.Ultrasound scan of the affected eye and orbit

Answer:Contrast enhanced-CT scan of the orbits, sinuses and brain

Explanation:

CT scan with contrast should be done if orbital cellulitis is suspected to assess the posterior spread of infection

Important for meLess important

The presence of signs indicating the possible involvement of extraocular muscles and fatty tissues within the orbit (proptosis and limited ocular movement) suggests that orbital cellulitis is more likely to be the diagnosis rather than preorbital cellulitis.

Where orbital cellulitis is suspected, a contrast enhanced-CT scan of the orbits, sinuses and brain should be considered to support the diagnosis and to search for possible complications such as abscess which may require surgical drainage.\*

Plain Skull X-ray is usually indicated in trauma to look for fracture of the facial bone or to look for presence of metallic foreign bodies.

Optical coherence tomography (OCT) is a non-invasive imaging test used to take cross-section pictures of the retina, which is non-relevant in this scenario.

Ultrasound scan of the eye and orbit is commonly used in cases of injury or trauma to the eye area.

CT venography is performed when cavernous sinus thrombosis is suspected.\*

\*S.Ball, A.Okonkwo, S.Powell, S.Carrie. Orbital Cellulitis Management Guideline – For Adults & Paeds. ENT UK.

Question:

A primigravida 25-year-old woman at 31 weeks gestation presents with vaginal bleeding and severe abdominal pain. The abdominal pain started suddenly in the night (awoke her from sleep), about 4 hours previously. It is a severe dull pain in the suprapubic region and doesn't radiate anywhere. The pain has not settled at all since onset (she has not taken any medications) and is not positional. She says it is a 10/10 severity. She passed about 2 cupfuls of blood 1 hour previously. She says the bleeding has since soaked through 2 sanitary pads. She also complains of back pain and is exquisitely tender on suprapubic palpation. She has not noticed any decreased foetal movements, although says that her baby is not particularly active usually. Which is the most likely diagnosis?

A.Placenta increta

B.Miscarriage

C.Placenta abruption

D.Placenta accreta

E.Placenta praevia

Answer:Placenta abruption

Explanation:

Placenta abruption presents with painful vaginal bleeding, whereas placenta praevia is usually painless. A woody, hard uterus may be palpable in placenta abruptio - this is because retroplacental blood tracks into the myometrium. The fetal heart is often absent and the woman may be shocked. Resuscitation is vital in these cases and the baby will need urgent delivery when stable. There is an increased risk of postpartum haemorrhage.

Question:

A 40-year-old female presents to your clinic with vomiting for the past 24 hours. The last time she vomited was 10 minutes ago and she still feels nauseous now. She explains that she went to a barbeque the previous day and ate sausages, which she is worried were not cooked properly. She has a past medical history of Addison's disease for which she takes oral hydrocortisone and fludrocortisone daily.

What is the most appropriate advice to give to this patient?

A.Double her oral fludrocortisone dose until vomiting stops

B.Drink plenty of fluids and continue normal medication

C.Pause her oral hydrocortisone until vomiting stops

D.Take IM fludrocortisone until her vomiting stops

E.Take IM hydrocortisone until her vomiting stops

Answer:Take IM hydrocortisone until her vomiting stops

Explanation:

A person with Addisons’ who vomits should take IM hydrocortisone until vomiting stops

Important for meLess important

It is likely that this patient has food poisoning from undercooked meat. The important thing to note is that this patient has a background of Addison's and therefore specific management is required to prevent an Addisonian crisis.

The correct answer is to take IM hydrocortisone until vomiting stops. Hydrocortisone is a glucocorticoid steroid hormone that is used to manage Addison's. Patients with Addison's are provided with IM hydrocortisone for situations like this, in order to prevent an Addisonian crisis.

Drinking plenty of fluids is good advice for anyone who is vomiting. However, this patient required IM hydrocortisone due to her having Addison's disease.

Doubling her fludrocortisone dose is incorrect. Fludrocortisone is a mineralocorticoid that is used to manage Addison's. However, it is extra glucocorticoid (hydrocortisone) that is required in this situation, where the patient is vomiting.

Pausing her hydrocortisone is incorrect. The concern here is that the patient may go into an Addisonian crisis and so to prevent this she needs extra hydrocortisone.

Again IM fludrocortisone is not required. Instead, it is IM hydrocortisone that is the appropriate management here.

Question:

A 67-year-old male presents to the emergency department with sudden onset chest pain. The pain is located in his central chest, and started an hour ago. The pain was maximal at onset, and is not exacerbated with deep breaths. He describes it as the most intense pain he's ever experienced. He has not had any similar episodes previously.

He has a past medical history of hypertension (for which he takes ramipril and bendroflumethiazide). He has a 15-pack-year smoking history.

On examination he appears drowsy. He has left-sided ptosis and miosis of his left pupil.

What is the most likely cause of this presentation?

A.Aortic dissection

B.Carotid artery dissection

C.Tension pneumothorax

D.ST-elevation myocardial infarction (STEMI)

E.Pulmonary embolism

Answer:Aortic dissection

Explanation:

Aortic dissection can present with neurological complaints

Important for meLess important

Aortic dissection is the correct answer. It usually presents with abrupt, severe pain; and is often described as sharp, as opposed to tight/crushing pain experienced in myocardial infarction. Hypertension and aortic valve pathologies are also risk factors for aortic dissection. Patients often present with acute hypotension, due to aortic regurgitation or cardiac tamponade.

Focal neurological deficits occur due to propagation of the intimal tear to branch arteries, or due to mass effects as the expanding aorta compresses surrounding structures. In this scenario, this man is presenting with symptoms of Horner's syndrome (classically ptosis, miosis and anhidrosis) due to compression of the sympathetic trunk by the expanding aortic dissection.

Carotid artery dissection could cause the same neurological features, however it would not produce marked chest pain.

Tension pneumothorax may cause chest pain of rapid onset, however it is unlikely to cause neurological signs.

Although ST-elevation myocardial infarction causes acute severe chest pain, sudden onset chest pain which is maximal at onset is more typical of aortic dissection. Myocardial infarction is also unlikely to cause neurological consequences.

Pulmonary embolism is incorrect but can also cause severe chest pain. However in this patient it is not pleuritic in nature, and is not keeping with the identified neurology.

Question:

A 22-year-old student consults her GP as she has some questions about the combined oral contraceptive pill. After her own background reading she is struggling to understand what the risk of an unplanned pregnancy would be if she were to start taking this form of contraception. Assuming the Pearl Index of the combined oral contraceptive pill is 0.2, how will you explain the failure rate of this form of contraception if used correctly?

A.For every thousand women using this form of contraception for one year, two would become pregnant

B.For every thousand women using this form of contraception for ten years, two would become pregnant

C.For every hundred women using this form of contraception for one year, two would become pregnant

D.0.2% of women using this form of contraception become pregnant

E.If used as the sole form of contraception, the risk of an unplanned pregnancy after each episode of coitus is 0.2%

Answer:For every thousand women using this form of contraception for one year, two would become pregnant

Explanation:

The Pearl Index is the most common technique used to describe the efficacy of a method of contraception. The Pearl Index describes the number of pregnancies that would be seen if one hundred women were to use the contraceptive method in question for one year. Therefore in the question, assuming the Pearl Index is 0.2 and the medication is adhered to perfectly, we would expect to see 0.2 pregnancies for every hundred women using the pill for one year - or 2 for every thousand.

Question:

A 65-year-old man is seen in the lung cancer clinic for investigation of a lung nodule in close proximity to his left main bronchus. He has also had some weight loss over the past 3 months. He has no past medical history or family history. He is on no regular medications and has no allergies. He has 65 pack year smoking history. He has no occupational exposure to asbestos.

Which of the following is the most likely histological diagnosis of this mass?

A.Carcinoid tumour

B.Squamous cell carcinoma

C.Mesothelioma

D.Adenocarcinoma

E.Large cell carcinoma

Answer:Squamous cell carcinoma

Explanation:

Squamous cell lung cancer has the strongest association with smoking

Important for meLess important

Although most lung cancer is linked to smoking, squamous cell lung cancer is the most strongly linked with smoking. This type of lung cancer is also more commonly found near large airways, unlike adenocarcinoma which is more commonly peripheral. Small cell lung cancers also tend to be found near the larger airways. They tend to be associated with para-neoplastic syndromes and often metastasise early. Large cell carcinoma is considered a diagnosis of exclusion. The history is not typical of carcinoid. Furthermore, carcinoid tumours of the lung are rare.

Question:

A 45-year-old man is involved in a polytrauma and requires a massive transfusion of packed red cells and fresh frozen plasma. Three hours later he develops marked hypoxia and his CVP is noted to be 5 mmHg. A chest x-ray shows bilateral diffuse pulmonary infiltrates.

What is the most likely diagnosis?

A.Pulmonary embolus

B.Myocardial stunning

C.Myocardial infarct

D.Fluid overload

E.Transfusion associated lung injury

Answer:Transfusion associated lung injury

Explanation:

The risk of transfusion associated lung injury is greatest with plasma components.

Important for meLess important

Transfusion lung injury may occur after infusion of plasma components. Microvascular damage occurs in the lungs leading to diffuse infiltrates on imaging. Mortality is high.

The normal central venous pressure (normal = 0- 6 mmHg) is less consistent with fluid overload.

Question:

A neonate is admitted to the neonatal intensive care unit with low Apgar scores at birth. On examination he is noted to have a micrognathia, low set ears, overlapping fingers and rocker-bottom feet. Which of the following is the most likely diagnosis?

A.Noonan's syndrome

B.Patau syndrome

C.Down's syndrome

D.Edward's syndrome

E.Fragile X syndrome

Answer:Edward's syndrome

Explanation:

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

Important for meLess important

This question focuses on childhood genetic syndromes. In this scenario, the neonate displays the classical signs of edward's syndrome, making this the correct answer. Most often, these syndromes are diagnosed in the pre-natal period however some remain undiagnosed until birth, where they present after delivery with low apgar scores.

The mortality of those diagnosed with edward's syndrome is very high and the average life expectancy is 5-12 days. Those who do survive experience multi-organ complications.

Many of the genetic syndromes have similarities and can be difficult to distinguish clinically if only some features are present. Genetic testing is important to confirm a diagnosis.

For final medical examinations, it would be worth noting the most common features of each syndrome.

Question:

A pregnant woman asks for advice about alcohol consumption during pregnancy. Which one of the following is in line with current NICE guidelines?

A.1 to 2 units once or twice per week throughout pregnancy

B.Avoid first and second trimester. If then chooses to drink 1 to 4 units no more than twice per week

C.1 to 2 units once per week throughout pregnancy

D.Avoid first trimester. If then chooses to drink 1 to 2 units once or twice per week

E.Avoid alcohol throughout pregnancy

Answer:Avoid alcohol throughout pregnancy

Explanation:

Question:

A 23-year-old woman presents with lethargy. The following blood results are obtained:

Hb 10.4 g/dl

Plt 278 \* 109/l

WCC 6.3 \* 109/l

MCV 65 fl

HbA2 4.5% (< 3%)

What is the most likely diagnosis?

A.Beta-thalassaemia major

B.Sickle cell anaemia

C.Beta-thalassaemia trait

D.Hereditary spherocytosis

E.Acute lymphoblastic leukaemia

Answer:Beta-thalassaemia trait

Explanation:

Disproportionate microcytic anaemia - think beta-thalassaemia trait

Important for meLess important

A microcytic anaemia in a female should raise the possibility of either gastrointestinal blood loss or menorrhagia. However, there is no history to suggest this and the microcytosis is disproportionately low for the haemoglobin level. This combined with a raised HbA2 points to a diagnosis of beta-thalassaemia trait

Question:

A 51-year-old man undergoes a routine medical examination as part of a pre-employment check. He reports no symptoms and physical examination is normal. Blood tests are ordered and the results are all within normal range with the exception of the following:

Uric acid 0.66 mmol/l (0.18-0.48 mmol/l)

The patient has done some reading online and is worried about his risk of gout.

Which of the following treatments should be commenced in light of this result?

A.Colchicine

B.Febuxostat

C.Allopurinol

D.No treatment

E.Probenecid

Answer:No treatment

Explanation:

Treatment of asymptomatic hyperuricaemia in an attempt to prevent gout is not recommended by NICE

Important for meLess important

Gout is associated with high levels of serum uric acid however it is possible to have hyperuricaemia with no noticeable effects. In such cases, NICE recommends against primary prevention of gout as it has been shown to be neither cost-effective nor beneficial to patients. Lifestyle changes (less red meat, alcohol and sugar) can reduce uric acid levels without drug treatment and so can be advised.

The other possible answers all play a role in the treatment of gout, however, would not be indicated in the absence of symptoms.

Question:

A 64-year-old woman presents to her general practitioner with dizziness. When she rolls over in bed in the morning, she experiences sudden onset dizziness associated with nausea, which spontaneously resolves after around 20 seconds if she keeps her head still. After these episodes, the patient feels light-headed and unbalanced for several hours. She has suffered recurrent otitis media in the past and her family history is significant for otosclerosis.

What is the most important immediate investigation?

A.Audiometry

B.CT head

C.Dix-Hallpike manoeuvre

D.Epley manoeuvre

E.MRI head

Answer:Dix-Hallpike manoeuvre

Explanation:

BPPV

Dix-Hallpike manoeuvre is diagnostic

Epley manoeuvre is for treatment

Important for meLess important

This is a typical history of benign paroxysmal positional vertigo (BPPV), which is diagnosed by performing Dix-Hallpike manoeuvre, which recreates the symptoms. The Epley manoeuvre is a therapeutic procedure that successfully resolves symptoms in ~80% of cases.

The recurrent otitis media and family history of otosclerosis are distractors.

Audiometry would be a useful investigation in Meniere's disease, as there is sensorineural hearing loss in this condition. A CT head would be useful in the diagnosis of otosclerosis, whilst an MRI scan of the head is the gold standard investigation for diagnosis of acoustic neuroma.

Question:

A 25-year-old man presents to the GP with a 3-day history of right heel pain that is worse on exertion and improves with rest. He has noticed some morning stiffness and has no other past medical history, he takes no medication, and denies any trauma or injury.

On examination, the right Achilles tendon is tender. No other abnormalities are noted. Squeezing the right calf causes plantarflexion of the foot.

He is given advice regarding rest and taking ibuprofen, however, he presents 5 days later with no improvement in his symptoms.

What is the most appropriate next step in his management?

A.Arrange corticosteroid injection

B.Continue current management and re-review in a week

C.Prescribe naproxen

D.Refer for surgery

E.Refer to physiotherapy

Answer:Refer to physiotherapy

Explanation:

Achilles tendonitis management: rest, NSAIDs, and physio if symptoms persist beyond 7 days

Important for meLess important

Heel pain that is worse on exertion and improves with rest, along with localised tenderness of the Achilles tendon suggests an Achilles tendon disorder. Since squeezing this patient's calf leads to plantarflexion of the foot and no other abnormalities (such as gaps in the tendon) are noted, this patient most likely has Achilles tendinitis. The initial management of Achilles tendinitis involves rest and the use of NSAIDs including ibuprofen, however, this patient's symptoms have not improved after 8 days.

Refer to physiotherapy is correct. NICE recommends referring patients to physiotherapy for assessment if their symptoms fail to improve after 7 days. Physiotherapy exercises have been shown to be effective in the management of Achilles tendinopathy and improve range of motion without carrying as many risks compared to surgery.

Arrange corticosteroid injection is incorrect. NICE advises specifically against injecting corticosteroids into or around the tendon. This is because they can weaken the tendon and increase the risk of rupture, which would require surgery to correct.

Continue current management and re-review in a week is incorrect as this is unlikely to yield any benefit in this patient since his symptoms have been ongoing for more than 7 days. It is more appropriate to refer him to physiotherapy which may help alleviate his symptoms.

Prescribe naproxen is incorrect as this is another NSAID. Since this patient has already taken an NSAID (ibuprofen), this is unlikely to yield any benefit and other options should be explored, such as physiotherapy.

Refer for surgery is incorrect. This is generally considered in chronic cases that have failed to respond after trying all methods of conservative treatment due to its risks and costs. This patient has not yet tried physiotherapy, which may be effective. Therefore, jumping to this step may not be necessary.

Question:

A 66-year-old woman presents to her GP with diarrhoea on a Thursday. This illness has lasted for 2 days and is accompanied by abdominal pain and fatigue. Her temperature is 38.0ºC.

Her past medical history includes osteoarthritis, polymyalgia rheumatica and type 2 diabetes. She has taken several medications for many years:

Alendronic acid 70mg, once weekly on Sundays

Ibuprofen 400mg BD

Metformin 500mg TDS

Prednisolone 5mg OD

The GP counsels her about a temporary medication change to reduce her risk of complications from her acute illness.

What medication change is the GP most likely to have suggested?

A.Add loperamide until 48 hours after symptom resolution

B.Increase ibuprofen dose to 400mg QDS

C.Increase prednisolone dose to 10mg OD

D.Omit next dose of alendronic acid

E.Switch to a modified-release metformin regime with a total dose of 2g daily until her symptoms resolve

Answer:Increase prednisolone dose to 10mg OD

Explanation:

Patients on long-term steroids should have their doses doubled during intercurrent illness

Important for meLess important

Patients on long-term steroids are advised to increase their steroid dosage when they are unwell, as illness may precipitate adrenal crises. These are known as 'sick day rules'. Therefore, it is sensible to double this patient's prednisolone dose to 10mg daily.

Adding loperamide is incorrect. Loperamide may help with symptomatic relief of this patient's diarrhoea but does not address her body's increased steroid requirements during this illness. Furthermore, loperamide is generally not recommended during an infectious gastrointestinal illness.

Increasing the dosage of ibuprofen is incorrect. NSAIDs may contribute to impaired kidney function during periods of illness, so it may be sensible to withhold this patient's ibuprofen at this time.

While alendronic acid may have some gastrointestinal side effects, this patient's diarrhoea is most likely to be infectious in origin. Her dose is not due for another few days, by which time her illness may have resolved. Steroid modification is more important for this patient at this time.

Metformin can cause gastrointestinal upset, but this appears to be an acute illness and is unlikely to be related to metformin use - after all, she has been taking this medication for several years. Therefore, modified-release metformin is unlikely to resolve her symptoms. Metformin may be temporarily withheld in this patient due to the risk of lactic acidosis in concurrent illness, so increasing her dose at this time would be unsafe.

Question:

A 72-year-old man presents to his general practitioner with shortness of breath. He has no past medical history.

On examination, abrupt distension and collapse of the carotid arteries are noted along with visualization of capillary pulsations with light compression applied to the fingernail bed.

What type of murmur is likely to be heard on auscultation?

A.Early diastolic

B.Ejection systolic

C.Late diastolic

D.Late systolic

E.Pansystolic

Answer:Early diastolic

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

Early diastolic is correct. The patient has clinical signs associated with chronic aortic regurgitation (Corrigan's sign and Quincke's sign). This condition is associated with an early diastolic murmur.

Ejection systolic is incorrect. This type of murmur is associated with aortic stenosis rather than regurgitation. Other signs of this condition might be a narrow pulse pressure and a slow rising pulse.

Late diastolic is incorrect. This type of murmur is heard with mitral stenosis, tricuspid stenosis, myxoma, and complete heart block.

Late systolic is incorrect. This type of murmur is heard in mitral valve prolapse.

Pansystolic is incorrect. This type of murmur is heard with tricuspid and mitral regurgitation and a ventricular septal defect.

Question:

A 25-year-old lady has developed disseminated intravascular coagulation due to an acute peripartum haemorrhage. After general resuscitation measures, what treatment should be administered first?

A.Vitamin K

B.Platelets

C.Fresh Frozen Plasma (FFP)

D.Recombinant activated FVII

E.Tranexamic acid

Answer:Fresh Frozen Plasma (FFP)

Explanation:

The RCOG has provided guidance on management of disseminated intravascular coagulation (Green-top Guideline No.63).

It states that 'Clotting studies and a platelet count should be urgently requested and advice from a haematologist sought. Up to 4 units of FFP and 10 units of cryoprecipitate may be given whilst awaiting the results of the coagulation studies.'

Since cryoprecipitate is not an option, FFP as the first-line therapy is the correct answer.

Question:

A 24-year-old man presents to his GP with a rash that has developed over the preceding 3 days and is associated with a minor itch. The rash is pictured below and is present on his back and upper arms.

Just before the onset of this rash, the man finished a course of phenoxymethylpenicillin for acute tonsillitis. He otherwise has no dermatological or medical history and takes no medications.

© Image used on license from DermNet NZ

What is the likely diagnosis?

A.Cutaneous lichen planus

B.Drug eruption

C.Guttate psoriasis

D.Pityriasis rosea

E.Pityriasis versicolor

Answer:Guttate psoriasis

Explanation:

This image shows a close-up of a rash on a patient's back. The rash consists of multiple pink, scaly papules which are teardrop in shape. Silver scales can be seen on the lesions. This is a typical image of guttate psoriasis, which is associated with a rash consisting of numerous small patches of psoriasis that develop acutely over several days 1-2 weeks after a streptococcal infection (this patient has just had bacterial tonsillitis, which is typically caused by group A streptococcus infection). The rash most commonly affects the trunk and limbs.

Cutaneous lichen planus is an autoimmune disorder typically resulting in shiny papules or polygonal plaques. Whilst these can be scaly and mildly itchy, unlike the lesions in guttate psoriasis, these are not defining features of the rash in lichen planus. Instead, lesions are often purple and crossed by fine white lines (Wickham's striae). They are most commonly present on the wrist, lower back and ankles. Cutaneous lichen planus is not associated with preceding streptococcal infections. This image does not show typical lesions of cutaneous lichen planus.

A drug eruption is a possible diagnosis of a new rash in a patient who has recently taken an antibiotic. Drug eruptions commonly produce a morbilliform rash, a generalised rash with erythematous macules or papules, and may start up to a week after the offending medication has been stopped. However, the rash in this image has the characteristic tear-drop shape and scaly consistency of guttate psoriasis. It is also limited to the trunk and upper limbs, whereas a drug eruption may start on the trunk but then typically becomes more generalised, including upper and lower limbs and the neck.

Pityriasis rosea is a key differential diagnosis for guttate psoriasis. Although pityriasis rosea may also be preceded by an infection, it is not as classically associated with streptococcal infections as guttate psoriasis is. In pityriasis rosea, the rash starts with a herald patch, which is followed 1-2 weeks later by multiple erythematous, slightly raised oval lesions. Unlike the lesions of guttate psoriasis, these lesions have a fine scale confined to the outer aspects of the lesion. Furthermore, these lesions often follow a characteristic distribution, running parallel to the lines of Langer and creating a 'fir-tree' appearance. This image is not in keeping with these features of pityriasis rosea.

Pityriasis versicolor is a common fungal infection of the skin which results in multiple round or oval (as opposed to droplet-shaped) macules. These can vary in colour from white to pink to red to brown. These lesions often develop insidiously and are not associated with a preceding infection. They are also flakey, not scaly, in appearance.

Question:

A 55-year-old male oil rig worker attends the Emergency Department with new frank haematuria. He has been passing blood and clots when urinating for the last two days. He has no dysuria or abdominal pain. He is apyrexial and his heart rate is 83 bpm and his blood pressure is 132/84 mmHg. On examination his abdomen is soft and he has no abdominal tenderness and no palpable masses in the abdomen or renal angles. He is a current smoker with a 25 pack-year history.

Which of the following is most appropriate in the first instance to investigate the cause of his haematuria?

A.CT scan of the thorax, abdomen and pelvis with IV contrast

B.CT-angiogram of the abdomen and pelvis

C.PET-CT scan

D.Flexible sigmoidoscopy

E.Flexible cystoscopy

Answer:Flexible cystoscopy

Explanation:

Cystoscopy is the investigation of choice in diagnosing bladder cancer

Important for meLess important

The history and risk factors point to a likely lower urinary tract tumour as the cause. The gold standard investigation is direct visualisation with cystoscopy. A CT scan or PET-CT may be needed later to assess metastatic spread if a bladder tumour is confirmed by cystoscopy. A CT-angiogram can sometimes identify a source of bleeding but it is unlikely to be of any benefit in this case as the patient is not haemodynamically unstable so a source of bleeding is unlikely to show up.

Question:

A 61-year-old woman comes for review. Last month she was found to have a blood pressure of 156/94 mmHg. As a result you arranged 24-hour blood pressure monitoring, some blood tests and an ECG:

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

What is shown on the ECG?

A.Left ventricular hypertrophy

B.Right bundle branch block

C.Normal ECG

D.Wolff-Parkinson White syndrome

E.Previous inferior myocardial infarction

Answer:Normal ECG

Explanation:

This is a normal ECG. There are no changes suggestive of any of the above conditions. The PR interval is rather long but is at the upper limit of normal. There is also a Q wave in lead III, but this again is a normal variant (even deep waves > 2mm may be a normal variant in this lead).

Question:

A 56-year-old man presents to his GP with a 3-week history of worsening pruritus. He admits his stools look paler than usual and his urine has been looking unusually dark. He also says he has lost around 4 kg over the last month or two, which is hard to regain as since this week he is now feeling right-sided abdominal pain after eating.

On examination, he is markedly jaundiced and has excoriated skin.

His past medical history is significant for ulcerative colitis and primary sclerosing cholangitis, both of which are usually well-managed. He is up-to-date with all immunisations.

What is the most likely diagnosis?

A.Cholangiocarcinoma

B.Choledocholithiasis

C.Flare-up of primary sclerosing cholangitis

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. This develops in around 10% of patients with primary sclerosing cholangitis, making it relatively common in this patient group. The recent history of increased itching, jaundice, pale stools, dark urine, biliary colic and weight loss are all features of cholangiocarcinoma and suggest obstruction of the biliary tract.

Choledocholithiasis is incorrect. This would present with similar symptoms suggesting biliary obstruction but given the extended time frame of this patient's symptoms and their progressive nature, in combination with significant weight loss, it is more likely there is a serious underlying cause such as cholangiocarcinoma.

Flare-up of primary sclerosing cholangitis is incorrect. The pathophysiology of this disease involves scarring of the bile ducts, meaning it does not generally cause flare-ups similar to ulcerative colitis. Regardless, there are several worrying features in this history which increase the suspicion of biliary malignancy and make cholangiocarcinoma the likely diagnosis.

Hepatocellular carcinoma is incorrect. This may have some similar features to cholangiocarcinoma, however given the history of PSC, this makes cholangiocarcinoma much more likely.

Pancreatic carcinoma is incorrect. This also presents similar features and should be an important differential diagnosis for this presentation. However, it is typically associated with painless jaundice - this patient has colicky abdominal pain after eating. The likelihood of cholangiocarcinoma causing these symptoms is also significantly raised by the history of PSC, making it the more likely diagnosis.

Question:

A 24-year-old man presents to the emergency department complaining of lower back pain. He says this has been ongoing for the last week. It came on gradually and has become worse over the last few days. He can not change his posture anymore due to the pain. He has a background history of intravenous drug use and has visited his GP early on in the month for shortness of breath and a low-grade fever. On examination, he has a temperature of 40ºC, needle track marks on his forearm, a systolic murmur in the tricuspid region and severe restriction of movement of his back. Urine dip is positive for blood but no other abnormalities found. MRI of the spine confirms a diagnosis of discitis. What other investigation needs to be done urgently?

A.MRI kidneys, ureters and bladder

B.Ultrasound bladder

C.Emergency exploratory laparotomy of his kidneys

D.Echocardiography

E.X-ray kidneys

Answer:Echocardiography

Explanation:

Intravenous drug users with infective endocarditis can present with discitis

Important for meLess important

This patient has features of infective endocarditis. There is a low-grade fever, a systolic murmur in the tricuspid region (most likely tricuspid regurgitation) and blood in his urine. These all appear to be unrelated but they all fit with endocarditis. The heart pumps out septic emboli to different regions of the body, the 'bacterial seed' gets implanted in the intervertebral disc space, renal parenchyma and other places. They then begin to cause inflammation which results in damage to those tissues. In this case back pain and hematuria. Images of the heart will help you exclude this important condition.

MRI kidneys, ureters and bladder will be an expensive way to detect kidney stones. It would not provide any diagnostic benefit in this case.

Surgical exploration would be too invasive at this point and the problem lies in the heart, not the kidneys.

X-ray of kidneys would not help you.

Question:

A 38-year-old man presents to the Emergency Department with sudden onset of uncontrollable epistaxis and chest pain. He is severely anxious and has already vomited on the way to hospital. The medical history reveals that he is a long-term user of recreational drugs especially amphetamine. His blood pressure reading is 205/110 mmHg and fundoscopy reveals retinal bleeding with papilloedema. Which of the following is the most likely cause of this man’s symptoms?

A.Myocardial infarction

B.Encephalopathy

C.Malignant hypertension

D.Tertiary hypertension

E.Pulmonary hypertension

Answer:Malignant hypertension

Explanation:

Malignant hypertension usually involves severe hypertension and bilateral retinal hemorrhages and exudates

Important for meLess important

This is a hypertensive emergency, or malignant hypertension, where the blood pressure is extremely high and there are potentially life-threatening symptoms indicative of acute impairment of one or more organ systems eg the kidneys, heart or eyes.

Signs and symptoms include:

Papilloedema (must be present before a diagnosis of malignant hypertension can be made)

Retinal bleeding

Increased cranial pressure causing headache and nausea

Chest pain due to increased workload on the heart

Haematuria due to kidney failure

Nosebleeds which are difficult to stop

Diagnosis:

Systolic blood pressure >= 180mmHg or diastolic blood pressure >= 120mmHg.

Evidence of acute organ damage

Question:

A 45-year-old woman with known multiple sclerosis for several years has been experiencing worsening muscle stiffness and difficulty in producing smooth movements. She has been taking baclofen for a year now but has had no effect.

What is the next best medication to help with these symptoms?

A.Botox

B.Dantrolene

C.Diazepam

D.Gabapentin

E.Tizanidine

Answer:Gabapentin

Explanation:

Baclofen and gabapentin are first-line for spasticity in multiple sclerosis

Important for meLess important

Spasticity in multiple sclerosis is a result of demyelination along the nerves of the brain and spinal cord that control movement. Sometimes the stiffness caused by spasticity is slight and can actually be helpful by giving individuals more support to stand or turn. Mild spasticity is not painful. However, when spasticity is more severe, it can become painful. The simplest and most effective treatment is exercises guided by physiotherapy. First-line medications include baclofen and gabapentin.

Gabapentin is recommended as one of the first drugs to try in the treatment of spasms and spasticity by the NICE multiple sclerosis guideline. It is an anticonvulsant and used to treat neuropathic pain, but in higher doses can be effective against muscle spasms.

Diazepam is a muscle relaxant that can reduce stiffness and spasms. Because of side effects at higher doses, it may be more useful at night. Diazepam is no longer widely used to treat multiple sclerosis spasms and stiffness but can help some people if other treatments have not worked.

Botulinum toxin is a drug that is used to treat spasticity and spasms and bladder symptoms in multiple sclerosis. However, it is not used as first-line for spasticity and can be considered if conventional treatments prove ineffective.

Dantrolene sodium is useful for spasticity it acts by decreasing muscle tone, clonus, and muscle spasm. However, it is not used as first-line and can be considered if conventional treatments prove ineffective.

Tizanidine appears to reduce clinical spasticity and hyperreflexia in multiple sclerosis patients although no change in functional status was detected. Tizanidine may well serve as an alternate antispastic agent, alone or in combination with other agents.

Question:

A 62-year-old man is admitted to the psychiatric ward after his wife raised concerns about his behaviour. When you speak to the patient you note that his speech is rapid and you are unable to interrupt him to ask questions. He frequently changes the topic of conversation, but you can identify links between the different topics.

What psychiatric condition is this symptom most commonly associated with?

A.Anxiety

B.Bipolar disorder

C.Depression

D.Drug addiction

E.Schizophrenia

Answer:Bipolar disorder

Explanation:

Flight of ideas is a feature of mania

Important for meLess important

This is a classic example of flight of ideas, which is when a patient speaks very quickly and rapidly jumps between different topics. This is a feature of mania and is therefore most commonly found in patients with bipolar disorder.

It is important to be able to distinguish flight of ideas from Knight's move thinking, as flight of ideas is associated with mania whilst Knight's move is associated with schizophrenia. In flight of ideas, there are discernible links between the topics that the patient jumps between, whilst in Knight's move thinking there are no discernible links between the topics that the patient jumps between in conversation. This is known as loosening of association.

Question:

A 54-year-old diabetic female presents with cellulitis of the right foot, spreading from an ulcer overlying the plantar surface of the head of the right third metatarsal. The ulcer had been present for 4 weeks before the onset of cellulitis. She was treated with oral flucloxacillin and the cellulitis improved but after a week of treatment the ulcer was still discharging and on examination there was a tender area of swelling over the ulcer.

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 pathology present is not infective in nature

D.The patient has a collection of pus which requires surgical drainage

E.The antibiotic is not sufficiently bactericidal for this infection

Answer:The patient has a collection of pus which requires surgical drainage

Explanation:

The patient has a collection of pus which requires surgical drainage. The patient most likely has osteomyelitis of her metatarsal. The history of diabetes and a chronic ulcer increase the risk.

Question:

A 48-year-old male is admitted to the acute medical unit with gross ascites and severe jaundice. He has a long-standing history of alcohol abuse and was first diagnosed with liver cirrhosis two years ago, having since been admitted to hospital on numerous occasions with confusion and altered consciousness secondary to his cirrhosis.

What medications should be considered in this patient to prevent recurrence of the above-described complication?

A.Lactulose and furosemide

B.Lactulose and rifaximin

C.Lactulose and spironolactone

D.Rifaximin and propranolol

E.Spironolactone and rifaximin

Answer:Lactulose and rifaximin

Explanation:

Lactulose and rifaximin are used for the secondary prophylaxis of hepatic encephalopathy

Important for meLess important

The correct answer is lactulose and rifaximin.

The confusion and altered consciousness describe hepatic encephalopathy, a condition which may be seen in liver disease of any cause and is thought to result from excess absorption of ammonia and glutamine from bacterial breakdown of proteins in the gut. Other features of this condition include asterixis (liver flap) and triphasic slow waves on electroencephalogram (EEG). NICE recommend lactulose first-line, with the addition of rifaximin for the secondary prophylaxis of hepatic encephalopathy. Lactulose is thought to work by promoting the excretion of ammonia and increasing the metabolism of ammonia by gut bacteria, whereas antibiotics such as rifaximin are thought to modulate the gut flora, resulting in decreased ammonia production.

Spironolactone and furosemide are incorrect as these agents are used to manage ascites and oedema in patients with hypoalbuminemia secondary to cirrhosis.

Propranolol is incorrect. As a nonselective beta blockers, this is used to lower portal pressure and prevent variceal bleeding, not as prophylaxis against hepatic encephalopathy.

Question:

A 25-year-old woman with recent onset generalised tonic-clonic epilepsy is started on lamotrigine by neurology. She is sexually active and uses barrier protection for contraception.

Regarding her new medication, what is the most important advice to give?

A.Seek medical attention if she develops a rash

B.Seek medical attention if she develops a sore throat

C.She will require regular monitoring of her liver function

D.She will require regular monitoring of her thyroid function

E.Start an additional method of contraception

Answer:Seek medical attention if she develops a rash

Explanation:

A rare but recognised adverse effect of lamotrigine therapy is Stevens-Johnson syndrome

Important for meLess important

Seek medical attention if she develops a rash is the correct answer. Lamotrigine is associated with Stevens-Johnson syndrome and toxic epidermal necrolysis. Although rare it is important to warn patients on lamotrigine to see their doctor immediately if a rash or signs or symptoms of hypersensitivity syndrome develop.

Seek medical attention if she develops a sore throat is important advice to give if the medication causes agranulocytosis e.g. carbimazole. However, lamotrigine is not associated with this.

She will require regular monitoring of her liver function is not necessary advice to give as lamotrigine is not associated with liver damage or altered LFTs. Indeed there is no regular monitoring required while on lamotrigine.

She will require regular monitoring of her thyroid function is not necessary advice to give as lamotrigine is not associated with altered thyroid function.

Start an additional method of contraception is unnecessary as lamotrigine is not teratogenic.

Question:

The junior doctor is called to see Debra, a 76-year-old woman on the stroke rehabilitation ward.

Debra had a right middle cerebral artery (MCA) cerebrovascular accident 4 weeks ago and is currently working with the occupational therapist and the speech and language therapist on the ward. She says that over the past 3 days, she has developed a cough and has been feeling increasingly short of breath. Her current observations are as follows: temperature 38.7ºC; oxygen saturation 93% on room air; all other observations are within normal limits. The junior doctor decides to order a chest x-ray.

What x-ray finding will most likely explain Debra's acute presentation?

A.Raised left hemidiaphragm

B.Bilateral pleural effusion

C.Consolidation in right lung

D.Consolidation in left lung

E.Tracheal deviation to the right

Answer:Consolidation in right lung

Explanation:

Aspiration pneumonia is more common on the right

Important for meLess important

The risk of aspiration pneumonia increases with dysphagia resulting from stroke. Debra has recently had a stroke, and her acute presentation with shortness of breath, cough and fever likely represents aspiration pneumonia. As aspiration pneumonia is more common on the right, a chest x-ray finding of consolidation in the right lung would best explain Debra's acute presentation.

Based on the above reasoning, it would be less likely to see consolidation in the left lung.

An elevated left hemidiaphragm can result from a contralateral-sided stroke (often MCA territory) or atelectasis. However, both of these are not likely to explain Debra's acute symptoms.

Bilateral pleural effusion is unlikely, given Debra's has no history of heart failure. Bilateral pneumonia resulting in bilateral pleural effusion is also unlikely.

Tracheal deviation to the right can represent right-sided atelectasis or left-sided tension pneumothorax. Pneumothorax is unlikely given the gradual onset of symptoms, while atelectasis is a less likely explanation for her acute symptoms.

Question:

A 60-year-old man attends your GP clinic. He is currently on ramipril and amlodipine, yet his blood pressure is consistently reading as 160/100mmHg. To treat this, you begin this man on indapamide.

Which of the following is a common adverse effect of this drug?

A.Ankle swelling

B.Dry cough

C.Erectile dysfunction

D.Hyperkalaemia

E.Pancreatitis

Answer:Erectile dysfunction

Explanation:

Sexual dysfunction is an important side effect of thiazide-like diuretics such as indapamide

Important for meLess important

A dry cough is a common adverse effect of ACE inhibitors.

Ankle swelling is an adverse effect of some calcium channel blockers such as amlodipine.

Hypokalaemia, not hyperkalemia, is a side effect of indapamide (much like with thiazide diuretics).

Pancreatitis is a rare, not common, side effect of thiazide diuretics.

Question:

A 17-year-old man is investigated after he bled excessively following a tooth extraction. The following results are obtained:

Plt 173 \* 109/l

PT 12.9 secs

APTT 84 secs

Which clotting factor is he most likely to be deficient in?

A.Factor VI

B.Factor VII

C.Factor VIII

D.Factor IX

E.Factor X

Answer:Factor VIII

Explanation:

This man is most likely to have haemophilia A, which accounts for 90% of cases of haemophilia.

Question:

Jeffrey is a 58-year-old man with a past medical history of type 2 diabetes, hypertension and previous bladder cancer. He currently takes metformin at maximum dose and amlodipine.

Routine blood test results have returned showing a HbA1c of 59 mmol/mol. The previous HbA1c result 6 months ago was 51 mmol/mol. Urea and electrolytes are within normal limits.

Jeffrey's body mass index is 36kg/m². With this in mind, which of the following options is the most appropriate next step in management?

A.Commence empagliflozin

B.Commence gliclazide

C.Commence liraglutide

D.Commence pioglitazone

E.Continue metformin and re-enforce lifestyle advice

Answer:Commence empagliflozin

Explanation:

SGLT-2 inhibitors have the beneficial side effect of weight loss in patient with T2DM

Important for meLess important

NICE recommends that for people who are managed by lifestyle and diet combined with a single drug not associated with hypoglycaemia (such as metformin), the recommended HbA1c treatment target is 48 mmol/mol (6.5%). If HbA1c levels are not adequately controlled by a single drug and rise to 58 mmol/mol (7.5%) or higher, then support the person to aim for an HbA1c level of 53 mmol/mol (7.0%) and intensify antidiabetic drug treatment. Jeffrey's HbA1c is 59mmol/mol and therefore his treatment certainly requires intensifying.

NICE states that if first-line treatment is ineffective in type 2 diabetes, consider the following second-line treatment options as dual therapy with metformin:

Metformin plus a gliptin, or

Metformin plus pioglitazone, or

Metformin plus a sulfonylurea

Metformin plus an SGLT-2i

The question asks us to bear in mind Jeffrey's BMI when choosing the most appropriate management. SGLT-2 inhibitors, such as empagliflozin, have the beneficial side effect of weight loss in patient with T2DM. Therefore this is the most appropriate option.

GLP-1 mimetics, such as liraglutide, also have this effect however this can only be considered when triple therapy with metformin and two other oral antidiabetic drugs is not effective. Jeffrey is currently on monotherapy and just going to start dual therapy so therefore liraglutide would not be an option at this stage.

Gliclazide is a sulfonylurea and is an option for dual therapy with metformin. However sulfonylureas can encourage weight gain and therefore would not be the most appropriate option for Jeffrey.

Pioglitazone is a thiazolidinedione and is the only one currently licensed in the UK. It is also an option for dual therapy with metformin however is contra-indicated in Jeffrey due to his history of previous bladder cancer. Furthermore, the BNF cites that it can cause weight increase.

Question:

Which ONE of the following women has gestational hypertension?

A.16 weeks gestation and BP 150/100 and proteinuria +

B.24 weeks gestation and BP 150/100 and proteinuria +++

C.10 weeks gestation and BP 150/100 and no proteinuria

D.32 weeks gestation and BP 170/100 and proteinuria ++

E.22 weeks gestation and BP 150/100 and no proteinuria

Answer:22 weeks gestation and BP 150/100 and no proteinuria

Explanation:

Gestational hypertension occurs after 20 weeks gestation

Important for meLess important

Gestational hypertension occurs after 20 weeks gestation and unlike pre-eclampsia, it is without proteinuria. Pregnant women with high blood pressure before 20 weeks are likely to have pre-existing hypertension.

Question:

A 30-year-old woman is 41 weeks pregnant with twins (dichorionic diamniotic). While she is in labour the midwife notices the umbilical cord is visible in the vagina. She pushes the emergency button and the woman is taken for an emergency caesarean section. Which of the following is most likely to cause umbilical cord prolapse?

A.Artificial amniotomy

B.Cephalic presentation

C.Induction of labour with vaginal prostaglandins

D.Nulliparity

E.Prolonged pregnancy

Answer:Artificial amniotomy

Explanation:

ARound 50% of cord prolapse occurs after artificial rupture of membranes

Important for meLess important

The question asks for the most likely cause of umbilical cord prolapse. Cephalic presentation, nulliparity and prolonged pregnancy all reduce the likelihood of umbilical cord prolapse. Prostaglandins have no major effect on risk of cord prolapse. Artificial amniotomy (artificial rupture of membranes) is the biggest risk factor for cord prolapse.

Question:

A 10-month-old infant is brought to accident and emergency with a 3 day history of fever and a new onset rash affecting the arms, legs and abdomen that began today. Despite this fever the child has been his usual self and does not seem to be irritated by the rash.

On closer inspection, the rash appears erythematous with small bumps that are merging together. None of the lesions have scabbed over. The rash is predominantly on the limbs and there are no signs of excoriation. The child is now afebrile at 36.9ºC.

Bearing in mind the likely diagnosis, what is the most likely causative organism?

A.Epstein Barr virus

B.Human herpes virus 2

C.Human herpes virus 6

D.Neisseria meningitides

E.Varicella zoster virus

Answer:Human herpes virus 6

Explanation:

Roseola infantum is caused by human herpes virus 6

Important for meLess important

Roseola infantum is a common viral illness that causes a characteristic 3 day fever and then emergence of a maculopapular rash on the 4th day, following the resolution of the fever. The fever is typically rapid onset and can often predispose to febrile convulsions. The rash typically starts on the trunk and limbs (this is different to chickenpox which is typically a central rash). HHV6 is neurotropic (attacks the nervous system) and thus a rare complication is encephalitis and febrile fits (after cessation of the fever).

Epstein Barr virus causes glandular fever.

Human herpes virus 2 causes genital herpes.

Neisseria meningitides is a common cause of bacterial meningitis which would present with symptoms of meningism (photophobia, stiff neck, headache) +/- non-blanching rash seen with meningococcal septicaemia.

Varicella zoster virus causes chicken pox or shingles and typically produces lesions that scab over. They tend to occur in crops and the child will likely have patches of rash that have scabbed and others that are still vesicular. Additionally, the rash associated with VZV is characteristically itchy and often causes discomfort to the child.

Question:

A 28-year-old caucasian woman attends eye casualty after attending her optometrist complaining of sudden onset of flashes and floaters. This has now progressed and she describes a sudden onset, painless loss of vision that day and appears to be like a 'shadow'.

She has a past medical history of myopia and hypothyroidism.

On examination, visual acuity is 6/12 in the left eye (baseline of 6/9). On fundoscopy, the red reflex is not present in the left eye and the retinal folds appear pale.

What aspect of this patient's history is a risk factor for the most likely diagnosis?

A.Caucasian ethnicity

B.Female sex

C.Hypermetropia

D.Hypothyroidism

E.Myopia

Answer:Myopia

Explanation:

Myopia is a risk factor for retinal detachment

Important for meLess important

This patient presents with a history and examination in keeping with retinal detachment.

Myopia is a risk factor for retinal detachment. This is because the elongated shape of these individuals' eyes puts more stress on the retina, predisposing it to detachment. The risk factors for retinal detachment are outlined in the notes section below.

Caucasian ethnicity is not a recognised risk factor for retinal detachment. Ethnicity is a risk factor for the different forms of glaucoma: east Asian origin is a risk factor for angle-closure glaucoma. In contrast, a black ethnic origin is a risk factor for open-angle glaucoma.

Female sex is not a recognised risk factor for retinal detachment.

Hypothyroidism is not associated with retinal detachment. Grave's disease can cause thyroid eye disease and associated problems, but hypothyroidism is not a risk factor for retinal detachment.

Hypermetropia is incorrect - instead myopia age is a risk factor for retinal detachment.

Question:

A 73-year-old man is brought to the emergency department after hitting their head against a wall whilst gardening. On examination 2 hours after the injury, the patient is alert with a GCS of 15. There is no evidence of a skull fracture or neurological deficit. The patient feels well, has been alert since the injury, and has not vomited. Their past medical history includes atrial fibrillation, hypertension, and type 2 diabetes mellitus. They take edoxaban, amlodipine, and metformin for these respectively.

What is the next best management step?

A.CT scan within 1 hour

B.CT scan within 8 hours

C.Discharge home with safety netting information

D.Outpatient MRI scan

E.Urgent referral to neurosurgery

Answer:CT scan within 8 hours

Explanation:

Any person on anticoagulants with a head injury must receive a CT head within 8 hours

Important for meLess important

This scenario describes a 73-year-old man who has sustained a head injury whilst gardening. There are no identifiable risk factors for a severe head injury, however, the patient is on edoxaban, an anticoagulant. As a result, the single best answer is a CT scan within 8 hours. This is as per the NICE guidelines on head injury imaging algorithm.

CT scan within 1 hour is incorrect. An urgent CT scan would be indicated if head injury risk factors are present (including decreased GCS, focal neurological deficit, signs of basal skull fracture, and more than one episode of vomiting). These are not described in the scenario and therefore urgent CT within 1 hour is not indicated.

Discharge home with safety netting information is not correct. Had the patient not been on an anticoagulant, no imaging may have been appropriate.

Outpatient MRI scan is not correct. Due to their head injury and taking an anticoagulant, this patient requires a CT scan within 8 hours.

Urgent referral to neurosurgery is not yet indicated. This patient requires a CT scan within 8 hours and if appropriate, subsequent referral/discussion with neurosurgery may be indicated by scan findings.

Question:

A 67-year-old woman presents to her GP complaining of pain in her arm. The pain is localised in the radius, and it is worse at night. It used to get better with movement, but now it has become constant.

On examination, she looks thin and frail. A palpable mass of 2cm in width is present close to the radial tuberosity. It is hard in consistency and it is tethered to the underlying structures. She has a past medical history comprising ulcerative colitis and active malignancy.

A blood test shows the following:

Calcium 2.9 mmol/L (2.1-2.6)

Given the most likely diagnosis, where is the mass most likely to have originated from?

A.Bladder

B.Breast

C.Liver

D.Lung

E.Pancreas

Answer:Breast

Explanation:

Woman with bone metastases- most likely to originate in the breast

Important for meLess important

The correct answer is breast. This patient is presenting with long bone pain which is worse at night. Additionally, it used to get better with movement but now it is constant. Her blood calcium levels are elevated.

These are all characteristically features of lytic bone metastases, which in women are most likely to be caused by breast cancer. Metastatic breast cancer bone lesions are most likely to be osteolytic - this is represented as radio-opaque lesions on X-ray. Most commonly they are located in the ribs, spine, pelvis, and long bones in the arms and legs. Treatment is usually conservative.

Bladder cancer can metastasise to lymph nodes, bones, lungs, liver, and peritoneum, but it is less likely to do so than breast cancer.

The liver is one of the most common sites for cancer metastasis, accounting for nearly 25% of all cases. When it is a primary cancer location, it usually spreads to the lungs, lymph nodes, adrenal gland and in minor portions, bones.

Lung cancer is the second most likely cancer to metastasise to bones in women, but breast cancer is more likely to do so.

Pancreatic cancer tends to create local symptoms and metastasis to surrounding structures such as the liver or abdominal organs. It can potentially metastasise to bones but it is much rarer.

Question:

A 23-year-old woman is reviewed in the labour suite following admission 30 minutes ago.

Her gestation is not known but she thinks it has been about 8 months since her positive pregnancy test. She has not engaged with any antenatal services and has a difficult social situation, being homeless following a violent relationship.

Contractions have been felt for 3 hours, and her waters broke 5 hours ago.

On examination, her cervix is soft, anterior, 90% effaced and 7cm dilated. The foetus is palpated to be in breech position, with the presenting part in station 0, and engaged.

What is the most appropriate management?

A.Adopt an all-fours position for vaginal birth

B.Arrange caesarean section within 75 minutes

C.Attempt external cephalic version with enhanced monitoring

D.Perform McRobert's manoeuvre

E.Put out a 2222 call and prepare for a crash category 1 caesarean section

Answer:Arrange caesarean section within 75 minutes

Explanation:

Category 2 caesarean sections should occur within 75 minutes of making the decision

Important for meLess important

This woman has an undiagnosed breech birth in labour. She is not fully dilated and therefore not in the active second stage. The best management is a category 2 caesarean section - these should take place within 75 minutes of making the decision, and therefore the correct answer is to arrange a caesarean section within 75 minutes.

Adopting an all-fours position for vaginal birth is incorrect. This may be appropriate if the breech position was discovered whilst she was in the active second stage of labour (i.e. fully dilated cervix). The semi-recumbent position is also used. However, since the breech position was picked up before the active second stage was reached, a caesarean section should be arranged.

Attempting external cephalic version with enhanced monitoring is incorrect. An external cephalic version cannot be performed in labour. It relies on the amniotic fluid to help rotate the foetus, and this woman already has had her waters break.

Performing McRobert's manoeuvre is incorrect. This is the management of shoulder dystocia, not breech birth.

Put out a 2222 call and prepare for a crash category 1 caesarean section is incorrect. An undiagnosed breech in early labour, without foetal or maternal compromise, is not an obstetric emergency. Examples of obstetric emergencies include undiagnosed breech in uterine rupture, cord prolapse or an abnormal CTG. A crash caesarean section may be appropriate in some cases of obstetric emergencies, where the foetus needs to be delivered within 5 minutes.

Question:

A 46-year-old woman is referred to endocrine with a tender neck swelling. Blood results are as follows:

TSH <0.1 mU/l

T4 188 nmol/l

Hb 14.2 g/dl

Plt 377 \* 109/l

WBC 6.4 \* 109/l

ESR 65 mm/hr

Technetium thyroid scan shows decreased uptake globally

What is the most likely diagnosis?

A.Sick thyroid syndrome

B.Acute bacterial thyroiditis

C.Hashimoto's thyroiditis

D.Subacute thyroiditis

E.Toxic multinodular goitre

Answer:Subacute thyroiditis

Explanation:

Subacute thyroiditis is suggested by the tender goitre, hyperthyroidism and raised ESR. The globally reduced uptake on technetium thyroid scan is also typical

Question:

A 71-year-old female presents to the emergency department with a high suspicion of a fracture of her left humerus after a minor fall out of her car. She has a past medical history of hypertension and angina. As she is being sent to x-ray you notice the following abnormal blood results which had been ordered by her GP.

Hb 10.1 g/dL

ESR 104 mm/hr

Creatinine 157 umol/L

Additionally, a recent dual energy absorptiometry (DEXA) T-score was found to be -2.6 (> -1). You do not however have any access to the GPs records to quantify this. A few minutes later the fracture is confirmed on x-ray. Given the patients presentation and the blood results above, what process do you suspect might be underlying her fracture?

A.Monoclonal gammopathy

B.Breast cancer metastasis

C.Multiple myeloma

D.Osteoporosis

E.Lymphoma

Answer:Multiple myeloma

Explanation:

A raised ESR and osteoporosis represents multiple myeloma unless proven otherwise. The addition of anaemia and renal impairment would also lean towards myeloma. Monoclonal gammopathy in a benign condition which would not cause bone lesions. Breast cancer is a common cause of bone metastasis and if she had been previously given hormone treatment for this condition this may have led to osteoporosis, but as she has no history of the condition an acute presentation of myeloma is more likely. Lymphoma can cause pathological fractures but the combination of a raised ESR, a possible fracture and renal impairment would lean towards myeloma as the most likely diagnosis.

Question:

An F1 who has just started has been asked to draw up 10 units of insulin using an insulin syringe. However, he makes the serious error of using a normal syringe to draw the insulin up, and draws up 10ml of a standard insulin preparation. The nurse on the ward spots his doing this and immediately stops him before a serious error, and explains to him the vital importance of using an insulin syringe.

How many units of insulin did the F1 draw up?

A.10 units

B.100 units

C.250 units

D.500 units

E.1000 units

Answer:1000 units

Explanation:

In 1ml of (most standard) insulin, there are 100 units

Important for meLess important

This is a mistake that has caused previous fatalities, and so is an absolutely never event- you should never draw up insulin in a normal syringe. In most insulin preparations, there is 100 units in 1 ml, meaning this F1 drew up 1000 units of insulin. If this was given to a patient this could potentially be a fatal dose.

Question:

A 38-year-old new mother is brought into the GP by her husband a month after giving birth. He is concerned about her current mood and states she has slept and ate very little since the baby was born. What is the best next step?

A.Reassure the husband this is most likely 'baby blues'

B.Admit the mother to local hospital for psychiatric review

C.Ask the mother to complete the 'Edinburgh depression scale'

D.Prescribe electroconvulsive therapy (ECT)

E.Ask mother privately if she is suffering any domestic abuse at home

Answer:Ask the mother to complete the 'Edinburgh depression scale'

Explanation:

The Edinburgh Scale is a screening tool for postnatal depression

Important for meLess important

The key clue in this question is the time frame. The fact that the husband is bringing his wife into the GP practice 'a month' after giving birth can in essence rule out 'baby blues' as a cause for the mother's mood change. Baby blues are common and are associated with mood changes, however these generally dissipate by day 3 of giving birth. Given the history it is most likely the mother is suffering from postnatal depression however it would be inappropriate to admit the mother or offer treatment in the way of ECT without first correctly assessing the patient. One way in which this can be done is by using the Edinburgh depression scale - a score greater than 10 indicating possible depression. As long as there is no indication of immediate harm to mother or baby watchful waiting is usually the first step in the management of this condition.

There is nothing in this question to suggest the mother is suffering domestic abuse.

Question:

An active 33-year-old man falls off his bike whilst on the way to work and hits his left shoulder, he is brought to the Emergency Department as he is in pain. An X-Ray is obtained which shows grade 2 injury to the Acromioclavicular joint.

What is a suitable management for this patient?

A.K-wire fixation

B.Simple analgesia and follow up in clinic

C.Arthroscopic ligament repair

D.Reduction in the Emergency Department using the Stimson manoeuver

E.Conservative management with sling and immobilisation

Answer:Conservative management with sling and immobilisation

Explanation:

Management of a grade 1-2 AC joint injury is conservative using resting and a sling

Important for meLess important

Management of a grade 1-2 AC joint injury is conservative using resting and a sling.

The Stimson Maneuver is used for reduction of dislocated shoulders.

Simple analgesia would not be appropriate as it would not allow the injury to heal correctly, and the surgical options are not indicated.

Question:

A 43-year-old man is admitted to the endocrine ward following a one-month history of polyuria and polydipsia. He appears severely dehydrated. A water deprivation test is performed which shows the following result.

Urine osmolality post-fluid deprivation 37mOsm/kg (50-1200)

Urine osmolality post-desmopressin 45mOsm/kg (50-1200)

What is the diagnosis?

A.Cranial diabetes insipidus

B.Inconclusive result

C.Nephrogenic diabetes insipidus

D.Primary polydipsia

E.Syndrome of inappropriate ADH secretion (SIADH)

Answer:Nephrogenic diabetes insipidus

Explanation:

Water deprivation test: nephrogenic DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: low

Important for meLess important

Nephrogenic diabetes insipidus (DI) is the correct answer. ADH is secreted by the hypothalamus and acts on renal tubules to increase fluid reabsorption. In nephrogenic DI, although there is ADH production by the hypothalamus, there is a failure of the kidneys to respond to the hormone. Accordingly, following fluid deprivation, there is a failure to concentrate urine due to the absence of a renal tubular response to ADH. Following administration of desmopressin, the urine remains dilute as, again, the kidneys do not respond to ADH.

Cranial diabetes insipidus is incorrect, although clinically it would present in the same way. In cranial diabetes insipidus, there is a failure of hypothalamic production of ADH. Accordingly, after fluid deprivation, urine is dilute due to a failure to reabsorb water from the urine in the absence of ADH production. However, following desmopressin administration, the urine will become concentrated as the renal tubules are still responsive to ADH, hence reabsorption occurs.

An inconclusive result is not correct - as explained above, the result is diagnostic for nephrogenic diabetes insipidus.

Primary polydipsia is incorrect, although clinically it would present in the same way. In primary polydipsia excessive fluid intake occurs in the absence of a physiological stimulus to drink; there is adequate hypothalamic ADH production and an adequate renal tubular response to ADH. Therefore, following fluid deprivation the body is already able to effectively concentrate urine, and after desmopressin urine remains concentrated due to the presence of a renal tubular response to ADH.

SIADH is incorrect. SIADH is over-production of ADH in the absence of a physiological stimulus. Clinically this would not cause polydipsia and polyuria, and patients would be euvolaemic or hypervolaemic, often with hyponatraemia. A fluid deprivation test cannot diagnose SIADH; urine osmolality is likely to be high due to excessive reabsorption of water due to excessive ADH production. More important in the diagnosis of SIADH is a paired urine and serum osmolality and sodium.

Question:

A 30-year-old male presents with sudden onset loss of vision. He denies any preceding warning signs or head trauma, and does not complain of any pain. You perform a fundoscopy and find severe retinal haemorrhages on fundoscopy.

Which of the following is the most likely diagnosis?

A.Optic neuritis

B.Retinal detachment

C.Posterior vitreous detachment

D.Central retinal artery occlusion

E.Central retinal vein occlusion

Answer:Central retinal vein occlusion

Explanation:

Central retinal vein occlusion - sudden painless loss of vision, severe retinal haemorrhages on fundoscopy

Important for meLess important

Central retinal vein occlusion is the correct answer. Fundoscopy reveals severe flame shaped retinal haemorrhages, described as a cheese and tomato pizza appearance.

Options 2 to 5 all present with painless loss of vision.

Retinal detachment and posterior vitreous detachment can both present with floaters and flashing lights. Retinal detachment is associated with an area of visual loss (usually described as a falling curtain).

Central retinal artery occlusion presents with acute visual loss. The typical fundoscopy finding is a pale retina with a 'cherry red' spot.

Optic neuritis usually presents in a less acute manner, over days to weeks. It is associated with pain on eye movement and blurred rather than complete loss of vision.

Question:

A 34-year-old man comes to surgery. He has been generally unwell since an episode of diarrhoea four weeks ago, with joint pains, pain on passing water and a rash on the soles of his feet:

What does this rash likely represent?

A.Pompholyx

B.HIV-associated dermopathy

C.Plantar pustular psoriasis

D.Mosaic warts

E.Keratoderma blennorrhagica

Answer:Keratoderma blennorrhagica

Explanation:

Question:

A 25-year-old man is reviewed in clinic for a 4-month history of itchy skin rashes described as 'hives' which occur after eating certain foods and on exposure to dust. He was given cetirizine which initially helped his symptoms, however, his episodes are getting worse and it is not currently working as well.

His temperature is 37.3ºC, his heart rate is 89 bpm, and his blood pressure is 135/78 mmHg. On examination, there are diffuse erythematous lesions on his arms, legs, and chest which are intensely itchy.

What is the most appropriate next step in his management?

A.Continue cetirizine and prescribe a 5-day course of oral prednisolone

B.Continue cetirizine and prescribe topical corticosteroids

C.Replace cetirizine with loratadine

D.Stop cetirizine and prescribe a 5-day course of oral prednisolone

E.Stop cetirizine and prescribe topical corticosteroids

Answer:Continue cetirizine and prescribe a 5-day course of oral prednisolone

Explanation:

Severe urticaria - A short course of an oral corticosteroid may required in addition to a non-sedating antihistamine

Important for meLess important

An itchy, erythematous rash following exposure to an allergen (such as certain foods or dust) without any airway, breathing, or circulation compromise suggests a diagnosis of urticaria. Many patients describe the rash as 'hives' and this patient's history of allergy and asthma are risk factors for its development. Non-sedating antihistamines (such as cetirizine) are used in the initial management of urticaria, however, these have been unsuccessful and this patient's urticaria has worsened.

Continue cetirizine and prescribe a 5-day course of oral prednisolone is correct. A short course (usually around 5-7 days) of oral prednisolone is used in cases of urticaria where initial treatment has been unsuccessful or if the patient's urticaria is severe. During this time, non-sedating antihistamines (such as cetirizine) should be continued alongside corticosteroids, particularly in cases similar to this patient's where the antihistamine is still at least somewhat effective. The short course of prednisolone can help achieve control of an acute exacerbation of urticaria and long-term management with non-sedating antihistamines can continue. This can be thought of as the corticosteroids inducing remission of symptoms and the non-sedating antihistamines acting as maintenance treatment.

Continue cetirizine and prescribe topical corticosteroids is incorrect. Although non-sedating antihistamines (such as cetirizine) should be continued or co-prescribed, topical corticosteroids have no role in managing urticaria due to a lack of evidence of their efficacy in chronic urticaria. They are unlikely to relieve symptoms this severe as in this patient, as they have a diffuse rash over their arms, legs, and chest. A large amount of topical corticosteroid would need to be applied over this patient's body.

Stop cetirizine and prescribe topical corticosteroids is incorrect. As mentioned above, topical corticosteroids do not play a role in the management of chronic urticaria as they are not as efficacious as a short course of systemic corticosteroids. Non-sedating antihistamines (such as cetirizine) should also be continued or co-prescribed during an acute flare of urticaria, not stopped, as once the corticosteroid treatment ends, this patient's symptoms would return if they did not continue taking cetirizine.

Replace cetirizine with loratadine is incorrect. Loratadine is another example of a non-sedating antihistamine. Although this patient's cetirizine (a non-sedating antihistamine) is still working, switching to another drug of the same class is less likely to be beneficial compared to prescribing a short course of systemic corticosteroids, especially given the severity of this patient's urticaria. The corticosteroids can help relieve this acute flare before returning to maintenance treatment with cetirizine.

Stop cetirizine and prescribe a 5-day course of oral prednisolone is incorrect. Although a short course of prednisolone is indicated in this patient, non-sedating antihistamines including cetirizine should be continued or co-prescribed as they form the mainstay of treatment in urticaria and high-quality evidence demonstrates their efficacy. Stopping the cetirizine would mean this patient's symptoms would return once the steroids have stopped. Cetirizine is used as a maintenance treatment to keep symptoms in remission, and the steroids act as a temporary measure in acute severe urticaria to induce remission.

Question:

A middle-aged lorry driver presents with central chest pain and ST elevation on electrocardiogram. He is treated for myocardial infarction with Percutaneous Coronary Intervention (PCI) and a stent is deployed to his left circumflex artery to good effect. He is now asymptomatic and has been started on secondary prevention medications. He is keen to get back to work. What guidance should he be given on discharge?

A.The patient should notify the DVLA and will be able to return to work after 4 weeks

B.Go back to work when he feels better with no need to notify anyone

C.He must notify the DVLA but can go back to work as soon as he feels better

D.He must notify the DVLA and will not be able to work as a lorry driver ever again

E.He must notify the DVLA and stay off work for 6 weeks after which the DVLA will decide if he can return to work or needs further assessment

Answer:He must notify the DVLA and stay off work for 6 weeks after which the DVLA will decide if he can return to work or needs further assessment

Explanation:

For a private vehicle, patients do not need to notify the DVLA following PCI and may resume driving after 4 weeks providing they don't have any other disqualifying condition.

For a Group 2 vehicle (bus or lorry), patients must notify the DVLA, and may not drive for at least 6 weeks. After 6 weeks the DVLA will assess to determine if the requirements for exercise or other functional tests are met and to ensure there is no disqualifying condition. Only then will the license to drive a Group 2 vehicle be reinstated.

In this case, the most important factor is that the patient is obligated to tell the DVLA about his condition, and this is not a task for the medical team.

Question:

A 75-year-old gentleman presents to the emergency department with a 2-day history of shortness of breath. It has progressed over the course of the day and is associated with sweating and fevers.

He has a past medical history of chronic kidney disease, type II diabetes mellitus and hypertension.

On examination: The patient looks short of breath and sweaty from the end of the bed. He is well perfused, with a strong but rapid pulse. Fine crackles are heard in his right base.

Observations: blood pressure is 104/65 mmHg, heart rate is 114 beats per minute, respiratory rate is 30 breaths per minute, oxygen saturations are 94% on 4L via a non-rebreathe mask and his temperature is 38.6ºC.

Chest X-ray reveals opacification in the right-lower zone with loss of the right costophrenic angle.

ECG: Sinus tachycardia with T-wave inversion in leads V2-V5

Blood are also sent:

Hb 153 g/l Na+ 143 mmol/l

Platelets 146 \* 109/l K+ 3.2 mmol/l

WBC 19 \* 109/l Urea 9.3 mmol/l

Neuts 17.3 \* 109/l Creatinine 168 µmol/l

Lymphs 0.8 \* 109/l CRP 155 mg/l

Troponin I 253 ng/l (0-34ng/l) /l Lactate 7.3 mg/l (0-1.6)

What is the most likely underlying cause of this patient's presentation?

A.Community acquired pneumonia

B.Heart failure

C.Urosepsis

D.Acute coronary syndrome

E.Pulmonary embolism

Answer:Community acquired pneumonia

Explanation:

A troponin rise may occur in conditions where there is myocardial ischaemia from a supply-demand-mismatch secondary to another primary condition (e.g. sepsis) - and not due to plaque rupture

Important for meLess important

This patient has clinical features of sepsis - a reasonable source + a systemic inflammatory response, but also an elevated troponin. There is also no evidence of chest pain.

The most likely underlying pathophysiology is of sepsis (of a chest-source), which is resulting in inadequate perfusion of tissues. In peripheral tissues, this causes lactate to be released, but in the heart it can cause troponin release.

Modern troponin assays are highly sensitive and are a marker of myocardial damage, not exclusively a marker of a myocardial infarction secondary to plaque rupture (i.e. an ACS). In patients with severe sepsis, Troponin levels may well be elevated as myocardial ischaemia can occur due to the tissue hypoxia that occurs.

This type of myocardial infarction due to another underlying illness is referred to as a Type II MI (you may also hear the term demand ischaemia). Causes include sepsis, heart failure, rate-related ischaemia and anaemia.

Question:

A 28-year-old lady presents to her local sexual health clinic for her 3-yearly cervical smear.

She reports having broken up with her long-term male partner 2 years ago, and since then has been engaging in unprotected sexual intercourse with multiple casual male partners. She has not had any dyspareunia, change in discharge, or abnormal per-vaginal bleeding. Her periods are regular at 28-day intervals. She has not been vaccinated against human papillomavirus (HPV).

Her cervical smear result returns as 'HPV +ve', with the following subtypes:

HPV 6 +ve

HPV 11 +ve

HPV 16 -ve

HPV 18 -ve

HPV 33 -ve

What would your next management steps be?

A.Increase to yearly screening, and discuss safe-sex practices

B.Recall the patient to repeat the cervical smear

C.Refer to colposcopy

D.Refer to gynae-oncology clinic under the 2-week-wait protocol

E.Return to normal 3-yearly screening, and discuss safe-sex practices

Answer:Return to normal 3-yearly screening, and discuss safe-sex practices

Explanation:

Human papilloma viruses 6 and 11 are non-carcinogenic and associated with genital warts

Important for meLess important

This patient's HPV results are reassuring, as the cancerous subtypes 16 and 18 are negative. The subtypes that are positive for this lady are those that most commonly cause genital warts.

NICE and Public Health England state that colposcopy and further investigation is indicated if high-risk HPV (HR-HPV) is identified, and subtypes 6 and 11 are not considered to fall within this category. Hence, reassurance, sensitive motivational interviewing for safer sex practices, and a return to the normal 3-yearly screen are ideal.

Option 1 - Screening is only increased to yearly if a patient is treated for cervical intraepithelial neoplasia (i.e. pre-malignant cervical dyskaryosis). This yearly screening continues for 10 years.

Option 2 - This is not unwise, but the results are clear that carcinogenic high-risk HPV (HR-HPV) strains are absent.

Option 3 - This would be indicated if HR-HPV strains were identified.

Option 4 - This is an inappropriate referral, as the patient does not have cervical cancer.

Question:

A patient sustains an injury to one of the nerves of his upper limb. He complains of weak finger abduction and adduction with reduced sensation over the ulnar border of his hand. On examination you note clawing of the 4th and 5th digits. During recovery, the patient notices worsening of this deformity before eventually resolving.

What is the most likely diagnosis?

A.Damage to ulnar nerve at the elbow

B.Damage to ulnar nerve at the wrist

C.Median nerve

D.Radial nerve

E.C6 nerve root

Answer:Damage to ulnar nerve at the elbow

Explanation:

The ulnar paradox: proximal lesions of the ulnar nerve produce a less prominent deformity than distal lesions

Important for meLess important

The ulnar nerve supplies the palmer and dorsal interossei muscles and therefore finger abduction and adduction. Therefore this is an ulnar nerve lesion.

When the ulnar nerve is damaged at the wrist, the medial two lumbrical muscles are affected (the lateral two being supplied by the median nerve). Denervation of the lumbricals, which flex the metacarpal phalangeal joints (MCPJ) and extend the interphalangeal joints (IPJ), causes unopposed extension of the MCPJ by extensor digitorum longus and flexion of the IPJ by flexor digitorum profundus and superficialis. This gives the hand a claw like appearance.

When the ulnar nerve is damaged at the elbow, the ulnar half of flexor digitorum profundus is also affected resulting in a less marked clawing due to reduced unopposed flexion at the IPJ.

As the patient recovers, the deformity will get worse, as flexor digitorum is reinnervated, before getting better.

This is known as the ulnar paradox, as one would expect a more proximal lesion (and hence a larger section of ulnar nerve affected) to produce a more deformed appearance.

Question:

A 34-year-old woman with longstanding varicose veins is referred to hospital. Over the past few days she has developed a burning pain over one of the veins, with associated tenderness. It is hard to the touch, and the surrounding skin has become red. She is otherwise well, and has not noticed any calf swelling or pain, nor any shortness of breath. She has no other significant past medical history, nor family history, and does not take any regular medications.

On examination, a worm-like mass is felt, corresponding to the physical location of a varicose vein. The surrounding tissue appears erythematous and is hard. There are no ulcers. here is no evidence of deep vein thrombosis. Observations are normal. A couple of investigations are performed:

Ankle-brachial pressure index 1.0 (0.8-1.2)

Doppler Lack of compressibility. Intraluminal thrombus demonstrated in superficial vein. No evidence of deep vein thrombosis.

Which of the following options is recommended for this condition?

A.Compression stockings

B.Intravenous antibiotics

C.Rivaroxaban

D.Topical heparinoid

E.Warfarin

Answer:Compression stockings

Explanation:

Compression stockings are recommended for superficial thrombophlebitis

Important for meLess important

From the above options, compression stockings is correct - these are routinely used first-line in the management of symptoms and to aid resolution in superficial thrombophlebitis. The diagnosis, with the history of varicose veins, coupled with examination and investigation results, is strongly supportive of this diagnosis. Ankle-brachial pressure index was checked to ensure arterial supply is sufficient, as compression stockings may compromise this. A low-molecular-weight heparin, or fondaparinux, may also be used.

Intravenous antibiotics is incorrect - these would play a role if severe infection was suspected, but given the history and findings, that is not the case here.

Rivaroxaban and warfarin are both incorrect - these are not routinely used in the management of superficial thrombophlebitis, especially given the fact that no evidence of deep vein thrombosis was demonstrated.

Topical heparinoid is incorrect - there is little evidence supporting its use in treating this, although some vascular surgeons may choose to prescribe it. It is not part of the main guidelines regarding management.

Question:

A 74-year-old woman is reviewed. She recently had ambulatory blood pressure monitoring that showed an average reading of 142/90 mmHg. There is no significant past medical history of note other than hypothyroidism. Her 10-year cardiovascular risk score is 23%. What is the most appropriate management?

A.Start amlodipine

B.Start bendroflumethiazide

C.No treatment required - monitor blood pressure every year

D.Start ramipril

E.Repeat ambulatory blood pressure monitoring

Answer:Start amlodipine

Explanation:

Newly diagnosed patient with hypertension (> 55 years) - add a calcium channel blocker

Important for meLess important

This patient has stage 1 hypertension and is below 80 years of age. However, as she has a raised cardiovascular risk score treatment should be offered. In this age group, calcium channel blockers are first-line.

Question:

A 6-year-old girl presents to her general practitioner with a three day history of a dry cough. The patient has been suffering from severe coughing fits that cause her to turn blue and vomit. Prior to this she had a coryzal illness with fever, sore throat and a runny nose. She is diagnosed with whooping cough and given a course of clarithromycin.

What advice should be given with regards to returning to school?

A.Exclusion from school for 24 hours

B.Exclusion from school for 48 hours

C.Exclusion from school for one week

D.Exclusion from school until the cough has resolved

E.No school exclusion needed

Answer:Exclusion from school for 48 hours

Explanation:

A child with whooping cough should be excluded from school for 48 hours following commencement of antibiotics

Important for meLess important

Whooping cough is infectious and school children should therefore be excluded from school for 48 hours following commencement of antibiotics. During this time they should also avoid contact with unvaccinated infants.

Question:

A 60-year-old man is admitted with shortness of breath, persistent cough and haemoptysis. On examination he has reduced air entry and stony dullness on percussion in the left base.

What anatomical landmarks need to be identified to treat the patient's condition?

A.Umbilicus and anterior superior iliac spine

B.Xiphoid process, midaxillary line, greater tubercle of the humerus

C.Mid-clavicle, 2nd intercostal space

D.Base of the axilla, lateral edge of pectoralis major, 5th intercostal space and the anterior border of latissimus dorsi

E.Level of 8th thoracic vertebrae and the mid axillary line

Answer:Base of the axilla, lateral edge of pectoralis major, 5th intercostal space and the anterior border of latissimus dorsi

Explanation:

The triangle of safety for chest drain insertion involves the base of the axilla, lateral edge pectoralis major, 5th intercostal space and the anterior border of latissimus dorsi

Important for meLess important

The patient is presenting with signs and symptoms consistent with a pleural effusion for which a chest drain needs to be inserted. The triangle of safety actually has four sides involving the base of the axilla (superior boundary) , lateral edge of the pectoralis major (medial boundary), 5th intercostal space (inferior boundary) and anterior border or latissimus dorsi (lateral boundary).

The umbilicus and anterior superior iliac spine would be useful surface anatomy markers for the insertion of an ascitic drain.

Mid-clavicle, 2nd intercostal space would be the markers for emergency aspiration , such as in the treatment for a tension pneumothorax, rather than insertion of a chest drain.

Question:

A 10-year-old girl is brought to the Emergency Department after falling from a tree swing. She is complaining of pain in the left forearm. An x-ray is requested:

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What type of fracture is seen?

A.Buckle fracture

B.Greenstick fracture

C.Salter-Harris type I

D.Salter-Harris type II

E.Salter-Harris type IV

Answer:Greenstick fracture

Explanation:

The radiograph shows a fracture involving the palmar surface of the distal radius, with minimal dorsal angulation and no disruption of the dorsal cortex. The growth plate appears normal.

Question:

A 67-year-old woman presents for review. She has recently been diagnosed with dry age-related macular degeneration. What is the most effective intervention to slow the progression of this condition?

A.Weight loss if obese

B.Diet rich in omega-3 fatty acids

C.Stop smoking

D.Reduce alcohol intake

E.Regular exercise

Answer:Stop smoking

Explanation:

Macular degeneration - smoking is risk factor

Important for meLess important

Having a balanced diet, with plenty of fresh fruits and vegetables may also slow the progression of macular degeneration. There is still ongoing research looking at the role of supplementary antioxidants

Question:

A 27-year-old woman with a BMI of 18 is referred to a fertility clinic after failing to become pregnant after 2 years of trying with her partner. Male factor infertility has been ruled out and you suspect the patient's low BMI may mean she is not ovulating. Which hormone could you measure on day 21 of her menstrual cycle to test for ovulation?

A.Luteinising Hormone

B.Progesterone

C.Oestrogen

D.Gonadotrophin Releasing Hormone

E.Follicle Stimulating Hormone

Answer:Progesterone

Explanation:

In a 'typical' 28 day menstrual cycle, a woman will ovulate on approximately day 14 of her cycle. Following ovulation, the hormones Follicle Stimulating Hormone (FSH) and Luteinising Hormone (LH) - produced in the anterior pituitary gland - cause the dominant follicle to transform into the corpus luteum. The corpus luteum produces a surge of progesterone which typically peaks on day 21 of the cycle. Measuring this can give information as to whether a woman has ovulated or not.

A low body mass index (BMI) can cause hypogonadotrophic hypogonadism, where the anterior pituitary gland stops producing FSH and LH, thus meaning follicles do not develop sufficiently. Gaining weight should reverse the subfertility.

Question:

A 6-year-old girl presents to the emergency department with generalised facial swelling. She recently recovered from viral pharyngitis. She is otherwise well and reaching developmental milestones.

On assessment, she is alert and afebrile with no respiratory distress. There is pitting oedema in the face and legs.

Urinalysis shows 4+ protein and no haematuria.

Blood results:

Hb 175 g/L Male: (135-180)

Female: (115 - 160)

Platelets 450 \* 109/L (150 - 400)

WBC 8.0 \* 109/L (4.0 - 11.0)

Bilirubin 12 µmol/L (3 - 17)

ALP 60 u/L (30 - 100)

ALT 35 u/L (3 - 40)

γGT 32 u/L (8 - 60)

Albumin 10 g/L (35 - 50)

Given the likely diagnosis, what is the first-line treatment option?

A.Adrenaline

B.Albumin infusion

C.Furosemide

D.Prednisolone

E.Ramipril

Answer:Prednisolone

Explanation:

Minimal change glomerulonephritis - prednisolone

Important for meLess important

Prednisolone is the correct answer. This patient has presented with facial oedema associated with hypoalbuminemia and proteinuria. Therefore the most likely diagnosis is minimal change glomerulonephritis (also known as minimal change disease), a nephrotic syndrome. The mainstay treatment for this condition is corticosteroid therapy.

Adrenaline is incorrect. This medication is used to treat anaphylaxis, which is more likely to cause angioedema than pitting oedema. Although this patient has facial swelling, there are no signs of shock or respiratory distress on examination. Treating this patient with adrenaline would not harm the patient but would not have a therapeutic effect in treating her minimal change disease.

Albumin infusion is incorrect. This colloid fluid may be used in patients with tissue oedema and low oncotic pressure to draw the fluid out of the tissues and back into circulation. This patient does have hypoalbuminemia and the albumin infusion may be used as adjunctive therapy for this patient; however, its therapeutic effect will only be temporary.

Furosemide is incorrect. This is a loop diuretic which may be used in the treatment of fluid overload. Furosemide may be used as adjunctive therapy for this patient; however, its therapeutic effect will only be temporary.

Ramipril is incorrect. This is an ACE inhibitor commonly used in the treatment of hypertension. It is also used to treat certain glomerulonephritides (such as IgA nephropathy associated with hypertension). ACE inhibitors do not have a role in managing acute nephrotic syndrome, and there is no evidence of hypertension in the vignette.

Question:

A patient presents in the Emergency Department with melaena. Which of the below would suggest an upper gastrointestinal bleed pathology instead of a lower gastrointestinal bleed?

A.Urea level of 12 mmol/l

B.Urea level of 4 mmol/l

C.Haematochezia

D.Abdominal pain

E.History of haemorrhoids

Answer:Urea level of 12 mmol/l

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

A bleed which occurs in the oesophagus, stomach or duodenum is classed as an upper GI bleed. Causes of upper GI bleeds include peptic ulcer or oesophageal varices. In upper GI bleeding, an increased urea level occurs due to the breakdown of red blood cells in the stomach. Melaena is usually indicative of an upper GI bleed but can occur with lower GI bleeding, though this is rare. Haematochezia is the passage of fresh blood from the rectum and usually occurs with lower GI bleeding though can occur with large upper GI bleeds. Abdominal pain is a feature of both upper and lower GI bleeding

Question:

A 24 year-old lady with type 1 diabetes presents to the maternity department at 25+3 weeks gestation with tightenings and a thin watery discharge. Her pregnancy so far has been uncomplicated and all scans have been normal. She has well controlled diabetes by using an insulin pump.

A speculum examination is performed and no fluid is noted, the cervical os is closed. A fetal fibronectin (fFN) test is performed which comes back as 300 (positive).

What is the most appropriate management?

A.Discharge with 2 doses oral steroids

B.Admit for 2 doses IM steroids, continue insulin therapy as usual

C.Admit for 2 doses IM steroids and monitor BMs closely, adjusting pump accordingly

D.Discharge and reassure

E.Discharge with course of oral antibiotics

Answer:Admit for 2 doses IM steroids and monitor BMs closely, adjusting pump accordingly

Explanation:

Fetal fibronectin (fFN) is a protein that is released from the gestational sac. Having a high level has been shown to be related with early labour, and depending on the level different probabilities can be calculated for labour within one week, two weeks etc. Having a high level however does not mean that early labour is definite, some women will go to term even with a raised fFN

Having a positive result means that the obstetric team can optimise everything, in case the lady does go into premature labour. This includes ensuring neonatal intensive care are aware, and administering steroids to help with neonatal lung maturity. As this lady is at high risk of premature labour, and is currently experiencing tightenings, it would be incorrect to discharge the patient without any further monitoring.

Giving antibiotics may be indicated if she had spontaneously ruptured her membranes, however this history of watery discharge but no fluid seen on speculum examination and a closed os is not enough to initiate antibiotic therapy at this stage. As infection can be a precipitating factor for premature labour, swabs and urine cultures should be obtained to screen for infection and treat as appropriate.

Administering steroids can cause hyperglycemia in diabetics, and therefore close attention should be paid to the blood glucose measurements. Hyperglycaemia in the mother can cause adverse outcomes for the fetus, which is why extra care must be taken. Hourly blood glucose measurements must be taken, and additional insulin given as required. If the blood glucose levels are hard to control in this way, a sliding scale should be started according to local protocol.

Question:

A pregnant woman's perinatal ultrasound indicates that her baby is at risk of a cardiac congenital abnormality. A cardiac ultrasound showed the foetal aorta and pulmonary trunk lying in parallel with an absence of crossing, confirming the suspected diagnosis.

After delivery, which medication should be commenced urgently in the newborn before corrective surgery can be performed for this condition?

A.Adenosine

B.Captopril

C.Indomethacin

D.Prostaglandin E1

E.Prostaglandin F2 alpha

Answer:Prostaglandin E1

Explanation:

Maintenance of the ductus arteriosus with prostaglandins is the initial management for duct dependent congenital heart disease

Important for meLess important

Parallel aorta and pulmonary trunk on echocardiography is indicative of transposition of the great arteries. Prostaglandin E1 is given intravenously to neonates with transposition of the great arteries (TGA) to maintain the ductus arteriosus, ensuring a route of alternate blood flow. The parallel circulatory systems caused by TGA means that ductus arteriosus closure will result in profound cyanosis and circulatory failure. Prostaglandins maintain the patency of the ductus arteriosus through dilation of vascular smooth muscle. Physiologically in the foetus, the prostaglandin-rich placenta allows the ductus arteriosus to remain open, and deprivation from this environment after delivery results in its constriction. Therefore, administering prostaglandins after delivery will maintain the ductus arteriosus until corrective surgery can be performed.

Adenosine is used to convert supra-ventricular tachycardias to sinus rhythm. It is not indicated here as the newborn's issue will be circulatory rather than due to defects in cardiac electrical activity.

If the patency of the ductus arteriosus was not maintained and the newborn showed clinical signs of heart failure, then angiotensin-converting enzyme (ACE) inhibitors, e.g. captopril, may be indicated. However, administering IV prostaglandins should be first-line as it prevents heart failure from occurring in the first place.

Non-steroidal anti-inflammatory drugs (NSAIDs), e.g. indomethacin, inhibit prostaglandin synthesis. This causes closure of the ductus arteriosus, resulting in cyanotic heart disease and likely death of the newborn.

Prostaglandin F2 is not the correct answer; prostaglandin E is the most potent of prostaglandin types and is primarily responsible for ductus arteriosus patency.

Question:

A 33-year-old white male attends his GP with a two month history of weight loss, lethargy and polydipsia. He has a past medical history of a thyroidectomy for Grave's disease, no significant family history and currently takes levothyroxine. The GP does a capillary glucose measurement, which is 18.1mmol/L and does a urinalysis revealing 2+ glucose and 2+ ketones. His blood pressure is 134/86mmHg. What is the most likely diagnosis?

A.Type 2 diabetes mellitus

B.Addison's disease

C.Latent Autoimmune Diabetes of Adulthood

D.Maturity Onset Diabetes of the Young

E.Levothyroxine-induced diabetes mellitus

Answer:Latent Autoimmune Diabetes of Adulthood

Explanation:

Latent autoimmune diabetes of adulthood (LADA) is a disorder in which, despite the presence of islet antibodies at diagnosis of diabetes, the progression of autoimmune -cell failure is slow.

In contrast to type 2 diabetes, patients are typically younger and without an increased body habitus. In contrast to type 1 diabetes, insulin is not usually required in the early stages of the disease.

Diagnosis may be aided through a Glutamic Acid Decarboxylase (GAD) Autoantibodies test and evidence of other autoimmune diseases.

Levothyroxine is not associated with inducing diabetes. In patients with diabetes starting thyroxine, doses of antidiabetic drugs including insulin may need to be increased.

Addison's disease is associated with hypoglycaemia.

Question:

A 23-year-old female presents with a painless swelling on the back of her wrist:

Of the following options, what is the most appropriate management?

A.Check rheumatoid factor and refer to rheumatology

B.Check full blood count

C.Reassurance and review if not settling

D.Inject with sclerosing agent

E.Arrange ultrasound

Answer:Reassurance and review if not settling

Explanation:

Question:

You go on a home visit to a 59-year-old patient with a lower respiratory tract infection. She is housebound due to motor neurone disease. Whilst you are with her you review her medications.

What additional regular medication/s should you consider initiating?

A.Anticipatory medications

B.Baclofen

C.Riluzole

D.Sertraline

E.Vitamin D

Answer:Vitamin D

Explanation:

Consider daily vitamin D supplements in all housebound patients

Important for meLess important

Vitamin D is correct. This patient is housebound and so vitamin D supplementation should be considered to prevent deficiency from lack of exposure to sunlight.

There is no indication that anticipatory medications are indicated at this stage, although this should be considered and discussed when appropriate. It would be sensible to discuss advance care planning and the patient's wishes for her future care.

Riluzole is used for motor neurone disease but is initiated in secondary care. It may increase survival by 2-3 months.

Baclofen is not indicated. It is a muscle relaxant used to treat spasticity such as in cerebral palsy.

Sertraline is incorrect. It may be appropriate to screen for depression as this is common in those with motor neurone disease, but there is no indication in the question stem that depression is an issue or that sertraline is required.

Question:

A 14-year-old girl sees you in the outpatients department with a variety of troubling symptoms. She has suffered with bullying at school due to facial hair and large stature. She also reports menarche was at 10 years old. You organise some investigations which show;

Na+ 131 mmol/l

K+ 6.1 mmol/l

Dexamethasone suppression test 8am cortisol <50nmol/l

Testosterone 2 nmol/l (0.7-3 nmol/l)

Plasma 17-hydroxyprogesterone 2 mg/l (0.2-1 mg/l)

What is the most likely diagnosis?

A.Turners syndrome

B.Polycystic ovary syndrome

C.Addison's disease

D.Congenital adrenal hyperplasia

E.Cushing's syndrome

Answer:Congenital adrenal hyperplasia

Explanation:

Congenital adrenal hyperplasia has the following biochemical abnormalities;

Increased plasma 17-hydroxyprogesterone levels

Increased plasma 21-deoxycortisol levels

Increased urinary adrenocorticosteroid metabolites

It is inherited via an autosomal recessive pattern.

The condition is due to a deficiency of the 21-hydroxylase enzyme (responsible for biosynthesis of aldosterone + cortisol)

Turners syndrome (45, X) presents with different clinical features e.g. short stature, amenorrhoea.

Polycystic ovary syndrome usually has oligo- or amenorrhoea rather than early menarche, in addition to androgen excess.

Addison's disease would have similar blood results with low sodium, high potassium and low 8am cortisol levels. However there are no signs of Addison's described, and the elevated 17-hydroxyprogesterone confirms congenital adrenal hyperplasia.

Cushing's syndrome would have an elevated 8am cortisol as the body does not respond to the dexamethasone suppression accordingly.

Question:

Mr Jones has recently been diagnosed with bowel cancer.

What is the best marker to use to monitor the progression of the tumour and its response to future treatment?

A.CT scan

B.CEA

C.Ca-125

D.AFP

E.Occult faecal blood

Answer:CEA

Explanation:

CEA is used to monitor response to treatment of colon cancer.

CT scans can show progression of malignancy but are not appropriate for regular monitoring due to radiation exposure and cost.

Ca-125 is a tumour marker for ovarian cancer.

AFP is a tumour marker for hepatocellular carcinoma.

Occult faecal blood is a screening test to detect bowel cancer. It is not used to monitor progression of disease.

Question:

A 30-year-old female in her third trimester of pregnancy mentions during an antenatal appointment that she has noticed an itchy rash around her umbilicus. This is her second pregnancy and she had no similar problems in her first pregnancy. Examination reveals blistering lesions in the peri-umbilical region and on her arms. What is the likely diagnosis?

A.Seborrhoeic dermatitis

B.Pompholyx

C.Polymorphic eruption of pregnancy

D.Lichen planus

E.Pemphigoid gestationis

Answer:Pemphigoid gestationis

Explanation:

Polymorphic eruption of pregnancy is not associated with blistering

Important for meLess important

Pemphigoid gestationis is the correct answer. Polymorphic eruption of pregnancy is not associated with blistering

Question:

Which one of the following statements regarding retinoblastoma is true?

A.The most common presenting symptom is strabismus

B.70% of cases are hereditary

C.All cases require enucleation

D.The average age at diagnosis is 3 months

E.More than 90% of children survive to adulthood

Answer:More than 90% of children survive to adulthood

Explanation:

Question:

A 45-year-old female develops pleuritic chest pain following a hysterectomy 10 days ago. You admit her to the acute medical unit and a CTPA confirms a pulmonary embolism. There is no previous history of venous thromboembolism. How long should the patient be anticoagulated for?

A.Not suitable for anticoagulation

B.3 months

C.6 months

D.4 weeks

E.Life-long

Answer:3 months

Explanation:

'Provoked' pulmonary embolisms are typically treated for 3 months

Important for meLess important

As this woman has a temporary risk factor for a thromboembolic event the recommended period of anticoagulation is 3 months.

Question:

A 33-year-old man with HIV presents to his general practice surgery. Over the last few months, he has been getting more clumsy and drops things more often. People have commented that his speech has become slurred and he has been more irritable than usual. His CD4 count is 110 cells/mm³. He admits he has not been compliant with his medication. An MRI is ordered which shows features of progressive multifocal leukoencephalopathy. What type of viral DNA will be found in his CSF?

A.JC virus

B.Adenovirus

C.Rhinovirus

D.Coxsackie A16

E.Parvovirus B19

Answer:JC virus

Explanation:

Progressive multifocal leukoencephalopathy is caused by the JC virus or BK virus

Important for meLess important

Progressive multifocal leukoencephalopathy is caused by the JC virus and BK virus in some occasions. The virus stays dormant and controlled by the immune system.

Adenovirus causes all sorts of upper respiratory tract infections but not PML.

Rhinovirus causes the common cold.

Coxsackievirus A16 causes hand foot and mouth disease.

Parvovirus causes fifth's disease.

Question:

John is a 34-year-old man who has been brought in by ambulance to the emergency department. He appears significantly unwell and his observations are as follow:

Respiratory rate of 25 breaths/minute, oxygen saturation 95% on 10L oxygen, heart rate 130 beats/minute, blood pressure 110/70mmHg and temperature of 39.0ºC.

He notes that he had been seen by his general practitioner 6 days ago with a cough and a sore throat. Point-of-care testing revealed that he had influenza A and he was sent home with worsening advice. While his condition improved over the 4 days following this, his condition deteriorated over the next 2 days. He is currently coughing up green sputum with no blood noted.

John does not own any pets. He smokes 10 cigarettes a day and he does not drink any alcohol.

Examination reveals coarse crackles along with the right lung. A chest X-ray was performed and this showed a middle lobe consolidation with 2 round, gas-filled lesions within the field of consolidation.

What is the likely organism responsible for the deterioration?

A.Chlamydia psittaci

B.Klebsiella pneumoniae

C.Mycoplasma pneumoniae

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Staphylococcus aureus

Explanation:

Preceding influenza predisposes to Staphylococcus aureus pneumonia

Important for meLess important

Viral pneumonia is typically self-limiting and normally resolves with supportive management. However, this predisposes the patient towards a superimposed bacterial infection. Given the sudden deterioration, it is likely that secondary bacterial pneumonia has taken place. The presence of gas-lesions is concerning as this could indicate cavitating pneumonia.

Staphylococcus aureus infection is seen to be associated with a preceding influenza infection. It tends to occur within a short time (2-3 days) following the influenza infection. Cavitation is also possible with this disease process and the patient appears significantly unwell.

Streptococcus pneumonia is the most common cause of community-acquired pneumonia but is less prevalent following influenza infections.

Klebsiella pneumonia is more commonly associated with pneumonia in alcoholic patients. The sputum produced is also normally fairly blood-stained, classically described as red-currant jelly in appearance.

Mycoplasma pneumonia does not normally present with such speed and severity. The disease process is typically more indolent and prolonged with a dry cough.

Chlamydia psittaci is normally associated with patients who have avian pets as they are natural vectors for the bacterium.

Question:

A 43-year-old woman presents with pain in the right elbow. This has been present for the past month and she reports no obvious trigger. On examination she reports pain on wrist extension against resistance whilst the elbow is extended. What is the most likely diagnosis?

A.Cubital tunnel syndrome

B.Lateral epicondylitis

C.Carpal tunnel syndrome

D.Medial epicondylitis

E.Pronator syndrome

Answer:Lateral epicondylitis

Explanation:

Question:

Which one of the following features is most likely to be seen following facial nerve paralysis?

A.Hyperacusis

B.Hyperlacrimation

C.Hyperesthesia

D.Hyperalgesia

E.Hypersalivation

Answer:Hyperacusis

Explanation:

Hyperacusis results from paralysis of the stapedius muscle. Overflow of tears may occur but hyperlacrimation does not.

Question:

A mother brings her 14-month-old son into surgery. Since yesterday he seems to be straining whilst passing stools. She describes him screaming, appearing to be in pain and pulling his knees up towards his chest. These episodes are now occurring every 15-20 minutes. This morning she noted a small amount of blood in his nappy. He is taking around 50% of his normal feeds and vomiting 'green fluid' every hour. On examination, he appears irritable and lethargic but is well hydrated and apyrexial. On examination, his abdomen seems distended but no discrete mass is found.

What is the most likely diagnosis?

A.Constipation

B.Intussusception

C.Gastroenteritis

D.Meckel's diverticulum

E.Volvulus

Answer:Intussusception

Explanation:

Whilst constipation is common, it would not cause the bilious vomiting as described. An abdominal 'sausage-shaped' mass, whilst classical, is only found in around 25% of cases.

Question:

A 30-year-old woman, with a recent diagnosis of Graves disease, underwent incision and drainage of a pilonidal abscess three hours ago. She has become agitated, confused and is noted to be jaundiced and sweaty. Her temperature is 39 oC, pulse 152 beats / minute and blood pressure 95/60 mmHg. An ECG shows an irregular ventricular rate with absent p waves. After resuscitation what is the most appropriate next step in management?

A.Bile acid sequestrants and glucocorticoids

B.Bile acid sequestrants and iodides

C.Beta adrenoceptor blockers and thionamides

D.Beta adrenoceptor blockers and iodides

E.Thionamides and thyroidectomy

Answer:Beta adrenoceptor blockers and thionamides

Explanation:

In the first instance, control of cardiac rate and administration of antithyroid drugs are typically used. Development of jaundice in people with a thyrotoxic storm is well described and the aetiology multifactorial.

Question:

A 70-year-old inpatient on the geriatrics ward who is on warfarin complains of a nosebleed. He is not known to have any nasal pathology or coryzal symptoms.

What is the most likely anatomical origin of the epistaxis?

A.Ethmoid sinus

B.Posterior nasal septum

C.Nasopharynx

D.Anterior nasal septum

E.Skin on exterior of nose

Answer:Anterior nasal septum

Explanation:

Little's area in the nasal septum is a common site for epistaxis to originate because it is the confluence of 4 arteries

Important for meLess important

Little's area in the anterior nasal septum is the site of Kiesselbach's plexus, supplied by 4 arteries. Epistaxis therefore most commonly originates from the anterior of the nose.

Bleeding from sinuses would be unusual in the absence of sinusitis.

Bleeding from the nasopharynx would be a posterior source of bleeding, which is less likely than an anterior source.

The skin on the exterior of the nose is unlikely to be the source of the bleeding if there is no cut or abrasion, which is not mentioned in this patient.

Question:

A 32-year-old woman who had a positive urinary pregnancy test 5-days ago attends a direct-access antenatal clinic appointment. A fetal heart is seen on ultrasound with a heart rate of 120 beats/minute. Her past medical history includes recurrent miscarriages, pulmonary embolisms and deep vein thromboses. Previous blood tests revealed a prolonged APTT and moderately elevated anticardiolipin antibody levels on 2 separate occasions.

Given her likely diagnosis, what would be the most appropriate management for this patient?

A.Aspirin

B.Aspirin and enoxaparin

C.Enoxaparin

D.Enoxaparin and warfarin

E.Warfarin

Answer:Aspirin and enoxaparin

Explanation:

Antiphospholipid syndrome in pregnancy: aspirin + LMWH

Important for meLess important

This patient has antiphospholipid syndrome, as suggested by her history of recurrent miscarriages, blood clots and prolonged APTT and moderately elevated anticardiolipin antibody levels. The management of pregnant women with antiphospholipid syndrome and previous thrombotic events is with aspirin, which is started upon confirmation of pregnancy with a urinary test, and unfractionated or low molecular weight heparin (e.g. enoxaparin) which is started once a fetal heart is seen on ultrasound. LMWH is usually discontinued at 34 weeks gestation.

Aspirin alone is incorrect as a foetal heart is confirmed via ultrasound. Please note aspirin alone is used for pre-eclampsia prophylaxis in patients which are considered to be high-risk for the condition.

While enoxaparin (LMWH), may be used as a treatment for VTE in pregnancy as monotherapy, this answer is incorrect as patients with antiphospholipid syndrome also require aspirin during pregnancy.

Enoxaparin and warfarin is incorrect as warfarin should be avoided during pregnancy due to an increased risk of fetal abnormalities. Patients can however be switched to warfarin post-delivery.

Warfarin alone would be incorrect due to the reason mentioned above.

Question:

A 39-year-old man comes for review. Six months ago he was started on paroxetine for depression. Around five days ago he stopped taking the medication as he felt that it was having no benefit. His only past medical history of note is asthma. For the past two days he has experienced increased anxiety, sweating, headache and the feeling of a needle like sensation in his head. During the consultation he is pacing around the room. What is the most explanation for his symptoms?

A.Bipolar disorder

B.Malingering

C.Selective serotonin reuptake inhibitor discontinuation syndrome

D.Migraine

E.Generalised anxiety disorder

Answer:Selective serotonin reuptake inhibitor discontinuation syndrome

Explanation:

Paroxetine has a higher incidence of discontinuation symptoms than other selective serotonin reuptake inhibitors.

Question:

Andre is a 34-year-old cyclist. Two days ago, he fell off his bike and landed onto his outstretched hands. He did not hit his head. He presented to the emergency department today, complaining of pain in his right hand. He denies pain in other areas of his body.

On examination, his right hand is mildly swollen but no deformity can be seen. He is tender to palpate around his wrist dorsally and is particularly tender in the anatomical snuffbox area. While the range of active movement of his wrist is limited by pain and swelling, he was able to demonstrate thumb and wrist extension.

Standard x-ray series of his hand, wrist and forearm today demonstrated no fractures.

What is the most likely diagnosis?

A.Distal radius fracture

B.Extensor pollicis longus tendon rupture

C.Extensor retinaculum tear

D.Wrist sprain

E.Scaphoid fracture

Answer:Scaphoid fracture

Explanation:

Scaphoid fracture commonly presents with tenderness in the anatomic snuffbox dorsally, or tenderness in the scaphoid scaphoid tubercle volarly

Important for meLess important

Distal radius fracture is possible from a fall onto an outstretched hand (FOOSH). However, no fractures were seen on the x-ray of his forearm thus he is unlikely to have a distal radius fracture.

He was able to extend his thumb, thus an extensor pollicis longus tendon rupture is unlikely.

His clinical presentation is not highly suggestive of an extensor retinaculum tear.

While his injury may be a wrist sprain, tenderness in the anatomical snuffbox should raise suspicion for a scaphoid fracture.

Scaphoid fracture commonly presents with tenderness in the anatomic snuffbox dorsally, or tenderness in the scaphoid tubercle volarly. It is often occult on the initial x-ray and becomes evident on repeat x-rays 14-21 days following the injury. Scaphoid views may also have additional value in picking up scaphoid fractures.

Question:

A 66-year-old on the post-surgical ward has been suffering from intractable vomiting since his abdominal surgery for colorectal cancer 5 days ago. Following a surgical review it is confirmed that the patient does not need to undergo further surgery.

The team are concerned that the patient is beginning to become severely malnourished and decide that the patient requires treatment for their malnutrition.

Which of the following treatments is the most appropriate?

A.Increasing the patient's oral intake

B.Oral nutritional supplements

C.Total parental nutrition via a cannula already placed in the patient's hand

D.Total parental nutrition via a peripherally inserted central catheter

E.Percutaneous endoscopic gastrostomy tube

Answer:Total parental nutrition via a peripherally inserted central catheter

Explanation:

Total parenteral nutrition should be administered via a central vein as it is strongly phlebitic

Important for meLess important

Since this patient cannot tolerate oral feeds, he requires parenteral nutrition until this is resolved. A peripherally inserted central catheter would be the appropriate way to give this from all the options provided. It is usually done by ultrasound insertion of a long catheter into a peripheral arm vein that sits in the superior vena cava.

Increasing the patient's oral intake is incorrect. Whilst this may an appropriate treatment option for some patients with malnutrition, this patient has intractable vomiting and so this is likely to be unsuccessful as it relies on the oral route.

Oral nutritional supplements are incorrect. Although this may be used in addition to increasing oral intake in certain patients, this patient has intractable vomiting. As discussed, above the patient's current nausea and vomiting make this option less appropriate for this patient.

Total parental nutrition would likely be indicated in this patient, due to their intractable vomiting and severe malnutrition. However, total parental nutrition should be given via a central vein and not through a peripheral cannula as it is very phlebitic.

A percutaneous endoscopic tube may need to eventually be inserted for stable feeding in this patient depending on the outcome and comorbidities. However, in this case, this is not the most suitable option for several reasons. The patient is having vomiting and this would not necessarily prevent vomiting since the gastrointestinal contents could still be expelled. Moreover, it is a more invasive procedure for a potentially reversible condition and should therefore be left for a later stage.

Question:

A couple and their young son attend a genetic counselling appointment. The son has just been diagnosed with hereditary haemochromatosis. Both parents are heterozygotes. They are concerned as they were planning to have another child.

What is the percentage chance that their next child will be genotypical?

A.12.5%

B.25%

C.50%

D.75%

E.100%

Answer:25%

Explanation:

For autosomal recessive conditions, if both parents are carriers (heterozygote) there is a 25% chance of having an unaffected (i.e. genotypical) child

Important for meLess important

The correct answer is 25%. In autosomal recessive conditions where both parents are carriers, there is a 25% chance that the child will be born with two normal genes, a 25% chance of each homozygote genotype, and a 50% chance of being a heterozygote carrier.

12.5% is incorrect. In a non-X-linked autosomal recessive condition, there is no scenario where this is possible.

50% is incorrect. Hereditary haemochromatosis is an autosomal recessive genetic condition. Therefore, if both parents are carriers, there is a 50% chance that the next child will be a heterozygote carrier, a 25% chance that they will be a homozygote affected by haemochromatosis and a 25% chance that they will be genotypical.

75% is incorrect. There is a 75% chance that the child will not have symptomatic haemochromatosis but only a 25% chance that they would be genotypical.

100% is incorrect. In this case, 50% of children would be homozygotes and therefore not carriers. The children of a homozygote-affected patient and a genotypical person would have a 100% chance of being a heterozygote carrier of an autosomal recessive condition.

Question:

A 25-year-old woman presents to the GP with a 30-minute history of worsening shortness of breath. She is 23 weeks pregnant and has allergic rhinitis. The patient has never smoked or drunk alcohol.

On examination, her heart rate is 102 bpm, her blood pressure is 135/75 mmHg, her respiratory rate is 30 /min, and her peak expiratory flow rate is 48%. The patient cannot complete full sentences, and diffuse bilateral expiratory wheezing is heard on auscultation.

She is given a salbutamol inhaler via a large-volume spacer, and her symptoms improve.

What is the next most appropriate step for the GP to take?

A.Continue salbutamol inhaler, give oral prednisolone, and review within 48 hours

B.Give a 5-day course of oral prednisolone and review within 48 hours

C.Give ipratropium nebuliser and oral prednisolone and review within 48 hours

D.Give salbutamol nebuliser and oral prednisolone and review within 48 hours

E.Give salbutamol nebuliser, arrange hospital admission, and review within 48 hours after discharge

Answer:Give salbutamol nebuliser, arrange hospital admission, and review within 48 hours after discharge

Explanation:

Pregnant women who have a severe asthma attack should be admitted to hospital, even if they initially improve with treatment

Important for meLess important

The patient in the vignette - who is 23 weeks pregnant - has presented with features of an acute asthma attack (30-minute history of worsening shortness of breath associated with wheezing on auscultation). The severity of acute asthma is stratified according to clinical features. The patient in the vignette's asthma is severe, as her peak expiratory flow rate (PEFR) is between 33-50%, she cannot complete full sentences, and her respiratory rate is >25 /min.

Give salbutamol nebuliser, arrange hospital admission, and review within 48 hours after discharge is the correct answer. NICE guidelines recommend that certain patients should have a lower threshold for hospital admission, even if symptoms improve with initial treatment, as they may re-experience symptoms. This recommendation includes patients who are pregnant. As the patient in the vignette is pregnant and has experienced a severe asthma attack, she will require hospital admission.

Continue salbutamol inhaler, give oral prednisolone, and review within 48 hours is incorrect. Although all patients with asthma should be given either oral prednisolone or IV hydrocortisone (if they were in hospital), pregnant patients should be admitted to hospital, even if they improve with treatment. As well as this, she should be given a salbutamol nebuliser instead of an inhaler, as she has had an acute severe asthma attack.

Give a 5-day course of oral prednisolone and review within 48 hours is incorrect. All patients should be given a 5-day course of oral prednisolone and reviewed by a primary care doctor within 48 hours if they have not been admitted to the hospital. However, as the patient in the vignette is pregnant, she should be admitted to the hospital, even if her symptoms improve with initial treatment.

Give ipratropium nebuliser and oral prednisolone and review within 48 hours is incorrect. Ipratropium nebulisers may be considered for those who have severe acute asthma that responds poorly to treatment, and where possible, all patients with acute asthma should be given oral prednisolone or IV hydrocortisone (if this were in hospital). This patient, however, has improved following the use of salbutamol, therefore giving ipratropium may not be necessary. This patient is also pregnant, therefore she should be admitted to hospital, even if she improves with initial treatment.

Give salbutamol nebuliser and oral prednisolone and review within 48 hours is incorrect. Although salbutamol nebulisers are an appropriate treatment for patients with severe acute asthma, the patient in the vignette requires admission to hospital as she is pregnant, even if she improves with initial treatment.

Question:

A 47-year-old with poorly controlled hypertension is brought into the emergency department with right-sided weakness and difficulty speaking. His speech appears laboured and stilted, however the words he is saying make sense.

On examination, there is significantly reduced power (2/5) in the right upper limb with minimal changes to the lower limb power (4/5). He is also noted to have a right-sided visual field defect which he claims is new.

He is referred for an urgent CT head.

Considering his presentation, where is the pathology likely to be located?

A.Anterior cerebral artery

B.Basal ganglia

C.Basilar artery

D.Middle cerebral artery

E.Posterior cerebral artery

Answer: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

This patient is presenting with symptoms consistent with a left middle cerebral artery (MCA) stroke. MCA territory primarily supplies the motor function to the face and upper limbs. There is evidence of aphasia as the patient has halting speech - this indicates that the dominant side of the brain hemisphere has been affected. The MCA territory is the largest vascular bed area for a stroke to occur.

Anterior cerebral artery strokes typically present with contralateral hemiparesis affecting the lower limb more than the upper limb. Patients may also experience urinary incontinence. This is due to the blood supply to the medial paracentral gyrus. In patients with extensive anterior cerebral artery strokes, they may have cognitive impairment (including disinhibition and personality changes) due to the involvement of the prefrontal cortex.

Basilar artery strokes are a subset of the posterior cerebral stroke syndromes. This blood vessel supplies the cerebellum, thalamus, occipital lobe, and brainstem. A stroke in this area is often devastating and leads to locked-in syndrome. Patients may present with an acute decreased GCS and advanced motor symptoms, insidiously over several days with a gradual deterioration in GCS and motor symptoms, or with a 'herald hemiparesis' where there is a momentary episode of unilateral weakness with associated headache and loss of vision prior to the onset of permanent symptoms.

Basal ganglia strokes are associated with lacunar stroke syndromes. These are relatively rare strokes and may often present with behavioural symptoms (such as slowness, lack of emotion or initiative, and hemineglect) combined with isolated motor or sensory symptoms.

A posterior cerebral artery stroke presents with contralateral hemianopia and usually has macular sparing. The macular sparing is due to the collateral vascular supply to the region. These strokes are less common than those affecting the anterior circulation.

Question:

A 63-year-old male has a cardiac arrest prior to coronary angiography, while in the catheter laboratory. His heart rate is 164 beats per minute and the 12-lead ECG monitor shows ventricular tachycardia. You begin to assess him but cannot palpate a pulse and call for help.

Which of the following should be done next?

A.Give adrenaline 1mg IV

B.Give amiodarone 300mg IV

C.Deliver a maximum of one shock

D.Deliver a maximum of three successive shocks

E.Give adrenaline 1mg IV and amiodarone 300mg IV

Answer:Deliver a maximum of three successive shocks

Explanation:

Witnessed cardiac arrest while on a monitor - up to three successive shocks before CPR

Important for meLess important

Although patients in VF/pulseless VT should receive one shock followed by two minutes of CPR, if they are witnessed having the cardiac arrest and are monitored (e.g. coronary care unit, critical care unit, catheter laboratory) then they should receive a maximum of three successive shocks instead. Chest compressions would then follow and CPR would be continued for 2 minutes.

Adrenaline 1mg IV and amiodarone 300mg IV are given once compressions restart following three shocks for shockable rhythms (VT/pulseless VF). This is then followed by adrenaline 1mg IV after alternate shocks (every 3-5 minutes).

Adrenaline 1mg IV is also given as soon as venous access is achieved for non-shockable rhythms (pulseless electrical activity/asystole) which would be done alongside CPR. Pulseless electrical activity is a cardiac arrest in which there is electrical activity (other than ventricular tachycardia) which would normally have an associated pulse. Asystole is a cessation of any electrical and mechanical heart activity.

Question:

A 32-year-old man attends eye casualty following an eye injury to his right eye whilst playing squash.

On examination of the right eye, there is blood in the anterior chamber, proptosis, a stiff eyelid, and a relative afferent pupillary defect. A diagnosis of orbital compartment syndrome is suspected.

What is the most appropriate management?

A.B-scan ultrasonography

B.Immediate IV acetazolamide

C.Immediate canthotomy

D.Non-contrast head CT

E.Orbit MRI

Answer:Immediate canthotomy

Explanation:

Following ocular trauma, an assessment should be made for orbital compartment syndrome as this may require immediate decompression prior to imaging etc

Important for meLess important

This man presents with signs of orbital compartment syndrome, including blood in the anterior chamber, proptosis, stiff eyelid, and a relative afferent pupillary defect. Orbital compartment syndrome is an ophthalmic emergency and can lead to irreversible vision loss if not treated promptly. It is caused by an increase in volume within the orbit, either by bleeding behind the globe or oedema of the globe itself. This could be due to iatrogenic surgical trauma, or external trauma, such as a squash ball hitting the orbit. In this case, immediate decompression is needed, and therefore an immediate canthotomy is the correct answer.

B-scan ultrasonography is incorrect. This is a useful imaging technique for looking at the posterior compartment of the eye. It is used to look at suspected conditions such as retinal detachment or posterior vitreous haemorrhage. It will not help diagnose orbital compartment syndrome.

Immediate IV acetazolamide is incorrect. Acetazolamide is used primarily to decrease intraocular pressure in acute closed-angle glaucoma. It can be used as an adjunct to surgical decompression for orbital compartment syndrome, to reduce the pressure of the anterior compartment, but it is not the mainstay of treatment.

Non-contrast head CT is incorrect. This will help confirm the diagnosis of orbital compartment syndrome, as well as possibly help to determine the cause. However, imaging should not be performed until immediate surgical decompression is undertaken, given the severity.

Orbit MRI is incorrect. An MRI is also a useful imaging technique in establishing the cause, and extent of damage in orbital compartment syndrome. However, similar to a non-contrast CT, imaging should come secondary to immediate treatment.

Question:

An oral rotavirus vaccine has recently been introduced into the NHS immunisation schedule. When should it be given?

A.2 months + 4 months

B.2 months + 3 months

C.3 months + 12-13 months

D.3 + 4 months

E.4 months + 12-13 months

Answer:2 months + 3 months

Explanation:

The oral rotavirus vaccine is given at 2 months + 3 months

Important for meLess important

Question:

A 16-year-old girl presents to the emergency department following a collapse out of the hospital. She recovers quickly and describes having palpitations before her collapse. She has no prior medical history; however, she describes experiencing intermittent episodes of palpitations over the past three months.

On examination, she is alert, afebrile, and hemodynamically stable. Her neurological and cardiovascular examinations are unremarkable.

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Given the likely diagnosis, what is the best treatment option?

A.IV adenosine

B.Implantable cardioverter-defibrillator

C.Prescribe PRN flecainide therapy

D.Radiofrequency ablation

E.Transcutaneous pacing

Answer:Radiofrequency ablation

Explanation:

Radiofrequency ablation is the correct answer. The ECG in the vignette shows a rate of approximately 75 beats per minute. There is a significant amount of artefact in lead II; however, there is a P wave before the QRS complexes; therefore, it is sinus rhythm. It is also regular. There is no axis deviation. The PR interval is not prolonged, and there are narrow QRS complexes. However, delta waves are present (slurred up-sloping of the QRS complex). There are also dominant R waves in V1. Therefore, the most likely diagnosis is Wolf-Parkinson-White syndrome (WPW) with a left-sided accessory pathway. Radiofrequency ablation should be offered for older children who remain symptomatic without adverse features to reduce the risk of future tachyarrhythmias.

Implantable cardioverter-defibrillator (ICD) is incorrect. ICD insertion may be considered for patients with hypertrophic cardiomyopathy who are at risk of sudden death (e.g. one or more recent arrhythmic syncopal episodes). However, the patient in the vignette has WPW, which is caused by an accessory pathway requiring radiofrequency ablation.

IV adenosine is incorrect. Adenosine is used to treat supraventricular tachycardia with no adverse features if vagal manoeuvres are unsuccessful. Although WPW is associated with SVT, as this patient has a heart rate of 66bpm, SVT can be ruled out.

Prescribe PRN flecainide therapy is incorrect. This treatment option is considered in selected patients as a 'pill-in-pocket' regime who experience intermittent arrhythmia episodes. The patient in the vignette is an older child presenting with WPW for the first time with no mention of previous episodes; therefore, radiofrequency ablation must be considered first.

Transcutaneous pacing is incorrect. Pacing may be considered for patients with heart block or severe sinus bradycardia. The ECG in the vignette has a normal rate and a short PR interval, a QRS complex follows each P wave, and there is evidence of WPW with delta waves. Pacemaker insertion may be considered in select patients if radiofrequency ablation is ineffective and/or there is evidence of heart block.

Question:

A 29-year-old woman falls suddenly to the ground from standing and remains motionless for 10 seconds. She does not bite her tongue or lose continence during the episode. She is confused for 2 hours after she regains consciousness.

What is the most likely explanation for the patient's loss of consciousness?

A.Atonic seizure

B.Cardiogenic syncope

C.Narcolepsy

D.Tonic seizure

E.Vasovagal syncope

Answer:Atonic seizure

Explanation:

A woman suddenly falls to the ground then lays motionless - atonic seizures

Important for meLess important

Atonic seizures are characterised by a sudden loss of muscle tone. Atonic seizures can be focal, causing limpness and drooping of a particular muscle group, or generalised, resulting in a fall and sometimes loss of consciousness. These seizures tend to last 15 seconds or less and during the seizure, patients lay motionless. After-effects can include confusion.

Cardiogenic syncope is a transient loss of consciousness due to a structural or electrical cardiac defect which reduces cardiac output to a degree that impairs perfusion of the brain. It can look very similar to an atonic seizure however recovery is much more rapid and the patient would not be confused for hours after the event.

Tonic seizures involve a sudden increase in muscle tone and can result in a sudden fall from standing however there is a visible stiffening or tensing of the muscles.

Narcolepsy can present with episodes of cataplexy in which the patient suddenly loses muscle control which can result in a sudden fall to the ground. This is usually triggered by positive emotion such as laughter or excitement, which there is no evidence of in the vignette. Furthermore, the patient would remain conscious during the episode and would not be confused in the aftermath.

Vasovagal syncope can present with a sudden fall and immobility (known as akinetic syncope) in 10% of patients but the remaining 90% of patients will demonstrate myoclonic syncope which presents with jerking movements. There is usually a trigger, such as dehydration, hypoglycaemia or intense emotion and the patient is likely to experience a prodrome of nausea, sweats and tunnel vision.

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 unremarkable and she takes no regular medications. She doesn't smoke, nor does she drink alcohol.

Body Mass Index (BMI) is 34 kg/m².

Blood pressure is 110/60 mmHg.

Urine dip is negative.

She has heard she needs to take some vitamin D and folic acid 'supplements' to maximise her chances of a healthy pregnancy. Which regimen would be most advisable in her case?

A.Vitamin D 400IU daily throughout the pregnancy, and folic acid 400microg daily for the first 12 weeks of pregnancy

B.Vitamin D 400IU daily throughout the pregnancy, and folic acid 5mg daily for the first 12 weeks of pregnancy

C.Vitamin D 400IU daily, and folic acid 400microg daily, both throughout the pregnancy

D.Vitamin D 400IU daily, and folic acid 5mg daily, both throughout the pregnancy

E.Vitamin D 400IU daily, and folic acid 5mg daily, both for the first 12 weeks of pregnancy

Answer:Vitamin D 400IU daily throughout the pregnancy, and folic acid 5mg daily for the first 12 weeks of pregnancy

Explanation:

Pregnant obese women (BMI >30 kg/m2), should be given high dose 5mg folic acid

Important for meLess important

All pregnant women should take vitamin D 400IU once daily, throughout the pregnancy.

In addition, pregnant women should also take folic acid daily for the first 12 weeks.

However, the dose of folic acid is dependent on whether there are risk factors present for the development of a neural tube defect, such as spina bifida - if there are no risk factors, the dose is 400 micrograms daily, if risk factors are present the dose is 5mg daily.

Maternal obesity (BMI >30 kg/m²) is one risk factor for a neural tube defect, hence this woman needs to take the higher dose of folic acid.

Question:

A 31-year-old man is referred to gastroenterology following a 3-month history of non-bloody diarrhoea and weight loss. On examination, you note the presence of mouth ulcers and erythematous nodular lesions on both shins. You refer him for a colonoscopy and biopsy.

Given the likely diagnosis, which of the following is likely to be found on intestinal biopsy?

A.Continuous inflammation

B.Crypt abscesses

C.Decreased mucin

D.Increased goblet cells

E.Inflammation confined to the submucosa

Answer:Increased goblet cells

Explanation:

Crohn's disease - increased goblet cells

Important for meLess important

The correct answer is 'increased goblet cells'.

The most likely diagnosis, in this case, is Crohn's disease as the patient is suffering from non-bloody diarrhoea and weight loss, both of which are common features of Crohn's disease. He also has mouth ulcers and the lesions on his shins are likely to be erythema nodosum - which is associated with inflammatory bowel disease. Increased goblet cells is the only option that is found in Crohn's disease.

The other options are all found within ulcerative colitis rather than Crohn's disease. Crohn's disease demonstrates skip lesions, deep ulcers, and inflammation is present in all layers from the mucosa to the serosa.

Question:

A 57-year-old farmer attends an appointment at a respiratory outpatient clinic with a six-month history of increasing shortness of breath and a productive cough. Recently, he has also noticed some unintentional weight loss of about 5 kg in the last 6 months. His symptoms seem to improve when he goes on holiday.

Chest X-ray shows upper and mid-zone fibrosis.

What is the most appropriate primary treatment?

A.Antifibrotic therapy

B.Avoidance of triggers

C.Chest physiotherapy

D.Long-acting muscarinic antagonist inhaler

E.Short-acting muscarinic antagonist inhaler

Answer:Avoidance of triggers

Explanation:

The treatment of extrinsic allergic alveolitis is mainly avoidance of triggers

Important for meLess important

The likely diagnosis here is extrinsic allergic alveolitis because he reports a history of gradual onset shortness of breath and cough that is worse on exposure to allergens (in this case likely damp hay on his farm). Chest X-ray showing fibrosis also confirms this.

The most appropriate treatment for extrinsic allergic alveolitis is the avoidance of triggers, which may mean a change in occupation for some. If the exposure if non-occupational, environmental interventions like reducing humidity or improving ventilation may help.

Antifibrotic therapies like pirfenidone have no role in treating extrinsic allergic alveolitis. They are usually used for the treatment of idiopathic pulmonary fibrosis to slow decline in lung function and reduce the risk of acute respiratory deteriorations.

Chest physiotherapy is used to improve airway clearance and remove secretions. It is an important adjuvant treatment of most respiratory illnesses such as chronic obstructive pulmonary disease, cystic fibrosis and muscular dystrophy. However, it would not be a primary treatment for extrinsic allergic alveolitis.

Long-acting antimuscarinic antagonist inhalers like tiotropium or umeclidinium are used in the treatment of chronic obstructive pulmonary disease often in combination with a long-acting beta-agonist. They are not part of the treatment for extrinsic allergic alveolitis.

Short-acting beta-agonist inhalers such as salbutamol are commonly used to relieve bronchoconstriction in conditions like asthma however they are not a primary treatment for extrinsic allergic alveolitis.

Question:

A 62-year-old man presents to the emergency department after a fall. He has not lost consciousness, did not hit his head, and was brought in via ambulance after 3 hours as he could not stand up after falling. Over the last few months, he has felt weak. His only history is gastroenteritis 8 months ago.

He has bilateral leg muscle atrophy and reduced power in both the upper and lower limbs, which are worse on the left. Sensation and coordination are intact. The biceps and triceps reflexes are absent, however, the ankle and knee reflexes are brisk. Babinski's sign is positive.

What is the most likely diagnosis?

A.Amyotrophic lateral sclerosis

B.Charcot-Marie-Tooth disease

C.Guillain–Barré syndrome

D.Primary lateral sclerosis

E.Progressive bulbar palsy

Answer:Amyotrophic lateral sclerosis

Explanation:

Amyotrophic lateral sclerosis is associated with mixed UMN and LMN signs (usually no sensory deficits)

Important for meLess important

Neurological motor symptoms and fasciculations with a mixed upper motor neurone (UMN), lower motor neurone (LMN) signs, and very few or absent sensory signs should raise suspicion of motor neurone disease (MND). Fasciculations, atrophy, and absent reflexes are LMN signs, and brisk reflexes and upgoing plantar reflexes (Babinski's sign) are UMN signs. This patient's symptoms are more severe on the left. Patients with MND can become weak and clumsy as a consequence, and this can lead to falls and difficulties with activities of daily living, such as using utensils, getting dressed, and working.

Amyotrophic lateral sclerosis (ALS) is correct. ALS is a form of MND characterised by LMN signs in the arms and UMN signs in the legs as seen in this case. Asymmetric limb weakness (as seen here by this patient's symptoms being worse on the left) is the most common presentation of ALS, supporting this diagnosis.

Charcot-Marie-Tooth disease (CMT) is incorrect. This is a hereditary sensory and motor neuropathy affecting the peripheral nervous system, therefore UMN lesions are not usually seen (as these arise due to lesions in the central nervous system). CMT is characterised by progressive loss of muscle tissue in the distal peripheries. It typically presents with high-arched feet, foot drop, distal muscle weakness and atrophy, and LMN signs such as hyporeflexia which are not seen here. This patient also does not have sensory symptoms, making CMT less likely.

Guillain–Barré syndrome (GBS) is incorrect. Although this patient has a history of gastroenteritis, GBS usually within weeks after the infection, rather than 8 months as seen in this patient. Furthermore, GBS initially presents with sensory symptoms including pain in the back and legs, and the weakness characteristically progresses symmetrically ascending from the legs. This patient has no sensory symptoms, and their symptoms are asymmetrical. Furthermore, fasciculations are not generally seen in GBS and since GBS affects the peripheral nervous system, UMN lesions are not usually seen (as they occur due to lesions in the central nervous system).

Primary lateral sclerosis (PLS) is incorrect. Although this is also a form of MND, it presents with UMN signs only, therefore only brisk reflexes and increased tone would be present. Since there are no LMN signs, there would not be any absent or weak reflexes, fasciculations, or atrophy, which does not apply in this case.

Progressive bulbar palsy (PBP) is incorrect as although this is another form of MND, this describes the palsy of the bulbar muscles (muscles of the tongue, chewing, swallowing, and facial muscles) due to the loss of brainstem motor nuclei. This presents with difficulty swallowing and speaking, and choking, which is not seen here.

Question:

A 54-year-old man presents with a 7-days history of a painful rash on his lower back. He saw you 4-days ago and was given a course of aciclovir for shingles. The pain however remains debilitating despite paracetamol, ibuprofen, codeine and amitriptyline. The pain is described as a severe burning pain that is associated with a mild itch. It is affecting his sleep and daily functioning.

On examination, his temperature is 37ºC. The rash is on the left lower back that is characterized by closely grouped red papules and vesicles with surrounding erythema.

What is the most appropriate management option for this man?

A.Chlorphenamine

B.Flucloxacillin

C.Fluoxetine

D.Morphine

E.Prednisolone

Answer:Prednisolone

Explanation:

Corticosteroids can be used in refractory pain in shingles if simple analgesia and neuropathic analgesia do not help, but only for acute shingles

Important for meLess important

The correct answer is prednisolone.

The NICE CKS guideline advises 'consider oral corticosteroids in the first 2 weeks following rash onset in immunocompetent adults with localized shingles if the pain is severe, but only in combination with antiviral treatment'. This man's onset of rash was seven days ago and is already on antiviral treatment. He has tried several analgesics including a neuropathic agent, and his pain remains uncontrolled. Therefore, a course of prednisolone would be an appropriate treatment option in this scenario.

Chlorphenamine is an antihistamine medication. It may be helpful to alleviate his itching symptom. However, it is not the most appropriate treatment option in this case, as his predominant symptom is severe pain whilst the itching is only mild in severity.

Flucloxacillin is an antibiotic. There is no evidence from examination to suggest co-existing cellulitis.

Fluoxetine is a selective serotonin reuptake inhibitor. It is licensed for the management of anxiety and depression. It has no role in the management of shingles.

Morphine is an opioid medication. It may be considered if the pain does not respond to corticosteroids.

Question:

A 28 year old lady who is 20 days post-partum attends your surgery feeling hot and feverish for the past 2 days and reports a red, swollen, painful left breast. On examination her temperature is 37.5 degrees, and there is erythema and firmness to the left lower quadrant of the left breast. Given the diagnosis of puerperal mastitis, which of the following represents the best advice to give her?

A.Advise her to stop breast feeding immediately as the breast milk may transmit infection to her baby

B.Prescribe Ciprofloxacin

C.Admit for intravenous antibiotics

D.Advise her to express and discard the breast milk, and resume when the infection has resolved.

E.Advise her to continue breast feeding

Answer:Advise her to continue breast feeding

Explanation:

Lactation mastitis is inflammation in the interlobular connective tissue of the breast, which may or may not be associated with infection. It occurs in around 10% on breast feeding women and is most common six weeks post-partum.

Distinguishing between an engorged breast, blocked duct, non-infectious mastitis, and infected mastitis can be challenging. Accumulation of milk in breast tissue causes an inflammatory response (non-infectious mastitis) with inadequate milk removal predisposing to bacterial growth (infectious mastitis). Clinically this presents as a painful breast, with fever, malaise and a tender, red, swollen and hard area of the breast, usually in a wedge-shaped distribution.

Infectious mastitis should be suspected if:

Symptoms do not improve or are worsening after 12-24 hours despite effective milk removal.

The woman has a nipple fissure that is infected.

Bacterial culture is positive (breast milk culture is not routinely required unless mastitis is severe, there has been no response to antibiotics, or this is recurrent mastitis).

Management of mastitis focuses on relieving pain with simple analgesia and warm compresses, and encouraging complete emptying of the breast after feeding (this may require the woman to express the remaining milk by hand or by using a breast pump).

The woman should be encouraged to continue breast feeding as this improves milk removal and prevent nipple damage. If pain prevents the woman from breast feeding she should be encouraged to express breast milk by hand or pump until breastfeeding can be resumed.

Antibiotics are only recommended if the lady has an infected nipple fissure, symptoms do not improve or are worsening after 12-24 hours despite effective milk removal, or bacterial culture is positive. The first line antibiotic is flucloxacillin 500 mg qds for 14 days (erythromycin 250 mg to 500 mg qds for 14 days if penicillin allergic) and the woman should be reassured that only small amount of these are excreted in milk and the infant is not usually affected.

Intravenous antibiotics are rarely indicated for mastitis. If a breast abscess is suspected (a history of recent mastitis, painful, swollen lump in the breast with redness, heat, and swelling of the overlying skin) then urgent referral to breast surgeons for drainage is warranted.

Question:

A 19-year-old man is attacked outside a club and beaten with a baseball bat. He sustains a blow to the right side of his head. He is brought to the emergency department and a policy of observation is adopted. His Glasgow coma score (GCS) deteriorates and he becomes comatose. Which of the following haemodynamic parameters is most likely to be present?

A.Hypertension and bradycardia

B.Hypotension and tachycardia

C.Hypotension and bradycardia

D.Hypertension and tachycardia

E.Normotension and bradycardia

Answer:Hypertension and bradycardia

Explanation:

Hypertension and bradycardia are seen prior to coning. The brain autoregulates its blood supply by controlling systemic blood pressure.

Question:

A 49-year-old female presents with painful colour changes of her hands precipitated by cold. She also reports difficulty swallowing and has noticed tightness of her skin especially on her face and her fingers.

What is the most appropriate test from the options below?

A.Anti-centromere antibody

B.Anti-CCP (cyclic citrullinated peptide) antibody

C.ANCA (anti-neutrophil cytoplasmic antibody)

D.Anti-dsDNA antibody

E.Anti-Ro / Anti-La antibodies

Answer:Anti-centromere antibody

Explanation:

The clinical features are suggestive of scleroderma. A positive anti-centromere antibody can assist in making the diagnosis.

Question:

You are the junior doctor on the labour ward, and are called to a 27-year-old's first delivery. She underwent spontaneous preterm rupture of membranes at 34 weeks, and now the umbilical cord is palpable vaginally above the level of the introitus.

Which of these is correct regarding your management of this patient?

A.Tocolytics, e.g. terbutaline, should be avoided

B.The presenting part of the fetus may be pushed back into the uterus

C.The patient is advised to lie supine

D.The cord may be pushed back into the uterus

E.Natural labour would be the usual delivery method of choice

Answer:The presenting part of the fetus may be pushed back into the uterus

Explanation:

This is a case of cord prolapse, which occurs after membrane rupture when the umbilical cord descends below the presenting part of the fetus. It can lead to fetal hypoxia and death due to the cord being compressed or going into spasm.

1: Tocolytics should be used to reduce cord compression and allow Caesarean delivery

2: Correct, to avoid compression

3: The patient is advised to go onto all fours

4: The cord should not be pushed back into the uterus

5: Immediate Caesarean section is the delivery method of choice

Question:

A 38-year-old female presents to her general practitioner with a 2-week history of urinary frequency and incontinence. She is normally well but suffered from painful eye movements and visual disturbance 6 months ago which have since largely resolved. A urine dipstick is performed, which returns no abnormal findings.

Which of the following imaging modalities would best identify this patient's likely diagnosis?

A.CT with contrast

B.CT without contrast

C.MRI with contrast

D.MRI without contrast

E.Positron emission tomography

Answer:MRI with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

The correct answer is MRI with contrast. This patient has a likely diagnosis of multiple sclerosis (MS) as she is presenting with evidence of optic neuritis (painful eye movements and visual disturbance) and urinary incontinence, with an intervening period of remission. This clinical history, along with her age and gender make a diagnosis of MS likely. MS is an autoimmune demyelinating disorder that affects the central nervous system (CNS). As lesions can affect any part of the CNS, symptoms can be varied, but optic neuritis is often associated with the condition. The best imaging modality to view demyelinating lesions in MS is MRI with contrast. This will often show high signal T2 lesions and periventricular plaques.

CT without contrast is incorrect; while this may identify demyelinating lesions, it does not provide the necessary detail with which to make a definitive diagnosis.

CT with contrast is incorrect as this does not provide sufficient detail to view demyelinating lesions.

MRI without contrast is incorrect as this does not provide sufficient detail to view demyelinating lesions; it may however be used in disease monitoring.

Positron emission tomography is incorrect; this is used to demonstrate how metabolically active cells are and would provide little to aid a diagnosis, while also giving a high radiation dose to the patient.

Question:

Where is the site of action of furosemide?

A.Proximal collecting duct

B.Ascending loop of Henle

C.Descending loop of Henle

D.Distal collecting duct

E.Macula densa

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

Question:

You see a 6 week-old baby boy for his routine baby check. His mother has a past medical history of asthma and used inhaled steroids during pregnancy. He was delivered by planned Caesarian at 39 weeks due to breech presentation. His birthweight was 3.1kg. Which of the following conditions is he at increased risk of?

A.Congenital heart defect

B.Developmental dysplasia of the hip

C.Congenital cataract

D.Spina bifida

E.Umbilical hernia

Answer:Developmental dysplasia of the hip

Explanation:

Breech presentation is a risk factor for developmental dysplasia of the hip (DDH), so you should check that the baby has been referred for screening for this condition. The Department of Health advises that all babies that were breech at any point from 36 weeks (even if not breech by time of delivery), babies born before 36 weeks who had breech presentation, and all babies with a first degree relative with a hip problem in early life, should be referred for ultrasound of the hips. If one of a pair of twins is breech, both should be screened. Some Trusts also refer babies with other conditions including oligohydramnios, high birthweight, torticollis, congenital talipes calcaneovalgus and metatarsus adductus. Further details on screening for DDH can be found at the link below.

Question:

What is the investigation of choice to look for renal scarring in a child with vesicoureteric reflux?

A.Abdominal x-ray

B.Ultrasound

C.Radionuclide scan using dimercaptosuccinic acid (DMSA)

D.CT scan

E.Micturating cystourethrogram

Answer:Radionuclide scan using dimercaptosuccinic acid (DMSA)

Explanation:

Question:

A 50-year-old caucasian man presents for his annual hypertension review, having already completed a blood pressure diary at home, which shows a daytime average of 160/100 mmHg. In the clinic today, his blood pressure is 174/110 mmHg. He currently takes ramipril 10mg daily and is fully compliant with his medication.

As well as hypertension, his medical history is significant for recurrent episodes of gout, for which he takes allopurinol. He has no other medical history. Since his hypertension diagnosis, he has stopped smoking and has made steps to improve his lifestyle.

What is the most appropriate step?

A.Add bendroflumethiazide

B.Add doxazosin

C.Add losartan

D.Add nifedipine

E.Discuss lifestyle factors and re-measure in 3 months

Answer:Add nifedipine

Explanation:

For a patient with hypertension who is already taking an ACE inhibitor, a history of gout would favour a calcium channel blocker over a thiazide as the next step

Important for meLess important

Nifedipine is the most appropriate choice for this patient. The blood pressure target for an adult under 80 years old with hypertension is blood pressure below 140/90 mmHg. Both clinic and home readings show that this patient's blood pressure is not controlled by a single agent. NICE recommends that, in this instance, treatment adherence is checked. If compliance is good (as in this patient), a second agent should be considered. For a caucasian man under 55 years old, step one of treatment is an angiotensin-converting enzyme (ACE) inhibitor (in this case, ramipril) or an angiotensin-II receptor blocker (ARB). Step two of treatment (now required) is the addition of a calcium-channel blocker (CCB) or thiazide-like diuretic. The exact choice depends on clinical factors. This patient has a history of gout, which can be exacerbated by thiazide-like diuretics, such as bendroflumethiazide. For this reason, of the two possible additional drugs listed (bendroflumethiazide or nifedipine, which is a CCB), nifedipine is more appropriate.

Bendroflumethiazide can be added to ramipril for stage-2 hypertension treatment. However, it is a less appropriate choice for this patient as it may exacerbate his gout.

Doxazosin is an alpha-blocker. Alpha-blockers are not introduced in managing hypertension until stage 4 hypertension, by which point the patient will already be taking three medications. They would not be added for stage 2 hypertension.

Losartan is an ARB, which may be used in stage 1 hypertension (in Caucasians under 55) if the patient does not tolerate an ACE inhibitor. ACE inhibitors and ARBs are not used together due to the risk of renal dysfunction.

Discuss lifestyle factors and repeat blood pressure in 3 months is not appropriate. Whilst this patient is already taking steps to improve his lifestyle his blood pressure remains above target, suggesting that a single antihypertensive is not adequate. At this stage, NICE recommends adding a second antihypertensive agent. It is not uncommon for one agent alone to be inadequate at controlling hypertension.

Question:

A father brings a 9-month-old baby to her GP concerned about her development. She was born at 38 weeks with a low birth weight of 2,200 grams. Her development so far has been unremarkable.

He reports that she is able to sit unsupported but that she tends to use her right hand only to grasp toys, even if they are placed on her left side. When a task requires two hands, she uses her left hand to assist the right but it appears uncoordinated.

What is the most appropriate management?

A.Ask the parent to return if the issue persists for more than 12 months

B.Ask the parent to return if the issue persists for more than 6 months

C.Re-assure the parent that this is a normal variation

D.Refer routinely to a child development service for multidisciplinary assessment

E.Refer urgently to a child development service for multidisciplinary assessment

Answer:Refer urgently to a child development service for multidisciplinary assessment

Explanation:

Hand preference before 12 months is abnormal - it could be an indicator of cerebral palsy

Important for meLess important

The correct response is to refer urgently to a child development service for multidisciplinary assessment.

Children with cerebral palsy (CP) are usually identified early and have specialist support from birth. However, occasionally CP is suspected in an infant presenting to primary care. NICE guidelines suggest the following delayed motor milestones should elicit suspicion of CP:

Not sitting by 8 months (corrected for gestational age)

Not walking by 18 months (corrected for gestational age)

Early asymmetry of hand function (hand preference) before 1 year (corrected for gestational age)

Persistent toe-walking

As the child is clearly demonstrating hand preference before 1 year, NICE guidelines suggest that the child should be urgently referred if she has a risk factor for CP. In this case, low birth weight qualifies as a risk factor, so she should be urgently referred.

The other options do not ensure a timely assessment of a possible diagnosis of CP and so are incorrect.

Question:

A 64-year-old is admitted with acute abdominal pain. He is peritonitic on examination, and following investigation is found to have a perforated sigmoid colon secondary to colonic malignancy. He requires an emergency Hartmann's procedure. Which of the following is true?

A.He requires a primary colorectal anastomosis

B.He requires a loop ileostomy

C.He requires an end colostomy

D.He will most likely require a stoma on the right side of his abdomen

E.He will require a spouted stoma

Answer:He requires an end colostomy

Explanation:

An emergency Hartmann's procedure involves resection of their rectosigmoid colon. An end colostomy is formed and rectal stump sewn. It is indicated by perforation of the rectosigmoid bowel, and subsequent peritonitis. Causes of perforation include colon cancer, diverticulitis, and trauma. Colostomies are brought out on the left side of the abdomen, and sewn flush with the skin.

Source: http://www.acpgbi.org.uk/content/uploads/2007-CC-Management-Guidelines.pdf

Question:

A 67-year-old male arrives into emergency department via ambulance with severe constant abdominal pain and vomiting. A brief history establishes that he has had previous episodes of this pain but less severe. He has a background of gastro-oesophageal reflux, osteoarthritis and chronic obstructive pulmonary disease (COPD). He has a 30 pack-year smoking history and drinks 40 units of alcohol every week. After stabilising the patient using an ABCDE approach you review the investigation results. His amylase is moderately raised, he has deranged liver function tests and a chest x-ray reveals free air under the diaphragm. What is the most likely diagnosis?

A.Pancreatitis

B.Peptic ulcer perforation

C.Abdominal aortic aneurysm rupture

D.Intestinal obstruction

E.Acute cholecystitis

Answer:Peptic ulcer perforation

Explanation:

Risk factors for peptic ulcer disease include a history of NSAID (non steroidal anti inflammatory drugs) and steroid use. The perforation is confirmed by free air under the diaphragm. One should always exclude peptic ulcer perforation with an erect chest x-ray when suspecting pancreatitis. Cholecystitis is classically a colicky pain, after eating fatty foods.

Question:

A 44-year-old woman with oestrogen receptor positive breast cancer comes for review, three months after starting tamoxifen. Which one of the following adverse effects is most likely to occur in this patient?

A.Myalgia

B.Cataracts

C.Alopecia

D.Hot flushes

E.Cervical cancer

Answer:Hot flushes

Explanation:

Tamoxifen may cause hot flushes

Important for meLess important

Alopecia and cataracts are listed in the BNF as possible side-effects. They are however not as prevalent as hot flushes, which are very common in pre-menopausal women

Question:

You are an FY1 doctor. You have been called to attend an unconscious 65-year-old woman on the floor of a ward. When assessing her airway it looks clear, but you can hear snoring. The snoring stops when you do a head tilt, chin lift and jaw thrust. On auscultation, her chest is clear with good bilateral air flow and her trachea is central. Her peripheral capillary refill is more than 2 seconds. Her oxygen saturation is 96% on 4L of oxygen, her pulse is weak and regular at 105/min, her respiratory rate is 16/min, her blood pressure is 98/54 mmHg, and her temperature is 36.6 ºC.

What is the most appropriate immediate management?

A.Ask a nurse to take over the jaw thrust

B.Insert a cuffed tracheal tube

C.Insert a nasopharyngeal tube

D.Insert a supraglottic airway device

E.Insert an oropharyngeal tube

Answer:Insert an oropharyngeal tube

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

Insert an oropharyngeal tube - this can be used to prevent airway obstruction caused by poor pharyngeal muscle tone. After inserting this a jaw thrust is no longer required, so you can continue with the primary survey.

Ask a nurse to take over the jaw thrust - this is appropriate as it ensures that the patient's airway is patent and not obstructed by the tongue. However, it is not the best use of resources as the nurse can be utilised for other tasks, such as repeating observations, getting IV access and administering medications.

Insert a cuffed tracheal tube - although if this is inserted correctly the airway will be patent, an oropharyngeal tube is quicker and easier to insert. It is also best to ask someone more senior to insert this.

Insert a nasopharyngeal tube - the snoring is caused by the obstruction of the tongue. An oropharyngeal airway is better at stopping this. You are unaware of why the patient is unconscious. The nasopharyngeal airway is contra-indicated in basal skull fractures.

Insert a supraglottic airway device - an oropharyngeal airway is quicker and just as effective at clearing an obstruction caused by the tongue.

Question:

A 74-year-old man presents to his GP with slowed movement and feeling off-balance. His wife has noticed that his right hand starts shaking when he is watching television.

What is the most appropriate action for the GP to take?

A.Wait until symptoms deteriorate before referring to neurology to start co-careldopa

B.Start co-careldopa

C.Refer urgently to neurology

D.Refer urgently to neurology and start co-careldopa

E.Refer routinely to neurology

Answer:Refer urgently to neurology

Explanation:

Parkinsons disease should only be diagnosed, and management initiated, by a specialist with expertise in movement disorders

Important for meLess important

This question tests the understanding of primary care management of idiopathic Parkinson's disease.

Parkinson's disease is a complex multisystem disease that can have a crippling effect on all domains of a person's life, and puts them at risk from many complications.

As such, NICE recommends that they are seen URGENTLY to reduce the chances of complications, and initiate management that will reduce the impact on the individuals life.

This means we can exclude 1 and 5.

Furthermore, the medications for Parkinson's disease are very complex with significant side effect profiles. They also require careful titration to maximise effect and bio-availability. As such, management should be handled by a SPECIALIST.

Thus, we can also exclude 2 and 4

This leaves us with the correct answer, 3.

To summarise, Parkinson's disease has a large impact on people's lives, and assessment should occur urgently. It should be done by a specialist who understands the pathology and management extremely well, and treatment should not be started in primary care.

If you suspect someone has Parkinson's disease in GP, refer them to a specialist urgently.

Question:

A 36-year-old female presents with stiff and swollen joints. She says that the joints are particularly stiff in the morning for the first few hours of the day. She has a strong family history of rheumatoid arthritis (RA) affecting her mother and sister. On examination she has a symmetrical polyarthritis affecting the small joints of the hand. Rheumatoid factor antibody, anti-nuclear antibody and anti-ds DNA are all negative.

What is the most appropriate test from the options below?

A.Anti-centromere antibody

B.ANCA (anti-neutrophil cytoplasmic antibody)

C.Serum uric acid levels

D.Anti-Ro / Anti-La antibodies

E.Anti-CCP (cyclic citrullinated peptide) antibody

Answer:Anti-CCP (cyclic citrullinated peptide) antibody

Explanation:

The clinical features are suggestive of rheumatoid arthritis (RA). It is important to remember that Anti-CCP (cyclic citrullinated peptide) antibody is positive in approximately 40% of patients who test negative for Rheumatoid Factor. Therefore Anti-CCP is an important diagnostic test for RA.

Question:

A 25-year-old woman at 15 weeks gestation of her first pregnancy returns to her general practitioner with tremor after starting a medication during pregnancy for hyperemesis gravidarum. On examination, the patient has a resting tremor in their left hand and increased upper limb tone.

What medication was the patient most likely prescribed?

A.Cyclizine

B.Metoclopramide

C.Ondansetron

D.Prednisolone

E.Promethazine

Answer:Metoclopramide

Explanation:

Metoclopramide is an option for nausea and vomiting in pregnancy, but it should not be used for more than 5 days due to the risk of extrapyramidal effects

Important for meLess important

This scenario describes a 25-year-old woman who has developed a resting tremor and increased upper limb tone after starting medication for hyperemesis gravidarum. Resting tremor can be part of extrapyramidal effects seen with metoclopramide, particularly when used for longer periods. Due to the risk of extrapyramidal effects, it is recommended that metoclopramide should not be used first-line. But, if it is used, the duration of use should be limited to no more than five days.

Cyclizine is incorrect. Cyclizine is a H1 histamine receptor antagonist, which may be used in hyperemesis gravidarum. Whilst tremor may occur with cyclizine use, the above scenario describes likely extrapyramidal effects, which are not routinely described as a risk. Drowsiness or reduced consciousness should be monitored.

Ondansetron is incorrect. Ondansetron is an anti-emetic that may be used in hyperemesis gravidarum and works by blocking the serotonin receptors in the chemoreceptor trigger zone. Extrapyramidal effects are not described, but common side effects can include constipation and headaches. Some sources recommend that ondansetron should be avoided in the first trimester due to the risk of orofacial clefts.

Prednisolone is incorrect. Corticosteroids are not used first-line in hyperemesis gravidarum, but maybe useful in difficult to manage cases. Corticosteroids have numerous side effects. However, extrapyramidal side effects (such as resting tremors) are not commonly described.

Promethazine is incorrect. Promethazine is an H1 histamine receptor antagonist which can be used in hyperemesis gravidarum. Drowsiness is an important side effect to monitor for.

Question:

A 24-year-old woman is due to be discharged from the labour ward after an uncomplicated delivery. Prior to discharge, the team discusses contraception with her. The patient was previously taking microgynon (ethinylestradiol 30 microgram/levonorgestrel 50 micrograms) and would like to restart this.

The patient has no significant medical history, takes no other medications, and has no allergies. She is a non-smoker with a BMI of 19kg/m² and does not plan to breastfeed her baby.

When can the patient safely restart her medication?

A.She can re-start at any time

B.She can restart after 48 hours

C.She can restart after 1 week

D.She can restart after 3 weeks

E.She can restart after 6 weeks

Answer:She can restart after 3 weeks

Explanation:

The COCP should not be used in the first 21 days due to the increased venous thromboembolism risk post-partum

Important for meLess important

Microgynon is a combined oral contraceptive pill (COCP). The COCP is contraindicated in the first 21 days after birth due to the increased risk of venous thromboembolism. When it can safely be restarted depends on whether the patient is breastfeeding (in which case it is not restarted until at least 6 weeks postpartum) and whether there are additional risk factors for venous thromboembolism (at which case it may be restarted later). This patient is not breastfeeding and has no additional risks for thromboembolic disease, so she can restart her pill at 3 weeks.

Re-starting at any time is incorrect. As above, the COCP is contraindicated in the first 21 days postpartum due to the increased venous thromboembolism risk.

Re-starting after 48 hours is incorrect. The COCP must be withheld for the first 21 days postpartum.

Re-starting after 1 week is incorrect. The COCP must be withheld for the first 21 days postpartum.

The patient does not need to wait for 6 weeks as she is not breastfeeding and has no risk factors for venous thromboembolic disease.

Question:

Tina is an 18-year-old woman who presents to her GP with myalgia and fatigue. She has no other past medical history. She has previously been seen for a rash on her cheeks for which she was treated with an anti-fungal cream, however, it did not improve.

On examination her observations are normal. There is no redness or swelling of her joints, however, she is tender when you squeeze her hands. Her power is 5/5 in all muscle groups.

Her maternal aunt has a diagnosis of systemic lupus erythematosus (SLE). She is concerned that she also has a diagnosis of SLE.

Which of the following blood tests, if negative, is a useful rule-out test?

A.C-reactive protein (CRP)

B.ANA

C.ESR

D.ANCA

E.ENA

Answer:ANA

Explanation:

Over 99% of patients with SLE are ANA positive, therefore it is a useful rule out test

Important for meLess important

The majority of patients with SLE are ANA+ve. ANA stands for antinuclear antibody. Although it is not highly specific for lupus, a negative result would lean away from SLE as the underlying diagnosis.

CRP and ESR are acute-phase proteins and they rise in response to inflammation. Although they are likely to be raised in an acute flare of SLE, they are not specific for an autoimmune condition.

ANCA is an antibody which is found in patients with autoimmune vasculitis.

ENA stands for extractable nuclear antigen panel and is used to look for specific antibodies including anti-Ro and anti-la. It is only ordered if a patient has a positive ANA test and an autoimmune condition is suspected.

Question:

A 13-year-old boy is presents to the emergency department following an overdose of paracetamol. He has presented 2-days after he took the overdose as he is feeling incredibly unwell.

Which of the following patterns of liver disease are you most likely to see?

A.Normal ALT. High ALP. ALT/ALP ratio low

B.High ALT. High ALP. ALT/ALP ratio high

C.High ALT. Normal ALP. ALT/ALP ratio high

D.High ALT. High ALP. ALT/ALP ratio low

E.Low ALT. High ALP. ALT/ALP ratio high

Answer:High ALT. Normal ALP. ALT/ALP ratio high

Explanation:

Paracetamol overdose causes a hepatocellular picture of liver disease

Important for meLess important

This question requires an understanding of the different types of liver disease. They can effectively be split into hepatocellular, cholestatic (obstructive) or mixed. Cirrhosis is arguably a separate category of liver disease as well. The following table shows the expected liver function tests that would be seen in each disease.

Laboratory test Hepatocellular disease Cholestatic disease Mixed disease

ALT Raised at least 2-fold Normal Raised at least 2-fold

ALP Normal Raised at least 2-fold Raised at least 2-fold

ALT/ALP 5+ <2 2-5

AST and ALT are both produced by hepatocytes. In hepatocellular disease, hepatocytes release these enzymes into the blood stream, hence explaining the raised ALT in this question.

ALP is produced by the cells lining the bile ducts. Hence the levels in the blood will rise in obstructive disease.

Question:

An 81-year-old man is seen in the oncology clinic for a review of metastatic prostate cancer. The cancer has primarily spread to his pelvis and lower spine. He complains of significant 'gnawing' back pain, despite high doses of morphine. Also, he has developed chronic constipation despite several laxatives which causes him a lot of discomfort.

He is largely restricted to his house due to the back pain limiting his mobility, but when the pain is more settled enjoys going for short walks outside.

What is the most appropriate management option?

A.Add in codeine

B.Add in duloxetine

C.Add in paracetamol

D.Increase dose of opioids

E.Trial of radiotherapy

Answer:Trial of radiotherapy

Explanation:

Metastatic bone pain may respond to analgesia, bisphosphonates or radiotherapy

Important for meLess important

Options for the management of metastatic bone pain include strong opioids, bisphosphonates, radiotherapy and denosumab. Strong opioids have the lowest number needed to treat for relieving the pain, however, their use and/or up-titration can be limited by side effects such as constipation and drowsiness. Where these are occurring such as in this patient, trying an alternative management strategy is suitable.

This patient continues to have pain despite high doses of morphine, and hence commencing codeine or paracetamol is likely to add little to his pain control.

Duloxetine may be helpful for neuropathic pain. Other agents used including amitriptyline, gabapentin or pregabalin. However, this pain is likely due to bone metastatic infiltration rather than neuropathic pain.

The patient is experiencing side effects (constipation) as a result of his current opioids. Increasing the dose will likely worsen this, and when his pain continues despite already being on high doses of opioids, an alternative pain strategy is probably more likely to be effective.

Question:

A 37-year-old man presents with unexplained weight gain over the last 6 months as well as low energy and irritability over the last 1 month.

On physical examination the patient has significant truncal obesity, a rounded face, a dorso-cervical hump as well as abdominal striation.

What is the most common endogenous cause of this clinical presentation?

A.Adrenal adenoma

B.Adrenal carcinoma

C.Glucocorticoid therapy

D.Micronodular adrenal dysplasia

E.Pituitary adenoma

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

This question is specifically referring to endogenous (originating within the body) causes of Cushing's syndrome and of all the endogenous causes, pituitary adenomas are the most common.

Adrenal adenomas, adrenal carcinomas and micronodular adrenal dysplasia are other causes of endogenous Cushing's syndrome but are much rarer in comparison.

While glucocorticoid therapy is the overall the most common cause of Cushing's syndrome, it is an exogenous (originating outside the body) cause of the condition and hence is not the correct answer to this question.

Question:

A 69-year-old lady is brought to hospital by an ambulance crew with a suspected stroke. On review in the emergency department she is unable to speak although she is able to follow instructions which have been written down. She has no past medical history.

A blockage of which of the following cerebral arteries is most likely to be the cause of this woman's symptoms?

A.Right anterior cerebral artery

B.Left anterior cerebral artery

C.Right middle cerebral artery

D.Left middle cerebral artery

E.Right posterior cerebral artery

Answer:Left middle cerebral artery

Explanation:

Dominant hemisphere middle cerebral artery strokes cause aphasia

Important for meLess important

The symptoms described here would fit with a form of aphasia (most likely global given her need for written instructions) and therefore her dominant hemisphere must be affected. Although you do not know the handedness of the patient in the scenario, the most likely affected side is the left as the percentage of right and left handed individuals with a dominant left hemisphere is 90% and 60% respectively, making the left always the most likely affected side regardless of handedness. The middle cerebral artery on the dominant side supplies both Wernicke's and Broca's areas of the cortex which are responsible for understanding and production of speech.

None of the other vessels supply areas which if affected would cause the patient to become aphasic as even in their watershed areas, they do not supply the speech areas.

Question:

A 55-year-old man attends his GP with 7 day history of general fever and malaise, and a 2 day history of non-productive cough. His eyes have also been sticky and sore for the last few days. He appears visibly unwell, with a fever of 38.2ºC and a respiratory rate of 20 /min. There is also some mild splenomegaly.

He has no history of recent foreign travel and denies any tuberculosis exposure or contact with anyone who has been ill. He is, however, the proud new owner of George, a red-crested Australian King Parrot, who he has had for a month.

What is the most likely cause of this gentleman's symptoms?

A.H5N1 pneumonia

B.Chlamydia psittaci infection

C.Mycoplasma infection

D.Acute hypersensitivity pneumonitis

E.Cryptosporidiosis

Answer:Chlamydia psittaci infection

Explanation:

Chlamydia psittaci is a cause of pneumonia in bird keepers

Important for meLess important

This gentleman has acquired an atypical pneumonia caused by the gram-negative bacteria Chlamydia psittaci, a pathogen commonly found in domesticated and exotic birds. C. psittaci classically causes a respiratory infection as well as an acute or chronic conjunctivitis, but presentation can range from mild flu-like illness to multi-organ failure.

H5N1, also known as avian influenza or 'bird flu', has received significant attention given its high levels of pathogenicity, however, it does not transmit easily from birds to humans and cases have been limited to date to the far and middle east.

Mycoplasma is a more common cause of atypical pneumonia and would have a similar presentation. The bird keeping is the primary discriminating element here. Additionally, mycoplasma infection would not typically cause splenomegaly.

Hypersensitivity pneumonitis, also known as extrinsic allergic alveolitis, is a hypersensitivity reaction caused by exposure to organic dusts. This can include bird droppings, such as in Bird Fancier's Lung. Symptom onset is usually within 4-6 hours however as this is an allergic-type reaction, which does not fit with this clinical history.

Cryptosporidiosis is a parasitic infection that can be contracted from contact with infected individuals or animals. It is, however, an opportunistic infection and typically only presents in immunocompromised individuals, particularly those with HIV.

Question:

A 38-year-old women undergoes a gastric bypass procedure. Post operatively she attends the clinic and complains that following a meal she develops vertigo and develops crampy abdominal pain. What is the most likely underlying explanation?

A.Insulin resistance

B.Irritable bowel syndrome

C.Biliary colic

D.Dumping syndrome

E.Enterogastric reflux

Answer:Dumping syndrome

Explanation:

Dumping syndrome, which can be divided into early and late, may occur following gastric surgery. It occurs as a result of a hyperosmolar load rapidly entering the proximal jejunum. Osmosis drags water into the lumen, this results in lumen distension (pain) and then diarrhoea. Excessive insulin release also occurs and results in hypoglycaemic symptoms.

Question:

A 43-year-old female presents with a tremor and weight loss. On further questioning, she admits to feeling intolerant of heat and more irritable than usual. On examination, her heart rate is found to be 113 beats per minute and she has a pronounced tremor of the outstretched hands. Blood tests show raised thyrotropin receptor, but normal thyroid peroxidase antibodies.

Which of the following treatments is the best option for symptomatic control whilst awaiting more definitive treatment?

A.Carbimazole

B.Bisoprolol

C.Ivabradine

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

Propranolol is a beta-blocker used to provide symptomatic relief in patients awaiting treatment for Graves' disease. It is particularly useful for the symptoms of tremors and palpitations associated with thyrotoxicosis.

Carbimazole is the first-line treatment of Graves' disease in most cases. It is used to induce remission. Unfortunately, it can take some time to take effect and patients will often require symptomatic treatment with a beta-blocker in the short term.

Bisoprolol is also a beta-blocker but it is not used for Graves' disease. Bisoprolol is used to treat hypertension, angina, and heart failure.

Ivabradine is a cardiac medication that works on the sino-atrial node to control/reduce heart rate. It is used in the treatment of angina and heart failure.

Propylthiouracil is used to treat Graves' disease but its use is generally reserved for patients in the first trimester of pregnancy or those trying to conceive. Sometimes it is used if patients don't tolerate carbimazole. It carries a small risk of severe liver injury which is why it is not generally used first line.

Question:

A 47-year-old man was diagnosed with tuberculosis (TB) three months ago. He was prescribed isoniazid, rifampicin, pyrazinamide and ethambutol. He attends the clinic today complaining of a 2-week history of tingling and reduced sensation in his toes. A peripheral neurological examination shows a bilateral sensory loss in his feet to the level of his ankle.

What additional medication should have initially been prescribed alongside his other medications to reduce the risk of developing these symptoms?

A.Amitriptyline

B.Duloxetine

C.Gabapentin

D.Pregabalin

E.Pyridoxine

Answer:Pyridoxine

Explanation:

The risk of peripheral neuropathy with isoniazid can be reduced by prescribing pyridoxine

Important for meLess important

Pyridoxine is correct. This man is suffering from peripheral neuropathy, shown by the tingling and loss of sensation in his toes, most likely caused by isoniazid. The bilateral sensory loss on examination supports a diagnosis of peripheral neuropathy, as opposed to other nerve injuries which might show a dermatomal distribution of sensory loss. Isoniazid acts to inhibit the synthesis of mycolic acid, which is found in Mycobacterium tuberculosis. Isoniazid does this by inhibiting pyridoxine kinase. This leads to a depletion of pyridoxine, otherwise known as vitamin B6. Pyridoxine is a co-factor for the neurotransmitter gamma-aminobutyric acid (GABA), and reduced levels lead to peripheral neuropathy. Giving the patient pyridoxine repletes the stores needed for normal nerve function.

Pyridoxine is a form of vitamin B6 and should be prescribed alongside the other TB medications to reduce the risk of peripheral neuropathy.

Amitriptyline is incorrect. Amitriptyline is a tricyclic antidepressant used to treat neuropathic pain. It is used for migraine prophylaxis. It is not used to reduce the risk of peripheral neuropathy and therefore does not makeup part of the normal TB drug regime.

Duloxetine is incorrect. Duloxetine is used to treat many conditions, such as depressive disorder and urinary stress incontinence. It is also used to treat diabetic neuropathy, but not for reducing the risk of peripheral neuropathy.

Gabapentin is incorrect. Gabapentin is used to treat peripheral neuropathic pain, not to reduce the risk of peripheral neuropathy. This patient is not complaining of any pain in his hands or feet, therefore this would not be the most appropriate medication.

Pregabalin is incorrect. It is used to treat peripheral and central neuropathic pain, not to reduce the risk of peripheral neuropathy. This patient is not complaining of any pain, so pregabalin would be unlikely to be of many benefits. It is also not used as a prophylactic agent to reduce the risk of neuropathic symptoms.

Question:

A 24-year-old man with a two-year history of depression presents to the emergency department with jaundice that developed four days ago. He has not noticed any other symptoms. His girlfriend tells you that she is worried about him because for the last year he has been becoming increasingly forgetful and sometimes acts like a different person. The man denies using alcohol and drugs and there is no travel history.

On examination, he is jaundiced with slight hepatomegaly. He also has a bilateral tremor. His observations are normal.

Bloods are taken:

Bilirubin 42 µmol/l

ALP 94 u/l

ALT 82 u/l

Albumin 37 g/l

Of the following, which is most likely to reveal the diagnosis?

A.Psychiatric evaluation

B.Copper studies

C.Iron studies

D.Hepatitis serology

E.Brain MRI

Answer:Copper studies

Explanation:

A combination of liver and neurological disease points towards Wilson's disease

Important for meLess important

This man is displaying elements of both liver disease (jaundice, hepatocellular LFTs) and neuropsychiatric disease (depression, dementia, behavioural change, tremor). This should prompt the consideration of Wilson's disease which would be tested for with copper studies (including serum copper, serum caeruloplasmin, and urine copper).

The other options would test for conditions that would explain facets of his presentation but not all of it.

A psychiatric evaluation might help explore the man's depression, dementia and behavioural change. However, it is important to rule out organic disease first, particularly given that he is jaundiced.

Iron studies would test for haemochromatosis. This condition would cause liver disease although it would be of a more chronic nature. Haemochromatosis would also affect other systems, including joints, the pancreas and the skin. It also would not explain the neuropsychiatric symptoms.

Hepatitis serology would be a useful part of the workup for acute jaundice. However, it would only explain the man's jaundice and so is not the most diagnostic investigation.

A brain MRI would not help establish the cause of the man's jaundice.

Question:

A 32-year-old pregnant woman presents to the GP with jaundice and itchy skin for the past 2 weeks. She claims that is a lot worse during this pregnancy compared to her last one. History reveals that she is currently 30 weeks pregnant with no complications up until presentation. On examination, the only notable findings are mild jaundice seen in the sclerae, as well as excoriations around the umbilicus and flanks. She denies any tenderness in her abdomen during the examination. Blood tests show the following:

ALT 206 U/L

AST 159 U/L

ALP 796 umol/l

GGT 397 U/L

Bilirubin (direct) 56 umol/L

Bile salts 34 umol/L

Bile salts reference range 0 - 14 umol/L

What is the most likely diagnosis?

A.Obstetric cholestasis

B.Budd-Chiari syndrome

C.Acute hepatitis

D.HELLP syndrome

E.Acute fatty liver of pregnancy

Answer:Obstetric cholestasis

Explanation:

Obstetric cholestasis, also known as intrahepatic cholestasis of pregnancy, is a condition caused by the impaired flow of bile. This, in turn, causes a build-up of bile salts which can then deposit in the skin (causing pruritus) as well as the placenta. It is thought that the aetiology of this condition is a combination of hormonal, genetic and environmental factors.

Although the pruritic symptoms can be distressing for the mother, the build of bile salts can also be detrimental to foetal well-being. The combination of the immature foetal liver's ability to cope with breaking down the excessive bile salt levels as well as the vasoconstricting effect of bile salts on human placental chorionic veins, has been theorised to be the cause of sudden asphyxial events in the foetus leading to anoxia and death.

Question:

You are called to see a 33-year-old male on the ward who is recovering following a subarachnoid haemorrhage (SAH) he had three days ago. Today, he has become more drowsy and nauseous and is complaining of a new headache and muscle cramps. Physical examination is normal.

What is the most likely diagnosis?

A.Adrenal crisis

B.Cerebral herniation

C.Encephalitis

D.Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

E.Vasospasm

Answer:Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

Explanation:

SIADH is a common consequence of subarachnoid haemorrhage

Important for meLess important

This patient has SIADH (syndrome of inappropriate antidiuretic hormone secretion), a common complication following a brain injury, such as a subarachnoid haemorrhage. SIADH leads to hyponatremia and therefore symptoms of low sodium including nausea, vomiting, headaches, muscle cramps, and reduced consciousness.

Adrenal crisis can present with some similar symptoms as SIADH, such as nausea and cramping, as it also causes hyponatraemia. However, you would expect other clinical signs to be present such as hyperpigmentation. Furthermore, SIADH is more likely to follow SAH than adrenal crisis.

Cerebral herniation may occur following a SAH due to raised intracranial pressure following a build-up of cerebrospinal fluid in the brain (hydrocephalus). However, you would expect a patient with cerebral herniation to have reduced consciousness, as well as an abnormal physical examination, with abnormal posturing or dilated pupils.

Encephalitis is a rare condition where the brain parenchyma becomes swollen, most commonly due to viral infection. However, it is uncommon following SAH and more commonly presents with flu-like symptoms followed by confusion, behavioural change, and hallucinations.

Vasospasm is a common complication following SAH, where spasming of a cerebral vessel causes reduced blood flow to the brain. This causes drowsiness but also can present with ataxia, dysarthria, or hemiparesis. It usually occurs 5 to 10 days following a SAH.

Question:

A 25-year-old woman is to have an elective laparoscopic cholecystectomy in 8 weeks time. She takes no medications other than the combined oral contraceptive pill. What should be done with regards to her pill and her upcoming surgery?

A.Nothing, she can continue as normal

B.Stop the pill now, and restart as soon as she can tolerate oral intake after surgery

C.Stop the pill now, and restart 2 weeks after surgery

D.Stop the pill 4 weeks before surgery and restart 2 weeks after surgery

E.Stop the pill on the day of surgery and restart 2 weeks after surgery

Answer:Stop the pill 4 weeks before surgery and restart 2 weeks after surgery

Explanation:

This is a very common situation for surgical patients. The combination of undergoing surgery (especially abdominal or lower limb) and being on the pill are two independent and synergistic risk factors for venous thromboembolism, and so the pill must be stopped.

She clearly cannot continue as normal due to the elevated risk of venous thromboembolism. Stopping the pill now is too early, and would expose her to a higher risk of pregnancy, and restarting it as soon as she can tolerate oral intake is too early for the risks from the surgery to have returned to baseline. Stopping the pill on the day of the surgery would not remove the risk of clotting as she has been taking it up until her procedure and the clotting risk remains.

Stopping it 4 weeks before surgery allows a return to normal levels of coagulation, and restarting it 2 weeks after surgery allows the procoagulant effect of surgery to wear off, so this is the best answer.

Question:

A 29-year-old man visits his general practitioner with a 1-week history of left knee pain. He complains of pain on weight-bearing and swelling around the joint. There is no pain in his other joints although he does complain of pain when passing urine.

On examination, he has a temperature of 37.9ºC. His left knee is swollen and slightly warm to the touch. He has inflamed conjunctivae.

Hb 151 g/L (135-180)

Platelets 333 \* 109/L (150 - 400)

WBC 7.6 \* 109/L (4.0 - 11.0)

CRP 99 mg/L (< 5)

A knee joint aspiration is taken.

What would be expected to be found on the joint aspirate?

A.Gram negative cocci

B.Gram positive cocci

C.Negative birefringent crystals

D.No organism growth on gram stain

E.Positive birefringent crystals

Answer:No organism growth on gram stain

Explanation:

Reactive arthritis: develops after an infection where the organism cannot be recovered from the joint

Important for meLess important

No organism growth on gram stain is correct. This patient has reactive arthritis a HLA-B27 associated seronegative spondyloarthropathy. Classically, the triad of symptoms: arthritis, conjunctivitis and urethritis will be seen. Reactive arthritis commonly occurs following a diarrhoeal illness or sexually transmitted disease (e.g. Chlamydia trachomatis). Given the dysuria, it seems that a sexually transmitted disease may be the trigger for reactive arthritis. Unlike other causes of infective arthritis (e.g. septic arthritis and disseminated gonococcal arthritis) in reactive arthritis, an organism cannot be recovered from the affected joint.

Gram negative cocci is incorrect. These may be seen secondary to infection with Neisseria gonorrhoeae. It is a common cause of septic arthritis in young adults due to haematogenous spread of the infection. Additional symptoms include tenosynovitis, migratory polyarthritis and dermatitis. Although this patient has dysuria that is suggestive of a sexually-transmitted disease, the absence of these symptoms in the patient makes reactive arthritis more likely.

Gram positive cocci is incorrect. This would likely be positive in a patient with septic arthritis that is characterised by an acutely inflamed isolated joint. The joint is typically erythematous and swollen associated with a fever and restricted movement. Common organisms include Staphylococcus aureus. There are some similarities seen in this patient. However, given the presence of dysuria and conjunctivitis, reactive arthritis is more likely.

Negative birefringent crystals is incorrect. This is typically seen in cases of gout which is characterised by an acutely inflamed joint (most commonly the 1st metatarsal). Gout is usually seen in men (typically over 40 years) and is associated with a diet high in meat content.

Positive birefringent crystals is incorrect. This is associated with pseudogout which is caused by the deposition of calcium pyrophosphate. It is more common in the elderly and is often precipitated by dehydration or intercurrent illness. It does not explain this patient's symptoms.

Question:

A 39-year-old woman presents to the GP with a painful rash affecting both shins. Multiple raised erythematous nodules are noted bilaterally and the patient reports they have been present for 3 weeks and appear to be worsening. Of note, she also reports a persisting cough for the preceding 6 weeks and a chest x-ray reveals hilar lymphadenopathy.

Which of the following is most likely to be abnormal?

A.C-ANCA

B.Creatinine kinas

C.dsDNA

D.P-ANCA

E.Serum ACE level

Answer:Serum ACE level

Explanation:

Painful shin rash + cough → ?sarcoidosis

Important for meLess important

This rash is consistent with erythema nodosum. Erythema nodosum, in conjunction with a persistent cough, should raise a concern about sarcoidosis. Although diagnosis is often confirmed on CT imaging, serum ACE is raised in approximately 60% of sarcoid patients at diagnosis and is the most specific autoantibody used in diagnosis.

C-ANCA is incorrect. This is most commonly associated with granulomatosis with polyangiitis, raised in 90% of cases.

dsDNA is incorrect. This is typically abnormal in lupus erythematosus and is not sensitive or specific for sarcoid.

P-ANCA is incorrect. P-ANCA can be raised in several conditions, including but not limited to ulcerative colitis, primary sclerosing cholangitis and rheumatoid arthritis.

Question:

A 61-year-old Caucasian man with a background of hypertension and gout attended the surgery seeking advice regarding his blood pressure control. He has had high blood pressure readings at home over the last 7 days with an average reading of 150/95mmHg. He is currently well and does not complain of any chest symptoms. He does not smoke or drink alcohol. His current medication includes amlodipine and allopurinol which he has tolerated well. There is no history of any drug allergies. His blood test from two days ago is as follow:

Na+ 138 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

What is the most appropriate next step management for his hypertension?

A.Add an angiotensin receptor blocker

B.Increase amlodipine to 20mg once a day

C.Add a thiazide-like diuretic

D.Add an aldosterone antagonist

E.Stop amlodipine and switch to an ACE inhibitor

Answer:Add an angiotensin receptor blocker

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

The correct answer is 'add an angiotensin receptor blocker'. Patient’s home blood pressure reading shows that his blood pressure has remained uncontrolled despite step 1 management with maximum dose of amlodipine. In this instance, NICE recommends adding an ACE inhibitor, an angiotensin receptor blocker or a thiazide-like diuretic as step 2 management.

The maximum dose of amlodipine is 10mg. Hence, 'increase amlodipine to 20mg once a day' is incorrect.

Thiazide-like diuretic is the wrong answer. Whilst a thiazide-like diuretic may be used at this point, this patient has a history of gout and thiazide-like diuretic should be used with caution as it can exacerbate this condition.

Aldosterone antagonist and alpha-blocker are incorrect answers. They are used in the subsequent steps of hypertensive management where blood pressure remained uncontrolled despite the use of calcium channel blockers, ACE inhibitor/angiotensin receptor blocker and thiazide diuretic.

Question:

You're an F2 working on your General Practice rotation. Over the past month, you have been seeing a patient in your clinics whom you have become quite close to and fond of as you have a lot of similar interests and life experiences. During a recent consultation, the patient makes their romantic feelings towards you clear and asks if you would like to meet outside of the practice for a drink. You can't help but feel happy that the attraction is mutual, but are unsure of how to proceed. What is the most appropriate action?

A.Ask the patient if they would be willing to switch doctors, if so then agree to go for a drink

B.Ask a GP of the practice for advice

C.Meet the patient for a drink outside of the practice as you are only working there temporarily as part of your training

D.Explain you cannot meet the patient outside of the practice in a non-professional capacity

E.Explain to the patient you would have to wait until the end of your rotation and before going for a drink

Answer:Explain you cannot meet the patient outside of the practice in a non-professional capacity

Explanation:

In line with GMC guidance, you should not pursue a relationship with a patient and if a patient tries to pursue a relationship with you, you should try to re-establish professional boundaries. Therefore options 1, 2 and 5 are incorrect. Option 2 may be sensible if you are unsure of how to handle the situation, however, you should already be aware of Good Medical Practice guidelines in terms of inappropriate relationships with patients and therefore should not be agreeing to a date with a patient.

GMC - Maintaining a professional boundary between you and your patient

http://www.gmc-uk.org/guidance/ethicalguidance/21170.asp

GMC - Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 42-year-old man with polyuria undergoes investigation. His results are as follows:

Urine Osmolality before tests 285 mOsm/kg \* 109/l

After water deprivation test 283 mOsm/kg \* 109/l

After exogenous anti-diuretic hormone (ADH) 290 mOsm/kg \* 109/l

Which of the following medications may cause this picture?

A.Carbamazepine

B.Fluoxetine

C.Furosemide

D.Indapamide

E.Lithium

Answer:Lithium

Explanation:

Lithium is a recognised cause of nephrogenic diabetes insipidus

Important for meLess important

The lack of response to exogenous ADH suggests that this is nephrogenic diabetes insipidus (DI) as opposed to central (cranial) DI. Here, the kidneys are not sensitive to ADH. Lithium and demeclocycline are recognised causes.

Carbamazepine, furosemide and indapamide do not cause diabetes insipidus.

Fluoxetine is a recognised cause of syndrome of inappropriate ADH secretion (SIADH) but does not cause diabetes insipidus.

Question:

A 44-year-old woman presents to her GP with polydipsia and polyuria.

The GP arranges a water deprivation test. Blood results before the test show:

Serum osmolality 262 mOsmol/kg (275 - 295)

Urine osmolality 98 mOsmol/kg

The test starts at 8 AM and the patient has no fluid intake for the next 8 hours.

After 8 hours, urine osmolality is measured:

Urine osmolality 833 mOsmol/kg

Desmopressin is then given intramuscularly. After 4 hours the urine osmolality is measured again:

Urine osmolality 835 mOsmol/kg

What is the most accurate interpretation of these results?

A.Cranial diabetes insipidus

B.Diabetes mellitus

C.Nephrogenic diabetes insipidus

D.Normal study

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. In primary polydipsia, the patient drinks excessive amounts of water, causing dilution of the serum and urine, leading to low serum osmolality and low urine osmolality. Following water deprivation, the urine becomes more concentrated, and osmolality rises to >750mOsmol/kg. Realistically, it would not be necessary to continue to desmopressin in this instance. If the urine osmolality rises to >600mOsmol/kg following fluid deprivation, the test can be stopped as diabetes insipidus has been excluded, because the kidneys are obviously able to concentrate the urine appropriately in response to endogenous antidiuretic hormone.

Cranial diabetes insipidus is incorrect. In cranial diabetes insipidus, the body is incapable of producing any antidiuretic hormone. As a result, the urine would not concentrate and the urine osmolality would not increase in response to water deprivation. Following injection of desmopressin, however, the kidneys would then suddenly be able to concentrate the urine, and we would see a sudden rise in the urine osmolality.

Diabetes mellitus is incorrect. The water deprivation test is not used to diagnose diabetes mellitus.

Nephrogenic diabetes insipidus is incorrect. In nephrogenic diabetes insipidus, the kidneys cannot respond to the antidiuretic hormone and therefore cannot concentrate the urine; the urine will be diluted. Urine osmolality will be low and will remain low after water deprivation and after desmopressin injection.

Normal study is incorrect. In a normal study, the initial serum and urine osmolalities should be within the normal ranges. Following water deprivation, urine osmolality should increase. The test can then be stopped without progressing to desmopressin as diabetes insipidus has been excluded. The initial low serum and urine osmolalities point away from a normal study and suggest primary polydipsia instead.

Question:

A 50-year-old sheep farmer who recently arrived in the UK from Iran presents with increasing right upper quadrant (RUQ) pain of two week's duration. She also complains of tiredness and of being generally unwell for several months. She has not experienced a change in her bowel habit, weight loss, or night sweats.

On examination, her temperature is 37.8ºC, heart rate 80/min, blood pressure 135/90mmHg, respiratory rate 18/min. She is mildly jaundiced with RUQ pain and the liver edge is palpable 3cm below the costal margin.

Blood tests demonstrated raised eosinophils and her LFTs were as follows:

Bilirubin 30 µmol/l

ALP 190 u/l

ALT 36 u/l

An ultrasound scan of her liver demonstrated a 7cm cystic lesion. The scan was technically challenging but there appeared to be daughter cysts present.

What is the next investigation to carry out?

A.CT abdomen

B.Percutaneous aspiration

C.Blood cultures

D.Serum cancer markers

E.HIV test

Answer:CT abdomen

Explanation:

CT is the best investigation for hydatid cysts whilst percutaneous aspiration is contraindicated

Important for meLess important

There is a wide differential for cystic liver lesions, including simple cysts, cancers (cystic hepatocellular carcinoma or metastases), amoebic abscesses, hydatid cysts, pyogenic abscesses, and fungal microabscesses. In different scenarios, each of the answer options could be a valid investigation.

Overall, the scenario points towards a diagnosis of a hydatid cyst. Echinococcus is endemic in the Middle East and farming is a risk factor. The presence of a parasite is suggested by the eosinophilia. The hydatid cyst would have a mass effect on the liver to cause obstructive jaundice as seen here. Further, the presence of daughter cysts on ultrasound is highly suggestive. It can be tricky to distinguish between hydatid cysts and amoebic abscesses. The best modality to do so is CT.

It is important to note that percutaneous aspiration of hydatid cysts is generally contraindicated. This is because the contents of the cyst can trigger anaphylaxis and there is a risk of seeding the daughter cysts through the abdomen.

An HIV test would be useful if it were suspected that the patient had a disease that only arose in immune compromised states, such as fungal microabscesses. However, this condition would produce numerous cysts in the liver ultrasound and the patient would also be more unwell.

Serum cancer markers would help test for malignancy. In this case, cancer is an unlikely diagnosis as there has been no weight loss and no symptoms to suggest a primary elsewhere.

Blood cultures would be appropriate if looking for a septic abscess. However, the lady is afebrile with normal observations.

Question:

A four-month-old girl was reviewed due to failure to thrive. On examination she looked pale, had pale conjunctiva, and was noticeably jaundiced. Hepatosplenomegaly was also noted. As the result of a series of investigations it was confirmed that she was suffering from beta-thalassaemia major.

What treatment will be indicated?

A.Life-long iron supplementation

B.No treatment necessary

C.Life-long erythropoietin treatment

D.Controlled blood letting therapy

E.Life-long blood transfusions

Answer:Life-long blood transfusions

Explanation:

Lifelong blood transfusions are required by patients with beta-thalassaemia major

Important for meLess important

The transfusions are needed to maintain the patient's haemoglobin while simultaneously suppressing enhanced erythropoiesis. Patient's receiving life-long transfusions also require iron chelation therapy as iron-overload would otherwise occur.

Life-long iron supplementation would result in an iron overload on top of the transfusions necessary for life. Erythropoietin treatment is not indicated as in beta-thalassaemia there's already a reticulocytosis as a result of the haemolysis.

Controlled bloodletting therapy is used today in the treatment of just a few diseases such as haemochromatosis and polycythaemia.

Question:

A 7-year-old boy attends the GP surgery with abdominal pain for 4 days. He is eating and drinking normally, has no urinary symptoms and no change in bowel habit. He had experienced some cold symptoms 1 week ago, but these have subsided. Aside from this episode, he is generally a well and happy child.

On examination, the abdomen is soft but mildly tender throughout. Temperature is 37.7 degrees. His chest is clear and heart sounds are normal.

What is the most likely cause of this boy's abdominal pain?

A.Abdominal migraine

B.Mesenteric adenitis

C.Appendicitis

D.Constipation

E.Gastroenteritis

Answer:Mesenteric adenitis

Explanation:

Mesenteric adenitis describes inflamed mesenteric lymph nodes. It is often preceeded by a viral infection. It is self limiting

Important for meLess important

This child has had what was a likely viral illness in the past week and is now suffering with abdominal pain.

He is eating and drinking normally, unlikely in appendicitis.

He is passing normal stools, unlikely in constipation.

He is not vomiting, unlikely in gastroenteritis.

Abdominal migraine is rare and is less likely than mesenteric adenitis in this scenario.

Question:

A 28-year-old woman presents to her GP complaining of a 1-week history of dysuria, needing to go to the toilet more often and malaise. She is 8-weeks pregnant. A dipstick is taken which shows nitrites ++ and leukocytes ++ and a urine culture is sent.

What is the most appropriate first line management?

A.Amoxicillin PO

B.Cefalexin PO

C.Cefuroxime IV

D.Nitrofurantoin PO

E.Trimethoprim PO

Answer:Nitrofurantoin PO

Explanation:

Pregnant women with a UTI: nitrofurantoin is first-line unless the woman is close to term

Important for meLess important

This is a typical presentation of a UTI with dysuria, frequency and malaise. The dipstick findings confirm the likely diagnosis. In symptomatic pregnant women, a urine culture should be sent and the woman should be treated with nitrofurantoin (first line), although this should be avoided near term. Second line antibiotics include amoxicillin or cefalexin.

In non-pregnant women, treatment includes trimethoprim or nitrofurantoin.

IV cefuroxime is an antibiotic option for acute pyelonephritis.

Question:

Which one of the following is not a risk factor for developing osteoporosis?

A.Smoking

B.Obesity

C.Sedentary lifestyle

D.Premature menopause

E.Female sex

Answer:Obesity

Explanation:

Low body mass, rather than obesity is associated with an increased risk of developing osteoporosis

Question:

You are a male FY1 working in obstetrics. A 33-year-old female is on the ward in labour, 10 minutes ago she suffered a placental abruption and is in need of emergency care. Her midwife comes to see you, informing you that she is requesting to only be seen and cared for by females. What do you say?

A.Accept her wishes and ask around for a female doctor to come to the ward

B.Ask the midwife to take the doctors role as she is a female

C.Tell the patient you will see what you can arrange and that you will see her in 1 hour with any news on a female doctor

D.Ask the midwife to immediately summon senior medical support, regardless of gender

E.Inform the patient that this is a sexist comment and document it in her notes

Answer:Ask the midwife to immediately summon senior medical support, regardless of gender

Explanation:

This is an acute obstetric emergency and needs to be dealt with immediately. Placental abruptions can lead to massive blood loss and place both the mother and baby at a high risk of morbidity and mortality.

While patients do have a right to choose their own doctor, this doesn't apply in emergency situations where treatment is needed to save the life of the patient.

Thus, asking around for a female doctor or returning to her in 1hr of any news are inappropriate answers as they leave the patient without any medical treatment for a dangerously long period of time.

Informing the patient that this is a sexist comment and documenting it in her note is unnecessary. She has a right to express her wishes and this action doesn't deal with the situation. In addition asking the midwife to take over the role of the doctor is also a highly dangerous action. Midwives have different training to doctors and their roles are not inter-changeable. She is in need of a doctor as soon as possible and as this is an emergency you should take her wishes on board but if there is not female doctor available then she will have to be treated by a male doctor.

Question:

A 22-year-old man presents to the emergency department after a head injury in which he sustained a laceration to his eyebrow. Whilst his laceration is being sutured he mentions he is concerned about the healing of the scar, as he previously has developed enlarged, raised and red scars which are itchy at the site of injury.

What are the most common areas of the body for these kinds of scars to form?

A.Abdomen

B.Eyebrow

C.Feet

D.Forearm

E.Sternum

Answer:Sternum

Explanation:

Keloid scars are most common on the sternum

Important for meLess important

The enlarged, raised and itchy scars described in the question are keloid scars. These are more common in people with dark skin, and it is thought that they may run in families.

Areas of the body which are more susceptible to forming keloid scars include the sternum and upper back. This makes sternum the correct option.

Keloid scars can form on the abdomen, although the abdomen is not an area that is particularly susceptible to keloid scar formation, making this option incorrect.

The eyebrow is an area where keloid scars can form, although the eyebrow is not an area that is particularly susceptible to keloid scar formation.

Keloid scars can form on the feet, although the feet are not an area that is particularly susceptible to keloid scar formation.

These scars can form on the forearm, although the forearm is not an area that is particularly susceptible to keloid scar formation. Keloid scars are found more commonly on the deltoid region of the upper arm however.

Question:

The most common type of inherited colorectal cancer:

A.Familial adenomatous polyposis

B.Li-Fraumeni syndrome

C.Hereditary non-polyposis colorectal carcinoma

D.Fanconi syndrome

E.Peutz-Jeghers syndrome

Answer:Hereditary non-polyposis colorectal carcinoma

Explanation:

Question:

A 24-year-old man is brought to the Emergency Department by his friends. Around 3 hours ago he was allegedly assaulted outside of a nightclub. He was repeatedly punched in the head and has sustained some bruising around his eyes. His friends report that he is 'concussed' and say that he is confused. On examination his GCS is 14 (M6 V4 E4) and he has trouble explaining where he is. There are no focal neurological features. There is no past medical history of note. Tonight he has drunk around three pints of lager. What is the most appropriate management with regards to a possible head injury?

A.Discharge, outpatient CT head within 72 hours

B.Admit for 12 hours of observation

C.Discharge with standard head injury advice

D.CT head scan within 1 hour

E.Skull x-ray

Answer:CT head scan within 1 hour

Explanation:

This patient has a GCS < 15 after 2 hours, so requires a CT head scan as per the recent NICE guidelines.

Question:

A concerned mother brings her one-week-old baby due to poor feeding. He was born at 38 weeks gestation with no complications. There is no central cyanosis. Vital signs include a slight tachycardia, tachypnoea and hypertension measured in the upper extremity. Oxygen saturations are measured at 99% on air. Auscultation of the chest reveals a systolic murmur heard loudest at the left sternal edge and bilateral femoral pulses are weak.

What is the most likely underlying diagnosis?

A.Tetralogy of Fallot (ToF)

B.Patent ductus arteriosus (PDA)

C.Aortic stenosis (AS)

D.Hypoplastic left heart syndrome (HLHS)

E.Coarctation of the aorta

Answer:Coarctation of the aorta

Explanation:

Coarctation of the aorta can present with weakened femoral pulses

Important for meLess important

Coarctation of the aorta is a congenital abnormality where there is a narrowing of the aorta leading to hypoperfusion of the lower body. Patients can present with cardiac failure and symptoms such as poor feeding, lethargy and shortness of breath. Neonates typically present with a systolic murmur with the maximum intensity in the left sternal edge. As well as this, due to the poor perfusion, the lower extremity pulses may be weakened.

ToF may present with a wide variety of symptoms including cyanosis, right to left shunt and restricted pulmonary flow. PDA patients have a hyperdynamic circulation resulting in a forceful collapsing pulse. Aortic stenosis and HLHS both can present similarly depending on the severity of disease but these conditions typically do not present with hypertension as there is reduced flow from the ventricles.

Question:

A 71-year-old woman is receiving palliative care at home for end-stage metastatic lung cancer. Her family are worried as she has been making gurgling noises when breathing in and out. They are concerned she is struggling to breathe. She is currently on morphine 30mg daily through a syringe driver.

On examination, she is non-mobile and lying in bed. When spoken to she responds with incomprehensible sounds. She does not look agitated or in pain and is afebrile. There are no breath sounds and dullness to percussion across her entire right lung, and her left lung is clear.

What would be the most appropriate management?

A.Arrange supine chest x-ray

B.Increase morphine dose

C.Prescribe furosemide

D.Prescribe doxycycline

E.Prescribe hyoscine butylbromide

Answer:Prescribe hyoscine butylbromide

Explanation:

Hyoscine hydrobromide or hyoscine butylbromide is generally used first-line to manage secretions in a palliative care setting

Important for meLess important

The patient's gurgling is due to respiratory secretions at the end of life. Although not harmful for the patient, they can be distressing for family members. Hyoscine hydrobromide or hyoscine butylbromide can be used to manage the secretions. Glycopyrronium bromide is also sometimes used. Hyoscine butylbromide and glycopyrronium bromide do not cross the blood-brain barrier and are therefore less likely to cause CNS side effects, such as sedation.

A chest x-ray would not be indicated here. Her lung examination findings are likely due to her tumour obstructing the main bronchus causing lung collapse. She is afebrile and there are no other signs of infection. Furthermore, as the patient is in end-of-life care any chest x-ray is unlikely to change how she is treated.

Increasing her morphine is incorrect as there is no evidence she is in pain, and this would not help her secretions. Morphine could be used if the patient was anxious or breathless due to the secretions, but there is no evidence of this.

Prescribing furosemide could be helpful if the gurgling was due to pulmonary oedema. However, there are no basal crackles on auscultation or other findings to suggest this.

Doxycycline is incorrect as there are no signs of infection, such as a fever, productive cough or chest pain.

Question:

You have been seeing a 54-year-old man who has had frequent attendances with lower respiratory tract infections. He has lost weight and generally looks pale and gaunt. In your history you ask about foreign travel and risk of sexually transmitted infections. The patient admits to having unprotected sexual intercourse with a sex worker while on a work trip in Thailand several years ago when his marriage was going through a rough patch. Since then, his relationship as improved and his wife has been his only sexual partner. Following discussion with this patient, and with his consent, you screen for Human Immunodeficiency Virus (HIV) with a blood test. The test result is positive and you inform the patient. You discuss the implications of this result however he is adamant he cannot tell his wife, who is also a patient at the practice. What do you do?

A.Do nothing so confidentiality is not broken

B.Inform his wife without telling the patient

C.Give the patient an opportunity to tell his wife and if he does not then inform him that it is your duty to inform her

D.Invite the whole family for HIV testing

E.Try and find an excuse to test his wife for her HIV status without telling her

Answer:Give the patient an opportunity to tell his wife and if he does not then inform him that it is your duty to inform her

Explanation:

This is a questing relating to patient confidentiality and situations when it may be acceptable to break confidentiality. In this case, the diagnosis is that of a serious communicable disease and the implication this that there is a risk of transmission to another patient. The GMC guidance states that 'You may disclose information to a known sexual contact with 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.' Therefore in this situation, if the patient cannot be persuaded to tell his wife, you can tell him that you are going to inform her. Professional guidance is clear on this matter so the other options would not be appropriate ways to manage this situation.

Question:

A 69-year-old man of African descent presented with an elevated prostate-specific antigen (PSA) level of 23 ng/ml and underwent a prostate biopsy. This demonstrated adenocarcinoma with a Gleason score of 7. Magnetic resonance imaging examination showed abnormal signals on both sides of the prostate. A bone scan showed two bone metastatic lesions. The clinical stage was evaluated as T2 N0 M1b. He underwent surgical and hormonal treatment. He has a strong family history of cancer and so genetic testing was performed.

What following mutation is he most likely to have?

A.APC mutation

B.BRAF mutation

C.BRCA mutation

D.HOXB13 mutation

E.Ret mutation

Answer:BRCA mutation

Explanation:

Men with BRCA mutations have an increased risk of prostate cancer

Important for meLess important

BRCA mutation is the correct answer as in men this boost your odds of developing hereditary prostate cancer, especially the BRCA2 gene with a more aggressive phenotype. BRCA1 and BRCA2 are tumour suppressor genes and both are inherited in an autosomal dominant fashion with incomplete penetrance.

APC mutation is not largely involved in the development of clinical prostate cancer. Mutation of the APC gene is responsible for colorectal tumours in which ras and p53 mutations are also often involved.

BRAF mutation are rare in early and late-stage prostate cancer and therefore the incorrect answer here. BRAF mutations are actually found in roughly half of the melanomas we see.

Ret mutation means you have a condition called multiple endocrine neoplasia type 2 (MEN 2). MEN 2 increases your risk for certain types of cancers, including medullary thyroid cancer.

HOXB13 mutation carrier rate is relatively common (0.34%) in European descendants and not African descents. This variant is associated with an increased risk of hereditary prostate cancer.

Question:

A 54-year-old female with chronic back pain presents with new onset bilateral leg pain which radiates bilaterally down the back of her thighs and legs. She denies any strenuous activity over the past few days and has not been performing any activities outside her daily routine during which she works as a secretary. She reports to have noticed some mild perivaginal reduced sensation in the past few days. She has no other past medical history of note and only takes paracetamol as a regular analgesic for her back pain.

Observations show:

Blood pressure: 151/88mmHg

Pulse: 89bpm

Temperature: 36.8ºC

Respiratory rate: 21/min

Oxygen saturations: 98% in room air

On examination, she is noted to have hyporeflexia in both ankles and some reduced dorsiflexion in her left foot. Per-rectum examination shows no loss of anal tone.

What is the most likely diagnosis?

A.Cauda equina syndrome

B.Musculoskeletal pain

C.Posterior circulation stroke

D.Spinal metastases

E.L2 nerve compression

Answer:Cauda equina syndrome

Explanation:

Cauda equina syndrome may present with bilateral sciatica

Important for meLess important

This patient is presenting with a new onset bilateral nerve symptom which is accompanied by change in neurological examination. It is important to note that not all cauda equina syndrome patients present with back pain and change in bladder and bowel habits in clinical practice. The patient is demonstrating lower motor neuron signs affecting L4 and L5 (L4, L5, S1 are the most commonly affected areas for cauda equina syndrome).

Musculoskeletal pain is a possible diagnosis however it is unlikely to cause hyporeflexia and should be lower in a differential list.

A posterior circulation stroke would more typically present with a mixture of cranial nerve symptoms, cerebellar symptoms and motor and/or sensory defect. It is unlikely that a patient would present with sciatic pain.

Spinal metastases are unlikely as the patient reports no history of beta symptoms (weight loss, night sweats and fever) and there is no history of malignancy.

L2 nerve compression would cause pain, weakness, numbness, tingling, or burning sensations in the anterior aspect of the thigh.

Question:

Which one of the following is most associated with male infertility?

A.Sodium valproate therapy

B.Benign prostatic hyperplasia

C.Varicoceles

D.Epididymal cysts

E.Hydroceles

Answer:Varicoceles

Explanation:

Varicoceles may be associated with infertility

Important for meLess important

Question:

A 30-year-old man is investigated for enlarged, painless cervical lymph nodes. A biopsy is taken and a diagnosis of Hodgkin's lymphoma is made. Which one of the following types of Hodgkin's lymphoma carries the best prognosis?

A.Lymphocyte predominant

B.Mixed cellularity

C.Nodular sclerosing

D.Hairy cell

E.Lymphocyte depleted

Answer:Lymphocyte predominant

Explanation:

Hodgkin's lymphoma - best prognosis = lymphocyte predominant

Important for meLess important

Question:

A 76-year-old man presents to the emergency department with new-onset symptoms. He has difficulty swallowing and now feels the room is spinning around him and has problems with his balance and vomiting.

On examination, there is nystagmus in both eyes. A neurological examination reveals right-sided facial pain and loss of temperature sensation, along with left upper and lower limb pain with a loss of temperature sensation. Power remains intact across all muscle groups.

Given the likely diagnosis, where is the lesion located?

A.Left basilar artery

B.Left posterior inferior cerebellar artery

C.Right branches of posterior cerebral artery supplying the midbrain

D.Right middle cerebral artery

E.Right posterior inferior cerebellar artery

Answer:Right posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

Right posterior inferior cerebellar artery is correct. This patient is presenting with a range of new-onset neurological signs; stroke must be strongly considered. In this case, it is lateral medullary syndrome, caused by ischemia to the lateral part of the medulla, which is responsible for various tracts, cranial nerve nuclei and physiological centres. Damage to this part of the medulla results in the clinical manifestations seen in the question stem. These include vertigo and vomiting, ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss, and contralateral upper and lower limb sensory loss.

Left basilar artery is incorrect. A lesion in this artery would cause 'locked-in' syndrome, a condition where the patient has complete loss of all voluntary muscles except for eye movements. In this case, the patient still has voluntary movement of his muscle groups.

Left posterior cerebellar artery is incorrect. A lesion in this artery would cause similar symptoms, but there would be left-sided (i.e. ipsilateral) facial pain and temperature loss, along with right-sided (i.e. contralateral) limb pain and temperature loss.

Right branches of posterior cerebral artery supplying the midbrain is incorrect. A lesion in this site would cause Weber's syndrome, which would present classically as an ipsilateral third cranial nerve palsy (this is because the oculomotor nerve originates from the midbrain) and contralateral weakness of the upper and lower extremity. In this case, there is no obvious third cranial nerve palsy, which would classically be seen as a 'down and out' pupil.

Right middle cerebral artery is incorrect. A lesion in this artery would cause contralateral hemiparesis, with the upper extremity being more affected than the lower. This is because the middle cerebral artery supplies the portion of the frontal lobe most associated with upper extremity structures (this is well demonstrated by viewing the motor homunculus).

Question:

A 40-year-old female comes to the emergency department after a fall while walking. She complains of pain in her right shoulder. On examination, the right arm is abducted and externally rotated, and she resists all movement. The acromion appears prominent. The humeral head is seen in a subcoracoid position in anteroposterior view on X-ray.

What percentage of shoulder dislocations are similar to that found in this patient?

A.<1%

B.<5%

C.50%

D.>95%

E.>99%

Answer:>95%

Explanation:

Anterior shoulder dislocations account for > 95% of cases

Important for meLess important

The shoulder is the most common joint in the body to dislocate, accounting for approximately 50% of all major joint dislocations. Anterior shoulder dislocations account for > 95% of cases shoulder dislocations. The dislocated humeral head usually lies in a subcoracoid position. Associated injuries (Hill-Sachs deformities, Bankart lesions, and greater tuberosity fractures) may be identified on plain radiographs. Bankart lesions are frequently seen in association with a Hill-Sachs deformity.

Hill-Sachs deformity Posterolateral humeral head depression fracture, resulting from the impaction with the anterior glenoid rim

Bankart lesions Injuries specifically at the anteroinferior aspect of the glenoid labral complex

Inferior shoulder dislocation account for <1% of cases. X ray will reveal the humeral head beneath the coracoid or the glenoid.

Posterior shoulder dislocation account for 2-4% of cases. X ray may show the light bulb sign, rim sign, and trough line sign.

Light bulb sign Circular appearance of humeral head due to fixed internal rotation of the humeral head

Rim sign Widened glenohumeral joint space >6 mm

Trough line sign Dense vertical line in the medial humeral head due to impaction

Question:

A 33-year-old male presents to the GP complaining of a 4 month history persistent nasal discharge on his left hand side and facial pressure which is worse on bending forward. He often finds he has to breath through his mouth due to his nose being blocked. He has a past medical history of asthma and is a smoker with a 5 pack-year history.

What is the most appropriate management?

A.Allergen avoidance

B.Intranasal corticosteroid

C.Loratadine

D.Nasal irrigation with saline solution

E.Referral to ENT

Answer:Referral to ENT

Explanation:

Unilateral symptoms are a red flag for patients with chronic rhinosinusitis

Important for meLess important

This is a typical presentation with chronic rhinosinusitis with facial pain that is typically frontal pressure worse on bending forwards, nasal discharge, which is typically clear if allergic and nasal breathing. It may be associated with a chronic cough due to post-nasal drip.

However, this presentation is unilateral - one of the red flags in chronic rhinosinusitis, therefore a referral to ENT is the most appropriate management.

Normal management of chronic sinusitis includes allergen avoidance, intranasal corticosteroids and nasal irrigation with saline solution.

Loratadine may be a useful medication if the presentation is thought to be due to atopy.

Question:

You review a 50-year-old man who has a history of ischaemic heart disease and psoriasis. Over the past two weeks he has experienced a significant worsening of the plaque psoriasis affecting his elbows and knees. His medications have recently been altered at the cardiology clinic. Which one of the following medications is most likely to have exacerbated his psoriasis?

A.Nicorandil

B.Simvastatin

C.Verapamil

D.Atenolol

E.Isosorbide mononitrate

Answer:Atenolol

Explanation:

Beta-blockers are known to exacerbate plaque psoriasis

Important for meLess important

Question:

A 63-year-old woman is recovering on the ward following a laparoscopic right hemi-colectomy and primary anastomosis for a Duke's B adenocarcinoma of the colon. You are asked to see her two days post-operatively due to a heart rate of 103 bpm and a blood pressure of 95/73 mmHg.

On examination she has a temperature of 37.1ºC, her respiratory rate is 22 per minute and her saturations are 98% on air. She has a very distended abdomen which is tense and mildly tender but with no guarding, her chest is clear and her operative wounds look clean and healthy. She is not feeling nauseated and she has not opened her bowels since before her operation or passed wind but she is starting to sip clear fluids. Her fluid balance chart shows a net positive fluid balance since surgery. Prior to surgery she had normal renal function and a blood test now shows the following:

Na+ 131 mmol/l

K+ 3.1 mmol/l

Urea 8.9 mmol/l

Creatinine 129 µmol/l

CRP 142.1 mg/l

What is the most likely cause for the abnormalities in this lady's observations?

A.Septic shock

B.Anastomotic leak

C.Ileus

D.Pulmonary embolism

E.Dehydration

Answer:Ileus

Explanation:

Ileus occurs in the few days following surgery and can cause hypovolaemia and electrolyte disturbances BEFORE nausea and vomiting becomes apparent

Important for meLess important

Post-operative deterioration is the most common reason for seeing a patient when working as a junior in general surgery and being able to diagnose the cause of a deterioration is crucial to managing patients appropriately. Her observations demonstrate she is hypovolaemic and her blood tests shows she has an acute kidney injury and low electrolytes, this suggests she is losing salt and water. However as her overall fluid balance is positive, the fluid and salt must be being sequestered into a body compartment or what is often referred to as a 'third space'. An ileus would cause fluid build up in the intestinal lumen as peristalsis stops as this results in an overall loss of water and salt from the intravascular space but an overall positive fluid balance. This is a very common post-abdominal surgery complication and often settles on its own within a few days. The main symptomatic complaints from patients are nausea and vomiting although this often doesn't become apparent for a few days, and abdominal distension and tenderness. The main signs on examination are abdominal distension, absolute constipation and blood tests in keeping with fluid and electrolyte loss. The treatment would be insertion of a wide-bore nasogastric tube and replacement with intravenous fluids until the bowel becomes motile again.

The fact that the blood test suggests salt dilution would not fit with dehydration as the cause of her deterioration, in addition you would expect her to have a negative fluid balance to become dehydrated. A pulmonary embolism would be very unlikely to be the cause of her presentation as to cause a significant fall in blood pressure, the embolism would have to be causing obstructive shock and she would present differently. With a normal temperature, the likelihood of this being an infective process is very low and we can rule out septic shock as a cause, especially as we have no clear signs of an infective source. The raised CRP suggests acute inflammation but we know this is occurring as she has just had major abdominal surgery. An anastomotic leak would cause a faecal peritonitis either locally or widespread depending on the size of the leak. This would result in a septic picture as well as abdominal rigidity and quite severe abdominal pain (together known as 'peritonism') which is not present here and so we can rule this out.

Question:

A 40-year-old man presents to the emergency department reporting episodes of blurred vision when reading. The episodes last between three to ten hours and are brought on shortly after, or during, exercise.

The patient has a past medical history of relapsing-remitting multiple sclerosis, familial hypercholesterolaemia, and asthma. Neurological examination, including the eyes and vision, is unchanged from the patient's function described in previous consultations.

What is the most likely explanation for this patient's presentation?

A.Koebner phenomenon

B.Lhermitte’s sign

C.McArdle sign

D.Relapse of multiple sclerosis

E.Uhthoff's phenomenon

Answer:Uhthoff's phenomenon

Explanation:

Uhthoff ’s phenomenon where neurological symptoms are exacerbated by increases in body temperature is typically associated with multiple sclerosis

Important for meLess important

Uhthoff's phenomenon is correct. This describes an exacerbation of neurological symptoms and signs linked with a rise in core body temperature, often affecting the eyes of multiple sclerosis (MS) patients. Patients commonly report symptoms following exercise or hot showers/baths, which last for under 24 hours, unlike a relapse of MS.

Koebner phenomenon is incorrect. This describes the formation of skin lesions at sites of trauma seen in certain dermatological conditions such as psoriasis.

Lhermitte’s sign is incorrect. This is a sign also seen in MS but describes the shooting pain some patients experience while in neck extension.

McArdle sign is incorrect. This describes the transient exacerbation of weakness following greater than 10% neck flexion seen in some MS patients.

Relapse of multiple sclerosis is incorrect. A relapse of MS is a reasonable differential and should be tested for in a presentation of a person with known MS such as this case. However, the episodic nature of the symptoms lasting less than 24 hours, the association with heat indicated by post-exercise exacerbation, and the neurological findings indicating no neurological decline point more towards Uhthoff's phenomenon.

Question:

A 45-year-old woman is seen in the gastroenterology clinic with increased fatigue and a general lack of appetite over the past few months. More recently, she has noticed that her skin has a yellow complexion and complains of feeling itchy. She cannot remember her exact diagnosis, but reports having frequent episodes of bloody diarrhoea over the past 20 years for which she currently takes azathioprine.

Investigations show:

Hb 120 g/L (115 - 160)

Platelets 234 \* 109/L (150 - 400)

WBC 9.7 \* 109/L (4.0 - 11.0)

Creatinine 110 µmol/L (55 - 120)

CRP 40 mg/L (< 5)

Bilirubin 55 µmol/L (3 - 17)

ALP 235 u/L (30 - 100)

ALT 50 u/L (3 - 40)

What is the most likely diagnosis?

A.Autoimmune hepatitis

B.Budd Chiari syndrome

C.Hepatocellular carcinoma

D.Primary biliary cirrhosis

E.Primary sclerosing cholangitis

Answer:Primary sclerosing cholangitis

Explanation:

Ulcerative colitis + cholestatis (e.g. jaundice, raised ALP) → ? primary sclerosing cholangitis

Important for meLess important

Primary sclerosing cholangitis is correct. This is a disease that causes fibrosis of the biliary tract. Symptoms include right upper quadrant pain, jaundice, pruritis and fatigue. Blood results show a raised bilirubin and obstructive jaundice with a raised ALP. It is associated with gastrointestinal diseases such as ulcerative colitis or Crohn's disease. The prolonged history of bloody diarrhoea suggests underlying inflammatory bowel disease that further supports the diagnosis.

Autoimmune hepatitis is incorrect. This presents fairly similarly with fatigue, abdominal discomfort and jaundice. Middle-aged women are also more likely to be affected. However, the blood results demonstrate cholestatic jaundice rather than a hepatic picture given the more elevated ALP compared to the marginally elevated ALT.

Budd Chiari syndrome is incorrect. This is hepatic outflow obstruction from hepatic vein thrombosis or occlusion. Symptoms include acute onset abdominal pain, ascites and hepatomegaly. This is not in keeping with this patient's presentation.

Hepatocellular carcinoma (HCC) is incorrect. This presents insidiously with weight loss, jaundice and features of liver cirrhosis (e.g. oesophageal varices or gastrointestinal bleeding). Furthermore, the biggest risk factors for HCC are chronic hepatitis B and C infection and chronic alcohol abuse. Neither of these are mentioned in the stem, making HCC unlikely.

Primary biliary cirrhosis is incorrect. This is a reasonable differential diagnosis given the onset of symptoms in a middle-aged woman and given the blood tests demonstrate cholestatic jaundice. However, the history of bloody diarrhoea is suggestive of an underlying inflammatory bowel disorder (e.g. ulcerative colitis) which is associated with primary sclerosing cholangitis.

Question:

A 65-year-old female with a history of ischaemic heart disease is noted to be depressed following a recent myocardial infarction. What would be the most appropriate antidepressant to start?

A.Paroxetine

B.Imipramine

C.Flupentixol

D.Venlafaxine

E.Sertraline

Answer:Sertraline

Explanation:

Sertraline is the SSRI of choice post myocardial infarction

Important for meLess important

Sertraline is the preferred antidepressant following a myocardial infarction as there is more evidence for its safe use in this situation than other antidepressants

Question:

A 78-year-old gentleman presents to the emergency department with a 3 hour history of lower back pain. It is achey in nature and a 6/10 on the pain scale. On examination he has some tenderness on his abdomen and loin area. His blood pressure is 100/70 mmHg despite 500ml fluid bolus and his heart rate is 110/min. What's the most likely diagnosis?

A.Kidney stone

B.Spinal cancer

C.Ischaemic colitis

D.Osteoporotic fracture

E.Abdominal Aortic Aneurysm (AAA)

Answer:Abdominal Aortic Aneurysm (AAA)

Explanation:

Any elderly gentleman that presents with back pain needs a ultrasound scan to exclude a AAA before any other diagnosis is considered, especially if they have haemodynamic instability.

A kidney stone is a differential diagnosis of this type of presentation however the low blood pressure points away from this. Spinal cancer would have most likely came on gradually and wouldn't present with pain acutely. Ischaemic colitis would present with severe abdominal pain but very few findings on abdominal examination. Osteoporotic fracture is a possibility but it is less likely in males and wouldn't cause the drop in blood pressure.

Question:

An 11-year-old boy is bought to the GP by his parents. For the past 3 days, the boy has had a fever and the parents recently noticed a rash. The boy explains his ankles and wrists are also aching.

On examination, there are multiple erythematous, annular macules, with ragged edges on his trunk. He has a temperature of 38.6ºC. An ECG shows prolongation of the PR interval and auscultation reveals an ejection systolic murmur.

What is the most likely diagnosis?

A.Idiopathic juvenile arthritis

B.Infective endocarditis

C.Rheumatic fever

D.Scarlet fever

E.Still's disease

Answer:Rheumatic fever

Explanation:

Recent sore throat, rash, arthritis, murmur → ?rheumatic fever

Important for meLess important

Rheumatic fever is the correct answer. This boy has rheumatic fever characterised by fever, arthralgia, rash, and an ejection systolic murmur. Rheumatic fever develops following infection with Streptococcus pyogenes. This boy has recently had a fever which is likely the precipitating cause of this presentation. Rheumatic fever is diagnosed when there is evidence of a recent streptococcal infection and either 2 major criteria, or 1 major with 2 minor criteria. The major criteria involve erythema marginatum, Sydenham’s chorea, polyarthritis and carditis/valvulitis (e.g. pancarditis). This boy has erythema marginatum, characterised by multiple, annular lesions which are erythematous, raised, with ragged edges, covering the trunk. He has arthralgia (joint pain) which is part of the minor criteria.

Idiopathic juvenile arthritis is incorrect. Whilst this can present with joint swelling/ pain and fever, it does not explain the murmur heard or erythema marginatum. It can result in a butterfly-shaped pink rash on the face, however, this rash is present on the trunk and upper arms making this diagnosis unlikely.

Infective endocarditis is incorrect. This is an important differential to consider in someone with a new murmur and fever, however, it does not explain the rash and is less common in this age group. Skin manifestations that may be seen in infective endocarditis include petechiae on the extremities or mucous membranes or splinter haemorrhages on the nail bed.

Scarlet fever is incorrect. Whilst this does develop as a result of an infection with group A Streptococcus bacteria, it does not explain the murmur or rash. The rash seen in scarlet fever is more confluent and raised, feeling like sandpaper.

Still's disease is incorrect. This is a rare type of inflammatory arthritis that can cause a fever, rash and joint pain. It does not affect the heart valves, making it less likely than rheumatic fever. However, the rash is quite similar as it affects the trunk, arms or legs, and is pink in colour.

Question:

A 14-year-old girl attends the GP with her mother, concerned that her periods have yet to start. On examination, she has normal female genitalia but is noted to have bilateral inguinal hernias. Breast buds and sparse pubic and axillary hair are also present. The girl is a normal weight and IQ for her age.

Which of the below is the most likely underlying cause of her complaint?

A.Anorexia nervosa

B.Complete androgen insensitivity

C.Polycystic ovarian syndrome

D.Pregnancy

E.Prolactinoma

Answer:Complete androgen insensitivity

Explanation:

Androgen insensitivity - classic presentation is 'primary amenorrhoea'

Important for meLess important

Complete androgen insensitivity is the correct answer. The key detail of this question is that the girl is demonstrating primary amenorrhoea, the failure of ever starting menses, and the other choices are typical causes of secondary amenorrhoea, the cessation of regular menses. Complete androgen insensitivity leads to phenotypically female genitalia in a genetic male, caused by failure of androgen masculinisation of genitalia in-utero. Gonads in these patients are testes rather than ovaries and up to 90% develop inguinal hernias containing the immature testes. Signs of apparent female puberty such as breast bud development and sparse pubic hair occur due to the action of aromatase on androgens; primary amenorrhoea occurs due to the inherent absence of ovaries and a uterus.

Anorexia nervosa may cause primary amenorrhoea, but there is nothing in the case to suggest this. Typical features to look out for in a question would be low body mass index paired with a distorted body image and extreme dietary or exercise habits.

Polycystic ovarian syndrome (PCOS) would be a cause of secondary amenorrhoea, typically in patients with a high BMI. PCOS is a syndrome compromised of irregular menses, hyperandrogenism and the presence of multiple ovarian follicles. Accordingly, other signs of hyperandrogenism, such as hirsutism or acne, would be expected if the patient had PCOS.

Pregnancy is a cause of secondary amenorrhoea.

Prolactinoma is also typically a cause of secondary amenorrhoea. Most commonly arising from a benign pituitary adenoma, a bi-temporal hemianopia or headache would be clues in a question thread to suggest this as a cause. Raised prolactin also commonly causes galactorrhoea in patients.

Question:

A 34-year-old woman presents with a lengthy post-operative ileus after extensive small bowel resection for Crohn's disease. The surgical consultant suspects total intestinal failure after a prolonged postoperative period in which her remaining gut has failed to absorb.

Which of the following routes of administration is most appropriate for the delivery of nutrition in this patient?

A.Peripheral cannula in the left antecubital fossa

B.Nasogastric tube

C.Arterial line in the femoral artery

D.Midline catheter in the left basilic vein

E.Subclavian line

Answer:Subclavian line

Explanation:

Total parenteral nutrition should be administered via a central vein as it is strongly phlebitic

Important for meLess important

A subclavian line is the correct answer because the tip of the line is in the right atrium/superior vena cava. This is regarded as a central line through which total parenteral nutrition (TPN) can be administered, minimising the risk of phlebitis. TPN is the most suitable method of nutrition in this patient as there is suspicion of total intestinal failure and thus the gut is failing to absorb. TPN should be administered via a central vein as it is strongly phlebitic.

Administration of TPN bag solution through a peripheral cannula would be highly irritating to a peripheral vein resulting in collapse.

TPN is not suitable for administration down a nasogastric (NG) tube, parenteral means 'administered or occurring elsewhere in the body than the mouth'. Additionally, further administration of nutrition via an NG tube would be futile due to intestinal failure.

Medication should never be administered through an arterial line, as it could result in distal ischaemia.

A midline catheter, although more central than a traditional cannula, is still regarded as a peripheral IV line and should thus not be used for the administration of TPN. The tip of a midline sits within the vein eg the basilic.

Question:

An 82-year-old man with a medical history of prostate cancer, asthma, and COPD comes to the emergency department. He is complaining of abdominal pain, bone pain, and general weakness. While doing some investigations, you notice that he has a shortened QT interval on ECG. What is the most appropriate initial management of the complication this man has?

A.Bisphosphonates

B.Dexamethasone

C.IV 0.9% N saline

D.Radiotherapy

E.Sodium bicarbonate

Answer:IV 0.9% N saline

Explanation:

Hypercalcaemia is the most common metabolic complication in patients with cancer

Important for meLess important

This is a presentation of hypercalcaemia, the most common metabolic complication in cancer patients. It can be caused by a number of processes in cancer, in this instance it is most likely bone metastases from prostate cancer. The initial management (after hypercalcaemia has been confirmed with U&E investigation), is rehydration with 3 to 4 litres of normal saline. Following this, bisphosphonates may be used, however as the question asked for initial management, IV 0.9% N saline is the correct answer.

Question:

A 68-year-old man presents to his general practitioner with a two-week history of worsening skin yellowing. He also reports an unintentional weight loss of 10kg over the past three months. He denies any abdominal pain, fever or abnormal bruising.

Abdominal examination reveals a palpable, non-tender right upper quadrant mass.

Which of the following investigations is most appropriate?

A.Colonoscopy

B.Endoscopic retrograde cholangiopancreatography (ERCP)

C.High-resolution abdominal CT scan

D.Magnetic resonance cholangiopancreatography (MRCP)

E.Percutaneous transhepatic cholangiography (PTC)

Answer:High-resolution abdominal CT scan

Explanation:

High-resolution CT scanning is the diagnostic investigation of choice for pancreatic cancer

Important for meLess important

The correct answer is high-resolution abdominal CT scan.

In a patient with painless jaundice and an enlarged gallbladder (or right upper quadrant mass), the cause is unlikely to be gallstones (Courvoisier’s law). It is more likely to be an obstructing pancreatic or biliary cancer. Ultrasound will often be performed first as it can demonstrate biliary dilatation and pancreatic head tumours. Of the options available the most appropriate investigation is high-resolution CT scan of the abdomen, which can demonstrate a mass and show a double duct sign caused by dilation of the common bile duct and pancreatic duct in response to the tumour. If pancreatic cancer is suspected, but CT scan is negative, endoscopic US with biopsy may be indicated.

Colonoscopy with biopsy is an appropriate investigation to diagnose colorectal cancer. While colorectal cancer can cause weight loss, an abdominal mass and jaundice (if there are metastases to the liver) the clinical presentation is more likely to suggest pancreatic/biliary pathology.

ERCP can visualise the pancreatic and biliary tree, perform biopsy in suspected malignancy and stent the bile duct to relieve jaundice. It is invasive - non-invasive imaging would be performed first.

MRCP uses MRI to image the biliary tree. Unlike ERCP, it is non-invasive. It does not show the ampulla as clearly as ERCP and is used more in gallstone disease.

PTC is an interventional radiological procedure to relieve obstructive jaundice, particularly where stenting of the bile duct with ERCP has failed. A needle is passed under radiological guidance through the external skin, into the hepatic duct then into the bile duct. A catheter is advanced across the obstruction into the duodenum, to drain bile both internally and externally. Later, the external drainage can be capped and if internal drainage remains adequate a further procedure can be performed to internalise the stent. This permits internal bile drainage and maintains the enterohepatic circulation of bile salts. PTC is invasive and would only be performed once the location of the obstruction was confirmed and often only after failed ERCP.

Question:

Which of the following is least associated with acanthosis nigricans?

A.Gastric adenocarcinoma

B.Cushing's disease

C.Polycystic ovarian syndrome

D.Anorexia nervosa

E.Acromegaly

Answer:Anorexia nervosa

Explanation:

Question:

A 28-year-old female sex worker attends the emergency department with a severe headache and fever. On examination you elicit some neck stiffness and and mild photophobia and as such a lumbar puncture is performed. The results of the lumbar puncture show a yeast and a capsule in the CSF stained with India ink.

Which of the following diagnoses is most likely?

A.Cryptococcal meningitis

B.Bacterial meningitis

C.Histoplasmosis

D.Subacute sclerosing pan encephalitis

E.Aspergillus abscess

Answer:Cryptococcal meningitis

Explanation:

Cryptococcus neoformans is an encapsulated yeast and an obligate aerobe that can live in both plants and animals. Infection with this organism is termed cryptococcosis and usually occurs in the lungs, however in immunocompromised individuals fungal meningitis and encephalitis can occur. A key group of patients affected are HIV positive . Given this patients history as a sex worker it is possible that they have an undiagnosed HIV infection which may have progressed to AIDS.

Furthermore, cryptococcus neoformans stains well with india ink allowing it to be detected on a lumbar puncture.

Question:

You are asked to review a 4-hour-old neonate who has been intermittently grunting and occasionally nasal flaring. They were born this morning via elective Caesarean section at 41 weeks gestation. Their respiratory rate and oxygen saturations are both within normal limits. Their mother is concerned as her older son who was also born via Caesarean section had a similar presentation. What advice would you give her?

A.The baby needs a chest x-ray

B.The baby needs urgent intravenous antibiotics

C.The baby needs genetic testing

D.The baby needs supplemental oxygen

E.No further treatment or investigation is currently required

Answer:No further treatment or investigation is currently required

Explanation:

Observation and supportive care +/- oxygen are the mainstays of treatment in uncomplicated transient tachypnoea of the newborn

Important for meLess important

Transient tachypnoea of the newborn (TTN) is very common in babies born via Caesarean sections. In most cases, if the baby is well, no further investigations or treatment is required. TTN will frequently resolve on its own and parents should be reassured.

There is no scope for antibiotics, supplemental oxygen or chest imaging unless worsening of symptoms is noted. TTN does not have a genetic cause or predisposition.

Question:

A 16-year-old girl attends your GP surgery due to concerns about delayed menarche. On history, you note that there have been no developmental concerns. She is at the 65th percentile for weight and 5th percentile for height. On examination, you note that she has a short webbed neck and a broad chest. You perform karyotype analysis, which is abnormal. What is the most common cardiac condition associated with this presentation?

A.Bicuspid aortic valve

B.Patent ductus arteriosus

C.Atrioventricular septal defect

D.Mitral valve prolapse

E.Tricuspid regurgitation

Answer:Bicuspid aortic valve

Explanation:

Turner's syndrome - most common cardiac defect is bicuspid aortic valve (more common than coarctation of the aorta)

Important for meLess important

Turner syndrome (45 XO) is associated with:

Bicuspid aortic valve

Aortic root dilatation

Coarctation of the aorta

Question:

A 14-year-old child attends the emergency department following a bout of haemoptysis. He has been a well child with no regular contact with his doctor other than for vaccinations, which are up to date.

The only finding of note in his past history is the documentation of a harsh, blowing, pansystolic murmur noted during routine examination as a baby. There has never been any follow up of this and today on examination you cannot hear this murmur.

Additionally on examination you note loss of the nail fold angle and a blue tinge to the lips.

Given the likely diagnosis, what investigation findings would you expect?

A.Chest x-ray showing a globular heart

B.Chest x-ray showing rib notching

C.ECG showing left ventricular hypertrophy

D.ECG showing right ventricular hypertrophy

E.Normal chest x-ray

Answer:ECG showing right ventricular hypertrophy

Explanation:

The ECG in Eisenmenger's syndrome shows right ventricular hypertrophy

Important for meLess important

The likely diagnosis here is Eisenmenger's syndrome secondary to an uncorrected ventricular septal defect (VSD).

Right ventricular hypertrophy is likely to occur as the left to right shunt through the VSD exposes the right ventricle to the high pressures from the left ventricle and this promotes remodelling of the right ventricle. The Right ventricle hypertrophies until its pressures overcome that of the left ventricle and thus the shunt is reversed (right to left) resulting in cyanosis.

The underlying diagnosis of a VSD can be learnt from the previous blowing pansystolic murmur. It is common for the original murmur to cease once Eisenmenger's has occurred.

The chest x-ray would likely show cardiomegaly and pulmonary engorgement.

A globular heart is associated with an atrial septal defect.

Rib notching is a late feature of coarctation of the aorta.

Management of Eisenmenger's syndrome requires a heart-lung transplant.

Question:

A 37-year-old is admitted to the hospital for delivery. She is gravida 2 para 2 and all of her previous deliveries were vaginal.

After three hours she delivers a healthy girl. The baby's APGAR score was 9 at 1 minute and 10 at 5 and 10 minutes. On examination, the newborn looks macrosomic. As a result, the mother suffered a perineal tear during the delivery, and the midwife calls the doctor to suture it.

They notice that there is an injury to the superficial and deep transverse perineal muscles, involving the external and internal anal sphincters, with mucosal sparing.

What degree of injury does she have?

A.Fifth-degree

B.First-degree

C.Fourth-degree

D.Second-degree

E.Third-degree

Answer:Third-degree

Explanation:

Third degree perineal tears injury to perineum involving the anal sphincter complex (external anal sphincter and internal anal sphincter)

Important for meLess important

The correct answer is third-degree. This patient had a perineal tear, a laceration of the skin and other soft tissue structures which separate the vagina from the anus. The tear is due to the excessive strain undergone during childbirth and it is more common in first pregnancies, and as in this case, delivery of macrosomic children (usually due to undetected gestational diabetes).

Third-degree tears are defined as an injury to the perineum involving the anal sphincter complex but sparing the mucosa, as happened in this case.

Fifth-degree tears do not exist as the classification of the Royal College of Obstetricians and Gynaecologists only provides four degrees of tears.

First-degree tears involve superficial damage with no muscle involvement, but in this case, the superficial and deep transverse perineal muscles have been involved, as well as the external and internal anal sphincters, making the option incorrect.

Fourth-degree tears involve injury to the perineum involving the anal sphincter complex and rectal mucosa. They are severe lesions and require repair in theatre by a suitably trained clinician. In this case, the mucosa has been spared, making this option incorrect.

Second-degree perineal tears involve the perineal muscle but do not include the anal sphincter, which in this case has been involved making the answer incorrect.

Question:

A 34-year-old man is brought into the emergency department after a road traffic accident. He was thrown from the car and has sustained multiple injuries to his neck, head, and left arm.

The man's eyes open to voice, but he does not respond to commands. You apply supraorbital pressure, and his left arm bends slightly, his right arm bends up to rest on his sternum, and his head doesn't move. You apply nail bed pressure to the patient's right arms and legs contract but he does not try to pull away from the stimulus. When you speak to the man, he responds only in grunts.

What is his GCS?

A.You can't measure GCS in a patient with a neck injury

B.7

C.8

D.9

E.10

Answer:8

Explanation:

To be counted as localising, the arm must be brought above the clavicle, else it should be scored as 'flexing'

Important for meLess important

The correct answer is GCS 8 ( E3 V2 M3). His eyes open to the voice, which is E3. He is making grunts but no words, so he is V2, and he is flexing to pain which is M3. To differentiate between flexion and withdrawing you need to apply nail bed pressure to see if the patient pulls away from the stimulus or remains flexed. In this case, he flexed and didn't pull away from the stimulus and therefore was not withdrawing, so was classified as M3.

GCS 9 is incorrect (E3,V2, M4). For the patient to be M4 he needs to be withdrawing from pain. This would involve flexing and pulling his hand away from the nail bed pressure.

GCS 10 is incorrect (E3 V2 M5). The reason the patient is not M5 is his arm does not cross the clavicle and has not localized to the point of pain.

GCS 7 is incorrect ( E3, V2, M2) the patient is obviously flexing not extending.

You can measure GCS in a neck injury patient.

Question:

You are seeing John, a 50-year-old man who is complaining of central constricting chest pain. Walking up the stairs triggers the pain. The pain goes away with resting. He experiences some shortness of breath but denies any syncope or palpitations. He suffers from hypertension and diabetes. He takes verapamil for migraine prophylaxis. His other medications include GTN spray, aspirin, atorvastatin, Ramipril and metformin. On examination, his rhythm seems to be irregular. There is no murmur on auscultation of the heart. There is no tenderness on chest wall palpation.

He is asking for a medication that would be helpful to prevent the chest pain from occurring. What is the most appropriate treatment?

A.Bisoprolol

B.Digoxin

C.Metoprolol

D.Nicorandil

E.Ibuprofen

Answer:Nicorandil

Explanation:

Verapamil and beta-blockers should never be taken concurrently - possibility of heart block and fatal arrest

Important for meLess important

This is a typical angina history. Beta-blocker is a first line Angina prophylaxis. However, this man is taking verapamil for his migraine. Verapamil should not be used with beta blocker due to the risk of bradycardia, heart block or even congestive cardiac failure. Therefore, bisoprolol and metoprolol are incorrect answers. Ibuprofen and digoxin do not reduce the frequency of angina. Therefore, the next line for prophylaxis of angina is Nicorandil.

Question:

A 4 month old baby girl is admitted to the Emergency Department after her mother noted that she stopped breathing. The baby was fit and well earlier. Unfortunately, advanced life support failed to resuscitate the baby. Her temperature on admission was 36.8ºC. The child was previously fit and healthy and up-to-date with vaccinations. On post-mortem, retinal haemorrhages were noted in the baby's eyes bilaterally. Which of the following would explain the likely primary mechanism that have lead to the baby's death?

A.Meningitis

B.Retinoblastoma

C.Pneumonia

D.Aggressive shaking of the baby

E.Fall on the head

Answer:Aggressive shaking of the baby

Explanation:

Question:

A 15-year-old girl presents to the GP as she has not yet started her periods. On examination, she is 145 cm tall and has a BMI of 19kg/m². She reports her mother and older sister both started menarche at 14 so believes the delay may be normal for her family.

A hormone profile is performed which has the following results:

Oestrogen 23pmol/L (45 - 854)

LH (follicular phase) 54 IU/L (1-12)

FSH (follicular phase) 48 IU/L (1-9)

Antimullerian hormone (AMH) 0.1 ng/mL (0.7-3.5)

17-hydroxyprogesterone 2.1 nmol/L (1.0 – 4.5)

What is the most likely diagnosis?

A.Congenital adrenal hyperplasia

B.Constitutional delay of puberty

C.Functional hypothalamic amenorrhoea

D.Premature ovarian insufficiency

E.Turner’s syndrome

Answer:Turner’s syndrome

Explanation:

Short stature + primary amenorrhoea ?Turner's syndrome

Important for meLess important

Turner’s syndrome is correct. Short stature (145cm) and primary amenorrhoea (absence of menses at 15 years) are common presenting features of Turner's syndrome. The pathology is thought to be due to 'streak' ovaries, resulting in a low level of circulating oestrogen. This causes negative feedback resulting in an increase in GnRH production and therefore high circulating levels of LH and FSH, as seen in this girl. The antimullerian hormone (AMH) has recently been used as a specific marker of ovarian reserve. It is produced in the granulosa cells of ovarian follicles, so the more a woman has the higher her AMH level will be. AMH (also known as anti-mullerian inhibiting factor) also plays a role in embryology, it is produced by Sertoli cells in male fetuses resulting in the regression of the Müllerian ducts, fallopian tubes and uterus. In this woman, as her AMH is low, it implies the ovaries are insufficient, typical of Turner's syndrome.

Constitutional delay of puberty is incorrect. This is defined as the absence of menstruation with the absence of secondary sexual characteristics at the age of 13, or the absence of menstruation and normal secondary sexual characteristics at the age of 15. The girl in this scenario is 15 years old so she has primary amenorrhoea regardless of her secondary sexual characteristics. At 15 years, it should not be assumed her delayed menstruation is constitutional, even if her family history is similar—the short stature points towards Turner’s syndrome along with the blood results supporting this diagnosis. LH and FSH levels are not elevated in pre-pubertal girls.

Congenital adrenal hyperplasia is incorrect. A mild form of this disease is due to a partial deficiency of 21 hydroxylase and results in a reduction in aldosterone and cortisol. This can present with irregular or absent periods accompanied by early onset pubic hair, acne and hirsutism. A high level of 17-hydroxyprogesterone is associated with this diagnosis. In this case, it is a normal level, making this diagnosis unlikely.

Functional hypothalamic amenorrhoea is incorrect. This is usually a result of stress, eating disorder or intense exercise resulting in depression of GnRH. One could expect to see a low BMI, which causes a low level of LH and FSH to be released into the bloodstream. In this girl, a high LH and FSH are seen making this unlikely.

Premature ovarian insufficiency is incorrect. This is caused by the ovaries entering a menopausal state early, usually before a patient's 40s. The oestrogen level decreases resulting in a high LH and FSH level. One way to differentiate between Turner's and premature ovarian failure is height. As this girl is 145cm, she has a short stature suggesting that Turner's syndrome is more likely. As well as this, she has not yet started her periods at all, therefore, by definition, she cannot be experiencing early-onset menopause and hence, premature ovarian failure. Genetic phenotype testing should be done to clarify the likely diagnosis.

Question:

A 68-year-old woman presents to the emergency department with a fluttering sensation in her chest.

She has a past medical history of hypertension, for which she takes amlodipine.

On examination, her BP is 143/89 mmHg.

An ECG demonstrates an irregularly irregular rhythm with no p waves.

The clinician calculates the CHA2DS2-VASc score in order to assess the patient's need for anticoagulation.

What is the patient's CHA2DS2-VASc score?

A.1

B.2

C.3

D.4

E.5

Answer:3

Explanation:

A CHA2DS2-VASc score must be done in all patients with atrial fibrillation to determine the need for anticoagulation

Important for meLess important

When calculating a CHA2DS2-VASc score, one point would be allocated for each of the following:

Congestive heart failure

Hypertension (controlled or uncontrolled)

Age of 65-74 years

Diabetes

Vascular disease

Female sex

Two points would be awarded in two instances:

An age of 75 years or over

Prior stroke or thromboembolism.

Therefore the correct answer is 3 . This is because the patient scores one point for each of the following aspects of her history:

Hypertension

Age of 65-74 years

Female

1 is incorrect, as the patient scores a point for 3 different elements of her history.

Another incorrect answer is 2 , for the reasons outlined above.

4 is incorrect.

The final incorrect answer is 5 .

Question:

A 56-year-old man presents to the emergency department with sudden onset double vision and right-sided upper and lower limb weakness. He has a past medical history of a transient ischaemic attack 6 months ago and type 2 diabetes mellitus.

On examination, there is ptosis of the left eyelid and the left eye is shifted downward and laterally. There is reduced power and sensation in the upper and lower right limbs. A cerebellar examination is unremarkable however the patient reports feeling nauseated during past-pointing assessment due to his double vision.

What is the most likely diagnosis?

A.Horner's syndrome

B.Lateral medullary syndrome

C.Lateral pontine syndrome

D.Middle cerebral artery stroke

E.Weber's syndrome

Answer:Weber's 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

This patient has presented with cranial nerve III palsy and right-sided hemiparesis. This is consistent with the midbrain stroke termed 'Weber's syndrome'. The most common locations for infarcts are the basilar paramedian mesencephalic branches and posterior cerebral artery peduncular perforating branches. Patients are most likely to have a previous history of hypertension, diabetes, or hypercholesterolaemia. If the insult is severe, there may be dilated unresponsive pupils.

Horner's syndrome is characterised by miosis, anhidrosis, enophthalmos and ptosis. It is caused by a lesion of the sympathetic trunk. While the patient in the vignette has a drooping eyelid (ptosis), Horner's syndrome does not account for the weakness.

Lateral medullary syndrome is a condition where there is a stroke in the posterior inferior cerebellar artery distribution. This leads to ipsilateral facial loss of temperature and pain sensation, contralateral limb loss of temperature and pain sensation and weakness, ataxia and nystagmus. This patient does not have any cerebellar signs and, as such, this is an incorrect answer.

Lateral pontine syndrome or anterior inferior cerebellar artery stroke presents with ipsilateral facial weakness, loss of temperature and pain sensation, contralateral limb weakness and loss of temperature and pain sensation. There are also cerebellar signs of ataxia and the patient may lean towards the side of the lesion.

A middle cerebral artery stroke is associated with facial and upper limb weakness and sensory changes. As the vignette shows a patient with predominantly lower limb signs, this is not the correct answer.

Question:

A 77-year-old woman was admitted with an ischaemic stroke two days ago. Her observations are heart rate 88/min, respiratory rate 18/min, oxygen saturations 95% on air, blood pressure 114/68mmHg and temperature 37.2ºC.

Blood tests on admission and today are shown below:

2 days ago Today Normal range

Na + 140 mmol/L 138 mmol/L 135-145 mmol/L

K+ 3.8 mmol/L 4.3 mmol/L 3.5-5.0 mmol/L

Creatinine 77 µmol/L 108 µmol/L 55-120 µmol/L

Urea 5.0 mmol/L 8.9 mmol/L 2.0-7.0 mmol/L

CRP <5 19 <5

What is the most likely cause of these results?

A.Acute kidney injury

B.Acute urinary retention

C.Aspiration pneumonia

D.Chronic kidney disease

E.Urinary tract infection

Answer:Acute kidney injury

Explanation:

NICE recognise any of the following criteria to diagnose AKI in adults:

↑ creatinine > 26µmol/L in 48 hours

↑ creatinine > 50% in 7 days

↓ urine output < 0.5ml/kg/hr for more than 6 hours

Important for meLess important

The correct answer is acute kidney injury.

The patient's urea and electrolyte results show an increase in her serum creatinine of 31 µmol/l over 48 hours - which meets the criteria for an acute kidney injury. The rise in her CRP may well be a reaction to her recent stroke as her observations do not show any signs of infection.

Acute urinary retention could be the cause of the acute kidney injury demonstrated here, however further information, such as urine output and bladder scans would be required to diagnose it.

As she has suffered a stroke the patient could have developed an aspiration pneumonia which may then lead to an acute kidney injury. However, the aspiration pneumonia itself would not directly cause the deranged results.

She may well also have chronic kidney disease, however this would be classified and diagnosed based on glomerular filtration rate and would not deteriorate this quickly.

Similar to the aspiration pneumonia, a urinary tract infection may cause this patient to develop an acute kidney injury which would then lead to these results. However, it would not cause them directly.

Question:

A 16-year-old girl is admitted to the Emergency Department late on a Friday night. She is complaining of palpitations and feeling 'unwell'. Her friends state that she has had a bad reaction to the alcohol they've been drinking and deny the use of any illicit substances. On examination she is agitated and clutching her chest. Her pupils are mydriatic and the pulse rate is 108/min, blood pressure 130/90 mmHg. She says that she is going to be sick. Which of the following substances may account for this presentation?

A.Cannabis

B.Cocaine

C.LSD

D.Heroin

E.Ketamine

Answer:Cocaine

Explanation:

Question:

A 15-year-old girl presents with abdominal pain. She is normally fit and well and currently takes a combined oral contraceptive pill. The patient is accompanied by her mother, who is known to have hereditary spherocytosis. The pain is located in the upper abdomen and is episodic in nature, but has become severe today. There has been no change to her bowel habit and no nausea or vomiting. What is the most likely diagnosis?

A.Inferior vena cava thrombosis

B.Acute pancreatitis

C.Renal vein thrombosis

D.Gastritis

E.Biliary colic

Answer:Biliary colic

Explanation:

This patient has hereditary spherocytosis resulting in chronic haemolysis and gallstone formation. An important differential in a poorly patient with hereditary spherocytosis would be splenic rupture

Question:

An 80 year-old woman presents to her GP with a 1.5cm ulcerated lesion on her left labium majus. Her history includes a two year history of vulval itching and soreness, which has failed to respond to topical steroid treatment. What is the most likely diagnosis?

A.Vulval melanoma

B.Chancre

C.Herpes simplex virus

D.Vulval intraepithelial neoplasia

E.Vulval carcinoma

Answer:Vulval carcinoma

Explanation:

Vulval carcinomas are commonly ulcerated and can present on the labium majora. Melanomas are usually pigmented. Vulval intraepithelial neoplasia tend to be white or plaque like and don't tend to ulcerate. Herpes simplex tend to be smaller vesicles and chancre tends to be painless and is seen in the first phase of syphilis.

Question:

You have been asked to review the blood pressure of a 65-year-old gentleman. He was recently seen by the practice nurse for his annual health review and his blood pressure measured at the time was 153/88mmHg. There is no history of headache, visual changes or symptoms suggestive of heart failure. His past medical history includes hypertension, asthma and gastro-oesophageal reflux disease. The medications he is currently on include amlodipine, indapamide, lansoprazole, perindopril, salbutamol and a combined long-acting beta-agonist and corticosteroid inhaler.

On examination, his blood pressure is 159/85mmHg. Cardiovascular exam is unremarkable. Fundoscopy shows a normal fundi. The results of the blood test from two days ago are as follow:

Na+ 141 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 114 µmol/L (55 - 120)

Which of the following is the most appropriate next step management for his blood pressure?

A.Alpha-blocker

B.Beta-blocker

C.Aldosterone antagonist

D.Referral for specialist assessment

E.Angiotensin receptor blocker

Answer:Alpha-blocker

Explanation:

Poorly controlled hypertension, already taking an ACE inhibitor, calcium channel blocker and a standard-dose thiazide diuretic. K+ > 4.5mmol/l - add an alpha- or beta-blocker

Important for meLess important

Patient's blood pressure remains elevated on two separate occasions despite taking an ACE inhibitor (perindopril), calcium channel blocker (amlodipine) and a thiazide-like diuretic (indapamide). His recent blood test shows a potassium level of 4.9. In this instance, NICE recommends adding an alpha-blocker or a beta-blocker. As the patient is asthmatic, beta-blocker is contraindicated. Hence, alpha-blocker is the correct answer.

NICE recommends a low-dose aldosterone antagonist as an off-license use if potassium level is less than 4.5. As the patient's recent blood test shows a potassium level of more than 4.5, low-dose aldosterone is an incorrect answer.

NICE recommends seeking expert advice if blood pressure remains uncontrolled with the optimal or maximum tolerated doses of four drugs. This patient is currently taking three antihypertensive agents, therefore, the answer 'referral for specialist assessment' is incorrect.

Angiotensin receptor blocker is an incorrect answer. It should not be used in conjunction with ACE inhibitors.

Question:

A 18-year-old man presents with a 2 day history of multiple erythematous painful genital vesicles and ulcers, dysuria and a fever. On examination, tender inguinal lymphadenopathy is present. He is sexually active and does not use a condom. He discloses that he has had two new sexual partners, both of which are men, in the last couple of weeks.

What is the most likely cause of the patient’s symptoms?

A.Chancroid

B.Genital herpes

C.Gonorrhoea

D.Lymphogranuloma venereum

E.Syphilis

Answer:Genital herpes

Explanation:

Multiple painful genital ulcers, sexually active - genital herpes

Important for meLess important

The patient has multiple painful ulcers which is most likely caused by genital herpes.

Chancroid presents with single deep painful ulcer, not multiple ulcers.

Lymphogranuloma venereum is caused by Chlamydia trachomatis and is characterised by unilateral tender lymphadenopathy. There may be some ulcers in lymphogranuloma venereum, but there should not be any of vesicles, unlike in this scenario.

Syphilis is characterised by a single non-tender ulcer.

Ulceration is not typical of gonorrhoea.

Question:

A 45-year-old man presents with a painful swelling on the posterior aspect of his elbow. There is no history of trauma. On examination an erythematous tender swelling is noted. What is the most likely diagnosis?

A.Synovial cyst

B.Haemarthrosis

C.Septic arthritis

D.Gout

E.Olecranon bursitis

Answer:Olecranon bursitis

Explanation:

Question:

A 26-year-old woman comes to see her GP after complaining of weight gain, hair loss, constipation and feelings of being cold all the time. She is also amenorrhoeic and struggled to breastfeed after birth. She has no significant past medical history but during her daughter's birth she suffered from a large amount of blood loss and subsequent hypovolaemic shock which required a 6 weeks hospital stay.

Which of the following conditions is the most likely cause of these symptoms?

A.Sheehan's syndrome

B.Subarachnoidal haemorrhage

C.Hypothyroidism

D.Hypophysitis

E.Premature ovarian failure

Answer:Sheehan's syndrome

Explanation:

Sheehan's syndrome (otherwise known as postpartum hypopituitarism) is a reduction in the function of the pituitary gland following ischaemic necrosis due to hypovolaemic shock following birth. The symptoms can be varied due to the damage in the pituitary and can sometimes take years to develop.

This patient has amenorrhoea, problems with milk production and hypothyroidism, which point towards pituitary dysfunction. Her complicated birth allows for the diagnosis of Sheehan's syndrome.

Question:

A 49-year-old woman presented to her general practitioner with a 10-day history of a painful lesion on her ankle. She reports that she initially thought she caught her leg on a branch whilst gardening but since says the lesion has been growing in size. Other than occasional myalgia, there are no other symptoms to report.

On examination, her observations are within normal limits. Her leg is examined, as shown below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Arterial ulcer

B.Cellulitis

C.Necrotising fasciitis

D.Pyoderma gangrenosum

E.Venous ulcer

Answer:Pyoderma gangrenosum

Explanation:

The image above shows an ulcerated, purple-coloured lesion with undefined borders. There is evidence of central bleeding through broken-down skin. This is in keeping with a diagnosis of pyoderma gangrenosum. Pyoderma gangrenosum is a rapidly enlarging, painful ulcer that often starts as a small red pustule following a minor injury. The condition is associated with autoimmune inflammatory conditions such as inflammatory bowel disease and rheumatoid arthritis, however, they do not need to be present to make the diagnosis.

An arterial ulcer is typically found on the foot, heel or toes and presents as a painful punched-out ulcer. It is more commonly seen in patients with a history of arterial disease such as atherosclerosis or peripheral vascular disease and the surrounding skin also shows signs of reduced circulation (e.g. pale, cold, shiny skin). The ulcer shown in the image above does not represent a punched-out lesion and the surrounding skin is discoloured purple. Combined with the lack of a vascular history, an arterial ulcer is unlikely.

Cellulitis typically presents as a progressively enlarging area of skin inflammation associated with erythema, pain and increased temperature. It is unusual for cellulitis to cause ulceration of the skin and the lack of fever makes the diagnosis of cellulitis less likely for this patient.

Necrotising fasciitis is a severe and life-threatening bacterial infection of the skin and soft tissues that causes rapid necrosis, systemic illness and septic shock and death if not treated promptly. Whilst the lesion in the above image is darker in colour, there is no evidence of necrosis or purulent discharge to suggest an infective cause of the lesion. Furthermore, the normal observations makes and 10-day history of symptoms makes necrotising fasciitis a lot less likely as symptoms tend to be much more rapid and progressive.

A venous ulcer is most common in patients with venous insufficiency (e.g. varicose veins) and typically presents above the medial or lateral malleolus. Pain is a less common presenting feature compared to pyoderma gangrenosum. Furthermore, additional signs often seen in patients with a venous ulcer include haemosiderin deposition, venous eczema and lipodermatosclerosis. These signs are not seen here and make the diagnosis of venous ulceration less likely.

Question:

A 3-day-old male is admitted to the neonatal unit with bilious vomiting and reduced feeding. He was born at 30 weeks gestation via an uncomplicated delivery. An abdominal X-ray is requested that shows intramural gas. Oral feeding is stopped and he is started on broad-spectrum antibiotics.

Which of the following is the most likely diagnosis?

A.Biliary atresia

B.Duodenal atresia

C.Hirschsprung's disease

D.Intussusception

E.Necrotising enterocolitis

Answer:Necrotising enterocolitis

Explanation:

Pneumatosis intestinalis is a hallmark feature of necrotising enterocolitison AXR

Important for meLess important

Necrotising enterocolitis (NEC) is a common gastrointestinal problem in premature neonates that is characterised by inflammation and necrosis of the bowel wall. Abdominal X-rays can show dilated bowel loops, portal venous gas, as well as the pathognomonic sign of intramural gas (pneumatosis intestinalis).

Biliary atresia is a congenital disease where there is an absence of the biliary tree, causing in cirrhosis. This typically presents with persistent jaundice and hepatomegaly within the first few weeks of life.

Duodenal atresia is a congenital malformation that presents with signs of bowel obstruction such as a distended abdomen, bilious vomiting and absence of bowel movements. This is strongly associated with Down's syndrome and can sometimes be detected during antenatal ultrasound screening.

Hirschsprung's disease results from aganglionosis in the distal colon and rectum. This typically presents in one of two ways. The first is delayed or failure to pass meconium in the neonatal period. The second is constipation and abdominal distension in older children.

Intussusception occurs when a segment of bowel is pulled into itself. It presents, usually after the first three months of life, with a classic triad of intermittent abdominal pain, vomiting and a right upper quadrant mass. Children will often pull their legs up to their tummy in pain and there may be 'red currant jelly' stool. On ultrasound you may see the 'target sign'.

Question:

A 50-year-old lady is undergoing staging for her confirmed ovarian cancer. Upon scanning, it is found that the tumour has spread beyond the ovary, but is still within the pelvis. What stage is her cancer at?

A.1

B.2

C.3

D.4

E.5

Answer:2

Explanation:

The staging of ovarian cancer can be broken down into the following:

Stage 1 Tumour confined to ovary

Stage 2 Tumour outside ovary but within pelvis

Stage 3 Tumour outside pelvic but within abdomen

Stage 4 Distant metastasis

Question:

A 12-year-old girl comes with her mother to surgery. She is requesting the combined oral contraceptive (COC) pill as she has recently started a relationship with an 18-year-old man who she met at the local games arcade, although she has not yet had sex with him. You discuss the age difference but her mother states that she has met the boyfriend and says he treats her daughter well. Both the girl and her mother insist that they do not want anyone else involved. What is the most appropriate course of action?

A.Assess using Fraser guidelines + prescribe a Long Acting Reversible Contraceptive method such as Implanon

B.Assess using Fraser guidelines + prescribe the COC

C.Advise her to abstain and refer to a 'Safer Sex for Young Adults' program

D.Obtain consent from mother + prescribe the COC

E.Immediately phone local child protection lead and refer to social services

Answer:Immediately phone local child protection lead and refer to social services

Explanation:

Children under the age of 13 years are not able to consent to sexual intercourse and hence any sexual activity would be regarded as rape under the law. This is one situation under the GMC guidelines where you are compelled to break confidentiality

Question:

A 55-year-old man presents to the emergency department with chest pain. Before he can be seen, he collapses. There is no pulse and cardiopulmonary resuscitation (CPR) is started.

A defibrillator is attached which shows ventricular fibrillation. The man is treated per the shockable advanced life support algorithm. After three shocks, there are still no signs of life and the patient remains in ventricular fibrillation.

What is the most appropriate next action?

A.Continue CPR without giving any drugs

B.Give intravenous adrenaline and amiodarone

C.Give intravenous adrenaline and lidocaine

D.Give intravenous adrenaline only

E.Give intravenous amiodarone only

Answer:Give intravenous adrenaline and amiodarone

Explanation:

In ALS, amiodarone 300 mg should be given to patients who are in VF/pulseless VT after 3 shocks have been administered.

Important for meLess important

This patient remains in ventricular fibrillation, meaning he should continue to be treated per the shockable advanced life support algorithm. This means that, after the third shock, both amiodarone and adrenaline should be given intravenously. CPR should continue whilst this is being given. Amiodarone is given after the 3rd shock and again after the 5th shock. Adrenaline is given every 3-5 minutes, with the first dose being given after the 3rd shock in the shockable algorithm and straight away in the non-shockable algorithm.

Continue CPR without giving any drugs is incorrect. Whilst it is important that CPR continues without any interruption, both amiodarone and adrenaline should be given after the third shock.

Giving adrenaline and lidocaine is incorrect; lidocaine may be used as second-line if amiodarone is not available.

As this is a shockable rhythm, giving adrenaline only is incorrect. Amiodarone should also be given at this stage.

Giving amiodarone only is incorrect. Adrenaline should also be given after the third shock, with doses repeated every 3-5 minutes.

Question:

A 51-year-old woman with a history of Sjogren's syndrome has had routine blood tests which show the following:

Bilirubin 10 µmol/L (3 - 17)

ALP 204 u/L (30 - 100)

ALT 31 u/L (3 - 40)

γGT 98 u/L (8 - 60)

Albumin 47 g/L (35 - 50)

She subsequently undergoes further investigations which show the following:

Anti-mitochondrial antibodies 1:200

She is asymptomatic and denies any symptoms of abdominal pain or pruritus.

What is the most appropriate management?

A.Cholestyramine

B.Liver transplantation

C.No treatment indicated currently

D.Prednisolone

E.Ursodeoxycholic acid

Answer:Ursodeoxycholic acid

Explanation:

Ursodeoxycholic acid is the first-line medication for primary biliary cholangitis

Important for meLess important

Primary biliary cholangitis (PBC) is a chronic autoimmune liver disease that is strongly associated with some other autoimmune conditions, such as Sjogren's syndrome and rheumatoid arthritis.

The presence of raised anti-mitochondrial antibody titres (>1:40), together with cholestatic liver biochemistry (raised ALP and GGT), is usually sufficient in making a diagnosis.

Many patients may be completely asymptomatic at the time of diagnosis and may be detected only following routine liver function tests showing an obstructive picture.

Regardless, all patients (even if asymptomatic) should be treated with oral ursodeoxycholic acid lifelong, as it has been shown to slow disease progression.

Cholestyramine is a bile acid sequestrant that is useful in the symptomatic management of pruritus in PBC. However, this patient is not having such symptoms.

Liver transplantation is only reserved in patients with decompensated liver disease, which this patient does not currently exhibit any signs of.

Prednisolone is used to treat autoimmune hepatitis rather than PBC.

Question:

A 30-year-old woman presents with ongoing, cyclical pain around the time of her periods. The pain starts several days before the period itself and can last until several days after. She also experiences pain during sexual intercourse, particularly with deep penetration.

Examination demonstrated tender nodularity in the posterior fornix.

The patient has already tried paracetamol and ibuprofen, but these are no longer effective.

What is the next most appropriate step?

A.Clomifene

B.Combined oral contraceptive pill

C.Elagolix

D.Laparoscopic excision

E.Leuprorelin

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 has endometriosis, as evidenced by her symptoms and findings on examination. First-line treatment involves the use of simple analgesia. As this is no longer effective, the next step is to use either progestogens or the combined oral contraceptive pill. Hormonal treatments are generally effective at controlling endometriosis-related pain.

Clomifene is used to induce ovulation in a number of conditions. While endometriosis can affect fertility and clomifene may be used for this aspect, by an experienced fertility doctor, it would not be the next step in pain management.

Elagolix is a relatively new gonadotropin-releasing hormone antagonist. It is licensed in the USA for endometriosis-related pain. It is not widely used in the UK currently and so the next most appropriate option remains the combined contraceptive pill.

Laparoscopic excision is further down the line, as surgery carries significant risks. The next step, after simple analgesia, is the use of hormonal options.

Leuprorelin is a gonadotropin-releasing hormone agonist. Whilst effective for the control of endometriosis-related pain, it is prescribed by specialists and would not be the next step after simple analgesia.

Question:

A 69-year-old male is referred to the cardiology ward after he presented to the emergency department with dyspnoea and palpitations. On further investigations, a diagnosis of atrial fibrillation was made and digoxin was prescribed for rate control.

How often is routine drug monitoring required in this scenario?

A.Every month until levels have optimised

B.No routine monitoring required

C.At 1 month, 3 months and 6 months

D.Every 2 weeks for the first 3 months

E.Every 12 months for the duration of treatment

Answer:No routine monitoring required

Explanation:

Digoxin level is not monitored routinely, except in suspected toxicity

Important for meLess important

Digoxin levels do not require routine monitoring. The exception here is if digoxin toxicity is suspected. However, this patient is being newly started on digoxin and has no symptoms of digoxin toxicity, therefore routine monitoring is not needed.

Digoxin level does not need to be measured every month until levels have optimised.

Routine monitoring of digoxin is not needed at 1 month, 3 months and 6 months.

Similarly, drug monitoring is not appropriate every 2 weeks for the first 3 months.

Again, routine drug monitoring is not required annually for the duration of treatment.

Question:

You are reviewing a 65-year-old in the renal clinic. He has been on haemodialysis for chronic kidney disease for the past 6 years. What is he most likely to die from?

A.Hyperkalaemia

B.Malignancy

C.Dilated cardiomyopathy

D.Dialysis related sepsis

E.Ischaemic heart disease

Answer:Ischaemic heart disease

Explanation:

CKD on haemodialysis - most likely cause of death is IHD

Important for meLess important

Cardiovascular events account for 50% of the mortality in patients receiving dialysis.

Question:

A 48-year-old man is referred to an ear, nose and throat specialist with slowly progressive hearing loss and tinnitus. He has a past medical history of heart failure with preserved ejection fraction and takes regular furosemide. He has a family history of early-onset hearing loss.

On examination, otoscopy is unremarkable bilaterally. There is evidence of hearing loss bilaterally.

Blood tests:

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 89 µmol/L (55 - 120)

Pure tone audiometry demonstrates bilateral conductive hearing loss.

What is the most likely diagnosis?

A.Alport's syndrome

B.Furosemide treatment

C.Glue ear

D.Meniere's disease

E.Otosclerosis

Answer:Otosclerosis

Explanation:

Otosclerosis is characterised by conductive hearing loss, tinnitus and positive family history

Important for meLess important

Otosclerosis is the correct answer. The patient has slowly progressive conductive hearing loss, tinnitus and positive family history, making this a likely diagnosis. In this disorder, there is the formation of new bone around the base of the stapes, which is a bone in the middle ear. This results in progressive conductive hearing loss.

Alport's syndrome is incorrect. This is a disorder that is associated with hearing loss and family history. However, it all causes a progressive decline in renal function, which is not present in this case.

Furosemide treatment is incorrect. This medication is ototoxic but ototoxicity associated with medications tends to cause sensorineural hearing loss (SNHL) rather than conductive hearing loss. Additionally, furosemide can sometimes be used to treat tinnitus rather than being causative.

Glue ear is incorrect. This could conceivably cause bilateral conductive hearing loss. However, we would expect abnormal otoscopic findings in this case.

Meniere's disease is incorrect. This can cause hearing loss and is associated with a family history in a small number of cases. However, it causes SNHL and is associated with vertigo, which is not present here.

Question:

A 67-year-old man is admitted to a medical ward with a 3-day history of a productive cough and shortness of breath. X-ray imaging demonstrates left lower lobe consolidation. He has been prescribed co-amoxiclav 1.2g IV and clarithromycin 500mg BD. Which one of the following of his regular medications needs to be temporarily stopped?

A.Levothyroxine

B.Indapamide

C.Metformin

D.Atorvastatin

E.Dapagliflozin

Answer:Atorvastatin

Explanation:

Statins must be temporarily stopped when a macrolide antibiotic is started

Important for meLess important

Statins must be temporarily held when prescribing a macrolide antibiotic due to the increased risk of rhabdomyolysis when combing the two drugs. The other drugs have no interactions with statins. Metformin only needs to be stopped if the patient has a decline in their renal function.

Question:

A 25-year-old male presents to the GP with dysuria and three painful genital ulcer, but there is no urethral discharge. He has been feeling generally run down. He is sexually active with multiple partners.

What is the most likely diagnosis?

A.Chancroid

B.Chlamydia infection

C.Herpes simplex viral infection

D.Human papilloma viral infection

E.Syphilis infection

Answer:Herpes simplex viral infection

Explanation:

Multiple painful genital ulcers, sexually active - genital herpes

Important for meLess important

The correct answer is herpes simplex viral infection. It is the most likely diagnosis as it typically causes multiple painful ulcers. This is similar to chancroid but chancroid is less common.

Chlamydia can cause lymphogranuloma venereum which is typically a single painless ulcer and is therefore not the most likely diagnosis.

Human papilloma virus typically causes painless genital warts and is therefore not the most likely diagnosis.

Syphilis typically causes a single painless genital ulcer (chancre) and is therefore not the most likely diagnosis.

Question:

A 26-year-old contact lens wearer was referred to a casualty ophthalmology clinic by her GP. She is complaining about her left eye, it is red, painful and has a gritty sensation. She also noticed increased sensitivity to light. There is no eye discharge.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Anterior uveitis

C.Bacterial conjunctivitis

D.Blepharitis

E.Keratitis

Answer:Keratitis

Explanation:

Features of keratitis: red eye, photophobia and gritty sensation

Important for meLess important

Keratitis is the correct answer. The typical presentation usually involves a red eye, photophobia, pain and gritty sensation. Wearing contact lenses is a known risk factor.

Acute angle-closure glaucoma can present as a red and painful eye. However, gritty sensation in a contact lens wearer point towards keratitis.

Anterior uveitis is a very good differential. It can also present as an acute red eye and discomfort. It often is associated with certain systemic inflammatory conditions (e.g. ankylosing spondylitis, ulcerative colitis). Keratitis; however, is much more common among contact lens wearers and has a typical gritty sensation.

Bacterial conjunctivitis would typically present as a red, itchy eye with sticky discharge.

Blepharitis can present with grittiness and sticky eyes, especially in the morning. Symptoms are usually bilateral.

Question:

Henry is a premature baby (29 weeks) who was born 2 weeks ago. Over the past week, he has been passing bloody stools, has abdominal distension and has not been feeding well. Physical examination reveals an increased abdominal girth with reduced bowel sounds. Abdominal X-ray shows dilated asymmetrical bowel loops and bowel wall oedema.

What is the likely diagnosis?

A.Intussusception

B.Inflammatory bowel disease

C.Pyloric stenosis

D.Hirschsprung's disease

E.Necrotising enterocolitis

Answer:Necrotising enterocolitis

Explanation:

The correct answer for this question is necrotising enterocolitis.

Necrotising enterocolitis is one of the leading causes of death among premature infants. Initial symptoms can include feeding intolerance, abdominal distension and bloody stools, which can quickly progress to abdominal discolouration, perforation and peritonitis.

Abdominal x-rays are useful when diagnosing necrotising enterocolitis, as they can show:

dilated bowel loops (often asymmetrical in distribution)

bowel wall oedema

pneumatosis intestinalis (intramural gas)

portal venous gas

pneumoperitoneum resulting from perforation

air both inside and outside of the bowel wall (Rigler sign)

air outlining the falciform ligament (football sign)

Two of these features are present on the abdominal x-ray of the patient in this scenario.

Intussusception does not fit the above scenario due to the x-ray findings. Furthermore, the characteristic hallmarks of intussusception on physical examination of a sausage-shaped mass in the right hypochondrium and emptiness in the right lower quadrant (Dance's sign) where not present in this patient.

Inflammatory bowel disease is unlikely to affect an infant as young as the one in this scenario, meaning this would not be on a list of likely differentials.

The history of the infant described above does not fit in with a differential of pyloric stenosis. Infants with pyloric stenosis generally present with increasing episodes of vomiting following feeding, with these episodes often being described as projectile due to their forceful nature.

Hirschsprung's disease is an important differential for this infant. Given the history a diagnosis of Hirschsprung's disease could be a possibility. However, due to necrotising enterocolitis being more prevalent in premature infants it cannot be the 'likeliest' diagnosis in this case.

Question:

A 52-year-old man with a history of hypertension is found to have a 10-year cardiovascular disease risk of 18%. A decision is made to start atorvastatin 20mg on. Liver function tests are performed prior to initialising treatment:

Bilirubin 10 µmol/l (3 - 17 µmol/l)

ALP 96 u/l (30 - 150 u/l)

ALT 40 u/l (10 - 45 u/l)

Gamma-GT 28 u/l (10 - 40 u/l)

Three months later the LFTs are repeated:

Bilirubin 12 µmol/l (3 - 17 µmol/l)

ALP 107 u/l (30 - 150 u/l)

ALT 104 u/l (10 - 45 u/l)

Gamma-GT 76 u/l (10 - 40 u/l)

What is the most appropriate course of action?

A.Continue treatment and repeat LFTs in 1 month

B.Check creatine kinase

C.Reduce dose to atorvastatin 10mg on and repeat LFTs in 1 month

D.Stop treatment and consider alternative lipid lowering drug

E.Stop treatment and refer to gastroenterology

Answer:Continue treatment and repeat LFTs in 1 month

Explanation:

Treatment with statins should be discontinued if serum transaminase concentrations rise to and persist at 3 times the upper limit of the reference range.

Question:

Which one of the following best describes the action of latanoprost in the management of primary open-angle glaucoma?

A.Carbonic anhydrase inhibitor

B.Reduces aqueous production + increases outflow

C.Opens up drainage pores

D.Increases uveoscleral outflow

E.Reduces aqueous production

Answer:Increases uveoscleral outflow

Explanation:

Latanoprost is a prostaglandin analog used in glaucoma. It works by increasing uveoscleral outflow

Important for meLess important

Question:

A 55-year-old lady with claudication is assessed and an ABPI is performed. Results show an ABPI value of 1.3. Which of the following conditions may lead to this abnormal result?

A.Hypothyroidism

B.Hypercalcaemia

C.Type 2 diabetes

D.Peripheral arterial disease

E.Previous deep vein thrombosis

Answer:Type 2 diabetes

Explanation:

An ABPI value of >1 can indicate vessel calcificaiton common in diabetes

Important for meLess important

An ABPI value of >1 is caused by hardening of the vessels being measured. This is commonly as a result of calcification secondary to diabetes. This means answer 3 is correct.

While calcification of the vessels causes a raised ABPI, hypercalcaemia would not itself cause this

There is no link between hypothyroidism and a raised ABPI

Peripheral arterial disease will cause an ABPI value to be decreased, and a reduced ABPI is indicative of peripheral arterial disease

A deep vein thrombosis will affect the veins and not the arteries, and this will not raise the ABPI value

Question:

A 34-year-old man returns from a 3-week holiday to India with a 5-day history of feeling generally unwell, feverish, nauseous with a loss of appetite and right upper quadrant pain.

On examination, he looks unwell with a temperature of 38.2ºC and a heart rate of 102 beats per minute. Abdominal examination identifies tender hepatomegaly.

Blood tests are taken with the results as below:

Hb 152 g/L Male: (135-180)

Female: (115 - 160)

Platelets 456 \* 109/L (150 - 400)

WBC 12.2 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 76 µmol/L (55 - 120)

CRP 32 mg/L (< 5)

Bilirubin 42 µmol/L (3 - 17)

ALP 164 u/L (30 - 100)

ALT 512 u/L (3 - 40)

γGT 86 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

What is the most likely diagnosis from the list below?

A.Amoebic abscess

B.Ascending cholangitis

C.Cholecystitis

D.Hepatitis A

E.Hepatitis C

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 a viral infection of the liver. It presents with flu-like symptoms, nausea, fatigue, right upper quadrant pain and tender hepatomegaly. It causes significant liver inflammation and as the infection progresses, a cholestatic picture can develop. This scenario is in keeping with hepatitis A infection.

An amoebic abscess is a possibility given the history of travel with fever and right upper quadrant pain. However, the blood tests are not quite as in keeping with this given the mildly raised WCC/CRP and significantly raised ALT.

Ascending cholangitis would cause fever, right upper quadrant pain and jaundice. In this scenario, the liver functions tests show marked hepatic inflammation with the raised ALT in proportion to the slightly raised bilirubin. This is less in keeping with ascending cholangitis.

Cholecystitis would not cause such a raised ALT or developing jaundice.

Hepatitis C often causes only mild, or sometimes no, symptoms in the acute phase and as such is less likely here. There is no history of blood-borne virus transfer either.

Question:

A 62-year-old man presents with lethargy. A full blood count is taken and is reported as follows:

Hb 102 g/L Male: (135-180)

Female: (115 - 160)

Platelets 330 \* 109/L (150 - 400)

WBC 15.2 \* 109/L (4.0 - 11.0)

Blood film Leucoerythroblastic picture. Tear-drop poikilocytes seen

What is the most likely diagnosis?

A.Myelodysplasia

B.Chronic lymphocytic leukaemia

C.Myelofibrosis

D.Chronic myeloid leukaemia

E.Post-splenectomy

Answer:Myelofibrosis

Explanation:

Myelofibrosis is associated with ‘tear drop’ poikilocytes on blood film

Important for meLess important

Thrombocytopenia and leucopenia are seen in progressive disease.

Blood film showing tear-drop poikilocytes

Question:

A 36-year-old woman comes into your GP clinic, 3 months after giving birth. She reports ongoing palpitations, weight loss of 5kg since the delivery and some tremors in her hands. She reports her baby is doing well and she is bottle feeding.

You perform thyroid function tests and the results are shown below.

TSH 3.5 mU/L

T4 20 pmol/L

Given the likely diagnosis, which one of the following treatments is most appropriate?

A.Aspirin

B.Carbimazole

C.Propranolol

D.Levothyroxine

E.Radioactive iodine

Answer:Propranolol

Explanation:

This patient has presented with symptoms of postpartum thyroiditis. This is an autoimmune condition which presents as the body transitions back from the immunosuppressed state of pregnancy to normal immunity.

Postpartum thyroiditis can present for up to 1 year following delivery, but most frequently occurs 3-4 months post-partum. The hyperthyroid phase should be treated with beta blockers and not antithyroid drugs.

Question:

A 60 year-old man presents with a two month history of nasal blockage on the right side, which is now beginning to disrupt his sleep. He has not noticed any bleeding but has had postnasal drip. On examination you see a polyp on the right side and an inflamed mucosa bilaterally. What is the most appropriate management?

A.Start saline nasal douche and review in 6 weeks

B.Start intranasal steroids and review in 6 weeks

C.Start saline douche and intranasal steroid and review in 6 weeks

D.Start antihistamine and intranasal steroid and review in 6 weeks

E.Refer to ENT

Answer:Refer to ENT

Explanation:

Unilateral polyps are a red flag symptom

Important for meLess important

This patient has a unilateral nasal polyp. Polyps due to rhinosinusitis are usually bilateral so it is important to refer this gentleman to be seen by an ENT doctor to exclude malignancy.

If small bilateral nasal polyps are seen these can be treated in primary care with a saline nasal douche and intranasal steroids, but if they are causing significant obstruction patients should be referred to ENT.

Question:

You are working in the Emergency Department, assisting in receiving a priority call. The patient is a 26-year-old farmworker who has attempted to commit suicide by drinking insecticide.

Which of the following drugs is most important to have on standby ready for the patient's arrival?

A.Adenosine

B.Adrenaline

C.Amiodarone

D.Amlodipine

E.Atropine

Answer:Atropine

Explanation:

Organophosphate insecticide - atropine

Important for meLess important

Insecticides contain organophosphates, which are incredibly toxic. Although a range of ECG abnormalities can be expected in organophosphate poisoning, the most common feature is bradycardia due to overwhelming cholinergic activity. Accordingly, atropine is vital to have for both reversal of any bradycardia and overwhelming cholinergic activity caused by the poisoning.

Adenosine is used in managing supraventricular tachycardia, these are not associated with organophosphate poisoning.

Whilst adrenaline is an emergency drug that should be present in any resus trolley, the patient is not in cardiac arrest and the immediate concern in organophosphate poisoning is bradycardia.

Amiodarone is indicated in ventricular tachycardia or ventricular fibrillation, bradycardia is the most commonly associated arrhythmia with organophosphate poisoning.

Amlodipine is a calcium channel blocker primarily used in the management of hypertension and angina; it is not indicated in organophosphate poisoning.

Question:

You are reviewing the blood results of a 45-year-old obese man who had been complaining of tiredness. His full blood count, urea and electrolytes and thyroid function tests were within normal limits. The fasting plasma glucose result is shown below:

Fasting plasma glucose 6.2 mmol/l

What is the most appropriate interpretation of this result?

A.Consistent with diabetes mellitus - need to confirm with a repeat sample

B.Normal - no further action needed

C.Suggestive on an insulinoma

D.Prediabetes (impaired glucose tolerance)

E.Prediabetes (impaired fasting glycaemia)

Answer:Prediabetes (impaired fasting glycaemia)

Explanation:

This patient has impaired fasting glycaemia is diagnosed with a fasting plasma glucose (FPG) between 6.1-6.9 mmol/l and he should therefore be managed as having prediabetes.

Question:

A newly qualified staff nurse at the local hospital undergoes vaccination against hepatitis B. The following results are obtained three months after completion of the primary course:

Result Anti-HBs: 10 - 100 mIU/ml

Reference An antibody level of >100 mIU/ml indicates a good immune response with protective immunity

What is the most appropriate course of action?

A.Repeat course (i.e. 3 doses) of hepatitis B vaccine

B.Repeat anti-HBs level in three months time

C.Give a course of hepatitis B immune globulin (HBIG) + one further dose of hepatitis B vaccine

D.Give one further dose of hepatitis B vaccine

E.Do a HIV test

Answer:Give one further dose of hepatitis B vaccine

Explanation:

Question:

A 25-year-old woman presents to the clinic with bilateral swelling in the joints of her hands over the last 4 months. The joints are stiff in the morning and this lasts for an hour before improving throughout the day. There is no pain or swelling elsewhere. On examination, there is bilateral swelling and tenderness of the 1st, 2nd, and 3rd metacarpophalangeal joints of both hands. An x-ray of the hands and feet is performed, a dose of intramuscular methylprednisolone is given, and she is initiated on methotrexate.

What is the most important add-on she should be offered?

A.B12 to prevent deficiency

B.Bisphosphonates to reduce risk of osteoporosis

C.Calcium and vitamin D supplementation

D.Folate to reduce the risk of bone marrow suppression

E.Folate to reduce the risk of neural tube defects in potential children

Answer:Folate to reduce the risk of bone marrow suppression

Explanation:

Prescribing folate with methotrexate reduces the risk of myelosuppression

Important for meLess important

Folate to reduce the risk of bone marrow suppression is correct. This patient is most likely to have rheumatoid arthritis, as she has bilateral symmetrical inflammatory polyarthritis. Her presentation suggests inflammatory arthritis due to the presence of morning stiffness that lasts for an hour and her symptoms improve throughout the day. Methotrexate is often the first-line option for patients with rheumatoid arthritis and is an antifolate drug that works by inhibiting dihydrofolate reductase, an enzyme involved in folate metabolism. Folic acid is essential for DNA synthesis. As a result of this, bone marrow suppression (or myelosuppression) can occur, where red blood cells, white blood cells, and platelets are reduced in number, which can be potentially dangerous and predispose to complications such as severe infection. To mitigate this risk, folate is prescribed alongside methotrexate in patients.

B12 to prevent deficiency is incorrect. Methotrexate is not known to cause deficiencies in B12, therefore she should not routinely be offered B12 supplementation unless blood studies or signs and symptoms of a B12 deficiency arise.

Calcium and vitamin D supplementation is incorrect. This patient has had a one-off dose of intramuscular methylprednisolone to settle her current flare of rheumatoid arthritis symptoms. She is not likely to be taking long-term corticosteroids (usually >3 months), therefore her risk of osteoporosis is not significant and bone protection is not necessary. She may still take calcium and vitamin D supplements if blood test findings or signs and symptoms of deficiency emerge.

Bisphosphonates to reduce risk of osteoporosis is incorrect. This patient has had a one-off dose of intramuscular methylprednisolone to settle her current flare of rheumatoid arthritis symptoms. She is not likely to be taking long-term corticosteroids (usually >3 months), therefore her risk of osteoporosis is not significant and bone protection is not necessary.

Folate to reduce the risk of neural tube defects in potential children is incorrect. Methotrexate is absolutely contraindicated for use in pregnancy as it is teratogenic. Giving folate supplements will not be sufficient to counteract its effects. If this patient is planning on having children, she and her partner will both have to cease methotrexate for at least 6 months before attempting to conceive.

Question:

Which one of the following statements regarding scabies is false?

A.All members of the household should be treated

B.Typically affects the fingers, interdigital webs and flexor aspects of the wrist in adults

C.Scabies causes a delayed type IV hypersensitivity reaction

D.Patients who complain of pruritus 4 weeks following treatment should be retreated

E.Malathion is suitable for the eradication of scabies

Answer:Patients who complain of pruritus 4 weeks following treatment should be retreated

Explanation:

It is normal for pruritus to persist for up to 4-6 weeks post eradication

Question:

A 21-year-old female is rushed to the emergency department following a road traffic accident. On examination she has a Glasgow Coma Score of 3, her blood pressure was 89/64 mmHg and her heart rate was 132/min.

The paramedics state she has lost around 2 litres of blood. As a team, you decide she requires a blood transfusion.

You speak to the father before the transfusion who informs you that the whole family are Jehovah witnesses and he refuses to allow you to give his daughter a transfusion. On reading through her notes you can't find any documentation of her wishes prior to the accident. However, her father informs you that she spoke to them in the last few months confirming her wish to refuse a transfusion, should she require one.

What do you do?

A.Refuse to give the transfusion as she has verbally expressed her wishes recently to her family

B.Give her the blood transfusion as this is a life threatening situation

C.Wait for her to wake up to discuss her wishes and get written consent

D.Start her on a saline drip, and advise the family to consult the hospital liaison committee

E.Phone her GP to establish any prior wishes stated to them

Answer:Give her the blood transfusion as this is a life threatening situation

Explanation:

The correct answer is to give her the blood transfusion, this patient is presenting with a class 3 haemorrhagic shock and requires a urgent blood transfusion. Although she has expressed her wishes verbally to her family, the GMC consent guidelines state that 'when an emergency arises in a clinical setting and it is not possible to find out a patients wishes, you can treat them without their consent, provided the treatment is immediately necessary to save their life or to prevent a serious deterioration of their condition. The treatment you provide must be the least restrictive of the patients future choices.' (GMC good medical practice, Consent: The scope of treatment in emergencies)

Not treating her would mean she would almost certainly die, waiting for her to wake up is highly unlikely to happen and starting her on a drip is not the recommended treatment for Grade 3 shock.

Question:

A 67-year-old man with chronic hepatitis B presents to the emergency department. He has been stable for the last 10 years, however, today he has noticed a yellowing of his skin and his wife mentions that he has been a little confused.

Which of the following may be a cause of this man's decompensation?

A.High carbohydrate diet

B.Low protein diet

C.Diarrhoea

D.Constipation

E.High fibre diet

Answer:Constipation

Explanation:

Constipation can be a trigger for liver decompensation in cirrhotic patients

Important for meLess important

This question is asking about a man with a cirrhotic liver following chronic hepatitis. In this case, he is showing signs of liver decompensation (jaundice and confusion). There are many causes of liver decompensation and you should make sure to find any underlying cause to ensure it is treated promptly.

From the list above constipation is a common cause of liver decompensation, this is due to the accumulation of toxic products within the body. In fact, some patients with liver decompensation and hepatic encephalopathy are treated with enemas to reduce the uptake of toxic products.

Other common causes include infection, electrolyte imbalances, dehydration, upper GI bleeds or increased alcohol intake.

Question:

A 21-year-old man is hit on the left side of his face during a rugby game. He complains of double vision when both eyes are open, and it is painful to open his mouth.

Which of the following explains his presentation?

A.Rupture of the globe

B.Left eye hyphaema

C.Ramus fracture

D.Depressed fracture of the zygoma

E.Rupture of the maxillary antrum

Answer:Depressed fracture of the zygoma

Explanation:

Binocular vision post-facial trauma is suggestive of depressed fracture of the zygoma

Important for meLess important

Fractured facial bones commonly occur during assaults and traumatic accidents (e.g. motor vehicle accident). The mechanism of injury will influence the type of injury e.g. assault with a punch typically results in fractured zygoma due to the location of the impact on the cheek bone, or around the eye.

Rupture of the globe would present with gross loss of vision.

A hyphaema would present with monocular visual blurring, and would be diagnosed by inspection.

A patient with a ramus fracture would have difficulty opening and no visual changes

A maxillary antrum rupture would be secondary to a comminuted maxillary fracture or blowout fracture of the orbit.

Binocular vision and facial trauma is suggestive of a depressed fracture of the zygoma. Inspection and palpation of the orbital margins typically demonstrates a step deformity in the orbital margin or a depressed contour of the cheek.

Question:

A 24-year-old recent immigrant from Albania presents to the emergency department with fever, headache and malaise. Over the past 24 hours he has also developed bilateral pain and swelling at the angle of the jaw, which is made worse by talking or chewing. On examination his pulse is 90/min, temperature 38.4ºC and bilateral palpable, tender parotid glands are noted.

Given the likely diagnosis, which one of the following complications is he most likely to develop?

A.Orchitis

B.Pancreatitis

C.Encephalitis

D.Myocarditis

E.Pneumonia

Answer:Orchitis

Explanation:

Orchitis is the most common complication of mumps in post-pubertal males.

There is a link between mumps and pancreatitis (the 'M' in GET SMASHED) but this is much less common than orchitis.

Question:

A 19-year-old man presents with episodes of dyspnoea, starting suddenly, often when he is in a crowded room. When breathless he also notices tingling around his mouth and he feels light-headed. An arterial sample was taken for blood gases during one of the episodes.

What would you expect the arterial blood gas (ABG) sample to show?

A.pO2 = 8.2 kPa, pCO2 = 2.5 kPa, pH = 7.56, HCO3- = 26 mmol/l

B.pO2 = 13.6 kPa, pCO2 = 2.5 kPa, pH = 7.56, HCO3- = 14 mmol/l

C.pO2 = 13.4 kPa, pCO2 = 6.4 kPa, pH = 7.28, HCO3- = 25 mmol/l

D.pO2 = 8.2 kPa, pCO2 = 6.4 kPa, pH = 7.26, HCO3- = 25 mmol/l

E.pO2 = 12.9 kPa, pCO2 = 2.7 kPa, pH = 7.58, HCO3- = 26 mmol/l

Answer:pO2 = 12.9 kPa, pCO2 = 2.7 kPa, pH = 7.58, HCO3- = 26 mmol/l

Explanation:

The history is suggestive of a panic attack. Panic attacks result in hyperventilation which causes a respiratory alkalosis. pO2 will be normal as there is no problems with gas exchange. There would be no metabolic compensation as the panic attack resolves rapidly.

Question:

A 56-year-old motorcyclist is involved in a road traffic accident and sustains a displaced femoral shaft fracture. No 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:

Triad of symptoms:

Respiratory

Neurological

Petechial rash (tends to occur after the first 2 symptoms)

Important for meLess important

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 12-hour old baby is reviewed on the neonatal intensive care unit after his nurse noticed tremors movements of his limbs.

He's been noted to be taking poorly to feeds, more irritable and more drowsy than usual.

He was born at 34 weeks, by emergency caesarean section for reduced foetal movements and foetal bradycardia. His mother has a relatively healthy pregnancy, apart from needing to take lamotrigine for epilepsy.

On examination, he was notably bigger than expected, adjusted for prematurity. He is visibly jittery on arm movements when moving around.

Given the most likely diagnosis, which part of his history puts him at risk for this?

A.Admission to neonatal intensive care unit

B.Delivery via emergency caesarean section

C.Formula feeding

D.Maternal lamotrigine use

E.Prematurity

Answer:Prematurity

Explanation:

Preterm birth (< 37 weeks) is a key risk factor for neonatal hypoglycaemia

Important for meLess important

The correct answer is prematurity. This baby has the classical signs of neonatal hypoglycaemia, with the autonomic features of irritability and jitteriness, and the neuroglycopenic features of drowsiness and poor feeding. Neonatal hypoglycaemia has various risk factors, which can be thought of as due to the inability to regulate glucose or reduced glycogen stores. A pre-term infant will not yet have developed the same glycogen reserve that a term infant will have done. Therefore, prematurity is an important risk factor for the development of neonatal hypoglycaemia.

Admission to the neonatal intensive care unit is not in itself a risk factor. Whilst many babies who may be predisposed to developing hypoglycaemia may be admitted to the unit for different reasons, admission in itself is not an independent risk factor.

Delivery via emergency caesarean section would not result in neonatal hypoglycaemia in this way. Studies suggest that caesarean section may result in transient hypoglycaemia within 2 hours of delivery, but there is not normally any symptomatic manifestation of this. This is because catecholamine release during vaginal delivery helps to kick-start the infant's glucose homeostasis - the same release is not present in caesarean sections.

Formula feeding itself is not a risk factor for hypoglycaemia.

Maternal lamotrigine use is not a risk factor. This is safe in pregnancy and has not been associated with any adverse outcomes for mother or infant. Other medications such as terbutaline may increase the risk of hypoglycaemia.

Question:

A 59-year-old gentleman presents to the Emergency Department with a left sided hemiparesis which affects his lower limb more than his upper limb, with his face unaffected. He also has complete loss of both pain and light touch sensation in his left lower limb. He is able to clearly speak to you and understands what you say and does not have an ataxia, but he appears unable to see you when you stand on his left. Clinical examination of his visual fields reveals a left sided homonymous hemianopia.

Which clinical stroke syndrome does he have?

A.Partial anterior circulation infarct (PACI)

B.Total anterior circulation infarct (TACI)

C.Lacunar anterior circulation infarct (LACI)

D.Posterior circulation infarct (PoCI)

E.Transient ischaemic attack (TIA)

Answer:Partial anterior circulation infarct (PACI)

Explanation:

This gentleman has both a motor deficit and a homonymous hemianopia arising from damage to the same side of his cortex, but no disturbance of higher cognition (evidenced by his ability to speak and understand language). Therefore he does not meet all three criteria needed to class this as a total anterior circulation infarct (TACI).

Given that his leg is more affected than his arm and his face is unaffected, the vessel involved is likely to be a branch of the anterior cerebral artery.

Question:

A 13-year-old boy presents to general practice complaining of a 6-week history of right groin pain. You notice him walk into the consultation room with an antalgic gait.

He explains this came on after he jumped down from a tree onto his right leg.

On examination, the boy has been in the 90th percentile of weight for many years. He has a reduced ability to internally rotate his right leg when flexed, and it appears slightly shorter than his left.

Given the most likely diagnosis, what is the management?

A.Analgesia and review in six weeks

B.Manual relocation

C.Refer to orthopaedics for a hemiarthroplasty

D.Refer to orthopaedics for a total hip replacement

E.Refer to orthopaedics for in situ fixation with a cannulated screw

Answer:Refer to orthopaedics for in situ fixation with a cannulated screw

Explanation:

Obese boy with groin/thigh/knee pain → ?slipped capital femoral epiphysis

Important for meLess important

Refer to orthopaedics for in situ fixation with a cannulated screw. This is the definitive management of a slipped capital femoral epiphysis (SCFE). The clinical picture of obesity, unilateral groin pain, and trauma are indicative of a SCFE. Note that SCFE can occur outside of trauma and 25% of cases are bilateral.

Analgesia and review in six weeks. The presentation of a limp in an obese boy, coupled with the low probability of a self-limiting condition considering he has been in pain for 6 weeks, should suggest a SCFE. Missing a SCFE could lead to further slipping while analgesia masks the issue. This would only make this boy's situation worse (and potentially cause irreversible damage).

Manual relocation. Relocation runs the risk of avascular necrosis of the femoral head, which would do even more damage to this boy's hip joint.

Refer to orthopaedics for a total hip replacement. This is not the management of a SCFE but may be used, for example, in the management of a displaced hip fracture where the patient was mobile before the fracture as well as being cognitively intact. It is unnecessary in this boy.

Refer to orthopaedics for a hemiarthroplasty. This is not used in the management of a SCFE but may be used, for example, in the management of a displaced hip fracture in a patient with mobility issues before the fracture (thus excluding them from a total hip replacement). Therefore, this management would not be helpful in this case.

Question:

A 50-year-old man goes to see his GP for a routine diabetes check. His medical conditions include type 2 diabetes mellitus, iron-deficiency anaemia, splenectomy, depression, and chronic kidney disease stage 5 (for which he is on haemodialysis). He takes ferrous sulphate, metformin, citalopram and amoxicillin. His HBA1c returns as 38mmol/mol. However, the GP believes that this may be a falsely low reading.

What might have caused this?

A.Amoxicillin

B.Citalopram

C.Haemodialysis

D.Iron-deficiency anaemia

E.Splenectomy

Answer:Haemodialysis

Explanation:

Haemodialysis can give a falsely low HbA1c

Important for meLess important

Haemodialysis - this is correct. Haemodialysis (as well as sickle-cell anaemia, GP6D deficiency and hereditary spherocytosis) causes premature red blood cell death. HBA1c is a form of haemoglobin that is chemically linked to sugar and is measured to indicate the three-month average blood sugar level. However, any condition that alters red blood cell survival may lead to invalid results. As haemodialysis reduces the lifespan of red blood cells, it can cause lower-than-expected levels of HBA1c.

Amoxicillin is not known to affect the lifespan of red blood cells and therefore does not affect HBA1c levels. Drugs may cause inappropriately low HBA1c levels due to increased erythrocyte destruction, altered haemoglobin levels, altered glycation, or interference with assays. Trimethoprim-sulfamethoxazole is an example of an antibiotic that increases erythrocyte destruction.

Citalopram is also not known to affect HBA1c levels. Drugs may cause inappropriately low HBA1c levels due to increased erythrocyte destruction, altered haemoglobin levels, altered glycation, or interference with assays. Antidepressants are not known to cause altered levels, in general.

Iron-deficiency anaemia is incorrect as it can actually cause higher-than-expected HBA1c levels, due to the increased lifespan of red blood cells. It is important to treat iron-deficiency anaemia in order to be able to accurately track someone's diabetic control.

Splenectomy is incorrect as like iron-deficiency anaemia, it can also cause higher-than-expected HBA1c levels. This is due to the increased lifespan of red blood cells.

Question:

You perform a home visit on an 85-year-old woman, whose daughter is concerned by increased confusion in the last 2 days.

Her past medical history includes mild cognitive impairment, ischaemic heart disease and diverticular disease.

When you arrive, she reports feeling well. She says she has had no recent problems with her health. However, you suspect she might be an unreliable historian as she is slightly confused in time and place.

On examination she has mild lower abdominal discomfort. On deep palpation, you feel a fullness in the left iliac fossa.

Observations all lie in the normal range.

What is the most likely cause of this woman's confusion?

A.Acute diverticulitis

B.Brain metastases from a colonic tumour

C.Constipation

D.Progression to Alzheimer's dementia

E.Urine infection

Answer:Constipation

Explanation:

Constipation can cause delirium in the elderly

Important for meLess important

Constipation is a very common cause of increased confusion in elderly patients, and is the most likely explanation here. It accounts for the confusion, mild abdominal discomfort and mass on palpation with normal observations.

Although a colonic tumour could account for the discomfort and fullness on palpation, it would be a stretch to suggest that its metastases are responsible for 2 days of increased confusion without even having had an initial diagnosis. (Remember, 'common things are common', and constipation is one of the most common presentations in elderly patients.)

It would be extremely unlikely for mild cognitive impairment to progress suddenly to full-blown dementia, with disorientation to time and place.

A urinary tract infection does not explain the 'fullness' in the left iliac fossa; nor does acute diverticulitis, which would usually cause severe abdominal pain, fever and possibly even bloody stools.

Question:

A 16-year-old girl presents to you complaining that she hasn't begun having her periods yet. You are concerned that this is late and you begin investigating why. On examination, you notice that she has a short stature and low set ears.

Given the presentation, what murmur are you likely to hear on auscultation?

A.Early diastolic murmur

B.Ejection systolic murmur

C.Late diastolic murmur

D.Late systolic murmur

E.Pansystolic murmur

Answer:Ejection systolic murmur

Explanation:

Turner's syndrome is associated with an ejection systolic murmur due to bicuspid aortic valve

Important for meLess important

Ejection systolic murmurs can be due to bicuspid aortic valves which are associated with Turner's syndrome. This is therefore the most likely answer.

Early diastolic murmurs are associated with aortic or pulmonary regurgitation.

Late diastolic murmurs are associated with AV stenosis.

Late systolic murmurs are associated with mitral regurgitation.

A pansystolic murmur is associated with aortic stenosis.

Because the scenario is describing a girl with primary amenorrhoea and features which are characterised by Turner's syndrome, you must think of murmurs or heart defects that are associated with Turner's syndrome. A bicuspid aortic valve is associated with Turner's syndrome and therefore an ejection systolic murmur is most likely going to be heard.

Question:

A 27-year-old woman presents to the emergency department with sudden-onset palpitations, shortness of breath and dizziness. The episode was unprovoked and she has no relevant medical history. Her observations are BP 123/83 mmHg, heart rate 180 bpm, respiratory rate 18 breaths per minute, temperature 37.2ºC, oxygen saturation 99% on room air.

An ECG is performed which reveals a regular rhythm and narrow QRS complexes. P waves are not visible. The woman is instructed to perform the Valsalva manoeuvre but remains symptomatic and a repeat ECG is unchanged.

What is the next step in management?

A.Give IV adenosine as a rapid IV bolus

B.Give IV adenosine as an infusion

C.Give IV amlodipine

D.Give IV flecainide as a bolus

E.Perform direct current cardioversion

Answer:Give IV adenosine as a rapid IV bolus

Explanation:

In SVT, adenosine should be given as a rapid IV bolus

Important for meLess important

Giving IV adenosine as a rapid IV bolus is the correct answer. This woman's presentation and ECG findings are consistent with a paroxysmal supraventricular tachycardia (SVT). Since she is haemodynamically stable, a vagal manoeuvre (i.e. Valsalva or carotid sinus massage) was performed first. Failing this, a rapid IV bolus of adenosine is the next step in management. Adenosine is an endogenous purine nucleoside that decreases conduction through the AV node, interrupting re-entry circuits involving the AV node and restoring normal sinus rhythm. Once the circuit has been interrupted, the tachycardia stops and normal sinus rhythm resumes.

Giving IV adenosine as an infusion is incorrect. Given that this woman is still in SVT after performing the Valsalva manoeuvre, she requires a rapid IV bolus of adenosine. An infusion of adenosine will not deliver a high enough concentration of adenosine quick enough to restore normal sinus rhythm.

Giving IV amlodipine is incorrect because this is a dihydropyridine calcium channel blocker and does not have a role in treating SVT. Dihydropyridines act primarily on arteriolar smooth muscle to reduce blood pressure. They have minimal effect on myocardial cells. Verapamil, however, is a non-dihydropyridine calcium channel blocker and is used in SVT when adenosine is contraindicated (i.e. patients with asthma).

Giving IV flecainide as a bolus is incorrect as this is a form of pharmacological cardioversion. This patient is haemodynamically stable and therefore does not require cardioversion. Flecainide is a class I antiarrhythmic (blocks fast sodium channels) that also increases refractory period in all myocardial tissues, particularly the His-Purkinje system.

Performing direct current (DC) cardioversion is incorrect. This would be inappropriate here since the patient is haemodynamically stable. DC cardioversion works by delivering a current to disrupt the abnormal electrical circuit and restore sinus rhythm.

Question:

A 29-year-old female has undergone an emergency salpingectomy for an ectopic pregnancy. The operation was complicated and resulted in 800ml of blood loss per vagina. She is currently receiving one unit of packed red cells. Approximately 30 minutes after the transfusion is commenced she begins to feel generally unwell and feverish. Given the likely diagnosis, what is your first step in management?

A.Give IV antibiotics

B.Stop the transfusion

C.Give 15L high flow oxygen via face mask

D.Remove her cannula

E.Give a bolus of 500ml sodium chloride IV

Answer:Stop the transfusion

Explanation:

The first step in management of a suspected transfusion reaction is to stop the transfusion. You can then undergo an ABCDE assessment to ensure any further treatment is instigated.

Antibiotics are not routinely used in the treatment of a suspected transfusion reaction.

High flow oxygen and a bolus of sodium chloride may be given during ABCDE assessment but this will occur after stopping the transfusion.

Removing her cannula will not help the situation in the first instance.

A fluid bolus may be part of the management of this situation, but again is not the first thing you would do.

http://patient.info/doctor/blood-transfusion-reactions

Question:

A 56-year-old woman has recently been diagnosed with chronic kidney disease (CKD). She explains that she is post-menopausal and her mother had a history of fractures in later life. She has never had issues with her blood pressure and has no heart conditions.

Her recent blood results show:

Na+ 136 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 117 µmol/L (55 - 120)

eGFR 44 mL/minute/1.73 m2 (≥90)

Calcium 2.8 mmol/L (2.1-2.6)

Phosphate 1.9 mmol/L (0.8-1.4)

Magnesium 0.9 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 3.2 mU/L (0.5-5.5)

Free thyroxine (T4) 12.8 pmol/L (9.0 - 18)

Amylase 108 U/L (70 - 300)

Uric acid 0.34 mmol/L (0.18 - 0.48)

Creatine kinase 111 U/L (35 - 250)

Which of the following treatments would you use to treat a potential complication that could develop?

A.Alendronic acid

B.Calcitonin

C.Diuretics

D.Oral phosphate

E.Oral potassium

Answer:Alendronic acid

Explanation:

High phosphate levels in CKD 'drags' calcium from the bones, resulting in osteomalacia

Important for meLess important

This woman is at risk of osteoporosis as she is post-menopausal and mentions that her mother had a history of fractures. The high phosphate levels in chronic kidney disease (CKD) patients 'drags' calcium from the bones, resulting in osteomalacia. Alendronic acid is a bisphosphonate that reduces the rate of bone turnover and strengthens the bone.

Calcitonin is incorrect as CKD patients usually have low levels of calcium due to lack of vitamin D and high phosphate. Hyperphosphataemia is a complication of CKD as phosphate complexes with calcium in the blood and is then deposited into soft tissues and bone. Calcitonin reduces serum calcium levels by inhibiting osteoclast activity and is mainly used to treat hypercalcaemia.

A diuretic is used to treat fluid overload in patients with CKD, especially in patients with concomitant heart failure. This may occur in this patient. However, given that she has no previous heart conditions, osteomalacia and osteoporosis are more likely complications.

Oral phosphate is incorrect as phosphate levels rise due to the kidney's inability to excrete phosphate. Oral phosphate would treat hypophosphataemia.

Oral potassium is incorrect as hyperkalaemia is common due to the kidney's inability to excrete potassium. Oral potassium would treat hypokalaemia.

Question:

You are a doctor working in the intensive care unit. You receive a bleep from the medical SHO asking you to review a patient.

The patient was admitted 3 days ago with community-acquired pneumonia and has subsequently developed a severe acute kidney injury non-responsive to initial medical management.

The patient's most recent observations and blood results are as follows:

Heart rate 100bpm

Respiratory rate 18 breathes per minute

Blood pressure 110/70mmHg

Temperature 38ºC

Urine output 0.3mL/kg/hr

GCS E3V4M5

Hb 140 g/L

Platelets 300\* 109/L

WBC 20\* 109/L

Na+ 150 mmol/L

K+ 5.2 mmol/L

Urea 40 mmol/L

Creatinine 380 µmol/L

CRP 150 mg/L

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

A.Continue fluid resuscitation

B.Dialysis

C.IV calcium gluconate

D.IV furosemide

E.Renal biopsy

Answer:Dialysis

Explanation:

Uraemia (encephalopathy or pericarditis) is an indication for dialysis

Important for meLess important

This is a patient with a significant pre-renal acute kidney injury, as evidenced by the high urea:creatinine ratio, with supporting evidence including tachycardia and hypernatraemia.

This is a challenging question as there are numerous variables that suggest that this patient is particularly unwell and there are numerous competing issues.

Current NICE guidance supports the use of renal replacement therapy in a very limited set of circumstances. Uraemia, in the context of reduced GCS, may suggest uraemic encephalopathy. Thus, this is most indicative of an urgent need to consider RRT due to the associated complications of reduced GCS such as an inability of the patient to protect their airway. Therefore, dialysis is the correct answer to this question.

As previously mentioned this patient most likely has a pre-renal acute kidney injury, however, the question stem states that they are non-responsive to medical management. Therefore, this, in addition to the development of uraemic encephalopathy necessitates escalation of treatment.

This patient does have mild hyperkalemia. However, IV calcium gluconate is reserved for patients with severe hyperkalemia (>5.5mmol/L) or associated ECG changes. Both of which are not mentioned within the question stem.

The fact that the patient most likely has a pre-renal cause of their acute kidney injury means that offloading them with furosemide is likely to worsen, not improve, their condition.

It is unlikely that this patient has an intrinsic renal pathology and therefore renal biopsy risks harm with limited diagnostic benefit in this case.

Question:

You are reviewing a 62-year-old woman in primary care.

Last week you saw her with left-sided leg swelling and you started her on rivaroxaban for a suspected deep vein thrombosis (DVT). She was seen in secondary care following this and as she had a raised D-Dimer, but her ultrasound scan came back as normal. She was discharged and advised to see her GP for follow-up.

According to current NICE guidance, what is the most appropriate management for this patient?

A.Continue rivaroxaban and offer to a repeat ultrasound scan

B.Continue rivaroxaban and repeat D-Dimer

C.Reassure about findings and stop rivaroxaban

D.Stop rivaroxaban and offer a repeat ultrasound scan

E.Stop rivaroxaban and repeat D-Dimer

Answer:Stop rivaroxaban and offer a repeat ultrasound scan

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 correct answer is to stop rivaroxaban and offer a repeat ultrasound scan.

There have been some changes to the NICE guidance on the management of suspected DVTs in 2020. The current guidance is that if a scan was negative for DVT, but the D-dimer positive we should stop interim therapeutic anticoagulation and offer a repeat proximal leg vein ultrasound scan 6 to 8 days later.

In practice, this is not something that happens routinely and we should not assume a repeat scan will be organised by secondary care. As such it is important to safety-net patients and advise them that if the scan is normal, but they have ongoing symptoms, then they should see you for a further review.

Question:

You are reviewing a 45-year-old woman who has a history of coeliac disease in the gastroenterology clinic. Your consultant asks you to check that she is up-to-date with her immunisations. She is otherwise fit and well and her coeliac disease is well controlled. Why do patients with coeliac disease require regular immunisations?

A.Reduced absorption of proteins leads to hypogammaglobulinaemia

B.Functional hyposplenism

C.Reduced absorption of iron, vitamin B12 and folate impairs normal immunological function

D.Higher incidence of T-cell dysfunction in patients with coeliac disease

E.Up to 15% of patients with coeliac disease have mild primary immunodeficiencies

Answer:Functional hyposplenism

Explanation:

Question:

A 70-year-old woman has recently been discharged from hospital following a neck of femur fracture. During her stay, she was diagnosed with osteoporosis.

Off the back of this diagnosis, she has been started on alendronic acid.

What is she at an increased risk of when taking this drug?

A.Arthritis

B.Atypical stress factures

C.Hypercalcaemia

D.Osteonecrosis of the humeral head

E.Postural hypotension

Answer:Atypical stress factures

Explanation:

Bisphosphonates are associated with an increased risk of atypical stress fractures

Important for meLess important

Atypical stress fractures is the correct answer. This is a well-known adverse effect of taking bisphosphonates and is most common in the proximal femoral shaft.

Arthritis is incorrect. Arthralgia is a common side effect following the use of bisphosphonates along with fever and myalgia, not arthritis.

Hypercalcaemia is incorrect. Hypocalcaemia is a commonly associated risk following the use of bisphosphonates. This is due to increased calcium efflux from the bones meaning low calcium levels are commonly seen, not high calcium levels.

Osteonecrosis of the humeral head is incorrect. Bisphosphonates cause an increased risk of osteonecrosis of the jaw due to decreased bone remodelling and ulceration of oral mucosa leading to an underlying necrotic bone.

Postural hypotension is incorrect. Whilst dizziness is a reported side effect, postural hypotension is specifically caused by a dysregulation of the baroreceptor system, resulting in a significant drop in blood pressure when going from sitting to standing. Postural hypotension requires a formal diagnosis with a lying standing blood pressure and drop of more than 20mmHg systolic.

Question:

A 76-year-old man has recently been stepped-down from ITU following re-exploration surgery after partial right nephrectomy due to haemorrhage. On the ward, he has become very chesty and drowsy after eating a meal. His oxygen sats are 86% on air and respiratory rate is 34/min. He has an urgent portable chest X-ray which shows new patchy opacification in the right lower lobe and he is started on IV tazocin and IV fluids.

Which of the following factors would predispose him the most to this deterioration?

A.Hospital admission >48 hours

B.Chronic obstructive pulmonary disease (COPD)

C.Upright position

D.Recent intubation on ITU

E.Previous chest infection 6 weeks ago

Answer:Recent intubation on ITU

Explanation:

Recent intubation is a risk factor for aspiration pneumonia

Important for meLess important

Recent intubation is the most important risk factor for aspiration pneumonia for the following reasons:

Use of neuromuscular agents may lead to an impaired swallow

Intubation itself can cause regurgitation

Intubation may cause damage to the trachea/airway that can inadvertently increase the risk of gastric contents aspirating into the lung

The other options alone would not contribute to an increased risk of aspiration pneumonia

Question:

You are working in general practice. Your next patient is a 54-year-old lady with a long history of alcohol dependence, multiple drug misuse and depression. Approximately 3 months ago, she moved in to a local women's refuge and last week has registered at your practice. She has presented today for her annual review of thyroid function tests, taken earlier in the week.

Her repeat medications include the following:

Levothyroxine 75 micrograms OD

Amlodipine 5mg OD

Thiamine 100mg BD

Sertraline 50mg OD

Her blood results are as follows:

TSH 11.2 mU/L (0.4 - 4.0)

T4 20 pmol/L (9 - 25)

What is the most likely explanation for this patient's thyroid function results?

A.Poor compliance with levothyroxine

B.Euthyroidism

C.Primary hypothyroidism

D.Secondary hypothyroidism

E.Subclinical hypothyroidism

Answer:Poor compliance with levothyroxine

Explanation:

A patient with increased TSH levels and normal T4 may be poorly compliant with thyroxine medication

Important for meLess important

This patient most likely has had a period of poor compliance with her thyroxine medication, possibly due to her chaotic lifestyle and having only recently registered at the practice. The normal T4 indicates that she has been taking her thyroxine on the days prior to the blood test, however the TSH remaining raised indicates that the T4 level has been low for some time prior to this period - therefore indicating that compliance has overall been poor.

This patient is not euthyroid, because although the T4 is within the normal range, TSH is raised.

Primary hypothyroidism would present with a low T4 and a high TSH.

Secondary hypothyroidism would present with a low T4 and a low TSH.

Subclinical hypothyroidism would present with a normal T4 and raised TSH - indicating a patient that is likely to go on to develop hypothyroidism.

Question:

A 30-year-old woman delivers twins vaginally after being induced. A blood loss of 800ml is recorded and the patient continues to bleed but remains haemodynamically stable.

What is the next step in management ?

A.Hysterectomy

B.B-Lynch suture

C.Uterine massage

D.Uterine laparotomy

E.Intrauterine balloon

Answer:Uterine massage

Explanation:

Following an ABC approach, initial steps to manage a postpartum haemorrhage include palpating the uterine fundus and catheterising the patient

Important for meLess important

The cause of PPH in this case is uterine atony. The risk factors which indicate uterine atony in this question include induction of labour and the multiple pregnancy, which affects the tone of the uterus. The ABCDE approach( assessing airway, breathing,circulation, disability and exposure) should be used in all emergency situations regarding the management of patients. In this case because the patient is haemodynamically stable. The next step to take would be to specifically address the bleeding. The RCOG guidelines state that when uterine atony is the perceived cause of bleeding pharmacological and mechanical measures should be undertaken till bleeding stops. The most appropriate option in accordance with the guidelines is therefore uterine massage.

Question:

A 25-year-old female student was brought in to the Emergency Department. She complains of a severe abdominal pain. The pain started suddenly 3 hours ago while she was shopping . Further questioning reveals that she has not had her periods for 7 weeks and is currently sexually active. She also reported a history of pelvic inflammatory disease 5 years ago. Abdominal examination reveals generalised guarding and signs of peritonism. An urgent ultrasound scan was ordered and showed free fluid in the pouch of Douglas with an empty uterine cavity. Urine βhCG was positive. Other basic bloods are sent.

While in the emergency department, she suddenly became very ill. Her observations were; Blood pressure 85/50 mmHg, Heart Rate 122/min, Respiratory Rate 20/min, O2 saturation 94%.

What is the next most appropriate action?

A.Resuscitate and observe

B.Resuscitate and arrange for emergency laparotomy

C.Resuscitate and arrange for laparoscopic exploration

D.Consider starting methotrexate

E.Order βhCG to confirm diagnosis

Answer:Resuscitate and arrange for emergency laparotomy

Explanation:

The clinical picture shows a high suspicion of ruptured ectopic pregnancy.

She turned very ill and went into shock (systolic BP < 90 mmHg). She is cardiovascularly unstable and an emergency laparotomy needs to be considered.

Question:

A 70-year-old man with known hypertension and type II diabetes presents with sudden, painless vision loss in his right eye.

On examination, he has 6/6 visual acuity in his left eye, but he can only see finger movement in his right eye. Fundoscopy shows extensive retinal hemorrhages from the disc.

What is the most likely diagnosis of the loss of vision?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Ischaemic optic neuropathy

D.Retinal detachment

E.Vitreous haemorrhage

Answer:Central retinal vein occlusion

Explanation:

Central retinal vein occlusion - sudden painless loss of vision, severe retinal haemorrhages on fundoscopy

Important for meLess important

Central retinal vein occlusion is the correct answer. Risk factors include increasing age, hypertension, high cholesterol, diabetes, smoking, glaucoma, and polycythaemia. As the vein becomes blocked excess fluid and blood leak into the retina and appear as severe haemorrhages (sometimes referred to a cheese and tomato pizza appearance). It causes sudden, painless loss of vision in one eye.

Central retinal artery occlusion has similar risk factors to retinal vein occlusion, but the appearance on fundoscopy is very different. Fundoscopy in central retinal artery occlusion shows a pale retina with a red macula (cherry-red spot).

Non-arteritic ischaemic optic neuropathy causes sudden, painless loss of vision. The damaged of the optic nerve is seen as a hyperaemic, oedematous optic disc with a small cup to disc ratio.

Retinal detachment causes painless loss of vision, but patients usually report preceding flashes or floaters. There are different risk factors for retinal detachment including increasing age, eye injury, or extreme myopia.

A vitreous haemorrhage causes painless loss of vision, but you can not clearly see the retina on fundoscopy as the vitreous is full of blood.

Question:

A 29-year-old presents to her GP with conductive hearing loss and thinks it is excessive wax as she has previously had her ears syringed. The GP examines the patient and on otoscopy notes discharge in the auditory canal and wax. The GP suspects a perforated eardrum.

What would be the best treatment option?

A.Amoxicillin ear drops

B.ENT referral

C.Olive oil ear drops

D.Sodium bicarbonate ear drops

E.No treatment and review in 2 weeks and then in 6 weeks

Answer:No treatment and review in 2 weeks and then in 6 weeks

Explanation:

Olive oil and sodium bicarbonate drops are contraindicated when a patient has a perforated tympanic membrane

Important for meLess important

Olive oil and sodium bicarbonate ear drops are contraindicated when a patient has a perforated tympanic membrane indicated in the question by fluid in the auditory canal.

Antibiotics are not indicated in tympanic membrane perforation unless it occurs following and episode of acute otitis media.

ENT referral is not required at this stage. If symptoms persist for more than 6 weeks or the symptoms worsen then ENT referral would be appropriate.

The best option is to give no treatment and review the patient in 2 weeks and then 6 weeks. In the majority of cases the tympanic membrane will heal without treatment in 6-8 weeks. Myringoplasty may be performed if the tympanic membrane does not heal by itself.

Question:

A 64-year-old woman was referred to the gastroenterology clinic because of watery diarrhoea for the past 6 months. She opens her bowels up to 15 times per day but with no blood per rectum. There is an associated crampy abdominal pain but no nausea or vomiting. She has lost 8 kilograms in weight over the past 6 months. She also reports a recent history of episodes of facial and neck flushing which last up to several minutes and resolve spontaneously. On examination she has generalised abdominal tenderness and 2 cm hepatomegaly.

What is the most likely diagnosis?

A.Hepatocellular carcinoma

B.Carcinoid syndrome

C.Hyperthyroidism

D.Chronic pancreatitis

E.Pancreatic adenocarcinoma

Answer:Carcinoid syndrome

Explanation:

This patient has abdominal pain, diarrhoea and flushing which are the classical features of carcinoid syndrome. Bronchospasm can also occur. Carcinoid tumours produce a variety of vasoactive amines (such as 5-HT, noradrenaline and dopamine), peptides (such as bradykinin) and prostaglandins which account for the symptoms. These vasoactive products are inactivated by the liver which is why gastrointestinal carcinoid syndrome only occurs when hepatic metastases arise, as demonstrated in this example.

Question:

A 23-year-old female presents to her GP as her parents have noticed that her neck looks bigger than normal. She has no other problems and has no medical conditions. On examination, the doctor can palpate a thyroid mass that moves on swallowing but not on tongue protrusion. The GP suspects thyroid cancer and refers the patient via the two-week wait system. Upon further investigation, the patient is found to have the most common type of thyroid cancer.

What is the most likely complication of this type of malignancy?

A.Hashimoto's thyroiditis

B.Hyperthyroidism

C.Raised calcitonin

D.Spread to cervical lymph nodes

E.Vascular invasion

Answer:Spread to cervical lymph nodes

Explanation:

Papillary thyroid cancer shows excellent prognosis, despite the tendency to spread to cervical lymph nodes early

Important for meLess important

There are five types of thyroid cancer. From most common to least common, these are papillary, follicular, medullary, anaplastic, and lymphoma. Papillary thyroid cancer is well-differentiated, therefore, has a good prognosis. However, it tends to spread to local lymph nodes early.

Hashimoto's thyroiditis is an autoimmune cause of hypothyroidism. It is caused by autoantibodies attacking the thyroid gland - namely anti-thyroid peroxidase and antithyroglobulin autoantibodies. It is more common in women and those who have other autoimmune conditions. Some examples of these include inflammatory bowel disease, pernicious anaemia, and autoimmune hepatitis. Features of Hashimoto's thyroiditis include weight gain, tiredness, cold intolerance, and poor concentration. On examination, a non-tender goitre can often be found. Although this is a common condition, it is not an oncological complication.

Hypothyroidism and hyperthyroidism are very rarely caused by thyroid cancer itself. However, the treatment for thyroid cancer is often surgery, and consequently, removal of the thyroid gland can result in hypothyroidism.

An investigation that differentiates thyroid malignancy from other thyroid pathology is a thyroid uptake scan. This scan will show either hot or cold nodules - a hot nodule is a thyroxine secreting nodule, and a cold nodule is a non-functioning nodule. Hot nodules are much more likely to be non-malignant than cold nodules.

Calcitonin is a peptide hormone made and secreted by parafollicular cells in the thyroid gland. It is involved in calcium homeostasis. Its function is to inhibit osteoclasts and oppose parathyroid hormone. High calcitonin is associated with medullary thyroid cancer.

Vascular invasion is a common method of spread in follicular thyroid cancer and is rare in papillary. This is another reason why papillary thyroid cancer has a good prognosis. Without vascular spread, distant metastasis is less likely.

Question:

An 83-year-old male presents with recurrent episodes of collapse with associated loss of consciousness lasting a few minutes. These episodes occur at rest and on exertion. He has no previous cardiac history and takes no regular medications. Resting 12-lead ECG shows normal sinus rhythm.

Observations on admission are within normal limits. No significant deficit between lying and standing blood pressure.

What would be the most helpful investigation to determine the underlying cause of the recurrent collapse?

A.Ambulatory blood pressure monitoring

B.24-hour Holter monitor

C.Exercise stress test

D.Coronary angiogram

E.Echocardiogram

Answer:24-hour Holter monitor

Explanation:

Given the recurrent episodes of collapse and a normal resting ECG, a 24-hour Holter monitor would be pertinent to investigate for any abnormal arrhythmias causing recurrent collapse. Findings on a 24-hour Holter may reveal; sinus pauses, abnormal bradycardia, supraventricular tachycardia or non-sustained ventricular tachycardia. Further investigations will be guided on the 24-hour Holter monitor findings. For example recurrent episodes of non-sustained ventricular tachycardia may warrant a coronary angiogram to investigate for underlying coronary artery disease as a potential precipitant.

Lying and standing blood pressure is an important and simple test to rule out postural hypotension as a potential cause; however episodes occurring at rest and on exertion with associated loss of consciousness make this diagnosis unlikely.

Question:

A 25-year-old man presents to his general practitioner (GP) with a 5-day history of polyuria, thirst and nocturia.

His observations show:

Blood pressure: 110/78 mmHg.

Pulse: 84 bpm.

Temperature: 37.0 deg C.

Respiratory rate: 16/min.

The patient is admitted for testing of his plasma and urine osmolality. He is deprived of water from the first measurement.

The initial measurements and those after 8 hours of water deprivation are shown below:

Initial Measurement After 8 hours of fluid deprivation

Plasma osmolality High High

Urine osmolality Low Low

As a final investigation, the attending doctors administer the patient with desmopressin (DDAVP) and remeasure his urine osmolality which rapidly increases.

Which of the following causes is likely to explain the patient's presentation?

A.Cranial diabetes insipidus

B.Diabetes mellitus

C.Nephrogenic diabetes insipidus

D.Psychogenic polydipsia

E.Syndrome of inappropriate ADH secretion

Answer:Cranial diabetes insipidus

Explanation:

Water deprivation test: cranial DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: high

Important for meLess important

The correct answer is cranial diabetes insipidus (DI).

DI is characterised by symptoms of thirst, polyuria and nocturia. This may be accompanied by signs of hypovolaemia (dry mucous membranes, tachycardia and mild orthostatic hypotension). DI is caused by either a deficiency of antidiuretic hormone/vasopressin (central/cranial DI) or dysfunction of renal vasopressin receptor 2 (nephrogenic DI).

Initial plasma osmolality helps differentiate DI from psychogenic polydipsia. Initial plasma osmolality is high in DI.

Patients with DI will continue to have a high plasma osmolality and low urine osmolality following water deprivation. Desmopressin (a synthetic form of ADH) is then administered to differentiate cranial and nephrogenic DI. An increase in urine osmolality points towards a diagnosis of cranial DI. Urine than remains dilute with a low urine osmolality following desmopressin indicates nephrogenic DI.

Diabetes mellitus (DM) may present similarly to DI, with features of polydipsia, polyuria and nocturia. Patients with DM should appropriately concentrate their urine.

Psychogenic polydipsia is a condition that involves a patient drinking excessive quantities of water leading to increased polyuria. In these patients, the primary finding is an initially low plasma osmolality. Following water deprivation, the patient's urine becomes appropriately concentrated.

Syndrome of inappropriate ADH (SIADH) secretion results in excess ADH, which causes inappropriate urine concentration. This results in low plasma osmolality and a high urine osmolality initially, the opposite of the patient's findings.

Question:

You are a doctor working in a genitourinary medicine clinic. Your next patient is a 35-year-old man who is attending for some test results. He is known to inject drugs and on occasion shares needles, and therefore he has been tested for blood-borne viruses. His hepatitis B serology results are shown below.

Hepatitis B surface antigen (HBsAg) Positive

Antibody to hepatitis B surface antigen (Anti-HBs) Negative

IgM antibody to hepatitis core antigen (IgM anti-HBc) Positive

Hepatitis B envelope antigen (HBeAg) Positive

What is the cause of these results?

A.Acute hepatitis B infection

B.Chronic hepatitis B infection

C.Cleared previous hepatitis B infection

D.Immunisation against hepatitis B

E.Previous hepatitis B infection, now a carrier

Answer:Acute hepatitis B infection

Explanation:

HBsAg positive, anti-HBs negative, IgM anti-HBc positive - acute infection

Important for meLess important

Acute hepatitis B infection is the correct answer. HBsAg indicates active infection (either acute or chronic). Anti-HBs indicates immunity and is therefore negative in acute infection. IgM anti-HBc indicates current or recent hepatitis B infection and is present for around 6 months; therefore this is positive in acute infection. HBeAg is a marker of viral replication and infectivity, therefore is positive in acute hepatitis B infection.

Chronic hepatitis B infection is incorrect. We would expect a positive HBsAg (due to active infection), a negative anti-HBs (due to lack of immunity), a negative IgM anti-HBc (decreases 6 months after initial infection, but IgG will be positive), and a positive HBeAg (a marker of viral replication and infectivity).

Cleared previous hepatitis B infection is incorrect. We would expect a negative HBsAg (no active infection), a positive anti-HBs (due to immunity), a negative IgM anti-HBc (decreases 6 months after initial infection, but IgG will be positive), and a negative HBeAg (a marker of viral replication and infectivity).

Immunisation against hepatitis B is incorrect. We would expect a positive anti-HBs due to immunity, and all other serology to be negative due to lack of true hepatitis B infection.

Previous hepatitis B infection, now a carrier is incorrect. We would expect a positive HBsAg (carrier of infection), a negative anti-HBs (due to lack of immunity), a negative IgM anti-HBc (decreases 6 months after initial infection, but IgG will be positive), and a negative HBeAg (as the infection is inactive). This is distinguished from chronic hepatitis B infection by the negative HBeAg.

Question:

A 30-year-old man has presented to the eye emergency department after being hit across the face with a baseball bat. On examination, the right eye has blood in the anterior chamber.

Which of the following does the blood most put him at risk for?

A.Cataract

B.Ectopia lentis

C.Endophthalmitis

D.Glaucoma

E.Uveitis

Answer:Glaucoma

Explanation:

Blunt ocular trauma with associated hyphema is a high-risk scenario of raised intraocular pressure

Important for meLess important

Increased intraocular pressure leading to glaucoma is one of the biggest and most serious complications of a hyphema. This is due to the blood causing a blockage in the drainage of the aqueous humour. It is therefore important to closely monitor the intraocular pressure of such patients.

Cataract can be associated with the blunt trauma but is not associated with hyphema.

Ectopia lentis is also associated with blunt trauma but not with hyphema.

Endophthalmitis is usually due to an infection, post-surgery or penetrating ocular trauma.

Uveitis is not a known complication of hyphema.

Question:

A 51-year-old woman attends clinic with worsening perimenopause. Since the previous year her periods have become irregular, and has also been suffering from low mood, night sweats and hot flushes. The patient would like to undergo treatment to help with her symptoms, but is concerned about the risk of breast cancer.

Out of the following options, which is most likely to increase her risk of breast cancer?

A.Clonidine

B.Combined hormone replacement therapy (HRT)

C.Low dose progesterone

D.Oestrogen only HRT

E.Venlafaxine

Answer:Combined hormone replacement therapy (HRT)

Explanation:

HRT: adding a progestogen increases the risk of breast cancer

Important for meLess important

Combined hormone replacement therapy (HRT) appears to increase breast cancer risk. Interestingly, taking low dose progesterone in isolation of oestrogen does not seem to increase the likelihood of developing breast cancer.

Oestrogen-only HRT does not appear to increase the risk of breast cancer if used for less than 10 years. However oestrogen-only HRT increases endometrial cancer risk and should generally be avoided unless the patient has undergone hysterectomy.

Venlafaxine is a serotonin norepinephrine reuptake inhibitor (SNRI) commonly used as an antidepressant. It can also be prescribed in menopause and is not known to increase the risk of breast cancer.

Clonidine is an alpha 2 receptor agonist which is sometimes prescribed for vasomotor symptoms in menopause. It is not associated with any increased risk of breast cancer.

Question:

A 22-year-old man presents with a three week history of diarrhoea. He says his bowels have not been right for the past few months and he frequently has to run to the toilet. These symptoms had seemed to be improving up until three weeks ago. For the past week he has also been passing some blood in the stool and reports the feeling of incomplete evacuation after going. He has lost no weight and has a good appetite. Examination of his abdomen demonstrates mild tenderness in the left lower quadrant but no guarding. What is the most likely diagnosis?

A.Diverticulitis

B.Colorectal cancer

C.Crohn's disease

D.Ulcerative colitis

E.Infective diarrhoea

Answer:Ulcerative colitis

Explanation:

Question:

A 60-year old man presents with a one month history of worsening visual acuity. He describes blurring of the smaller words in the newspaper and has noticed that straight lines, such as those on the wallpaper in his lounge appear 'curvy'. He has also started to see a grey patch in his central field of vision. On examination his acuity is 20/30 bilaterally. Ophthalmoscopy demonstrates choroidal neovascularisation. What is the most likely diagnosis?

A.Acute closed angle glaucoma

B.Retinal artery occlusion

C.Diabetic retinopathy

D.Age-related macular degeneration

E.Macular hole

Answer:Age-related macular degeneration

Explanation:

The combination of age, gradual loss of vision, blurring of small words and straight lines appearing 'curvy' should raise the possibility of age-related macular degeneration. Visual acuity can be normal in this case. Neovascularisation is characteristic of wet age-related macular degeneration.

Acute closed angle glaucoma is usually associated with pain, headache, red eye and classically 'halos around objects'. Retinal artery occlusion would be an acute event usually with dense central visual loss (if central retinal artery occluded) or a sectional visual field defect (if branch retinal artery occluded). Diabetic retinopathy would occur in those who usually have a known diagnosis of diabetes. Classically they will be asymptomatic for significant time before symptoms such as floaters, blurring and distortion occur. A macular hole presents in a similar way to age-related macular degeneration with usually slow onset central visual loss and sometimes distortion. However, ophthalmoscopy would demonstrate a well-defined round or oval lesion in the macular with yellow deposits at the base. Choroidal neovascularisation should not be seen as described in the scenario.

Question:

A 19-year-old presents as she would like to start a combined oral contraceptive pill. During the history she states that in the past she has had migraine with aura. She asks why the combined oral contraceptive pill is contraindicated. What is the most appropriate response?

A.Theoretical risk of ischaemic stroke

B.Significantly increased risk of ischaemic stroke

C.Increased frequency of migraines

D.Migraine is an independent risk factor for venous thromboembolism

E.Increased severity of migraines

Answer:Significantly increased risk of ischaemic stroke

Explanation:

Question:

You review a 65-year-old woman in oncology clinic. She has known metastatic breast cancer, and has received a mastectomy, chemotherapy and radiotherapy.

She has complained of headaches and nausea for the last 7 days, which are worse in the mornings. A CT head showed multiple brain metastases, with compression of the ventricles and sulci.

Your patient declines further chemotherapy or radiotherapy. She is currently taking opioid painkillers.

Which of the following medications can be used as an adjunct to further relieve her symptoms?

A.Ondansetron

B.Cyclizine

C.Dexamethasone

D.Haloperidol

E.Sumatriptan

Answer:Dexamethasone

Explanation:

Headache caused by raised intracranial pressure due to brain cancer (or metastases) can be palliated with dexamethasone

Important for meLess important

Dexamethasone is used to reduce oedema around brain metastases, to palliate symptoms of raised intracranial pressure.

Ondansetron, cyclizine and haloperidol are all effective agents for nausea, but would not treat the root cause.

Sumatriptan is a treatment for migraines and has no role here.

Question:

A 65-year-old woman is investigated for a 6 week history of worsening shortness of breath, lethargy and weight loss. Her past medical history includes chronic obstructive pulmonary disease, hypertension and she is an ex-smoker. Clinical examination is unremarkable. Investigation results are as follows:

Chest x-ray

Hyperinflated lung fields, normal heart size

Bloods

Sodium 131 mmol/l

Potassium 3.4 mmol/l

Urea 7.2 mmol/l

Creatinine 101 µmol/l

Hb 10.4 g/dl

MCV 91 fl

Plt 452 \* 109/l

WBC 3.7 \* 109/l

What is the most appropriate management?

A.Screen for depression

B.Short synacthen test

C.Urgent referral to the chest clinic

D.Stop bendroflumethiazide

E.Urgent gastroscopy

Answer:Urgent referral to the chest clinic

Explanation:

Despite a normal chest x-ray an ex-smoker with shortness of breath, weight loss and hyponatraemia should be investigated on an urgent basis for lung cancer. This approach is supported by current NICE guidelines. Whilst gastrointestinal cancer is a possibility the normal MCV is not entirely consistent with chronic blood loss

Question:

A 65-year-old woman with multiple comorbidities presents with acute left leg pain which has been affecting her mobility for the last two days. You note that she has a cold, pulseless left lower leg with reduced sensation. There are no visible ulcers on examination of her lower limbs. She normally drinks around 7 units of alcohol per week and has a past medical history of asthma, well-controlled type 2 diabetes mellitus (latest HbA1c 49 mmol/mol) and atrial fibrillation. She was recently started on hormone replacement therapy (HRT) due to vasomotor symptoms associated with menopause.

Which of the following risk factors is the most likely cause of this patient's presentation?

A.Alcohol intake

B.Atrial fibrillation

C.Hormone replacement therapy

D.Reduced mobility

E.Type 2 diabetes mellitus

Answer:Atrial fibrillation

Explanation:

Atrial fibrillation is a risk factor for embolic acute limb ischaemia

Important for meLess important

Atrial fibrillation increases the risk of thromboembolic disease, including stroke and limb ischaemia due to the formation of thrombi in the atrium that can migrate and result in an embolism, leading to acute limb ischaemia such as the case here.

Alcohol increases the risk of bleeding and cardiovascular disease. However, this patient's alcohol intake is within the recommended weekly limits (14 units/week) and is unlikely to cause acute limb ischaemia.

Hormone replacement therapy (HRT) is considered to prevent the progression of arterial disease, as oestrogen increases the levels of nitric oxide, thus improving endothelium function. HRT is actually associated with a reduced prevalence of peripheral arterial disease in post-menopausal women. However, it can increase the risk of venous thromboses such as a deep vein thrombosis or a pulmonary embolism.

Reduced mobility increases the risk of venous thromboembolic disease due to haemostasis. Deep vein thrombosis (DVT) or pulmonary embolism can result from this, but not acute limb ischaemia, as this occurs secondary to arterial occlusion. This presentation is more likely acute limb ischaemia, rather than a DVT.

Hyperglycaemia in type 2 diabetes increases the risk of damage to blood vessels. However, this patient's diabetes is well controlled, and she does not have signs of end-organ damage or diabetic ulcers, so it is unlikely to be the main cause of her presentation. Diabetes is also associated with atherosclerosis which can lead to arterial occlusion. In addition, patients with diabetic neuropathy often present late and have an increased risk of developing gangrene requiring amputation.

Question:

A 27-year-old male attends the emergency department with a sudden onset painful left eye and slightly blurred vision. He has no past medical history of note and does not wear glasses or contact lenses. His family history includes type 2 diabetes and Crohn's disease.

He is wearing sunglasses in the department as he finds the lighting too bright. On removal, you note his left eye is red and his complaint of photophobia is so severe he cannot tolerate ophthalmoscopy. On close inspection, you see a white fluid level visible in the inferior part of the anterior chamber and his pupil appears small and irregular.

Due to these findings, you urgently contact ophthalmology - what is your working diagnosis?

A.Acute angle closure glaucoma

B.Anterior uveitis

C.Corneal ulcer

D.Episcleritis

E.Scleritis

Answer:Anterior uveitis

Explanation:

Anterior uveitis presents with acutely painful red eye, photophobia, small pupil, reduced visual acuity. It is often associated with pus in the anterior chamber (a hypopyon)

Important for meLess important

The options listed are all examples of 'painful, red eye'.

Anterior uveitis is inflammation of the iris and ciliary body and occurs most commonly in young, white males and is idiopathic. It is associated with HLA-B27 positive autoimmune conditions (e.g. psoriatic arthritis, ankylosing spondylitis), inflammatory bowel disease (IBD), sarcoidosis, and Behcet's disease.

Symptoms and signs include:

Red, painful and watery eye

Photophobia

Mild reduction in visual acuity (may initially be normal)

Hypopyon (white cells and debris)

Irregular pupil

Keratic precipitates and flare on slit lamp examination

Key points from the vignette which correlate with this diagnosis include his demographics, family history of IBD, photophobia, reduced visual acuity, and hypopyon.

Acute angle closure glaucoma (AACG) is acutely raised intraocular pressure due to a obstruction of the anterior chamber angle (where aqueous drainage occurs).

Symptoms and signs include:

Reduced visual acuity

Photophobia

Nausea

Headache

Mid-dilated unreactive pupil

This patient is young (AACG peaks in 50 to 70-year-olds), does not appear to have a mid-dilated unreactive pupil and is not nauseous so this diagnosis would be unlikely.

Corneal ulcers are an ophthalmological emergency as they can cause significant long-term visual loss. They are usually secondary to infection of a corneal abrasion.

Symptoms and signs include:

History of contact lens wearing

Watery eye

Photophobia

Epithelial defects when the eye is stained

This vignette has no history of contact lens use or injury to the eye. While there may be visual changes, this is usually only if the ulcer affects the visual axis and this will cause dramatic visual changes.

Episcleritis is a relatively common, benign condition which is usually self-limiting.

Symptoms and signs include:

Gritty eye sensation

Dilated bright red vessels

30% have a history of systemic condition (e.g. rheumatoid arthritis, ankylosing spondylitis)

Can recur in multiple episodes

While this patient has a risk factor with his family history of IBD, he does not have the sensation of grit in his eye and the appearance of his pupil is not consistent with this diagnosis.

Scleritis is inflammation of the sclera. It is another condition which is also associated with systemic rheumatological conditions (e.g. rheumatoid arthritis).

Symptoms and signs include:

Painful eye movement

Eye pain which is 'boring' and 'aching'

Deep pink colour to the eye

Visual acuity is usually preserved until very late

The patient in the vignette has a family history in accordance with this condition, however the pain is not similar and his pupillary appearance does not correlate with this diagnosis.

Question:

A 47-year-old woman is admitted to the surgical ward with severe loin to groin abdominal pain. A CT-KUB reveals a right-sided renal calculus. When you clerk her in she admits to you that she has not felt herself for the past few weeks with polyuria, polydipsia, constipation and altered mood.

Blood tests show:

Estimated glomerular filtration rate >60 ml/min

Adjusted calcium 3.1 mmol/l (2.1-2.6 mmol/l)

Phosphate 0.6 mmol/l (0.8-1.4 mol/l)

Parathyroid hormone 5.1 pmol/l (1.2-5.8 pmol/l)

Which of the following is the most likely cause of her symptoms?

A.Primary hyperparathyroidism

B.Secondary hyperparathyroidism

C.Sarcoidosis

D.Tertiary hyperparathyroidism

E.Type 1 renal tubular acidosis

Answer:Primary hyperparathyroidism

Explanation:

The PTH level in primary hyperparathyroidism may be normal

Important for meLess important

The most likely diagnosis here is primary hyperparathyroidism caused by parathyroid adenoma or hyperplasia. The classical biochemical findings are a high serum calcium and low phosphate. The parathyroid hormone level is either high or inappropriately normal.

Secondary hyperparathyroidism is caused by chronic hypocalcaemia (e.g. chronic kidney disease). Serum calcium is low or normal which parathyroid normal levels are high. Tertiary hyperparathyroidism develops from secondary hyperparathyroidism and results in autonomous parathyroid production. It is usually seen patients with end-stage renal disease.

Sarcoidosis and type 1 renal tubular acidosis are rare causes of hypercalcaemia.

Question:

The neonatal junior doctor has been asked to review a 3 hour old term baby by the midwife. There were no antenatal concerns and the mother had not been on any medication antenatally, and is keen to breastfeed. The midwife was concerned because the baby appeared lethargic and had not latched to the breast as yet. She has taken a heel prick blood sugar test from the baby.

Glucose 2.3 mmol/L (4.0-5.9)

On examination the baby was easily rousable and appeared to be rooting. He had a good suck and handled well. He had a normal tone, was not jittery and cardiovascular examination was normal. He had not yet passed urine or opened his bowels.

What should the neonatal junior doctor do as the first step in her management plan of this baby?

A.Admit the baby to the neonatal unit for a glucose infusion

B.Ask the breastfeeding support team to come and support mum and baby with attempting a further feed now

C.Encourage the mother to give a formula feed to the baby

D.Give buccal glucose and then measure blood sugar again pre next feed in 4 hours

E.Recheck the blood sugar in 2 hours

Answer:Ask the breastfeeding support team to come and support mum and baby with attempting a further feed now

Explanation:

Transient hypoglycaemia in the first hours after birth is common

Important for meLess important

This mother would like to breastfeed and should have access to support to be able to do so. Skin-to-skin contact should be encouraged and support regarding latching given. If the baby is not feeding effectively then the mother can be taught to hand express and the colostrum given to the baby bia a different method. Once a feed is given effectively, the blood glucose can be taken again prior to the next feed (no more than 3 hours apart). If a feed is not able to be given effectively, then alternative options should be considered at that point.

Buccal glucose can be given to babies who are asymptomatic but must be used in conjunction with a feeding plan, which should not allow the baby to go for more than 3 hours between feeds.

This baby has no risk factors for hypoglycaemia and has not had a first feed. He has asymptomatic hypoglycaemia and has a blood sugar over 1mmol/L and therefore does not need admission for intravenous therapy.

If mother is keen to breastfeed, she should be given the information and support to encourage her to do so, rather than encouraged to switch to formula after one attempt with a well, asymptomatic term baby.

This baby has not yet had a feed and is mildly hypoglycaemic. Therefore action should be taken and the blood sugar checked again following the intervention (ideally prior to the next feed).

Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant (2017). A BAPM Framework for Practice.

Question:

A 47-year-old woman presents to the emergency department complaining of facial and eye pain. She has been suffering from a severe upper respiratory tract infection in the last two weeks, accompanied by purulent nasal discharge and fever.

Today, on examination proptosis of the right eye is noticeable, accompanied by ophthalmoplegia. The palpebra is red and swollen. Her temperature is 39.2 ºC and she looks unwell.

She has a past medical history of well-controlled type 1 diabetes mellitus.

Given the most likely diagnosis, what is the immediate management plan?

A.Admit for intravenous antibiotics

B.Admit for oral antibiotics

C.Discharge with oral antibiotics

D.Refer for an urgent contrast CT head

E.Refer for an urgent non-contrast CT head

Answer:Admit for 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

The correct answer is admit for intravenous antibiotics. This patient is presenting with the signs and symptoms of orbital cellulitis, an infection of the orbital contents, such as the fat and extraocular muscles, posterior to the orbital septum. It is usually due to the spreading of the infection from bacterial rhinosinusitis - as the ethmoid sinuses and orbits are separated by a thin plate called lamina papyracea, which is the route along which infection spreads, as it happened in this case.

It presents with proptosis, ophthalmoplegia, fever and eyelid swelling and redness. Specifically, the proptosis and ophthalmoplegia are specific to orbital cellulitis and are absent in preseptal cellulitis, as they occur due to the swelling of the extraocular muscles and surrounding fat within the orbit. The correct treatment is immediate admission with empirical IV antibiotics due to the risk of cavernous sinus thrombosis and intracranial spread.

Admit for oral antibiotics is incorrect as oral antibiotics would be the treatment of choice for preseptal cellulitis. These two conditions, even if similar, can be differentiated because orbital signs such as proptosis, ophthalmoplegia and eyelid involvement must be absent in preseptal cellulitis. Their presence would indicate orbital cellulitis.

Discharge with oral antibiotics is incorrect, as this would be the treatment option for preseptal cellulitis. These two conditions, even if similar, can be differentiated because orbital signs such as proptosis, ophthalmoplegia and eyelid involvement must be absent in preseptal cellulitis. Their presence would indicate orbital cellulitis. Preseptal cellulitis does not require admission as the risk of intracranial spread is much lower.

Refer for an urgent contrast CT head is incorrect, as the question is focusing on immediate management. Empirical IV antibiotics should be started as soon as possible to reduce the risk of the spread of the condition. A CT head can be executed later on to confirm the diagnosis.

Refer for an urgent non-contrast CT head is incorrect, as the question is focusing on immediate management. Empirical IV antibiotics should be started as soon as possible to reduce the risk of the spread of the condition. A CT head can be executed later on to confirm the diagnosis. Additionally, the CT head needs to be executed with contrast to highlight the inflammation of the orbital tissues deep to the septum and sinusitis.

Question:

A 25-year-old man presents with a widespread rash over his body. The torso and limbs are covered with multiple erythematous lesions less than 1 cm in diameter which in parts are covered by a fine scale. You note that two weeks earlier he was seen with a sore throat when it was noted that he had exudative tonsillitis. Other than a history of asthma he is normally fit and well. What is the most likely diagnosis?

A.Pityriasis rosea

B.Pityriasis versicolor

C.Syphilis

D.Discoid eczema

E.Guttate psoriasis

Answer:Guttate psoriasis

Explanation:

Acute onset of tear-drop scaly papules on trunk and limbs → ?guttate psoriasis

Important for meLess important

Question:

A 3-month-old boy is brought to surgery as his mother is concerned he is 'floppy'. Examination confirms a greater degree of hypotonia than would be expected at this age. Which one of the following is least likely to be responsible?

A.Cystic fibrosis

B.Acutely unwell child

C.Prader-Willi syndrome

D.Down's syndrome

E.Cerebral palsy

Answer:Cystic fibrosis

Explanation:

Cystic fibrosis is not a cause of hypotonia in infancy

Question:

A 23-year-old woman presents to the GP practice with a 24-hour history of dysuria, visible haematuria and general malaise. She is pyrexial. She has no past medical history and takes no regular medications. Examination reveals a soft abdomen with mild suprapubic tenderness. There is no renal angle tenderness and bowel sounds are normal.

What is the correct management?

A.Admission for suspected pyelonephritis

B.Encourage hydration and review in 24-48h

C.Oral antibiotics and mid-stream urine (MSU)

D.Oral antibiotics, no investigations indicated

E.Urine dip and oral antibiotics

Answer:Oral antibiotics and mid-stream urine (MSU)

Explanation:

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

Important for meLess important

Oral antibiotics and MSU is correct. An MSU must be sent for all women with a UTI if associated with visible or non-visible haematuria.

Admission for suspected pyelonephritis is incorrect. Careful safety netting would be appropriate in case of progression to pyelonephritis, but there is no indication for admission at this point.

Encourage hydration and review in 24-48h is not an appropriate treatment for this clear description of a symptomatic urinary tract infection with pyrexia. Delaying antibiotics inappropriately could lead to progression to pyelonephritis. A delayed prescription could be considered in a less unwell patient.

Oral antibiotics, no investigations indicated is incorrect. Either this or urine dip and oral antibiotics could be considered if this patient didn't have haematuria, but the presence of haematuria means an MSU is required.

Question:

A 32-year-old female presents to the GP due to changes in her vision. She explains that she was experiencing double vision, especially during the evenings, which has been occurring over the past 6 months. She explains that her face feels flushed and warm. There is nil past medical history of note.

On examination, there is left-sided ptosis and distension of the veins in the neck and head.

Given the likely diagnosis, which of the following would offer a definitive diagnosis?

A.Antibody screen

B.CT head

C.Gonioscopy

D.MRI head

E.Trial of oral steroids

Answer:Antibody screen

Explanation:

Myasthenia gravis - antibodies against acetylcholine receptors

Important for meLess important

The most likely diagnosis is myasthenia gravis which is characterised by muscle fatigue of the eyes, which can cause diplopia and ptosis, typically at the end of the day. The distended neck veins and flushed face are likely to be caused by superior vena cava obstruction, which can be a complication of thymomas. Thymomas are associated with myasthenia gravis.

Given the likely diagnosis, an antibody screen would be the investigation of choice as myasthenia gravis is associated with antibodies against acetylcholine receptors.

A CT head would be the investigation of choice if a stroke was expected but would not point to a diagnosis of myasthenia gravis. Although stoke can cause vision changes, the presentation would be much more acute and would not include worsening of symptoms in the evenings.

Gonioscopy is the first-line investigation for ophthalmological conditions such as glaucoma as it examines the angle between the cornea and iris. Acute glaucoma is not the most likely diagnosis here as it would be associated with pain and would not explain the ptosis or signs of superior vena cava obstruction.

An MRI head, although it may identify the thymoma, would not point toward a diagnosis of myasthenia gravis and therefore would not be the first-line in this situation.

A trial of steroids would be appropriate for suspected Bell's palsy. However, this is not likely to be the diagnosis due to the symptoms of superior vena cava obstruction as well as the worsening of symptoms in the evenings.

Question:

Which one of the following is least associated with normal pressure hydrocephalus?

A.Papilloedema

B.Dementia

C.Urinary incontinence

D.Gait abnormality

E.Enlarged fourth ventricle

Answer:Papilloedema

Explanation:

Urinary incontinence + gait abnormality + dementia = normal pressure hydrocephalus

Important for meLess important

Question:

A 22-year-old woman is admitted with a 12-hour history of pain which came on suddenly in the right iliac fossa (RIF). She also reports anorexia but denies any other symptoms. She has not had this before and has no medical history.

Her abdomen is tender in the RIF but there is no guarding or rebound tenderness.

Observations are:

Heart rate 80/min.

Blood pressure 120/80mmHg.

Respiratory rate 17/min.

Saturations 99% (air).

Temperature 36.5ºC.

A urine dipstick is normal and a pregnancy test is negative. Blood tests are below:

Hb 140 g/L Female: (115 - 160)

Platelets 300 \* 109/L (150 - 400)

WBC 12 \* 109/L (4.0 - 11.0)

Urea 6 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

CRP 40 mg/L (< 5)

What is the most appropriate next step?

A.CT abdomen

B.Diagnostic laparoscopy

C.MRI abdomen

D.Ultrasound abdomen

E.X-ray abdomen

Answer:Ultrasound abdomen

Explanation:

Ultrasound is a useful investigation for young females with suspected appendicitis

Important for meLess important

Appendicitis should be suspected in anyone who presents with acute right iliac fossa (RIF) pain. Some patients who have a history that is strongly in keeping with appendicitis may go straight to the theatre for diagnostic laparoscopy. Features strongly in keeping with appendicitis include vomiting, anorexia, migration of pain from the umbilicus, rebound tenderness, low-grade fever, and neutrophilia. Per the Royal College of Surgeons (2014), patients with these features should typically go straight to the theatre if they are septic or if they are young and male (as this presentation is most likely to be appendicitis). Stable young women who have some features of appendicitis (such as this patient) should first receive imaging to rule out other causes of RIF pain, namely ovarian causes. Ultrasound is the most appropriate initial investigation to rule out ovarian pathology and/or increase the suspicion of appendicitis.

CT abdomen gives more information about the appendix than ultrasound. It is used as a second-line investigation if the ultrasound is inconclusive, if malignancy is suspected or if complications of appendicitis such as an abscess are suspected. It would not be used first-line in a young patient due to the radiation dose delivered.

Diagnostic laparoscopy would be performed without investigation if the patient had a history strongly suggestive of appendicitis. Whilst this patient does have new right iliac fossa pain with anorexia and a mildly raised white cell count, there is no history of migration of pain, she does not have nausea or vomiting, there is no rebound tenderness and she is apyrexic. In this case, the suspicion of appendicitis is not high enough to take the patient straight to the theatre and other causes of right iliac fossa pain should be considered. If the patient was septic, it may be appropriate to take her straight to the theatre. The Royal College of Surgeons (2014) has advised that in well patients, imaging before laparoscopy reduces the rate of negative laparoscopies and does not delay time to theatre.

MRI abdomen has a limited role in the acute abdomen due to limited availability. If the ultrasound abdomen is inconclusive, the next imaging performed is usually a CT abdomen. MRI abdomen may be performed in lieu of CT abdomen in patients who cannot have a CT - typically pregnant patients. It is, however, not a first-line investigation for appendicitis.

X-ray abdomen is used to investigate for bowel obstruction. Bowel obstruction presents with abdominal pain, abdominal distension, vomiting, and failure to pass stool and/or flatus. The patient does not have these symptoms so an abdominal x-ray is unlikely to add useful information to her management.

Question:

A 53-year-old man attends his optician for a review as he was recently diagnosed with type 2 diabetes mellitus. As part of the assessment, the doctor looked at the back of his eye with a slit lamp and this showed cotton wool spots.

What is the likely underlying pathology causing these?

A.Atrophic retinal holes

B.Retinal detachment

C.Retinal infarction

D.Retinal necrosis

E.Retinal neovascularisation

Answer:Retinal infarction

Explanation:

In diabetic retinopathy, cotton wool spots represent areas of retinal infarction

Important for meLess important

Cotton wool spots are areas of retinal infarction seen in pre-proliferative diabetic retinopathy. This patient may have had uncontrolled diabetes for a while prior to diagnosis. As this patient has been found to have some changes secondary to microvascular damage incurred from his diabetes, it should be emphasised to the patient that he must attend regular check-ups for his vision and to comply well with any medications prescribed.

Atrophic retinal holes are small round or oval holes that typically occur in the peripheral retina and are present in around 5% of the population.

In retinal detachment, the retina will appear separated from the normal structure of the eye. There may be a large bullous separation in rhegmatogenous retinal detachment.

Retinal necrosis is an acute condition where patients typically present with an acute, unilateral, painful loss of vision. Slit-lamp examination will show multiple focuses of retinal whitening and opacification with scalloped edges that become confluent.

Retinal neovascularisation appears as a tangle of new blood vessels that form in the retina. This would be indicative of proliferative diabetic retinopathy.

Question:

A 60-year-old woman presents to the Emergency Department with abdominal distension and pain. This has been getting progressively worse over the past 24 hours.

Her past medical history includes a hysterectomy 5 years ago with ovarian preservation.

A CT of her abdomen is requested:

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What is the most likely diagnosis?

A.Autosomal dominant polycystic kidney disease

B.Pseudomyxoma peritonei

C.Metastatic renal cell cancer

D.Meigs' syndrome

E.Small bowel obstruction

Answer:Small bowel obstruction

Explanation:

The CT shows small bowel obstruction with small bowel loops proximally (duodenum and jejunum) with abrupt transition to intestinal segment of normal caliber. Presence of small amount of free fluid intracavity.

In this lady the cause was adhesions secondary to her previous hysterectomy.

Question:

A 21-year-old man is admitted to the respiratory ward with a community acquired pneumonia. He has bilateral crackles on examination and a ring-shaped rash on both his hands. His admission bloods are shown below:

Hb 101 g/l Na+ 141 mmol/l

Platelets 499 \* 109/l K+ 4.8 mmol/l

WBC 17.9 \* 109/l Urea 9.1 mmol/l

Neuts 15.7 \* 109/l Creatinine 101 µmol/l

Lymphs 1.3 \* 109/l Bilirubin 79 µmol/l

Reticulocytes 0.8% (0.5-1.5%) CRP 167 mg/l

Which of the following is the most likely causative organism for this man's pneumonia?

A.Streptococcus pneumoniae

B.Staphylococcus aureus

C.Legionella pneumophila

D.Mycoplasma pneumoniae

E.Chlamydia psittaci

Answer:Mycoplasma pneumoniae

Explanation:

Mycoplasma is associated with erythema multiforme

Important for meLess important

This young man has presented with an atypical pneumonia, in that the symptoms are different from what would be expected were he to have an infection caused by Streptococcus pneumoniae. The blood results demonstrate an acute inflammatory response with anaemia and a raised bilirubin suggesting haemolysis. The reticulocyte count is within the normal range which indicates this is acute and not chronic. The ring-shaped rash described is erythema multiforme, which is sometimes describes as target lesions due to their shape. Mycoplasma pneumoniae is a small bacterium which causes atypical pneumonia and the two most common extra-pulmonary symptoms it causes are erythema multiforme and acute haemolysis.

Legionella spp. and Chlamydia psittaci both also cause atypical pneumonias but the features of these differ with Legionella spp. causing gastrointestinal and neurological symptoms and Chlamydia psittaci causes liver function derangement and leucopenia.

Question:

Mr Phalen is a 48-year-old civil engineer who was recently diagnosed with type 2 diabetes at his NHS over-40 health check. Your colleague started him on metformin two weeks ago, but he has asked for a telephone consultation as he is still experiencing nausea with it. He says he has tried to persevere but now he has had enough and wants to stop it. His HbA1c at diagnosis was 52mmol/l. His body mass index is 31kg/m². His renal function is normal.

What is the most appropriate medication option to try next?

A.Sulphonylurea

B.Pioglitazone

C.Sitagliptin

D.Modified-release metformin

E.Orlistat

Answer:Modified-release 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

Sulphonylurea - this could be considered as a second-line agent if metformin is not tolerated, but NICE advises consider a trial of modified-release metformin first.

Pioglitazone - this could be considered as a second-line agent if metformin is not tolerated, but NICE advises consider a trial of modified-release metformin first.

Sitagliptin - this could be considered as a second-line agent if metformin is not tolerated, but NICE advises consider a trial of modified-release metformin first.

Orlistat - this is a medication to aid weight loss; it may be helpful in reducing insulin resistance by reducing weight, but is not the recommended course of action.

Question:

A 52-year-old non-binary person attends their general practitioner with a 4-month history of fatigue, weight gain and leg weakness. They are normally well and have no other medical conditions. On examination, there are stretch marks on the patient's abdomen and thinning of the skin.

A low-dose dexamethasone suppression test is arranged and shows:

Cortisol not suppressed

Following this result, a high-dose dexamethasone suppression test is performed and shows:

Cortisol suppressed

Given the patients' presentation and the results listed, what is the most likely underlying cause of their symptoms?

A.Addison's disease

B.Adrenal adenoma

C.Corticosteroid therapy

D.Cushing's disease

E.Ectopic ACTH secretion

Answer:Cushing's disease

Explanation:

In Cushing's disease, cortisol is not suppressed by low-dose dexamethasone but is suppressed by high-dose dexamethasone

Important for meLess important

Cushing's disease is correct. Cushing’s disease is a specific type of Cushing’s syndrome (a condition characterised by cortisol excess) which results from an ACTH-producing pituitary tumour. In Cushing's disease, cortisol is not suppressed by low-dose dexamethasone but is suppressed by high-dose dexamethasone. This is because the pituitary can still respond to dexamethasone and thus the high dose of dexamethasone causes negative feedback at the level of the pituitary gland causing ACTH suppression and resultant cortisol suppression. This effect is not achieved by the lower dose of dexamethasone used in the low dose test.

Addison's disease is incorrect. The symptoms this patient has presented with relate to cortisol excess not a lack of cortisol.

Adrenal adenoma is incorrect. Whilst, as is the case here, low-dose dexamethasone does not cause cortisol suppression in cases of adrenal adenoma, cortisol is not suppressed by high-dose dexamethasone in Cushing's syndromes that are not due to pituitary tumour (i.e. Cushing's disease). This is because whilst the pituitary is responsive to negative feedback from the high-dose dexamethasone, causing ACTH suppression, the adrenals are producing cortisol independently of the pituitary and therefore the suppression in ACTH does not lead to suppression in cortisol.

Corticosteroid therapy is incorrect. The history states that the patient has no other medical conditions and thus this is not likely to be the cause of their symptoms.

Ectopic ACTH secretion is incorrect. Ectopic ACTH secretion can occur in paraneoplastic syndrome originating from cancers such as lung cancer. Cortisol is not suppressed by high-dose dexamethasone in ectopic ACTH secretion. This is because ACTH is produced independently of the hypothalamus or pituitary gland.

Question:

A man with a history of chronic alcohol abuse attends the Emergency Department. He is unkempt, drowsy and confused, and it is believed he has not eaten in forty eight hours. A decision to commence chlordiazepoxide PRN and IV Pabrinex is made. Which vitamin, present in Pabrinex, can prevent progression of symptoms to Wernicke's encephalopathy?

A.B6

B.B12

C.C

D.B1

E.D

Answer:B1

Explanation:

Pabrinex, a yellow coloured fluid which you might have seen on the wards, contains vitamins B and C. It does not vitamin D.

Vitamin B1, also called thiamine, is essential for glial cells of the nervous system, as well as other bodily systems. Deficiency can cause Wernicke's encephalopathy and if left untreated can lead to irreversible Korsakoff's syndrome.

Vitamin B12 deficiency is linked to pernicious anaemia.

Question:

A 75-year-old man with a known malignancy develops seizures and is suspected on an MRI brain scan to have developed brain metastases.

From the following options, statistically, which is the most likely primary site of cancer?

A.Lung

B.Liver

C.Stomach

D.Bone

E.Heart

Answer:Lung

Explanation:

The most common secondary brain tumours are lung, breast, kidney, melanoma and colorectal cancers metastases

Important for meLess important

Brain metastasis secondary to liver, stomach, bone or heart primary cancers is uncommon. The most common secondary brain tumours are lung, breast, kidney, melanoma and colorectal cancers metastases.

In any patient with a newly discovered brain tumour, the diagnostic workup includes excluding a primary site of cancer. This includes a detailed history, examination and also imaging (CT chest, abdomen and pelvis).

Question:

A 28-year-old man made an appointment to see his GP for a review of his left-sided sciatica. He had been diagnosed on an MRI with L5/S1 disc herniation causing compression of the left nerve root. He was awaiting review by the spinal team. In the meantime, he had tried paracetamol and his GP had recently prescribed him naproxen and amitriptyline. However, his pain was still severe. His GP decided to stop the amitriptyline and trial him on gabapentin.

Which of the following is necessary for the prescription to be valid when dispensing this drug?

A.Must be written by hand in the doctor's own handwriting

B.The address of the patient must be included on the prescription

C.The patient's NHS number must be on the prescription

D.The prescription must include the doctor's GMC number

E.The prescription must be filled within 14 days of the date on the prescription

Answer:The address of the patient must be included on the prescription

Explanation:

Controlled drug prescriptions - the address of the patient must be included on the prescription

Important for meLess important

From 1 April 2019, gabapentin and pregabalin became schedule 3 controlled drugs under the misuse of drugs regulations 2001, and class C of the misuse of drugs act 1971. Controlled drug prescriptions have additional requirements to make them valid.

Prescriptions for controlled drugs must include the address of the patient for them to be valid.

A computer-generated prescription is acceptable. However, the signature of the prescriber must be handwritten.

Although the prescription should include a patient identifier (NHS number in England), this is not mandatory.

Similarly, the prescription should ideally include the prescribers GMC number, but a prescription is still valid without this information.

A prescription for a controlled drug can be filled within 28 days of the date on the prescription.

Question:

A 28-year-old man with known alcohol misuse disorder attends the Emergency Department with abdominal pain and vomiting. He describes that his abdominal pain has been present for six hours, and is concentrated in the epigastric region, with radiation through to the back.

Selected blood test results are as follows:

WBC 18.2 \* 109/L (4.0 - 11.0)

Albumin 26 g/L (35 - 50)

Calcium 1.9 mmol/L (2.0-2.5)

Glucose 14 mmol/L

Amylase 2000 U/L (30-118)

Given the likely diagnosis, what statement most accurately describes the utility of measuring serum amylase in this condition?

A.It has both diagnostic and prognostic utility

B.It has neither diagnostic nor prognostic utility

C.It is the most sensitive diagnostic test

D.It is the most specific diagnostic test

E.It is useful for diagnosis only

Answer:It is useful for diagnosis only

Explanation:

While amylase is an important investigation in the diagnosis of pancreatitis, it does not offer prognostic value

Important for meLess important

The correct answer is it is useful for diagnosis only. This patient has a diagnosis of acute pancreatitis. This is supported by his description of epigastric pain radiating through to his back, coupled with vomiting, a history of alcohol excess, and a markedly raised serum amylase. A raised serum amylase in this clinical context is strongly supportive of a diagnosis of acute pancreatitis. This diagnosis could be supported further with cross-sectional imaging.

It has both diagnostic and prognostic utility is incorrect as although amylase is useful in diagnosing acute pancreatitis, the extent to which it is elevated is not prognostically informative. As such, serum amylase does not feature in prognostic scores for pancreatitis, such as the Glasgow-Imrie score.

It has neither diagnostic nor prognostic utility is incorrect as serum amylase is a helpful diagnostic investigation when establishing whether undifferentiated abdominal pain could be due to acute pancreatitis.

It is the most sensitive diagnostic test is incorrect as serum lipase is more sensitive than serum amylase in diagnosing acute pancreatitis, particularly in cases of pancreatitis due to alcohol excess.

It is the most specific diagnostic test is incorrect as serum lipase is also a more specific diagnostic test for acute pancreatitis than serum amylase, which may be elevated in a wide range of other conditions including salivary gland pathology.

Question:

A 23-year-old woman presents with sweating and tremor. Her thyroid function tests are as follows:

TSH <0.05 mU/l

Free T4 25 pmol/l (9-18 pmol/l)

What is the most common cause this presentation?

A.Hashimoto's thyroiditis

B.Graves' disease

C.Toxic nodular goitre

D.De Quervain's thyroiditis

E.Toxic adenoma

Answer:Graves' disease

Explanation:

Graves' disease is the most common cause of thyrotoxicosis in the UK. All the other conditions can cause thyrotoxicosis but are less common.

Question:

A 67-year-old man who is known to have raised intraocular pressure is prescribed dorzolamide eye drops. What is the mechanism of action of this drug?

A.Prostaglandin analogue

B.Alpha2-adrenoceptor agonist

C.Carbonic anhydrase inhibitor

D.Muscarinic receptor agonist

E.Beta-blocker

Answer:Carbonic anhydrase inhibitor

Explanation:

Dorzolamide - carbonic anhydrase inhibitor

Important for meLess important

Question:

A 31-year-old man is investigated for ulcerative colitis after presenting with loose stools and lower abdominal pain. A tissue biopsy from the sigmoid colon is taken and examined histologically.

What finding on histology would be consistent with the suspected diagnosis?

A.Crypt abscesses

B.Increased goblet cells and granulomas

C.Increased intraepithelial lymphocytes with villous atrophy

D.Proliferation of ductal epithelial cells without evidence of basement membrane invasion

E.Stratified non-keratinising squamous epithelium merging at the transformation zone into tall mucinous columnar cells

Answer:Crypt abscesses

Explanation:

Ulcerative colitis - crypt abscesses

Important for meLess important

Crypt abscesses is the correct answer. This is a characteristic finding in ulcerative colitis.

Increased goblet cells and granulomas is a finding consistent with Crohn's disease.

Increased intraepithelial lymphocytes with villous atrophy is a histological finding in coeliac disease.

Proliferation of ductal epithelial cells without evidence of basement membrane invasion is actually a finding on histological assessment of ductal carcinoma in situ.

Stratified non-keratinising squamous epithelium merging at the transformation zone into tall mucinous columnar cells is the histological description of a normal cervical biopsy.

Question:

A 45-year-old man attends his GP with headaches for the past 4 months. He reports on further questioning noticing that he has had a small amount of milky discharge from both nipples but has been anxious about getting this seen as his mother had breast cancer. He is also concerned that his hands and feet are swollen as his wedding ring and shoes no longer fit. His observations show a heart rate of 95 beats/min, blood pressure of 165/89mmHg, temperature of 36.6ºC, oxygen saturation of 98% in room air with a respiratory rate of 14/min. His GP refers him for blood tests which show:

Hb 140 g/L (135-180)

Platelets 360 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

IGF-1 37.4 nmol/L (12.1 – 29.0)

What is the most appropriate next investigation?

A.Fasting serum glucose and growth hormone (GH) measurement

B.Fasting serum glucose and cortisol stress test

C.Oral glucose tolerance test (OGTT) with serial GH measurements

D.Overnight dexamethasone suppression test

E.Oral glucose tolerance test with serial IGF-1 measurements

Answer:Oral glucose tolerance test (OGTT) with serial GH measurements

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

This patient is presenting with symptoms of excessive growth hormone production (acromegaly). This is seen in the vignette with:

Increased size in hands and feet.

Galactorrhoea (growth hormone stimulates milk production and acromegaly is associated with hyperprolactinaemia due to the effect of GHRH on prolactin production).

Hypertension (this occurs in up to one-third of patients (likely due to increased peripheral vascular resistance).

There is further confirmation with the raised IGF-1 level seen in the initial investigations given. IGF-1 being raised is a potential indicator for acromegaly however it can also be raised in thyroid disease or lower than expected due to uncontrolled diabetes and liver disease. To confirm acromegaly, oral glucose tolerance test with serial GH measurements should be performed. In patients without acromegaly, raised blood glucose causes the body to stop producing GH. If there is a failure for serial GH readings to drop below 1 ng/mL during the OGTT, this confirms the diagnosis of acromegaly.

Fasting serum glucose and GH measurement would not assess for the expected changes in GH linked to hyperglycaemia (as described above). This test would not be beneficial in indicating if the patient has acromegaly. If the patient were suspected to have diabetes mellitus, a fasting serum glucose would be useful however there is no need (in that instance) to assess for GH levels.

If the GP was concerned for a global pituitary problem or issues with the hypothalamic-pituitary-adrenal axis (HPA axis) like Addison's disease, it would be appropriate for the patient to be sent for cortisol stress testing and, potentially, fasting serum glucose. As this patient has no symptoms of elevated cortisol (weight gain, striae, acne) or low cortisol (weight loss, fatigue, muscle wasting), this is an inappropriate answer.

An overnight dexamethasone suppression test is used as a screening tool in the assessment of Cushing's syndrome to assess for failure to suppress cortisol. Cushing's syndrome patients will present with weight gain, thin skin and striae, acne, and easy bruising. This patient does not have these symptoms and also has an elevated IGF-1 (which would not be expected in a condition with deranged cortisol levels).

OGTT with serial IGF-1 measurements is an inappropriate answer as there is not a direct relationship between increased serum glucose and changes in serum IGF-1. It is also important to note that there is a relatively stable level of IGF-1 throughout the day. Interestingly, IGF-1 has insulin-like effects which reduce blood glucose levels (and has been used experimentally in the management of diabetes mellitus patients) however it is not a recognised diagnostic test in assessing for acromegaly.

Question:

A 47-year-old female presents to the emergency department with palpitations and lightheadedness. Her symptoms started four days ago after exercising, but seem to be worsening. She has a past medical history of hypertension, managed with ramipril. On examination, she has a fast, irregular pulse but she looks alert. The doctor performs an electrocardiogram:

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

Which one of the following options is the most appropriate regarding her management?

A.Administer amiodarone

B.Administer apixaban and schedule an appointment for electrical cardioversion

C.Administer atropine

D.Administer flecainide

E.Immediate electrical cardioversion

Answer:Administer apixaban and schedule an appointment for electrical cardioversion

Explanation:

The correct option is to administer apixaban and schedule an appointment for electrical cardioversion. This patient is presenting with palpitations and lightheadedness. The electrocardiogram (ECG) shows an irregularly irregular rhythm with absent P waves. It is associated with rate-related ischaemia resulting in ST depression in V3-V6, making atrial fibrillation the likely diagnosis. The guidelines suggest that if the symptoms have been present for more than 48 hours, as in this case, the patient should be put on anticoagulants (such as apixaban) for at least 3 weeks prior to cardioversion.

Amiodarone is used in the pharmacological cardioversion of atrial fibrillation if there is structural heart disease. But given that this patient has been on atrial fibrillation for more than 48 hours, she should be anticoagulated for three weeks before being cardioverted. Additionally, in these cases, electrical cardioversion is preferred to pharmacological.

Atropine is used in the management of bradycardia. This patient hasa palpitations and the ECG shows atrial fibrillation, making the diagnosis unlikely.

Flecainide is used in the pharmacological cardioversion of atrial fibrillation if there isn't structural heart disease. But given that this patient has been on atrial fibrillation for more than 48 hours, she should be anticoagulated for three weeks before being cardioverted. Additionally, in these cases, electrical cardioversion is preferred to pharmacological.

Immediate electrical cardioversion is inappropriate. This should be administered to patients who are showing signs of shock. This patient is stable, additionally, she has been on atrial fibrillation for more than 48 hours, she should be anticoagulated for three weeks before being cardioverted.

Question:

A 27-year-old man presents to the psychiatric clinic for a follow-up appointment. He is complaining of weight gain, erectile dysfunction and gynaecomastia. He was diagnosed with schizophrenia one year ago. Since then he has struggled to find a medication that suits him, despite being compliant.

Today, he explains that his partner is getting increasingly frustrated by his lack of interest in sex and this is affecting their relationship.

What management option is the most appropriate in this case?

A.Switch to a once-monthly intramuscular antipsychotic depot injections

B.Switch to aripiprazole

C.Switch to clozapine

D.Switch to haloperidol

E.Switch to olanzapine

Answer:Switch to aripiprazole

Explanation:

Aripiprazole has the most tolerable side effect profile of the atypical antispsychotics, particularly for prolactin elevation

Important for meLess important

The correct answer is switch to aripiprazole. This patient has been diagnosed with schizophrenia and has struggled to find a medication which suits him. He is complaining of gynaecomastia, loss of libido and erectile dysfunction, which are defining features of hyperprolactinaemia, which is often caused by antipsychotic mediations. The hyperprolactinemia is causing the side effects, so aripiprazole should be trialled as it has the most tolerable side effect profile of the atypical antipsychotics, particularly for prolactin elevation.

Once-monthly intramuscular antipsychotic depot injections are suitable for patients who repeatedly prove to not be compliant, to reduce the risk of missing medication doses. This patient does not have an issue with compliance making this option incorrect.

Switch to clozapine is an incorrect option, as this patient is struggling with hyperprolactinemia, hence a medication which has been shown to reduce side effects should be administered.

Switch to haloperidol is an incorrect option as this is a typical antipsychotic and it has been shown to increase the risk of extrapyramidal side effects, such as parkinsonism and acute dystonia, hence it's not a suitable option for a patient struggling with side-effects.

Switch to olanzapine is an incorrect option. Olanzapine has a higher risk of dyslipidemia and obesity, so it's not a suitable option for a patient struggling with side effects.

Question:

A 7-year-old boy presents to the general practitioner with his mother. He has noticed blood in his urine for the last few days. He denies any dysuria or polyuria. His past medical history is unremarkable except for a sore throat he developed two days ago.

The doctor performs a urine dipstick which shows the following results:

Glucose -

Proteins +

Blood +++

Leukocytes -

Which one of the following is the most likely diagnosis?

A.Alport's syndrome

B.IgA nephropathy

C.Membranoproliferative glomerulonephritis

D.Minimal change disease

E.Post-streptococcal glomerulonephritis

Answer:IgA nephropathy

Explanation:

IgA nephropathy classically presents as visible haematuria following a recent URTI

Important for meLess important

The correct answer is IgA nephropathy. This child presents with the classical symptoms and history of the disease: a young male with recurrent episodes of macroscopic haematuria, typically associated with a recent respiratory tract infection and mild proteinuria.

IgA nephropathy is thought to be caused by the mesangial deposition of IgA immune complexes. This happens very rapidly following a recent URTI, typically 1-3 days.

It is important to not confuse it with post-streptococcal glomerulonephritis, which is caused by immune complex (IgG, IgM, and C3) deposition in the glomeruli. This happens more slowly, typically 7-14 days following a group A beta-hemolytic Streptococcus infection and causes proteinuria.

To remember the different presentations you can think that IgA is a shorter word so presents after a few days, whereas post-streptococcal is a longer word so presents after many days.

Alport's syndrome is an X-linked dominant disease. It presents with microscopic haematuria, bilateral sensorineural deafness, and lenticonus. This patient does not have any of these characteristics.

Membranoproliferative glomerulonephritis can present as nephrotic syndrome, haematuria, or proteinuria. It rarely affects children and it can be caused by multiple factors such as cryoglobulinaemia, hepatitis B or C, and partial lipodystrophy. This patient does not have any of these comorbidities.

Minimal change disease is very common in children, but nearly always presents as nephrotic syndrome. This child's dipstick is negative for proteins but highly positive for blood, indicating a nephritic syndrome.

Question:

Please look at this photo of a woman:

© Image used on license from DermNet NZ

Which one of the following is most associated with this appearance?

A.Cushing's syndrome

B.Acromegaly

C.Conn's syndrome

D.Using a second generation combined oral contraceptive pill

E.Anorexia

Answer:Cushing's syndrome

Explanation:

Question:

A 36-year-old man presents to the emergency department with a severe left-sided headache with pain around the left eye. He has had several similar episodes over the last 2 weeks, lasting 40-60 minutes each. The headaches are associated with a runny nose. On examination, there is redness and tearing of his left eye.

What is the most appropriate acute management?

A.Acetazolamide

B.High flow oxygen

C.Paracetamol and naproxen

D.Urgent CT head

E.Verapamil

Answer:High flow oxygen

Explanation:

Cluster headache - acute treatment: subcutaneous sumatriptan + 100% O2

Important for meLess important

This patient presents with a cluster headache. Cluster headaches are so named as clusters of headaches occur frequently over a period of weeks followed by pain free periods of months to years.

The clinical features include unilateral headaches almost always affecting the same side, tearing and redness of the affected eye, rhinorrhoea and miosis +/- ptosis.

The pathophysiology of cluster headaches is unclear. They occur more common in men (5:1) and smokers.

Abortive management of cluster headaches involves the use of 100% oxygen at at least 12 litres per minute via a non-rebreathable mask and/or a subcutaneous or nasal triptan.

First line long-term preventative management of cluster headaches is verapamil.

It is not recommended to offer paracetamol, NSAIDS, opioids, ergots or oral triptans for the acute treatment of a cluster headache.

(Source: NICE headache guidelines)

http://www.nice.org.uk/guidance/cg150/chapter/1-recommendation

Question:

A 44-year-old female has a Mirena (intrauterine system) fitted for contraception on day 12 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:

Mr Parr is a 75-year-old widower who presents with easy bruising. There is no history of abnormal bleeding apart from some gum bleeding when brushing teeth, and no family history of bleeding problems. He rarely drinks alcohol. General examination including examination of the liver and of lymph nodes is normal; there are multiple small bruises on the limbs - no purpura or petechiae. You check his medication list and find no item that might be the cause. You arrange some blood tests including full blood count, blood film, renal profile, bone profile, liver function, and clotting screen, which are all unremarkable. You suspect the cause might be due to a 'tea and toast' diet after his wife passed away.

A trial of which dietary supplement could you consider as the next step?

A.Calcium

B.Magnesium

C.Thiamine (vitamin B1)

D.Vitamin C

E.Vitamin D

Answer:Vitamin C

Explanation:

Easy bruising can be due to a poor diet deficient in vitamin C

Important for meLess important

Calcium: Incorrect answer, his diet may well be deficient in calcium but would not cause easy bruising.

Magnesium: Incorrect answer, his diet may well be deficient in magnesium but would not cause easy bruising.

Thiamine (vitamin B1): Incorrect answer, his diet may well be deficient in thiamine but would not cause easy bruising. Thiamine supplements are often advised for patients with excessive alcohol intake.

Vitamin C: Correct answer, a poor diet deficient in vitamin C or vitamin K can result in easy bruising; bleeding gums is also a classical sign of scurvy (vitamin C deficiency). A trial of vitamin C and/or K could be the next step here. Good dietary sources of vitamin C include citrus fruits and tomatoes.

Vitamin D: Incorrect answer, his diet may well be deficient in vitamin D but would not cause easy bruising. A vitamin D supplement is probably a good idea for his bone health but would not help the bruising symptoms.

Question:

A 23-year-old female patient is admitted onto the general surgical ward is being fasted overnight for 12 hours prior to an elective procedure. She has no significant past medical history and takes no regular medication. You have been asked by the sister-in-charge to prescribe maintenance fluids for her during this fasting period and are told that the patient weighs 60kg.

Her bloods show:

Hb 132 g/L (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 8.0 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 4.5 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

CRP 1 mg/L (< 5)

What is the correct fluid prescription over 12 hours for this patient?

A.1 litre 0.9% NaCl with 30mmol potassium

B.1 litre 0.9% NaCl with 60mmol potassium

C.2 litres 0.9% NaCl with 120mmol potassium

D.2 litres 0.9% NaCl with 30mmol potassium

E.2 litres 0.9% NaCl with 60mmol potassium

Answer:1 litre 0.9% NaCl with 30mmol potassium

Explanation:

When prescribing fluids, the potassium requirement per day is 1 mmol/kg/day

Important for meLess important

This patient will require roughly 1 litre of fluids for 12 hours (as such 1 litre of 0.9% NaCl is the correct option). As the patient weighs 60kg, she will require 30mmol potassium as she will need 60mmol/day. Potassium chloride can be added to 0.9% NaCl fluid bags as prescribed by those trained to do so.

1 litre 0.9% NaCl with 60mmol potassium is incorrect as it would provide her with too much potassium over 12 hours - it is also a strong concentration of potassium for 1 litre of IV fluids.

2 litres 0.9% NaCl with 120mmol potassium is incorrect as it would provide her with too much fluid for 12 hours and is double the amount of daily potassium for this patient.

2 litres 0.9% NaCl with 30mmol potassium is incorrect as it would provide her with too much fluid for 12 hours, despite being the correct amount of potassium for a 12 hour period.

2 litres 0.9% NaCl with 60mmol potassium is incorrect as this would provide her with adequate fluid and potassium for 24 hours (not 12).

Question:

You are asked to review a 31-year-old man in the emergency department who presented with worsening shortness of breath, wheeze, and an inability to complete his sentences. On examination, the respiratory rate was 27 breaths per minute and pulse was 112 bpm. The patient's past medical history reveals that he is a known asthmatic. An arterial blood gas is subsequently performed to reveal hypoxaemia and supplemental oxygen therapy is started.

Given the patient presentation, what should the target oxygen saturation be?

A.88-90%

B.88-92%

C.90-94%

D.94-98%

E.96-98%

Answer:94-98%

Explanation:

The target oxygen saturation level in acute asthma is 94-98%

Important for meLess important

94-98% is the correct option. The patient is suffering from a severe asthma attack. Acute asthma is nearly always seen in patients who have got a history of asthma. This is supported by the patient's past medical history. The features of worsening dyspnoea and wheeze support the diagnosis of acute asthma.

Patients with acute asthma are classified into moderate, severe, or life-threatening. This patient falls into the severe asthma category as they cannot complete sentences, they have a respiratory rate above 25 breaths per minute and their pulse is more than 110 bpm.

If patients are hypoxaemic we start them on supplemented oxygen therapy via 15L of supplemental oxygen via a non-rebreathe mask, which can then be titrated down to a flow rate where they are able to maintain a SpO2 94-98%.

Question:

A 26-year-old woman presents with a four month history of back pain. The pain is located around the lower lumbar vertebrae and spreads to both buttocks. Ibuprofen and walking seem to improve the pain. A lumbar spine film is requested:

© Image used on license from Radiopaedia

What is the most likely cause of this patients back pain?

A.Marble bone disease

B.Discitis

C.Ankylosing spondylitis

D.Facet-joint dysfunction

E.Rheumatoid arthritis

Answer:Ankylosing spondylitis

Explanation:

Ankylosing spondylitis with well formed syndesmophytes are seen on the lumbar spine film.

The first thing to address is the sex of the patient. Of course ankylosing spondylitis is more common in men but the male-to-female ratio is only 3:1. This means it is reasonable to be asked about female patients in questions, particularly if there is accompanying 'hard evidence' such as x-rays.

Marble bone disease (osteopetrosis) results in dense, thick bones that are prone to fracture. Syndesmophytes are not a feature.

Facet-joint dysfunction is a common cause of back pain but it would not explain the x-ray findings.

Rheumatoid arthritis of course does not commonly present with back pain. The following x-ray changes are typically seen:

loss of joint space

juxta-articular osteoporosis

soft-tissue swelling

periarticular erosions

subluxation

Question:

A 64-year-old woman presents with bilateral sore eyelids. She also complains of her eyes being dry all the time. On examination her eyelid margins are erythematous at the margins but are not swollen. Of the given options, what is the most appropriate initial management?

A.Topical chloramphenicol + mechanical removal of lid debris

B.Hot compresses + topical steroids

C.Topical chloramphenicol + topical steroids

D.Hot compresses + mechanical removal of lid debris

E.Topical chloramphenicol + hot compresses

Answer:Hot compresses + mechanical removal of lid debris

Explanation:

1st line of treatment for blepharitis is hot compresses

Important for meLess important

Artificial tears may also be given for symptom relief of blepharitis

Question:

A 6-day-old baby is admitted to the neonatal intensive care unit after having difficulty breathing in the last 24 hours. She was born at 39 weeks gestation weighing 2.0 kg with no complications during pregnancy. Her mother had an episode of tonsillitis that resolved spontaneously. The baby and her parents are of Bengali ethnicity but have lived in the UK their whole lives.

On examination, there is nasal flaring and the baby is using accessory muscles to breathe. She is tachycardic and tachypnoeic and looks fatigued.

Given the likely diagnosis, what factor has most likely contributed to its development?

A.Her birth weight

B.Her ethnicity

C.Her sex

D.Presence of Streptococcus pyogenes in the mother

E.The number of weeks gestation she was delivered at

Answer:Her birth weight

Explanation:

Low birth weight is a risk factor for neonatal sepsis

Important for meLess important

Features such as difficulty breathing, poor feeding, lethargy, apnoea, and vomiting in a neonate that is aged up to 28 days old should raise suspicion of neonatal sepsis. This is because early symptoms are vague, and the features of sepsis usually seen in adults (such as haemodynamic instability and hypotension) are not seen until very late stages. The most common features seen in neonatal sepsis include respiratory distress (such as grunting, nasal flaring, using accessory muscles, and tachypnoea), followed by tachycardia, apnoea, appetite and behavioural changes, poor feeding, and vomiting.

Her birth weight is correct as a low birth weight (<2.5 kg) is a significant risk factor for neonatal sepsis, and around 80% of neonates affected have a low birth weight.

Her ethnicity is incorrect. Although coming from a developing country may increase one's risk of neonatal sepsis, the neonate and her family have lived in the UK their entire lives. Furthermore, there is not much evidence suggesting those of Bangladeshi ethnicity are inherently at increased risk. People of Black ethnicity are at an increased risk of group B Streptococcus-related sepsis.

Her sex is incorrect as the male-to-female incidence ratio is 1:1, therefore not making her sex a significant risk factor.

Presence of Streptococcus pyogenes in the mother is incorrect. The organism associated with neonatal sepsis is group B Streptococcus (Streptococcus agalactiae), rather than Streptococcus pyogenes, which belongs to group A Streptococcus species. Streptococcus pyogenes is not as strongly associated with neonatal sepsis compared to group B Streptococcus. This is because group B Streptococcus can be part of the normal vaginal microbiota in many women, increasing the risk of transmission.

The number of weeks gestation she was delivered at is incorrect. Although prematurity is a risk factor for neonatal sepsis, this is considered as birth at <37 weeks gestation. This neonate was born at 39 weeks gestation, therefore, she is not premature.

Question:

You see a 60-year-old man in your GP practice who is normally fit and well. He came to see you two weeks ago with a viral infection. You recorded his clinic blood pressure as 168/105 mmHg. You arrange ambulatory blood pressure monitoring (ABPM), bloods, urine dip, an ECG, and you are seeing him today with the results.

His subsequent ABPM average is 157/100 mmHg. You arranged some blood tests including plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol. He had normal renal function and his glucose was within normal limits. A urine dip for protein was normal and an ECG was also normal. You check the back of his eyes and the fundi are normal. You calculate his QRisk as 28%.

You discuss treatment options with the patient. What should your management plan include?

A.Offer amlodipine and lifestyle advice and aim for clinic BP <140/90 mmHg

B.Offer amlodipine, lifestyle advice, atorvastatin and aim for clinic BP <140/90 mmHg

C.Offer amlodipine, lifestyle advice, atorvastatin and aim for clinic BP <135/85 mmHg

D.Offer ramipril, lifestyle advice, atorvastatin and aim for clinic BP <140/90 mmHg

E.Offer ramipril, lifestyle advice, atorvastatin and aim for clinic BP <135/85 mmHg

Answer:Offer amlodipine, lifestyle advice, atorvastatin and aim for clinic BP <140/90 mmHg

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

This patient has stage 2 hypertension and a QRisk score of >20%. He requires treatment for his hypertension and as he is >55 years a calcium channel blocker is the first line (eg amlodipine). As with all patients with hypertension, he requires lifestyle advice. As his QRisk is >20% you should discuss and offer him statin therapy as primary prevention of cardiovascular disease. You should aim for a clinic BP of <140/90 mmHg and ABPM < 135/85 mmHg.

Therefore, the correct answer is 2: Offer amlodipine, lifestyle advice, atorvastatin and aim for clinic BP <140/90 mmHg.

Question:

An 85-year-old gentleman with a background of osteoporosis and chronic kidney disease was admitted following a fall at home. He was experiencing significant lower back pain. A lumbar spine x-ray was showing signs of a fractured lumbar vertebra. A subsequent MRI lumbar/sacral scan showed a new L3 burst fracture with no evidence of cord compression. A neurosurgical opinion was obtained who advised conservative management in the form of pain control, physiotherapy and mobilisation as pain allows. Given his background of chronic renal impairment with a creatinine clearance of 21ml/min, he was started on a Buprenorphine patch. Which of the following opioids would be safest to use for his breakthrough pain?

A.Pethidine

B.Diamorphine

C.Morphine

D.Oxycodone

E.Ibuprofen

Answer:Oxycodone

Explanation:

Oxycodone is a safer opioid to use in patients with moderate to end-stage renal failure

Important for meLess important

Active metabolites of morphine accumulate in renal failure which means that long-term use is contraindicated in patients with moderate/severe renal failure. These toxic metabolites can accumulate causing toxicity and risk overdose. Oxycodone is mainly metabolised in the liver and thus safer to use in patients with moderate to end-stage renal failure with dose reductions.

Question:

A 42-year-old man, who lived alone, booked a follow-up appointment to see his GP. Due to the COVID-19 pandemic, he had been self-isolating at home for several months. After the easing of the lockdown, he still preferred to stay at home and was afraid to go out.

Prior to the pandemic, he went through a difficult divorce with ongoing issues with respect to the custody of his children. Unfortunately, he lost his job as his workplace were unable to offer him a position going forward.

He had received a telephone consultation 4 weeks prior with his GP and was diagnosed with moderate depression. He was referred for computerised cognitive behavioural therapy and advised to increase his levels of exercise.

Unfortunately, his mental health was deteriorating and he started to have difficulty sleeping and early morning awakening, and fleeting thoughts that he would be 'better off gone' but with no active suicidal plans. He stated he did not wish to be referred for psychological treatments such as one-to-one cognitive behavioural therapy, as he found them difficult to engage with.

His GP discussed the next step in managing his depression.

What treatment should he be offered?

A.Commence citalopram

B.Commence mirtazapine

C.Commence venlafaxine

D.Refer to a structured exercise programme

E.Refer to the local crisis resolution team

Answer:Commence citalopram

Explanation:

SSRIs are the first-line antidepressant for 'less severe' depression

Important for meLess important

This patient is suffering from moderate depression with deteriorating mental health despite low-level therapy. He has already been prescribed CBT and he has refused psychological treatments. He should now be offered an anti-depressant.

Although mirtazapine and venlafaxine may be valid choices, they are not considered to be first-line. NICE suggests that practitioners consider the increased likelihood of patients stopping treatment with venlafaxine because of side effects, and its higher cost, compared with selective serotonin reuptake inhibitors (SSRIs) which are equally as effective. Both mirtazapine and venlafaxine are generally reserved as second-line agents when the response has been poor with an SSRI.

NICE states you should offer an SSRI first-line because they typically have fewer side effects than other types of antidepressants and are just as effective.

In this patient, he has not expressed any true suicidal plans or intent so referral to a crisis team would unlikely be needed.

Question:

A 2-month-old boy is brought to the general practitioner by his mother. Since birth he has been feeding poorly, is often agitated and has a blue-tinge to his lips after prolonged episodes of crying. He was born at term, weighing 2400 grams at delivery. Examination reveals an ejection systolic murmur at the left sternal edge.

Which of the following is the most likely diagnosis?

A.Atrial septal defect

B.Patent ductus arteriosus

C.Tetralogy of Fallot

D.Transposition of the great arteries

E.Vascular ring double aortic arch

Answer:Tetralogy of Fallot

Explanation:

Tetralogy of Fallot: Cyanosis or collapse in first month of life, hypercyanotic spells. Ejection systolic murmur at left sternal edge

Important for meLess important

The cyanotic spells, along with poor feeding, agitation and low birth weight all point towards a diagnosis of Tetralogy of Fallot. Note the murmur is a result of pulmonary stenosis, not the ventricular septal defect as this is too large to produce a murmur.

An atrial septal defect is unlikely as this is an acyanotic shunt which produces a split s2 sound on auscultation.

A patent ductus arteriosus is unlikely as this is an acyanotic shunt which would produce a continuous murmur.

Transposition of the great arteries would be incorrect as this would present with cyanosis and foetal distress immediately after delivery.

Vascular ring double aortic arch is also unlikely. While compression of the oesophagus by a vascular ring may cause poor feeding, it could not explain the cyanotic spells or ejection systolic murmur.

Question:

A patient arrives at the hospital reporting he took a significant overdose of paracetamol over 8 hours ago.

On exam, he appears unwell and has significant right upper quadrant tenderness and so acetylcysteine treatment was commenced.

An arterial blood gas with other specific tests taken 24 hours post first ingestion shows:

pH 7.25 7.35–7.45

pC02 4.8 kPa 4.4–5.9

pO2 12.0 kPa 10.0–14.0

HCO3 11 mmol/L 22–28

Lac 5 mmol/L <2

Creatinine 650 μmol/L 53–106

Bilirubin 380 μmol/L 2–17

Prothrombin time (PT) 19sec 11-15

What result means this case meets the King's College Hospital criteria for liver transplantation?

A.Bilirubin

B.Creatinine

C.Lactate

D.pH

E.Prothrombin time

Answer:pH

Explanation:

Liver transplantation criteria in paracetamol overdose: pH < 7.3 more than 24 hours after ingestion

Important for meLess important

This patient has a significant, late presentation paracetamol overdose. If patients present between 8-24 hours post-ingestion of paracetamol, acetylcysteine should be started if there is clear evidence of jaundice or hepatic tenderness. There is unfortunately a large decrease in the effectiveness of acetylcysteine if commenced over 8 hours post-ingestion and significant liver damage beyond this point is more common. Patients with evidence of liver toxicity 24 hours after ingestion should be considered for liver transplantation. The King's College Hospital criteria set the following markers for patients to be considered in case of paracetamol overdose.

An arterial pH <7.3, 24 hours after ingestion

Or all of the following

Prothrombin time > 100 seconds

Creatinine > 300 µmol/L

Grade III or IV encephalopathy

The current factor this patient meets is that their arterial pH is less than 7.3. This means this patient should be considered for liver transplantation.

Serum bilirubin is not used in the King's College Hospital criteria for liver transplantation when the liver injury is due to paracetamol overdose therefore it is not used as a factor in this case. It is however taken into a consideration in patients with significant liver injury due to other, non-paracetamol, induced causes, with a level of over 300 µmol/L considered significant.

Although this patient’s creatinine is significantly raised and above the 300 µmol/L thresholds this alone is not enough for the patient to meet the criteria for a liver transplantation. As the patient’s prothrombin time is not above 100 seconds and there is no clear evidence of encephalopathy, a derange creatinine by itself does not meet the criteria.

Although lactate can sometimes be used as a marker of prognosis, with a level of over 3 mmol/L after full resuscitation considered an indication of a poor outcome, it is not used in the King's College Hospital criteria for liver transplantation.

This patient’s prothrombin time is below 100 seconds and therefore does not meet the threshold for liver transplant consideration.

Question:

A 56-year-old man is reviewed in the Cardiology outpatient clinic following a myocardial infarction one year previously. During his admission he was found to be hypertensive and diabetic. He complains that he has put on 5kg in weight in the past 6 months. Which of his medications may be contributing to his weight gain?

A.Metformin

B.Losartan

C.Clopidogrel

D.Gliclazide

E.Simvastatin

Answer:Gliclazide

Explanation:

Sulfonylureas often cause weight gain

Important for meLess important

Question:

A 30-year-old woman is admitted to the Emergency Department with an exacerbation of asthma. On arrival her peak flow is 30% of predicted, respiratory rate is 36/min and oxygen saturations are 98% on 100% high-flow oxygen. She is given back-to-back nebulisers, intravenous hydrocortisone and started on a magnesium infusion. Which one of the following would be the strongest indicator of a need for intubation and ventilation?

A.PEFR 35% of predicted

B.pH 7.33

C.Patient preference after informed consent

D.Respiratory rate of 50 / min

E.Oxygen saturations of 95% on 100% high-flow oxygen

Answer:pH 7.33

Explanation:

A pH less than 7.35 likely represents carbon dioxide retention in a tiring patient and is an ominous sign in acute asthma. Performing serial peak flows in a patient with life-threatening asthma is neither practical nor desirable.

Question:

A 60-year-old man presents to the emergency department with severe deep pain in the right eye over the last hour. During this time, he has felt severe nausea. He has no past medical history and wears glasses for hypermetropia. He does not wear contact lenses.

His pulse is 111 bpm, his blood pressure is 134/75 mmHg, and he is afebrile. Visual acuity is reduced in the right eye and the right pupil is semi-dilated and non-reactive. His right eye is red. Tonometry reveals a raised intraocular pressure in the right eye. The left eye is unaffected.

What investigation is likely to confirm the underlying diagnosis?

A.Automated perimetry

B.Fluorescein angiography

C.Fundoscopy

D.Gonioscopy

E.Optical coherence tomography

Answer:Gonioscopy

Explanation:

Both tonometry and gonioscopy should be performed in patients with suspected acute angle-closure glaucoma

Important for meLess important

Acute severe eye pain and redness with associated features of systemic upset (e.g. nausea and/or vomiting) suggest a diagnosis of acute angle-closure glaucoma. Hypermetropia is a risk factor for its development and reduced visual acuity and a semi-dilated non-reactive pupil supports this diagnosis. The angle is where the iris meets the cornea and sclera, and is where the trabecular meshwork (that drains aqueous humour) is found. Tonometry measures the intraocular pressure which is elevated in acute angle-closure glaucoma, due to the closure of the angle, impairing aqueous drainage and increasing the intraocular pressure.

Gonioscopy is correct as this is a crucial initial investigation in acute angle-closure glaucoma alongside tonometry and involves using a slit-lamp examination and a specific lens to view the angle of the eye, which is closed in acute angle-closure glaucoma and confirms the diagnosis. The angle is where the iris meets the cornea and sclera, and is where the trabecular meshwork (that drains aqueous humour) is found, therefore, its closure reduces aqueous humour drainage and leads to AACG. Tonometry identifies an increased intraocular pressure and gonioscopy confirms that closure of the angle is its cause, diagnosing acute angle-closure glaucoma. Both are mandatory for the diagnosis of acute angle-closure glaucoma.

Automated perimetry is incorrect as this assesses visual acuity by using a machine and getting a patient to push a button when they see a light in their visual field while focusing on an object in the middle. This only confirms the presence of decreased visual field impairment and does not diagnose acute angle-closure glaucoma, as many different conditions can affect the visual field (such as primary open-angle glaucoma, stroke, pituitary tumours etc.).

Fluorescein angiography is incorrect as this is performed if retinal neovascularisation is suspected. This involves injecting a fluorescein dye intravenously and retinal photographs are taken. This does not play a role in the diagnosis of acute angle-closure glaucoma and is instead used in conditions such as proliferative diabetic retinopathy or wet age-related macular degeneration.

Fundoscopy is incorrect. Although fundoscopy is performed in all patients with eye problems where possible, it may not be feasible in patients with acute angle-closure glaucoma due to the severity of their symptoms. This may show a pale optic disc or optic disc cupping, which may also be seen in primary open-angle glaucoma. Furthermore, many people with acute angle-closure glaucoma have a hazy cornea, making fundoscopy difficult.

Optical coherence tomography is incorrect as this is a type of imaging used to assess the retina for features such as neovascularisation, holes, or adhesions. It is not usually used initially in the diagnosis of acute angle-closure glaucoma and is instead used in diabetic retinopathy or age-related macular degeneration. It may be considered if tonometry and gonioscopy are inconclusive, however, this patient has not yet had either.

Question:

A 23-year-old mechanic visits the emergency department. After a long shift, he feels something is stuck in his right eye. As well as this he is experiencing pain and photophobia on the right side. You ask him whether he wears eye protection to which he responds '99% of the time'. Before you examine his eyes you notice gold crusted lesions on his face. Slit lamp examination with fluorescein eye stain reveals a dendritic ulcer in his right eye.

What is the most likely diagnosis?

A.Corneal abrasion

B.Corneal foreign body

C.Herpes simplex keratitis

D.Bacterial keratitis

E.Photokeratitis

Answer:Herpes simplex keratitis

Explanation:

Herpes simplex keratitis on fluorescein eye stain shows a dendritic ulcer

Important for meLess important

Although mechanics have an increased risk of photokeratitis this generally does not present with a foreign body sensation. All the other answers are possible with the history, however, the dendritic ulcer seen on the slit lamp examination with fluorescein stain is diagnostic of herpes simplex keratitis.

Question:

You are looking after a patient who has recently being diagnosed with prostate cancer and is currently considering treatment options. He asks you to explain the complications of surgery to remove the prostate. You mention incontinence as a common long-term complication.

Which of the following is another common complication of radical prostatectomy?

A.Overactive bladder

B.Testicular atrophy

C.Retrograde Ejaculation

D.Erectile dysfunction

E.Haematospermia

Answer:Erectile dysfunction

Explanation:

Erectile dysfunction is a common complication of radical prostatectomy

Important for meLess important

Apart from common perioperative complications of surgery such as infection and bleeding, late/long-term complications of radical prostatectomy include incontinence, erectile dysfunction and urethral stenosis. Retrograde ejaculation is a common complication of alpha-blocker therapy and transurethral resection of the prostate (TURP). Prostatectomy does not cause blood in the sperm, testicular atrophy or an overactive bladder.

Question:

A 34-year-old woman presents to the emergency department complaining of a dry cough, headache and malaise for the past three days. She has also noticed that she is passing loose green stool. She returned from a week-long trip to Pakistan about two weeks ago to see her family. She has no past medical history of note other than asthma for which she takes salbutamol as required and once-daily steroid inhalers. She has also completed a full course of anti-malarial prophylaxis with full concordance and has also received a BCG vaccination when she was younger.

Her observations are:

Heart rate: 59 beats/minute;

Respiratory rate: 14 breaths/minute;

Blood pressure: 115/75 mmHg;

Oxygen saturation: 97% on room air;

Temperature 40.4ºC.

On examination, she feels hot to the touch and she looks fatigued. Her heart sounds are normal with no murmurs or added sounds. Her chest is clear. She has mild epigastric abdominal pain, and bowel sounds are normal.

Bloods are sent and results are pending. Her chest X-ray and ECG are both normal.

Which single additional test will be most useful in establishing the diagnosis?

A.Widal's test

B.Thick and thin blood films

C.Bronchoalveolar lavage with cultures

D.Blood cultures

E.Interferon-gamma release assay (QuantiFERON®)

Answer:Blood cultures

Explanation:

A relative bradycardia can point towards a diagnosis of typhoid fever

Important for meLess important

A relative bradycardia, also known as Faget's sign, is a recognised sign of typhoid fever. It is defined as a heart rate that is slower than expected for the degree of fever. This patient's fever is reaching 40.4ºC, so one would expect a heart rate faster than 59 beats per minute.

Typhoid fever normally presents within 21 days of a return from travel, especially to countries around the Indian subcontinent. It has four stages: the first stage lasts for approximately the first week and often precedes the classical 'pea green diarrhoea' of typhoid. It can present with abdominal pain, malaise, headache, fever, a dry cough and epistaxis. Blood cultures are most appropriate to diagnose the disease here (bone marrow aspiration yields the most sensitive result).

Widal's test is a serological test, which involves mixing the bacteria which cause typhoid fever with the blood of the infected patient. An infected patient's antibodies against the bacteria would cause it to react. It is often negative at the stage of the disease in this question but may become positive in the second week of onset. It is no longer a widely used test in the United Kingdom.

Thick and thin blood films are used to diagnose malaria. Whilst this may be a possible differential diagnosis, she took a full course of prophylaxis so this is less likely.

Bronchoalveolar lavage with cultures could be useful to diagnose non-productive lung infections, but her chest examination is normal and her observations do not indicate a lung pathology.

Interferon-gamma release assays can be used to diagnose tuberculosis. This may also be a differential diagnosis in this scenario, but her chest examination and X-ray were normal, and her cough was non-productive.

Question:

A 35-year-old male presents with pain in both legs for the last two weeks. He has noted that the pain occurs after he has walked for ten minutes during his morning walk and is relieved when he sits for some time. There is no swelling but has noted that his toes turn white, then blue and red during the cold. There is no history of trauma. He does not drink alcohol but has been smoking three to four packs of cigarettes per day for ten years.

Which of the following is the most likely diagnosis?

A.Peripheral arterial disease

B.Rheumatoid arthritis

C.Scleroderma

D.Systemic lupus erythematosus

E.Thromboangiitis obliterans

Answer:Thromboangiitis obliterans

Explanation:

In Raynaud's phenomenon with extremity ischaemia think Buerger's disease

Important for meLess important

Buerger's disease (or thromboangiitis obliterans) is a small and medium vessel vasculitis strongly associated with smoking. It causes Raynaud's phenomenon (discolouration of extremities with cold exposure) and extremity ischemia leading to intermittent claudication (pain in legs which occurs during exercise and is relieved by rest).

Peripheral arterial disease (PAD) may cause leg pain with strenuous exercise, but is not commonly associated with Raynaud's phenomenon. PAD increases progressively with age, mostly beginning after age 40.

Rheumatoid arthritis classically causes pain and stiffness in multiple joints in the morning. It is unlikely in this case, as this patient has intermittent claudication (pain on walking which is relieved with rest) and no particular joint involvement is suggested.

Scleroderma commonly affects women, and classically causes hardening and tightening of the skin. Other features includes: digital ulcers, arthritis, interstitial lung disease, dysphagia, and reflux. Though it may cause a Raynaud's phenomenon, it is unlikely in this case as this patient has intermittent claudication and has no other findings suggesting scleroderma.

Systemic lupus erythematosus (SLE) is an autoimmune disease that commonly affects females. It affects multiple systems and may also cause a Raynaud's phenomenon. It is unlikely in this case as there are no other features suggestive of SLE like, fever, joint pain, chest pain, mouth ulcers, swollen lymph nodes, feeling tired, facial rash. The history of smoking in a young adult male with intermittent claudication and Raynaud's phenomenon makes Buerger's disease more likely.

Question:

A 35-year-old man presents to the surgical outpatient clinic complaining of severe anal pain during and around the time of defecation for the past 6 months. In addition, he has occasionally noticed a small amount of fresh blood on the toilet paper after passing bowel motions. On questioning, he confirms that he has been straining and requiring significant effort to pass bowel motions. He mentions having tried laxatives, fibre, lubricants plus topical nifedipine and lignocaine on the advice of a general practitioner. None of these has reduced his pain.

On inspecting the perianal area, there appears to be a sizeable 'split' in the mucosa just proximal to the anal verge. A digital rectal exam is attempted but terminated due to intolerable discomfort. He denies any other changes to his bowel habits and is generally well. Past medical and family history are non-contributory.

Given the above information, which of the following is the most appropriate management of this patient?

A.Continuing conservative measures for another 12 weeks

B.Sclerotherapy

C.Sphincterotomy

D.Placement of a seton

E.Colonoscopy

Answer:Sphincterotomy

Explanation:

Anal fissures - sphincterotomy may be considered for cases that do not respond to conservative management

Important for meLess important

This man presents with a classical history for an anal fissure. The history implies strongly that conservative measures have failed, and that this has become a chronic problem.

Sclerotherapy is a management option for haemorrhoids but is not of use in anal fissures.

Counterintuitively, sphincterotomy is a 'last resort' option in the management of anal fissures (correct answer). It releases the painful spasm of the torn sphincter with a clean incision and accelerates healing.

The placement of a seton would not be of benefit in an anal fissure. They are used in anal fistulae to keep them open and allow proper drainage before definitive repair.

An endoscopy to rule out malignancy as a cause of his bleed is unnecessary as the patient is <50 with a clear cause for his bleeding and no other unexplained symptoms (as per NICE guidance: NG12). This may be important however if bleeding persists after definitive management.

Question:

A 34-year-old woman presents to her GP for contraception advice three weeks after the delivery of her second child. She is currently breastfeeding. She has a body mass index of 28 kg/m^2. Her husband has a vasectomy booked for three months time.

What is the most appropriate contraception?

A.Combined oral contraceptive pill

B.Progesterone only pill

C.Intra-uterine coil

D.Intra-uterine progesterone-only system (Mirena)

E.Progesterone implant (Nexplanon)

Answer:Progesterone only pill

Explanation:

Her partner is due to receive a vasectomy in three months time, therefore a long-acting reversible contraceptive would not be a sensible choice.

With regards to short acting contraceptions, the puerperium and lactation make particular demands on the safe choice of contraception - there is an increased risk of venous thromboembolic disease in the few weeks following childbirth and breastfeeding is considered a contra-indication to the use of the combined oral contraceptive pill (COCP). Therefore, the progesterone only pill would be the most sensible choice of contraception.

Guidelines state that women should be advised that contraception is not required before Day 21 postpartum. Therefore, it would be sensible to not initiate the progesterone only pill until then.

In addition, guidelines also state that women may be advised that if they are <6 months postpartum, amenorrhoeic and fully breastfeeding, the lactational amenorrhoea method (LAM) is over 98% effective in preventing pregnancy. This would also be an option for the lady in this scenario to consider.

References

Postnatal Sexual and Reproductive Health. Faculty of Sexual and Reproductive Healthcare (Royal college of obstetricians and gynaecologists) (2009).

Question:

A 55-year-old woman with a history of alcoholic liver disease is reviewed in clinic. She has advanced cirrhosis and has started to accumulate ascites. An ascitic tap was recently performed and showed a protein concentration of 12 g/L but no evidence of any organisms.

What is the most appropriate management concerning the risk of spontaneous bacterial peritonitis?

A.No antibiotic prophylaxis is indicated

B.Oral penicillin

C.Oral ciprofloxacin

D.Oral azithromycin

E.Oral doxycycline

Answer:Oral ciprofloxacin

Explanation:

Patients with ascites (and protein concentration <= 15 g/L) should be given oral ciprofloxacin or norfloxacin as prophylaxis against spontaneous bacterial peritonitis

Important for meLess important

Question:

A 41-year-old G3P0+2 woman presents to her general practitioner for a routine antenatal check at 14 weeks gestation. She has a past medical history of treatment-resistant schizophrenia, epilepsy, hypertension, antiphospholipid syndrome, and dyslipidemia.

Her regular medications include lamotrigine, labetalol, atorvastatin, low molecular weight heparin, and clozapine. She has recently begun a course of nitrofurantoin for a urinary tract infection.

What medication is contraindicated in this woman?

A.Atorvastatin

B.Clozapine

C.Lamotrigine

D.Low-molecular-weight-heparin

E.Nitrofurantoin

Answer:Atorvastatin

Explanation:

Pregnancy is a contraindication to statin therapy

Important for meLess important

The correct answer is atorvastatin, as all statins are contraindicated in pregnancy. Although no studies have demonstrated teratogenicity of statins, there are case reports of intrauterine growth restriction and foetal demise in the first trimester in women taking statins. Lipophilic statins such as atorvastatin are able to cross the placenta, achieving similar maternal and foetal concentrations.

Clozapine is incorrect, as clozapine is not contraindicated in pregnancy. Clozapine is an atypical antipsychotic used to treat schizophrenia that is unresponsive to first-line medications. The BNF advises clozapine should be used with caution in pregnancy, though it is not contraindicated.

Lamotrigine is incorrect, as lamotrigine is not contraindicated in pregnancy. Although many antiepileptic drugs are contraindicated in pregnancy due to teratogenicity, lamotrigine is considered to be safe. It has not been shown to increase the risk of congenital malformations.

Low-molecular-weight-heparin is incorrect, as low-molecular-weight-heparin is not contraindicated in pregnancy. Low-molecular-weight-heparin is routinely prescribed for women with antiphospholipid syndrome in pregnancy and does not cross the placenta.

Nitrofurantoin is incorrect, as nitrofurantoin is only contraindicated in the third trimester. Nitrofurantoin is commonly prescribed to treat urinary tract infections in pregnancy but should be avoided in the third trimester due to the increased risk of neonatal haemolysis.

Question:

A 67-year-old man comes in complaining of lethargy, weight loss and night sweats in the last 3 months. As part of his investigation, the man has a bone marrow aspiration which shows an increase in granulocytes at different stages of maturation under the microscope.

What is the first-line treatment for this condition?

A.Hydroxyurea

B.Imatinib

C.Interferon-alpha

D.Radiotherapy

E.Steroids

Answer:Imatinib

Explanation:

Chronic myeloid leukaemia - imatinib = tyrosine kinase inhibitor

Important for meLess important

The correct answer is to start the patient on imatinib . The appearance of this man's bone aspiration, age, and symptoms suggest that he has chronic myeloid leukaemia (CML) for which imatinib is the first-line treatment.

Hydroxyurea is incorrect although it is commonly used in the treatment of CML. However, it is not used first-line, and patients are often trialled on imatinib first.

Interferon-alpha is incorrect although it is commonly used in the treatment of CML. However, it is not used first-line, and patients are often trialled on imatinib first.

It is incorrect to try radiotherapy in this patient. Although radiotherapy plays a big role in the treatment of some forms of cancer, it is not often used in treating CML, which is what this patient has based on their bone aspiration, age, and symptoms.

Steroids is incorrect. Although steroids play a role in the treatment of some forms of cancer, it is not often used in treating CML, which is what this patient has based on their bone aspiration, age, and symptoms.

Question:

A 34-year-old intravenous drug user is brought to the emergency department with back pain, bilateral leg weakness and fever. A spinal epidural abscess is suspected.

What imaging investigation is required to confirm the diagnosis?

A.CT whole spine

B.CT myelogram

C.MRI whole spine

D.MRI lumbar/sacral spine

E.Plain x-rays of the whole spine

Answer:MRI whole spine

Explanation:

In suspected spinal epidural abscess, a full spine MRI is required to search for skip lesions

Important for meLess important

A whole spine MRI is required in suspected cases of a spinal epidural abscess. Neither plain x-rays or even CT scans will reliably reveal the abscess. The whole spine is required above just the clinically suspected segment since there may be 'skip lesions' (multiple separate, non-connected areas of abscess). The MRI should be requested and performed urgently.

Question:

A 67-year-old lady is discovered to have a creatinine of 137 micromols/L one day after her emergency Hartmann's procedure for an obstructing distal colonic tumour. Her baseline creatinine is around 86 micromols/L. Her observations include a heart rate of 98 beats per minute, blood pressure of 96/70 mmHg, respiratory rate of 24 breaths per minute and oxygen saturations of 95% on room air. She is catheterised and her fluid balance chart shows that she has only passed 100mL of urine in the past 6 hours. What would be the most appropriate way to administer initial fluids?

A.500mL 0.9% saline over 15 minutes

B.500mL 5% dextrose over 15 minutes

C.1L 0.9% saline over 15 minutes

D.1L 0.9% saline over 8 hours

E.500mL 0.9% saline over 30 minutes

Answer:500mL 0.9% saline over 15 minutes

Explanation:

This woman has a pre-renal acute kidney injury, which is likely secondary to the major surgery she has recently had, where she may have lost a lot of blood or been prescribed insufficient fluids. She is therefore now hypovolaemic and requires intravenous fluid resuscitation.

For intravenous fluid resuscitation, NICE recommend using a crystalloid containing sodium in the range of 130-154mmol/L, with an initial bolus of 500mL over less than 15 minutes. Hartmann's solution contains potassium, therefore in the setting of an acute kidney injury, it might be more appropriate to give 0.9% saline, which does not contain any potassium, since hyperkalaemia is a concern in AKI.

Reference: NICE 2013 Intravenous fluid therapy in adults in hospital

Question:

A 35-year-old woman gives birth via vaginal delivery. After delivery of the placenta, she is examined on the ward. Examination reveals a small tear on the perineum with no muscle involvement.

What is the most appropriate management?

A.Glue on the ward

B.No repair required

C.Staples in theatre

D.Suture in theatre

E.Suture on the ward or in theatre

Answer:No repair required

Explanation:

First degree perineal tears usually do not require suturing

Important for meLess important

This woman has a first-degree perineal tear. First degree perineal tears are superficial tears to the perineum with no muscle involvement.

No repair required is the correct answer. This patient has a first-degree perineal tear. This usually does not require repair as they heal on their own.

Glue on the ward is the wrong answer. First-degree perineal tears usually do not require closure and will heal on their own. As such, this is not the appropriate management for this situation. Furthermore, sutures would be the preferred option, as glue should not be used in the perineal region. Glue should be used to close small, straight, superficial, low-tension wounds.

Staples in theatre is the wrong answer. First-degree perineal tears usually do not require repair and will heal on their own. As such, this is not the appropriate management for this situation. Furthermore, sutures would be the preferred option, as staples should not be used in the perineal region.

Suture in theatre is the wrong answer. First-degree perineal tears usually do not require suturing and will heal on their own. Therefore, this is the wrong answer. If a first-degree perineal tear did require suturing this could be done on the ward by a midwife or an appropriately trained practitioner. It is only necessary to take a woman to the theatre to repair a third or fourth-degree tear as the closure of these wounds requires regional or general anaesthesia.

Suture on the ward or in theatre is the wrong answer. First-degree perineal tears usually do not require suturing and will heal on their own. As such, this is not the appropriate management for this situation. If a first-degree perineal tear did require suturing this could be done on the ward by a midwife or an appropriately trained practitioner. It is only necessary to take a woman to theatre to repair a third or fourth-degree tear as the closure of these wounds requires regional or general anaesthesia.

Question:

An obese 49-year-old male presents after experiencing 4 episodes of haemoptysis over the last two weeks. He has a 30 pack year smoking history. On examination the patient has purple striae on his abdomen and there is reduced air entry in the right lung. A chest radiograph shows a well defined opacity in the right middle zone. Lung cancer is strongly suspected.

Baseline ACTH is 246 ng/L (normal <80 ng/L) and cortisol is 800 mmol/L (normal 450-700 mmol/L) measured at 9am. The cortisol is not suppressed with high dose dexamethasone.Blood tests reveal:

Na+ 125 mmol/l

K+ 4.3 mmol/l

Urea 4.5 mmol/l

Creatinine 114 umol/l

Calcium 2.5 mmol/l

Phosphate 1.1 mmol/l

ALP 76 u/l

Albumin 41 g/l

Based on this information what is the most likely underlying diagnosis?

A.Small cell lung cancer

B.Squamous cell lung cancer

C.Adenocarcinoma of the lung

D.Addison's disease

E.Cushing's disease

Answer:Small cell lung cancer

Explanation:

Paraneoplastic manifestations of small cell lung cancer are produced by their ectopic production of ACTH and ADH. The ACTH production produces a cushing's syndrome. The ADH production leads to a dilutional hyponatraemia.

Squamous cell lung cancers also have paraneoplastic manifestations. They produce parathyroid hormone related protein, leading to hypercalcaemia. This is not seen here.

Adenocarcinomas of the lung would not produce these abnormalities in ACTH, cortisol and electrolytes.

Addison's disease would present differently and the cortisol would more likely be low.

The lack of suppression of cortisol levels with high dose dexamethasone indicate an ectopic source of ACTH. In Cushing's disease (a pituitary tumour) it would be expected that the cortisol would be suppressed with high dose dexamethasone.

Question:

A concerned mother brings her 6-week old baby to your GP practice for their routine postnatal baby check. She is worried about his noisy breathing, which she reports has been worsening over the past few weeks. This baby was born at term with no complications. On examination, you hear an inspiratory stridor but no other abnormal lung sounds. Heart sounds are normal. Baby is alert and playful. There is no suggestion of any cyanosis. Baby has been growing and feeding normally. What is the most likely diagnosis?

A.Foreign body

B.Allergy-induced wheeze

C.Cystic fibrosis

D.Laryngomalacia

E.Bronchopulmonary dysplasia

Answer:Laryngomalacia

Explanation:

Laryngomalacia is a very common, benign cause of noisy breathing in infants

Important for meLess important

Laryngomalacia should be suspected in an otherwise well infant with noisy breathing. It is caused by a congenital softening of the cartilage of the larynx, causing collapse during inspiration. Laryngomalacia can present at birth, and worsens in the first few weeks of life. It usually self-resolves before 2 years of age.

Foreign body symptoms are acute in onset.

Cystic fibrosis is tested on neonatal heel prick. It is associated with faltering growth and meconium ileus.

Bronchopulmonary dysplasia most often affects preterm infants who were treated with supplemental oxygen and ventilation.

Question:

A 6-month-old girl is brought to see GP by her dad with a seal-like barking cough. Her dad is worried as she seems to be struggling with her breathing, especially at night.

On examination, she is alert and engaging, although has mild sternal indrawing and appears tired. Her observations are as follows:

Heart rate: 80 bpm

Blood pressure: 105/65 mmHg

Oxygen saturation: 100% on air

Respiratory rate: 22 breaths/min

Temperature: 37.1 C°

You suspect croup.

What statement best fits this diagnosis?

A.It affects more girls than boys

B.It is more common in autumn

C.It typically affects children aged 3-6 months

D.The treatment is oral dexamethasone for 3 days

E.Respiratory syncytial virus (RSV) is the most common cause

Answer:It is more common in autumn

Explanation:

Croup is more common in autumn months

Important for meLess important

It is more common in autumn is the correct answer. Hospital admissions due to croup peak in September to December, but cases occur all year round.

It affects more girls than boys is incorrect. More boys are affected with a male to female ratio of 1.4 to 1.

It typically affects children aged 3-6 months is incorrect, as croup typically affects children aged 6 months to 12 years.

Oral dexamethasone for 3 days as treatment is incorrect. A single stat dose of oral dexamethasone (0.15mg/kg) is the recommended treatment for mild-moderate croup.

Respiratory syncytial virus (RSV) is the most common cause is incorrect, as croup is typically caused by parainfluenza virus types 1 or 3.

Question:

A 23-year-old woman has a diagnosis of obsessive-compulsive disorder but, despite cognitive behavioural therapy and fluoxetine treatment, she is still experiencing severe symptoms. She is started on clomipramine and the doctor warns her of some possible side effects. Which of the following side effects is she most likely to be affected by due to the clomipramine?

A.Dry mouth and weight gain

B.Acute dystonia and tardive dyskinesia

C.Neuroleptic malignant syndrome

D.Increased urinary frequency and thirst

E.Miosis

Answer:Dry mouth and weight gain

Explanation:

Dry mouth (anticholinergic) and weight gain (antihistaminic) are side effects of clomipramine (TCAs)

Important for meLess important

Tricyclic antidepressants (TCAs) such as clomipramine are known to cause a broad range of side effects, including anticholinergic side effects (dry mouth, blurred vision and urinary retention) and antihistaminic side effects (weight gain).

The BNF states that extrapyramidal side effects (such as acute dystonia and tardive dyskinesia) and neuroleptic malignant syndrome are possible, but very rare. These are more commonly associated with antipsychotic drugs.

Increased urinary frequency and thirst are common side effects of lithium, not TCAs.

Mydriasis, not miosis, is a side effect of TCAs.

Question:

A 32-year-old woman comes to surgery for her blood results. She is 25 weeks pregnant and has had her glucose tolerance test.

The results are as follows:

Fasting glucose 7.1 mmol/L

2-hour glucose 8.2 mmol/L

What would be the most appropriate next step?

A.Dietary advice

B.Gliclazide

C.Insulin

D.Metformin

E.Repeat the test

Answer:Insulin

Explanation:

If at the time of diagnosis of gestational diabetes, the fasting glucose level is >= 7 mmol/l immediate insulin (plus or minus metformin) should be started

Important for meLess important

This woman has gestational diabetes and should be started immediately on insulin (plus or minus metformin). Gestational diabetes is diagnosed with either a fasting plasma glucose level of > 5.6 mmol/L, or a 2-hour plasma glucose level of >/= 7.8 mmol/L. If at the time of diagnosis the fasting glucose is > or = 7 mmol/L, as in this case, then insulin should be started immediately.

Dietary advice is an important management step in any diagnosis of diabetes, but in this case the fasting glucose is greater than 7mmol/L and insulin needs to be started.

Gliclazide would not be the correct option. Sulfonylureas are avoided in pregnancy as there is a risk of neonatal hypoglycaemia.

Metformin may be started in gestational diabetes, but with a fasting glucose level >=7mmol/L insulin is the most appropriate next step. Insulin and metformin can be used together in the management of gestational diabetes.

The test results are conclusive for gestational diabetes as both the fasting glucose and the 2-hour glucose level are raised, there is no need to repeat the test.

Question:

A 2-day-old neonate born at term presents with tachypnoea, grunting and cyanosis. He is unable to feed. Oxygen saturation is at 70% on room air. On auscultation there is a loud S2 and systolic murmur that is loudest at the left sternal border. A diagnosis of transposition of the great arteries is suspected. He is started on intravenous fluids, antibiotics, and scheduled for surgery.

Which of the following medication should also be given in the interim?

A.Indomethacin

B.Ibuprofen

C.Sildenafil

D.Prostaglandin E1

E.Surfactant

Answer:Prostaglandin E1

Explanation:

Prostaglandin E1 should be given to maintain a patent ductus arteriosus in cyanotic congenital heart diseases

Important for meLess important

It is useful to remember the 5 T's for cyanotic congenital heart diseases (CHD):

Tetralogy of fallot

Transposition of great vessels (TGA)

Tricuspid atresia

Total anomalous pulmonary venous return

Truncus arteriosus

In this case, the onset timing and heart murmur suggest TGA with a concurrent ventricular septal defect (VSD). TGA generally presents within hours to days of the neonate's birth. In ductal dependent cyanotic heart diseases, prostaglandin E1 (alprostadil) is infused to prevent closure of the patent ductus arteriosus until a surgical correction can be carried out. This will allow mixing of deoxygenated and oxygenated blood so as to provide adequate systemic circulation. Antibiotics should also be given as prophylaxis for bacterial endocarditis.

Indomethacin and ibuprofen are both nonsteroidal anti-inflammatory drugs (NSAIDs) and will instead close the ductus arteriosus.

Surfactant is given if respiratory distress syndrome is suspected. However, it is not likely here.

Sildenafil is a vasodilator used to treat erectile dysfunction and pulmonary arterial hypertension. It is not suitable as treatment for the patient.

Question:

A 68-year-old man is on the colorectal ward following resection of an extremely large adenocarcinoma in his descending colon. During the operation he had a left hemicolectomy. As the tumour was invading surrounding structures, two loops of small bowel had to be excised along with a partial cystectomy.

Now five days after the procedure he is managing well, with pain well controlled. His catheter has drained 2000ml in the last 24 hours. The abdominal surgical drain is still producing 200-300 ml of clear yellow fluid per day and you are concerned that his bladder wall repair following the partial cystectomy may be leaking urine. Which investigation should you order to offer the most definitive result to assess whether the bladder suture line has healed?

A.Cystoscopy

B.CT

C.Ultrasound of the kidneys, ureters and bladder

D.X-ray of the kidneys, ureters and bladder

E.Cystogram

Answer:Cystogram

Explanation:

A cystogram involves passing radiopaque dye into the bladder, then performing radiographs to assess the course of the bladder contents. This provides evidence of whether there is any radiopaque fluid that has escaped the bladder and is free in the abdominal cavity.

Question:

A 19-year-old man presents asking for advice. His girlfriend has recently been diagnosed with meningococcal meningitis. He is worried he may have 'caught it'. What is the recommended antibiotic prophylaxis for close contacts such as this man?

A.Oral rifampicin

B.Oral phenoxymethylpenicillin

C.Oral ciprofloxacin

D.Oral erythromycin

E.Intramuscular cefotaxime

Answer:Oral ciprofloxacin

Explanation:

Oral ciprofloxacin or rifampicin is used as prophylaxis for contacts of patients with meningococcal meningitis

Important for meLess important

Ciprofloxacin is now preferred to rifampicin - please see below.

Question:

A 58-year-old man is reviewed in clinic. Six months ago he had a Whipple procedure for pancreatic cancer and is currently undergoing chemotherapy. Which one of the following blood tests is most useful in monitoring his disease?

A.CA 15-3 levels

B.Faecal elastase

C.CA 125 levels

D.Amylase levels

E.CA 19-9 levels

Answer:CA 19-9 levels

Explanation:

Pancreatic cancer - CA 19-9

Important for meLess important

Question:

A 46-year-old woman presents to the GP with concerns regarding a rash her partner noticed on the back of her neck. It is uncertain as to how long the rash has been present.

On palpation, the skin feels thickened. The patient reports no pruritus, bleeding or discomfort associated with the rash, and their observations are all within normal range.

© Image used on license from DermNet NZ

What is the name of this rash and its most likely underlying cause?

A.Acanthosis nigricans due to autoimmune melanocyte destruction

B.Acanthosis nigricans due to insulin resistance

C.Acanthosis nigricans due to uncontrolled melanocyte replication

D.Psoriasis due to IgE mediated reaction

E.Psoriasis due to epidermal hyperproliferation

Answer:Acanthosis nigricans due to insulin resistance

Explanation:

Acanthosis nigricans due to insulin resistance is correct. The rash shown in the image is acanthosis nigricans. It is characterised by a black velvety elevation of the epidermis and is frequently seen in areas where there are skin folds eg the armpit, back of the neck, and groin. It can occur due to insulin resistance causing hyperinsulinemia which stimulates keratinocytes and dermal fibroblast proliferation. This proliferation causes the characteristic darkened and thickened skin. Causes of acanthosis nigricans include obesity, malignancy (especially gastric cancer), lymphoma, acromegaly and insulin resistance (e.g. type 2 diabetes mellitus, steroids, polycystic ovarian syndrome).

Acanthosis nigricans due to autoimmune melanocyte destruction is incorrect. Autoimmune melanocyte destruction is typically seen in vitiligo, which presents as well-demarcated patches of depigmented skin.

Acanthosis nigricans due to uncontrolled melanocyte replication is incorrect. Uncontrolled melanocyte replication is seen in melanoma. You can use the A-E cardinal features of melanoma to assess whether this is a likely diagnosis. They include:

Asymmetry of shape and colour

Border - irregular

Colour variation and change

Diameter

Evolving

Psoriasis due to IgE mediated reaction is incorrect. The IgE-mediated reaction is the pathophysiology for allergic angioedema, not acanthosis nigricans.

Psoriasis due to epidermal hyperproliferation is incorrect. Psoriasis is a chronic inflammatory skin condition. It characteristically presents as clearly defined scaly plaques that often appear silver in colour. Its pathophysiology is multifactorial and several theories have been presented including epidermal hyperproliferation. The rash in the picture is acanthosis nigricans.

Question:

You are called to see a lady who has delivered her second child 2 hours ago. The baby was term, weighed 4.1kg, and was healthy. The labour was natural, lasted 6 hours, and she chose to have a physiological third stage. The nurse tells you she thinks she has lost approximately 800ml of blood, but her observations are stable and the bleeding appears to be slowing.

What is the most common cause of her blood loss?

A.Birth trauma

B.Uterine atony

C.Normal post partum blood loss

D.Retained placenta

E.Anticoagulant use

Answer:Uterine atony

Explanation:

The most common cause of PPH by far is uterine atony

Important for meLess important

Primary postpartum haemorrhage is defined as the loss of 500ml or more from the genital tract within 24 hours of the birth of a baby. This can be further defined as minor haemorrhage (500-1000ml) or major haemorrhage (>1000ml), and causes 6 deaths/million deliveries.

Causes can be grouped into the 'four T's':

tone

tissue (retained placenta)

trauma

thrombin (coagulation abnormalities)

Question:

A 42-year-old patient is referred to an infective disease unit due to an erythematous lesion on her ankle and some periorbital oedema which she noticed weeks after returning from a trip to South America. She is diagnosed with Chagas' disease. She is incredibly worried about her prognosis and wants to begin treatment immediately.

Which severe complication is it most important to warn her about?

A.Cardiomyopathy

B.Infertility

C.Liver failure

D.Pneumonia

E.Seizures

Answer:Cardiomyopathy

Explanation:

Cardiomyopathy is the most frequent and most severe manifestation of chronic Chagas' disease

Important for meLess important

Most of the complications in Chagas' (American trypanosomiasis) are related to muscle changes caused by the parasites in the heart and the GI tract. Consequently, heart failure, megaoesophagus and megacolon are serious complications. Cardiomyopathy is the most common and worrying complication. It is therefore important to get an echocardiogram as soon as possible.

Chagas' disease is not known to cause infertility.

Infection may cause damage to the liver in some cases, but this is not as common as cardiomyopathy.

Cardiomyopathy and heart failure may predispose to pneumonia, but this is not the most relevant complication to mention here.

African trypanosomiasis (as opposed to American) can often present with neurological symptoms such as seizures.

Question:

A 28-year-old woman who has rheumatoid arthritis is to be started on etanercept injections after failing to respond to methotrexate and sulfsalazine. Which one of the following adverse effects is associated with the use of etanercept?

A.Triggering Churg-Strauss syndrome

B.Thrombocytosis

C.Tendonitis

D.Cardiomyopathy

E.Reactivation of tuberculosis

Answer:Reactivation of tuberculosis

Explanation:

TNF-α inhibitors may reactivate TB

Important for meLess important

Question:

A 24-year-old woman presents to the Emergency Department complaining of excessive thirst and urination. You note her skin has a tanned appearance.

Na+ 140 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 4.5 mmol/L (2.0 - 7.0)

Creatinine 80 µmol/L (55 - 120)

Calcium 2.4 mmol/L (2.1 - 2.6)

Fasting glucose 4.2 mmol/L (3.0 - 6.0)

Serum osmolality 298 mOsmol/kg (285 - 295)

Urine osmolality 130 mOsmol/kg (350 - 1000)

The urine osmolarity remains low after a water deprivation test. You then give desmopressin. The serum osmolality falls to 285 mOsmol/kg and the urine osmolality rises to 700 mOsmol/kg.

What is the most likely diagnosis?

A.Addison’s disease

B.Cranial diabetes insipidus

C.Nephrogenic diabetes insipidus

D.Psychogenic polydipsia

E.Type 1 diabetes mellitus

Answer:Cranial diabetes insipidus

Explanation:

Diabetes insipidus is characterised by a high plasma osmolality and a low urine osmolality

Important for meLess important

Cranial diabetes insipidus: first of all it is important to exclude diabetes mellitus and hypercalcemia, both of which can be done by looking at the blood tests. The high plasma osmolality and low urine osmolality point toward a diagnosis of diabetes insipidus. In both cranial and nephrogenic forms, urine osmolality remains low following a water deprivation test. However, administration of desmopressin (synthetic antidiuretic hormone) can be used to differentiate between the two. Since cranial diabetes insipidus is caused by a lack of antidiuretic hormone, substituting it with desmopressin will cause the serum osmolarity to fall and the urine osmolarity to rise to normal levels, as seen in this case. Furthermore, the bronze skin pigmentation points toward haemochromatosis as the underlying cause of the cranial diabetes insipidus.

Addison's disease: whilst primary adrenal insufficiency classically causes hyperpigmentation of the skin, blood test findings such as hyperkalemia, hyponatraemia, hypoglycaemia and metabolic acidosis are not present.

Nephrogenic diabetes insipidus: as this is an insensitivity to antidiuretic hormone, giving the patient desmopressin will not lower the high plasma osmolarity or raise the low urine osmolarity.

Psychogenic polydipsia: can be diagnosed with a water deprivation test. Urine osmolarity will rise to normal levels (>600 mOsmol/kg). There is no need to administer desmopressin.

Type 1 diabetes mellitus: whilst the age and the presence of excessive thirst and urination are classical, the normal fasting glucose along with other findings discussed make an alternative diagnosis much more likely. For interest, due to iron build-up in the pancreas, haemochromatosis may lead to secondary diabetes further down the line.

Question:

As part of a shared care prescribing agreement the rheumatology team ask you to prescribe a medication to a 62-year-old woman with rheumatoid arthritis. On reviewing her recent notes you notice that she had recently been sent to the emergency department for suspected cardiac chest pain. This was excluded and a musculoskeletal cause diagnosed. During this admission she was prescribed 300mg of aspirin in which she reacted with widespread flushing and a maculopapular rash and has had aspirin listed as a drug adverse reaction on her records.

Which of the following disease-modifying anti-rheumatic drugs (DMARDs) should be prescribed with caution?

A.Gold

B.Hydroxychloroquine

C.Leflunomide

D.Methotrexate

E.Sulfasalazine

Answer:Sulfasalazine

Explanation:

Patients who are allergic to aspirin may also react to sulfasalazine

Important for meLess important

Sulfasalazine is the correct answer. It is structurally similar to aspirin and there is the potential of cross-sensitivity if a patient has previously had an adverse drug reaction to aspirin.

There are no features in the history that suggest caution would be needed with the other drugs listed.

Question:

An 87-year-old male presents with fatigue and feeling generally 'unwell'. He has a past medical history of asthma and osteoarthritis. He reports receiving a blood transfusion in 1990 after an accident. He takes Salbutamol PRN and paracetamol. Examination is normal. Blood tests show:

Hb 170 g/l Na+ 146 mmol/l Bilirubin 9 µmol/l

MCV 90 fl K+ 4.5 mmol/l ALP 84 u/l

Platelets 190 \* 109/l Urea 16 mmol/l ALT 28 u/l

WBC 5 \* 109/l Creatinine 140 µmol/l γGT 26 u/l

Haematocrit 0.65 l/l (0.4-0.54) Albumin 55 g/l

What is the most likely underlying cause of this clinical picture?

A.Paracetamol overdose

B.Dehydration

C.Leukaemia

D.Chronic kidney disease

E.Hepatitis

Answer:Dehydration

Explanation:

These blood results indicate that the patient is dehydrated.

The urea is raised disproportionately to the creatinine. The reason for this is that some urea is reabsorbed with the increased water reabsorption that occurs in dehydration.

Most serum proteins and electrolytes increase in concentration in dehydration due to the decrease in intravascular fluid volume. Here, the serum haemoglobin and haematocrit are raised as the dehydration causes a relative polycythaemia. Serum albumin concentration and sodium concentration are similarly increased.

Paracetamol toxicity is unlikely as this would cause nausea, abdominal pain and deranged LFT results.

Leukaemia is unlikely as the patient has a normal white cell count and platelet count.

Chronic kidney disease is unlikely as the patients creatinine and electrolyte levels are essentially within normal range.

The history of a blood transfusion in 1990 raises the possibility of chronic hepatitis. However this is unlikely as there is no evidence of this in the patient's history, presentation or blood results. A past history of hepatitis and generally deranged LFT results would be expected by 26 years after the transfusion.

Question:

A 67-year-old woman is reviewed 6 months after she had a mastectomy following a diagnosis of breast cancer. Which one of the following tumour markers is most useful in monitoring her disease?

A.CA 125

B.CD 34

C.CA 15-3

D.CA 19-9

E.CD 117

Answer:CA 15-3

Explanation:

CA 15-3 is a tumour marker in breast cancers

Important for meLess important

Question:

You receive a letter from an endrocinology consultant following a referral that you made for a 23 year old lady who has been newly diagnosed with hyperthyroidism. The consultant requests that you start the patient on carbimazole 15mg daily with a repeat thyroid function test (TFT) in 4 weeks. What is the most important advice to give the patient?

A.Do not stop taking the medication suddenly

B.Attend for urgent medical review if develops any symptoms of infection e.g. sore throat or fever

C.Must have monthly liver function tests (LFT)

D.Must have monthly full blood count (FBC)

E.Must have monthly urea & electrolytes (UE)

Answer:Attend for urgent medical review if develops any symptoms of infection e.g. sore throat or fever

Explanation:

A rare but serious side effect of carbimazole is agranulocytosis so patients must be counselled regarding this. If the patient develops any symptoms of an infection, particularly sore throat or fever then must seek urgent medical review and a FBC must be performed to check the neutrophil count.

Source: BNF

Question:

A 67-year-old man with a history of atrial fibrillation and ischaemic heart disease presents with symptoms consistent with a chest infection. His current medication includes amiodarone, warfarin and simvastatin. Which one of the following antibiotics is it most important to avoid if possible?

A.Trimethoprim

B.Co-amoxiclav

C.Cefaclor

D.Levofloxacin

E.Erythromycin

Answer:Erythromycin

Explanation:

Erythromycin may potentially interact with amiodarone, warfarin and simvastatin. Levofloxacin reacts to a lesser extent with both amiodarone and warfarin.

Question:

A 20-year-old male had a recent collapse while playing football with his friends. He was then referred to a cardiologist and diagnosed with hypertrophic obstructive cardiomyopathy. An ECG is done which shows a PR interval of 100ms with a wide QRS complex.

Which of the following conditions is the patient most likely to have?

A.Atrial flutter

B.First-degree heart block

C.Third-degree heart block

D.Wolff-Parkinson White

E.Second-degree type 1 heart block

Answer:Wolff-Parkinson White

Explanation:

Hypertrophic obstructive cardiomyopathy - is associated with Wolff-Parkinson White

Important for meLess important

Hypertrophic obstructive cardiomyopathy is associated with Wolff-Parkinson White and Friedrich's ataxia. Wolff-Parkinson White is when someone has an accessory pathway in their heart's electrical conduction. It presents on an ECG with a short PR interval (<120ms), wide QRS complex (>120ms), and an upsloping delta wave. In hypertrophic obstructive cardiomyopathy, the ECG may also show other changes. This includes, left ventricular hypertrophy, non-specific ST segment and T-wave abnormalities, progressive T wave inversion, deep Q waves, or atrial fibrillation.

Atrial flutter is not known to be associated with hypertrophic obstructive cardiomyopathy. Atrial flutter presents as a sawtooth pattern on the ECG.

First-degree heart block is when there is an increased PR interval of >200ms. This can be normal in athletes and does not need any treatment. First-degree heart block is not known to be associated with hypertrophic obstructive cardiomyopathy.

Second-degree type 1 heart block, also known as Wenckebach's, is when there is an increasingly prolonged PR interval until there is a dropped beat before restarting the pattern. This is not known to be associated with hypertrophic obstructive cardiomyopathy.

Third-degree heart block is when there is no association between the atria and ventricles. Third-degree heart block is life-threatening and the patient will need a pacemaker. This is not known to be associated with hypertrophic obstructive cardiomyopathy.

Question:

An 86-year-old woman with Parkinson's disease presents to her neurologist. She is taking levodopa three times daily and complains of worsening symptoms in the lead-up to taking each dose. Her neurologist decreases her dose of levodopa and increases its frequency to five times daily.

What clinical sequelae of treatment is the neurologist attempting to mitigate?

A.Acute akinesia

B.Failure of 'on' response

C.Levodopa overdose

D.Peak dose dyskinesia

E.Wearing-off phenomenon

Answer:Wearing-off phenomenon

Explanation:

Patients taking levodopa often have an end-of-dose wearing-off phenomenon

Important for meLess important

The patient is experiencing symptoms towards the end of her dose and prior to the next dose, known as the 'wearing-off phenomenon'. This is often one of the first common side-effects of levodopa treatment that patients will experience, and can be managed by increasing the frequency of levodopa administration.

Acute akinesia is an effect of Parkinson's disease that is experienced due to a lack of dopamine and can be treated with levodopa. Sometimes, patients who have been treated with levodopa for long periods can experience acute akinesia following levodopa administration.

Given this patient is responding well to levodopa until just prior to the next dose, she is not experiencing a failure of 'on' response. This is a late-stage complication of long-term levodopa treatment after some patients become desensitised to the medication.

A levodopa overdose results in symptoms such as dizziness, palpitations, and confusion: this patient is not experiencing these symptoms and is unlikely to be at risk given she has had a good response to her current regime of levodopa.

Levodopa-induced dyskinesia is a side effect of levodopa whereby a patient experiences dyskinetic side effects shortly after administration of levodopa. This does not fit with this patient's symptoms which occur towards the end of their dosing prior to their next dose.

Question:

A 24-year-old man who has a sister with adult polycystic kidney disease asks his GP if he could be screened for the disease. What is the most appropriate screening test?

A.PKD1 gene testing

B.CT abdomen

C.Urine microscopy

D.Ultrasound abdomen

E.Anti-polycystin 1 antibodies levels

Answer:Ultrasound abdomen

Explanation:

Ultrasound is the screening test for adult polycystic kidney disease

Important for meLess important

Genetic testing is still not routinely recommended for screening family members

Question:

A 31-year-old man has an electrocardiogram (ECG) performed as part of a work medical assessment. The ECG shows sinus rhythm with a PR interval of 240ms. There are no other abnormalities.

The man has no past medical history, takes no medications and is a non-smoker. He denies any history of syncope, chest pain or palpitations. He is very athletic and a competitive runner.

What is the next appropriate step in management?

A.No management is required

B.Refer for 24-hour ecg monitoring

C.Refer for consideration of permanent pacemaker implantation

D.Refer for urgent cardiac review

E.Repeat ecg at 6-month intervals

Answer:No management is required

Explanation:

First-degree heart block is a normal variant in an athlete. It does not require intervention

Important for meLess important

A PR interval over 200ms with an otherwise normal ECG (regular sinus rhythm, no missing QRS complexes) is consistent with 1st-degree atrioventricular block. Isolated 1st degree atrioventricular block is common, rarely problematic and a normal variant in athletes, such as this patient. There is a low risk of progression (particularly if the PR interval is under 300ms) and the ECG does not need to be monitored regularly unless symptoms develop. The correct answer is, therefore, no management is required.

1st degree atrioventricular block is not an abnormal finding in an athlete, such as this patient. There are no other ECG abnormalities and the patient is asymptomatic. There is nothing to suggest the presence of an intermittent arrhythmia, which would be an indication for 24-hour ECG monitoring. Refer for 24-hour ECG monitoring is not necessary for this patient.

A permanent pacemaker is very rarely required for isolated 1st-degree atrioventricular block, and would only be needed if the patient was severely symptomatic. This patient has no symptoms. Pacemaker insertion is usually reserved for those with Mobitz II block or 3rd-degree heart block, due to the risk of progression to slow ventricular rates.

Refer for urgent cardiac review is unnecessary as, as above, this is a normal variant in athletes and the patient is asymptomatic. No further investigation or monitoring is required unless the patient develops symptoms.

As above, there is no need to routinely monitor the ECG for first-degree atrioventricular block alone, unless symptoms develop. Repeat ECG at 6-month intervals is not required.

Question:

A 5-year-old girl presents to the emergency department with fever and lethargy over the past five days associated with poor oral intake. She has no prior medical history of note.

On examination, the child appears distressed. The external ear is displaced anteriorly, and there is marked tenderness to palpation behind the ear. Otoscopy reveals a bulging tympanic membrane and middle ear effusion. Her heart rate is 132 bpm, respiratory rate 27/min, BP 90/60 mmHg, and temperature 38.5ºC.

Given the most likely diagnosis, what is the most appropriate treatment?

A.Elective grommet insertion

B.IV antibiotics

C.Oral antibiotics

D.Reassurance and safety netting advice

E.Urgent surgical drainage

Answer:IV antibiotics

Explanation:

Mastoiditis is typically diagnosed clinically and requires IV antibiotics

Important for meLess important

IV antibiotics is the correct answer. The patient in the vignette presents with mastoiditis (tenderness of the mastoid process, displacement of the external ear, and a septic picture on a background of acute otitis media). Acute mastoiditis with no complications (intracranial/extracranial infection) should be treated with admission and IV antibiotics. Treatment escalation, such as surgical intervention, can be considered if there are signs of intracranial or extracranial complications.

Elective grommet insertion is incorrect. The patient in the vignette has acute otitis media with effusion (glue ear); however, this is complicated with mastoiditis, so grommet insertion is not the main priority. Grommet insertion is considered for recurrent otitis media, causing speech delay or failure to thrive.

Oral antibiotics is incorrect. Oral antibiotics can be used in otitis media cases with effusion (glue ear) that are not self-limiting (lasting more than four days with signs of severe infection). However, the patient in the vignette has evidence of mastoiditis, which requires urgent admission and treatment with IV antibiotics to prevent intracranial infection.

Reassurance and safety netting is incorrect in this case. This would be appropriate in a case of acute otitis media of short duration (<4 days) and no adverse features, as many cases resolve spontaneously. However, the patient in the vignette has evidence of mastoiditis, which requires urgent admission and treatment with IV antibiotics to prevent intracranial infection.

Urgent surgical drainage is incorrect. The patient in the vignette has uncomplicated mastoiditis (there is no evidence of neck stiffness, photophobia, or altered mental state). Surgical drainage can be considered if the condition is unresponsive to antibiotics and there are signs of extracranial or intracranial complications.

Question:

A woman at 32 weeks gestation comes into maternity assessment unit for reduced fetal movements (RFM). She reports that she has not felt her baby move for the last 12 hours. She has not noticed any vaginal bleeding or experienced any pain. The midwife cannot detect a heart beat with the handheld Doppler.

What would be done next to investigate the reduced fetal movements?

A.Ultrasound

B.Cardiotocography (CTG)

C.Speculum

D.Caesarian section

E.Induction of labour (IOL)

Answer:Ultrasound

Explanation:

If after 28/40 weeks, if a woman reports reduced fetal movements and no heart is detected with handheld Doppler then an immediate ultrasound should be offered

Important for meLess important

The next step to investigate RFM is an ultrasound. Ultrasound is more sensitive to picking up movements, but is also able to assess cardiac activity and fetal growth. Main concern with RFM is the risk of stillbirths which is increased if the baby is small for gestation.

CTG measures fetal heartbeat and uterine contractions, would not be applicable as a heart rate could not be detected on the doppler.

Speculum would not be appropriate as there is no indication of labouring and for investigating RFM, the most urgent step is an ultrasound.

Arranging for delivery (IOL or Caesarian section) would be inappropriate at this stage as you have not assessed fetal distress yet.

Question:

A 19-year-old first-year geography student presents to the GP. She recently started university and reports symptoms of fever, headaches and dysuria.

Upon further questioning she tells you for the last few days she has been suffering from exquisitely painful lesions on her vulva.

This is the first time she has experienced symptoms like these.

You do some basic observations in clinic with the following results:

Blood pressure: 108/69 mmHg

Core temperature: 37.1ºC

SpO 2 97% on air

Heart rate 87 bpm

Respiratory rate 16

What is the most important investigation given the likely diagnosis?

A.Dark field microscopy and Treponema pallidum (syphilis) serology

B.Urine dipstick

C.High vaginal swab

D.Nucleic acid amplification tests (NAAT)

E.Urine microscopy, culture and sensitivity

Answer:Nucleic acid amplification tests (NAAT)

Explanation:

Nucleic acid amplification tests (NAAT) are the investigation of choice in genital herpes

Important for meLess important

The NAAT is the most important test in this scenario to diagnose primary genital herpes.

Clues to the diagnosis include flu-like prodrome, dysuria, and painful genital ulceration. If the question was asking about syphilis then the genital ulceration would be painless; whereby serology and darkfield microscopy would be the correct answer.

Urine microscopy, culture, and sensitivity should be undertaken in any patient presenting with urinary symptoms, however, it is not the most helpful option in this particular scenario.

A high vaginal swab would be part of the workup in this patient - as a patient with one sexually transmitted infection (STI) is more likely to have others - a full STI screen should be undertaken, however, it is not the most important in this scenario.

A urine dipstick would be used if you suspected a urinary tract infection.

It is worth noting that the diagnosis of genital herpes is often made clinically in general practice - i.e., based on the appearance of the lesions.

Question:

A 42-year-old woman presents to the emergency department complaining of anxiety, tremors, and excessive sweating which started last night.

On examination, the patient is clearly diaphoretic and has a tremor with occasional jerking of the limbs. She is hypertonic in all limbs and has dilated pupils. Observations show heart rate 112bpm, BP 126/82mmHg, sats 97% on air, respiratory rate 21/min, temperature 38.6ºC.

She has a history of anxiety for which she takes sertraline and a recent shoulder injury.

What is the most likely cause of her presentation?

A.Amitriptyline

B.Codeine

C.Morphine

D.NSAIDs

E.Tramadol

Answer:Tramadol

Explanation:

Tramadol co-prescribed with SSRIs is a common cause of serotonin syndrome

Important for meLess important

Tramadol is the correct answer. This patient has likely serotonin syndrome, characterised by tremors, limb jerking, diaphoresis, hypertonia, and dilated pupils, on a background of SSRI use. It commonly occurs in patients taking multiple serotonergic medications. This patient has recently sustained a shoulder injury and, as such, has likely started taking analgesia. Tramadol, a painkiller commonly used in musculoskeletal pain, functions as a serotonin and norepinephrine reuptake inhibitor (SNRI), and co-prescription with SSRIs, such as sertraline, increases the risk of serotonin syndrome.

Amitriptyline is incorrect. This patient has likely serotonin syndrome as a result of co-prescription of serotonergic medications alongside sertraline. While amitriptyline does have an effect on serotonin levels, there is no established risk of serotonin syndrome in the co-prescription of amitriptyline with SSRIs.

Codeine is incorrect. This patient has likely serotonin syndrome given her symptoms of hypertonia, dilated pupils, and hyperthermia. There is no evidence to suggest that opioids such as codeine increase the risk of serotonin syndrome.

Morphine is incorrect. Given this patient's history of sertraline (SSRI) use and presentation, serotonin syndrome is the likely diagnosis. Morphine has not been shown to increase the risk of serotonin syndrome, thus suggesting that another medication is the cause of her presentation.

NSAIDs is incorrect. NSAIDs, such as ibuprofen, are commonly prescribed for joint pain. The co-prescription of SSRIs, such as sertraline, and NSAID use increase the risk of gastric bleeding but has not been shown to increase the risk of serotonin syndrome, which this patient is likely presenting with given her drug history and symptoms.

Question:

A 36-year-old former intravenous drug user is to commence treatment for hepatitis C with interferon-alpha and ribavirin. Which of the following adverse effects are most likely to occur when patients are treated with interferon-alpha?

A.Cough

B.Haemolytic anaemia

C.Tremor

D.Blue tinge to vision

E.Flu-like symptoms

Answer:Flu-like symptoms

Explanation:

Question:

A 9-year-old girl is brought to surgery due to persistent leg pains. Which one of the following would not be consistent with a diagnosis of 'growing pains'?

A.Present upon waking in the morning

B.Worse after a day of vigorous activity

C.Mainly affecting the shins and ankles

D.Bilateral symptoms

E.Intermittent symptoms

Answer:Present upon waking in the morning

Explanation:

Question:

A 25-year-old woman who is 35 weeks pregnant attends the Emergency Department with fever, abdominal pain and anxiety. She says that she has been waking at night with soaked bed sheets for the past few days. She has been sexually active throughout pregnancy. She reports a history of uterine fibroids.

On examination there is marked uterine tenderness and an offensive brown vaginal discharge is noted. Blood pressure is 134/93 mmHg and the maternal heart rate is 110 beats per minute. Blood results are significant for a white cell count of 18.5 \* 109/l. The baseline fetal heart rate is 170 beats per minute. What is the most likely diagnosis?

A.Pyelonephritis

B.Acute herpes infection

C.Chorioamnionitis

D.Placental abruption

E.Fibroid red degeneration

Answer:Chorioamnionitis

Explanation:

The question points towards an infective process in this patient, as indicated by maternal fever, tachycardia and neutrophilia (note that the normal range is elevated during pregnancy). Chorioamnionitis is a clinical diagnosis and is suggested by uterine tenderness and foul-smelling discharge. Baseline fetal tachycardia supports the diagnosis. The aetiology in this case is likely to involve prolonged premature rupture of membranes. The mention of previous uterine fibroids is a distractor - fibroids may undergo red degeneration during pregnancy, which can present with fever, pain and vomiting, but usually in the first or second trimester.

Placental abruption has a more acute onset of abdominal pain. There are no indications of acute herpes and while pyelonephritis is definitely a differential, a history of dysuria would be expected.

Question:

A patient is admitted to the emergency department following a fall from a ladder. He hit his head and the ambulance crew suspect an intracranial haemorrhage.

On examination, he opens his eyes in response to verbal instruction. The patient is making incomprehensible groans. In response to painful stimulation, his left side flexes abnormally, whereas his right side has no motor response.

What is the Glasgow Coma Scale (GCS) score for this patient?

A.5

B.6

C.7

D.8

E.9

Answer:8

Explanation:

When assessing the GCS, take the BEST response from both sides

Important for meLess important

8 is the correct answer. The GCS score is calculated based on a patient's eye response, verbal response and motor response. A score of 15 is the highest possible and the lowest is 3. Patients with a GCS below 8 are at high risk of respiratory compromise and may need intubation.

In this case, the patient scores 3 for eyes (eye-opening in response to instruction), 2 for verbal response (incomprehensible sounds) and 3 for motor (best of abnormal flexion and no response). It is important to remember that you should use the patient's best score from both sides to assess GCS.

The other options are incorrect.

Question:

An 86-year-old female presents to the emergency department after falling over at her nursing home. She has a past medical history of osteoporosis, dementia and is clinically frail. On examination, her left leg is shortened and her hip externally rotated. A radiograph is performed, which identifies a displaced intra-capsular fracture.

Which of the following is the most appropriate management for this patient?

A.Dynamic hip screw

B.Hemiarthroplasty

C.Internal fixation

D.Intra-medullary nail

E.Total hip replacement

Answer:Hemiarthroplasty

Explanation:

Hemiarthroplasty or total hip replacement is the treatment of choice for all patients with a displaced hip fracture

Important for meLess important

This patient is presenting with a suspected neck of femur fracture, which is confirmed by X-ray. Displaced intracapsular fractures carry the greatest risk of avascular necrosis and are best managed in patients over 70 years of age with either a hemiarthroplasty or total hip replacement. A hemiarthroplasty typically provides poorer functional outcomes but carries a lower risk of subsequent hip dislocation. It is therefore preferred in patients with other serious comorbidities, dementia or those who are immobile. As this patient meets these criteria, they should be managed with a hemiarthroplasty.

A dynamic hip screw is incorrect as these are used in the management of trochanteric fractures.

Internal fixation is incorrect. This may be considered for the management of intra-capsular fractures in patients under 70 years of age without significant comorbidities.

Intra-medullary nail is incorrect as this is used in the management of sub-trochanteric fractures.

Total hip replacement is incorrect as this patient has multiple serious comorbidities which are a contra-indication to total hip replacement due to this increased risk of hip dislocation compared with a hemiarthroplasty.

Question:

A 47-year-old woman is brought into the Emergency Department with an erythematous rash that has come on over the last 2 days. On examination, the rash covers an extensive area of her body and has a red, 'scalded' appearance. She has ulcerations in her mouth. She looks very unwell and her temperature is 38.2ºC.

She is currently too unwell to give a good history, but her brother is with her and gives you her current medications from her bag.

Given the likely diagnosis, what medication is the most likely cause?

A.Citalopram

B.Co-amoxiclav

C.Combined contraceptive pill

D.Oral morphine

E.Ramipril

Answer:Co-amoxiclav

Explanation:

Toxic epidermal necrolysis is a rare but important side effect of which to be aware of penicillins

Important for meLess important

This woman has toxic epidermal necrolysis (TEN). Over 100 drugs have been noted as causes of TEN/Steven Johnson syndrome, but the ones that most commonly cause it include penicillins, quinolones, sulfonamides, corticosteroids and NSAIDs.

Citalopram and other SSRIs are only very rarely reported as causing TEN in the literature, however they can cause drug-induced hyperhidrosis and pruritis.

The combined contraceptive pill is very rarely associated with TEN in literature, nowhere near as frequently as penicillins. However, oral contraceptives can sometimes cause acne, melasma, and erythema nodosum.

Morphine is only very rarely associated with TEN. Morphine can however cause urticaria.

Ramipril is also very rarely associated with TEN in case reports, again nowhere near the frequency of penicillins. Ramipril and ACE inhibitors in general are more associated with angioedema.

Question:

The following ECG is taken from a patient with a significant electrolyte disturbance:

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

What is the most likely diagnosis?

A.Hypokalaemia

B.Hyponatraemia

C.Hypocalcaemia

D.Hypercalcaemia

E.Hyperkalaemia

Answer:Hyperkalaemia

Explanation:

A number of features on this ECG point towards hyperkalaemia:

broad QRS complexes

tall tented T waves

Question:

A 45-year-old man with a history of alcoholic liver disease presents with abdominal distension. Examination reveals tense ascites which is drained. What is the appropriate type of diuretic to help prevent reaccumulation of ascites?

A.Aldosterone antagonist

B.Loop diuretic

C.Thiazide diuretic

D.Osmotic diuretic

E.Carbonic anhydrase inhibitor

Answer:Aldosterone antagonist

Explanation:

Ascites - use spironolactone

Important for meLess important

Aldosterone antagonists such as spironolactone are used in high doses to help prevent the formation of ascites in patients with chronic liver disease. A loop diuretic may need to be added in patients who don't respond

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:

An 18-year-old is referred to the hospital by her GP with vomiting and abdominal pain. She has complained of increased thirst, weight loss, and frequent urination over the last 2 weeks.

Some initial investigations are shown below:

Blood pH 7.15 (7.35 - 7.45)

Bicarbonate 13 mmol/L (22 - 29)

Blood Glucose 21 mmol/L (4-10)

Urine Ketones +++

The patient is admitted for treatment with intravenous fluids and insulin. Her blood results 24 hours later are shown:

Blood pH 7.34 (7.35 - 7.45)

Bicarbonate 20 mmol/L (22 - 29)

Blood Glucose 8 mmol/L (4-10)

A ketone monitor shows that her ketones are 0.4 mmol/L.

What is the most appropriate management?

A.Continue intravenous insulin until the ketones are 0.3 mmol/L or under

B.Continue intravenous insulin until the pH and bicarbonate have fully normalised

C.Refer the patient for senior endocrinology review

D.Start intravenous bicarbonate

E.Switch the patient to subcutaneous insulin so long as she is eating and drinking normally

Answer:Switch the patient to subcutaneous insulin so long as she is eating and drinking normally

Explanation:

DKA resolution is defined as:

pH >7.3 and

blood ketones < 0.6 mmol/L and

bicarbonate > 15.0mmol/L

Important for meLess important

Switch the patient to subcutaneous insulin so long as she is eating and drinking normally is correct as this is the appropriate management once diabetic ketoacidosis (DKA) has resolved. This patient fulfilled the criteria for DKA on admission as her blood glucose was over 11mmol/L, her venous pH was under 7.3 and she had significant ketonuria (more than 2+ on a standard urinary dipstick). Her preceding history of a short period of thirst, weight loss and increased urination is in keeping with the new onset of type 1 diabetes mellitus. This patient's DKA now meets the criteria for resolved as her blood pH is over 7.3, her blood ketones are under 0.6 mmol/L and her bicarbonate is over 15 mmol/L.

Continue intravenous insulin until the pH and bicarbonate have fully normalised is incorrect. This is because DKA is defined as being resolved once pH is over 7.3, bicarbonate is over 15 mmol/L, and blood ketones are below 0.6mmol/L. As this patient meets all of these criteria, treatment with IV insulin is no longer indicated.

Continue intravenous insulin until the ketones are 0.3 mmol/L or under is incorrect. The target for blood ketones in DKA is <0.6 mmol/L, not <=0.3mmol/L. Further, this patient meets all criteria for DKA resolution and thus treatment with IV insulin is no longer indicated.

Refer the patient for senior endocrinology review is incorrect. This is required if DKA has not been resolved within 24 hours. However, this patient's blood results show resolved DKA as per the definition above and thus senior review is not indicated.

Start intravenous bicarbonate is incorrect as this patient's DKA has resolved. Intravenous bicarbonate is only given to patients with DKA if the pH is under 6.9. Further, this must be done under the guidance of a specialist due to the risk of cerebral oedema as a result of this treatment.

Question:

A 73-year-old lady presents with visual loss. She describes sudden onset flashes and floaters in her right eye.

She is short-sighted and has worn glasses since her early teens. She has a background of hypertension, recurrent DVTs and osteoporosis.

Medication history includes amlodipine 5mg OD, apixaban 2.5mg BD and alendronic acid 70mg once weekly.

On examination, visual acuity is 6/12 in the right eye. Fundoscopy is unremarkable with a normal optic disc and retinal vessels.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Central retinal vein occlusion

C.Giant cell arteritis

D.Posterior vitreous detachment

E.Vitreous haemorrhage

Answer:Posterior vitreous detachment

Explanation:

Flashes + floaters are most commonly caused by a posterior vitreous detachment

Important for meLess important

Flashes and floaters are commonly caused by a posterior vitreous detachment (PVD), where the vitreous shrinks and pulls away from the retina. About 10% of patients with PVD develop a retinal tear, which is an important risk factor for a retinal detachment. These patients should therefore be seen by an ophthalmologist within 24 hours.

Vitreous haemorrhage can be associated with floaters but diffuse haemorrhage in the vitreous cavity is likely to obscure the view of the retina on fundoscopy.

Central retinal vein occlusion does not typically present with flashes or floaters and vessels on fundoscopy are likely to appear tortuous with flame-shaped haemorrhages, meaning a PVD is more likely in this scenario.

Giant cell arteritis does not cause flashes or floaters. On fundoscopy, you would expect to see signs of papilloedema.

Acute angle closure glaucoma does not cause flashes or floaters. It is more likely to present in hypermetropic (long-sighted) patients.

Question:

You attend a trauma call in resus of a 63-year-old lady with a past medical history of acute myeloid leukaemia treated with chemotherapy as a child. As such the patient has very difficult vascular access in her arms. During the arrest call, the medical registrar asks you to site a cannula because there is a delay in siting intraosseous access. The ITU SHO offers to assist you in performing a venous cutdown of one of the veins in her ankle, passing anterior to the medial malleolus. What is the name given to this vessel?

A.Dorsalis pedis vein

B.Long saphenous vein

C.Posterior tibial vein

D.Short saphenous vein

E.Sural vein

Answer:Long saphenous vein

Explanation:

The long saphenous vein passes anterior to the medial malleolus and is commonly used for venous cutdown

Important for meLess important

The long saphenous vein passes anterior to the medial malleolus and is commonly used for venous cutdown in cases where vascular access is difficult such as trauma, hypovolaemic shock or if the patient is known to have poor access. Regarding the other options: the short saphenous vein passes posterior to the lateral malleolus. The dorsalis pedis vein accompanies the dorsalis pedis artery on the anterior foot; and the posterior tibial vein is part of the deep venous system accompanying the posterior tibial artery. There is no significant sural vein (there is however a sural nerve), but the sural veins accompany the sural arteries and drain to the popliteal vein.

Question:

A 14-year-old boy presents to the emergency department with a headache. He has had a painful headache for the last 5 hours, he is also noticing that lights seem a lot brighter than they were before and hurt his eyes. When asked to touch his neck to his chin he is unable to do so due to pain. On examination, there is no neurological deficit, however, papilloedema is noted on fundoscopy. No rash is found on examination. He is currently scoring an early warning score of 1 for a raised temperature however apart from this, they are normal.

Given this boys presentation, what is the most appropriate management of this patient?

A.Start penicillin

B.Start ceftriaxone

C.Start co-amoxiclav

D.Perform a lumbar puncture

E.Perform a CT head

Answer:Start ceftriaxone

Explanation:

Papilloedema indicates raised intracranial pressure and thus would contraindicate an LP

Important for meLess important

This question is asking about a young man presenting with a headache, photophobia, and neck stiffness. All typical features of meningitis. While there is no visible rash, the rash is not required for a diagnosis. Therefore he should be managed as presumed meningitis until proven otherwise.

This would normally involve an immediate lumbar puncture followed by antibiotics. However, in this case, the patient's papilloedema indicates that there has been a rise in intracranial pressure. This means that you cannot perform a lumbar puncture due to the risk of coning. Thus you should just start antibiotics.

The choice of antibiotics is dependant on the age of the patient and the location of the patient. If the patient is at a GP and about to be moved to an emergency department, penicillin should be given. However as this patient is already in the emergency department, ceftriaxone can be started immediately. If this child was less than 3-months old you would use cefotaxime instead of ceftriaxone.

While a CT head could be useful if the raised intracranial pressure was due to a space-occupying lesion, in this case, the temperature and photophobia both help to point towards meningitis and thus this is not necessary

There is no place for the use of co-amoxiclav in the treatment of meningitis.

Question:

A 56-year-old woman presents with a 2-day history of rapidly progressive paraesthesia and weakness in both of her legs. She reports no fever or any difficulties with her bladder or bowel function. She is normally fit and well aside from having gastroenteritis a few weeks ago.

On examination, she has evident symmetrical, global weakness to her lower legs with hypotonia. You are unable to elicit any reflexes in her lower limbs. There is no sensory level demarcation. Cranial nerve examination and upper limbs examination is currently unremarkable.

What is the most likely diagnosis?

A.Amyotrophic lateral sclerosis

B.Guillain-Barre syndrome

C.Multiple sclerosis

D.Myasthenia gravis

E.Transverse myelitis

Answer:Guillain-Barre syndrome

Explanation:

Progressive peripheral polyneuropathy with hyporeflexia suggests Guillain-Barre syndrome

Important for meLess important

Guillain-Barre syndrome characteristically presents as an acute, symmetrical polyneuropathy, often preceded by an infection. It usually starts with paraesthesia and global lower limb weakness and can rapidly develop to include the upper limb, cranial nerves, autonomic function and respiratory function. It is a disorder of the peripheral nervous system so presents with lower motor neurone signs such as hyporeflexia.

Amyotrophic lateral sclerosis would not tend to cause sensory disturbance such as paraesthesia as it is a disorder of the motor neurones. It often has a slower onset.

Multiple sclerosis involves the central nervous system and as such would have upper motor neurone signs (hyperreflexia).

Myasthenia gravis is a disorder of the neuromuscular junction, characterised by fatiguability and would not tend to cause a sensory disturbance.

The features of transverse myelitis and Guillain-barre can often overlap and occasionally co-exist. The main information that makes transverse myelitis less likely here is that there is no sensory level identified on examination.

Question:

A 4-year-old girl with sickle cell anaemia presents with abdominal pain. On examination, she is noted to have splenomegaly and is clinically anaemic. What is the most likely diagnosis?

A.Liver cirrhosis

B.Parvovirus infection

C.Sequestration crisis

D.Salmonella infection

E.Thrombotic crisis

Answer:Sequestration crisis

Explanation:

During a sequestration crisis, the sickle cells cause the spleen to become grossly enlarged causing the abdominal pain as present in this case. This is more common in early childhood as repeated sequestration and infarction of the spleen during childhood gradually results in an auto-splenectomy. A sequestration crisis may result in severe anaemia, marked pallor and cardiovascular collapse due to loss of effective circulating volume.

Question:

A 24-year-old female attends for her 6-week postnatal check-up. She is not breastfeeding. She had a normal delivery. She would like to start contraception but is concerned about a delay in returning to fertility as she would like to try for another baby in the next 1-2 years. Which of these would most likely cause a delay in returning to normal fertility?

A.Progesterone only contraceptive implant

B.Intrauterine system (IUS) e.g. Mirena

C.Progesterone only injectable contraception

D.Combined oral contraceptive pill (COCP)

E.Progesterone only pill (POP)

Answer:Progesterone only injectable contraception

Explanation:

With progesterone only injectable contraception there can be a delay in return to natural fertility of up to 12 months. The other methods are not associated with such a delay.

See FSRH guidelines.

Question:

A 70-year-old woman has attended a heart failure clinic. She was referred by her GP 2-years ago due to a systolic murmur, loudest in the second intercostal space, along the left sternal border.

Given the side of heart failure, what specific sign would you expect to elicit on examination?

A.Bi-basal crackles on chest auscultation

B.Cyanosis

C.Displaced apex beat

D.Hepatomegaly

E.Pink, frothy mucus

Answer:Hepatomegaly

Explanation:

Signs of right-sided heart failure are raised JVP, ankle oedema and hepatomegaly

Important for meLess important

Hepatomegaly is the correct answer. As implied in the stem, the woman has pulmonary stenosis. This is commonly heard loudest in the second intercostal space along the left sternal border. It is a systolic murmur that can result in right-sided heart failure. Right-sided heart failure results in increased venous pressure that increases hepatic pressure in the liver via the inferior vena cava. This causes hepatomegaly. A triad of symptoms for right-sided heart failure to look out for includes raised JVP, hepatomegaly and ankle oedema from increased peripheral venous pressure.

Bibasal crackles on chest auscultation is incorrect. This is caused by pulmonary hypertension secondary to left-sided heart failure. Increased pressure in the left chambers of the heart backlog into the lungs increases pulmonary venous pressure resulting in transudate into the alveolar spaces.

Cyanosis is incorrect. This is caused by left-sided heart failure resulting in low cardiac output. This results in reduced perfusion to the peripheries causing cyanosis.

Displaced apex beat is incorrect. This is a sign of left-sided heart failure. The primary mechanism of ventricular hypertrophy is that of a compensatory mechanism to increase cardiac output to match the increasing demand.

Pink, frothy sputum is incorrect. This is a result of fluid accumulation in the lungs. Fluid builds up in the lungs due to pulmonary hypertension as a result of backlog from left-sided heart failure.

Question:

A 47-year-old gentleman is brought in to the emergency department by ambulance. On clinical examination, eight stab wounds are identified on the abdomen and one is found on the anterior aspect of the chest. His airway has been secured, he has been prescribed oxygen at a rate of 15L/min, and IV fluid resuscitation has been initiated.

Based on the CT abdomen findings the patient has been transferred to theatre for an emergency laparotomy. An assessment of the spleen taking into account the CT and laparotomy findings is conducted by the surgeons to plan further management.

Which of the following is an indication for splenectomy?

A.Haemodynamic instability and complete devascularisation of the spleen

B.Haemodynamic stability and complete devascularisation of the spleen

C.Subcapsular haematoma affecting <10% of the spleen

D.Subcapsular haematoma affecting 20% of the spleen

E.Subcapsular haematoma affecting 30% of the spleen

Answer:Haemodynamic instability and complete devascularisation of the spleen

Explanation:

Uncontrollable splenic bleeding in trauma patients is an indication for splenectomy

Important for meLess important

Using CT imaging, traumatic splenic injuries can be graded. Grade 1-3 injuries tend to be managed conservatively if the patient is haemodynamically stable. Grade 4-5 injuries are often best managed surgically. Of the patients who undergo surgery - emergency laparotomy - a splenectomy might be indicated based on the findings:

Indications for splenectomy include:

Uncontrollable splenic bleeding

Hilar vascular injuries

Devascularised spleen

More information concerning the grades of splenic injury can be found at: https://wjes.biomedcentral.com/articles/10.1186/s13017-017-0151-4#Sec1

Question:

A 61-year-old man presents to the general practitioner with a four week history of haemoptysis and a symmetrical polyarthritis of several small joints particularly in the hands and feet. More recently, he has also noted that his urine appears to be blood tinged at times. A urine dipstick shows the following:

pH 7.5

Blood positive

Protein positive

Nitrites negative

Leucocytes negative

Ketones negative

The general practitioner orders several blood tests.

Which blood test is most likely to aid the diagnosis?

A.ANCA antibodies

B.Eosinophil count

C.IgA levels

D.IgG levels

E.Rheumatoid factor

Answer:ANCA antibodies

Explanation:

Renal impairment, respiratory symptoms, joint pain, systemic features → consider ANCA associated vasculitis

Important for meLess important

This man is suffering from a glomerulonephritis (evidenced by haematuria and proteinuria on dipstick), inflammation of the respiratory tract (causing haemoptysis) and an inflammatory arthritis (worse in the small joints). This combination of symptoms is highly suspicious for a diagnosis of ANCA associated vasculitis such as granulomatosis with polyangiitis (formerly Wegner’s granulomatosis) or eosinophilic granulomatosis with polyangiitis (otherwise known as Churg-Strauss syndrome). These can be diagnosed by various serum ANCA antibodies.

Eosinophil count may be raised in a diagnosis of eosinophilic granulomatosis with polyangiitis however is not specific enough to make a diagnosis. Additionally, it may not be raised in other causes of vasculitis that could cause these symptoms.

IgA levels can help to diagnose IgA nephropathy however this is not the most likely diagnosis here. Although this can cause haematuria and more rarely proteinuria, it is not associated directly with the respiratory or arthritic symptoms that this man is displaying.

IgG is the most common immunoglobulin raised in multiple myeloma however this is not the diagnosis here. Multiple myeloma does cause Bence-Jones proteinuria however these classically are not detected on a dipstick and therefore electrophoresis is required. Multiple myeloma would also not account for the rest of this man's symptoms.

Rheumatoid factor is most commonly associated with rheumatoid arthritis however has poor specificity and so is limited as a diagnostic test. Additionally, although rheumatoid arthritis can involve multiple organ systems including the kidneys and lungs, haemoptysis and haematuria are rare symptoms.

Question:

A 40-year-old obese woman presents to the emergency department with a 4-day history of colicky pain in her right hypochondrium. She undergoes an ultrasound scan which showed multiple stones in the gall bladder; a normal calibre common bile duct and gallbladder wall were observed. Bloods reveal the following.

Hb 120 g/L Male: (135-180)

Female: (115 - 160)

Platelets 360 \* 109/L (150 - 400)

WBC 9 \* 109/L (4.0 - 11.0)

CRP 5 mg/L (< 5)

Which of the following is the best management option in this patient?

A.Emergency laparoscopic cholecystectomy

B.Elective laparoscopic cholecystectomy

C.Percutaneous cholecystotomy

D.Endoscopic retrograde cholangiopancreatography

E.Expectant management

Answer:Elective laparoscopic cholecystectomy

Explanation:

An elective laparoscopic cholecystectomy is the treatment of choice for biliary colic

Important for meLess important

Elective laparoscopic cholecystectomy is the correct answer. The patient is symptomatic with gallstone and the first-line treatment will be laparoscopic cholecystectomy as an outpatient in 6 months. As there are no features to suggest acute infection she can be managed as an outpatient and undergo an elective operation.

Emergency laparoscopic cholecystectomy is incorrect. There are no features of cholecystitis. According to NICE, patients diagnosed with acute cholecystitis should have their laparoscopic cholecystectomy on the same admission within 72 hours.

Endoscopic retrograde cholangiopancreatography (ERCP) is incorrect. The CBD is not dilated and no stone is seen within the CBD. ERCP would not be appropriate as it will only indicate CBD stones or obstruction. It will not have any effect on the stone in the gallbladder. It carries complications including bleeding, pancreatitis, duodenitis and infection.

Percutaneous cholecystotomy is incorrect. A cholecystostomy or cholecystotomy is a procedure where a stoma is created in the gallbladder, which can facilitate placement of a tube for drainage. It is sometimes used in cases of cholecystitis where the person is ill, and there is a need to delay or defer cholecystectomy. The patient is stable with unremarkable blood results. Drainage of bile is not indicated as it carries more risks than benefits.

Expectant management is incorrect. It is only indicated if the patient is asymptomatic. The expectant approach will likely cause more complications if the gallbladder becomes infected or if the stone becomes dislodged and migrates to the CBD. The history and examination findings are not consistent with it.

Question:

A 53-year-old gentleman with a long-term diagnosis of paranoid schizophrenia has a relapse in symptoms after not taking his medications regularly, resulting in an admission under section 2 of the Mental Health Act following a formal assessment of his mental state. His long-term medication was Risperidone orally once daily which had stabilised his mental state for numerous years in the community. Given his non-compliance, what would be the best suitable treatment option for this patient?

A.Switching to a once daily IM anti-psychotic injection

B.Switching to another anti-psychotic medication

C.Switching to a once monthly IM anti-psychotic depot injection

D.Further treatment & assessment under the Mental Health Act

E.Referral to the home treatment team to administer medication

Answer:Switching to a once monthly IM anti-psychotic depot injection

Explanation:

Patients with poor oral compliance to antipsychotics should be considered for once monthly IM antipsychotic depot injections

Important for meLess important

A patient with poor oral compliance to antipsychotic medication is most likely to benefit from a once monthly IM depot injection. If a particular medication has stabilised a patient's mental state & well-being then it would be best appropriate to keep them on that anti-psychotic to manage their mental health. Changes in medication can pose a risk of relapsing and symptoms re-appearing. Every person who suffers from mental health problems should be treated in the least restrictive way available and keeping them in a hospital for the shortest possible time as guided by the Mental Health Act. Daily visits by the home treatment team to administer medication is not an appropriate long-term solution to non-compliance. Similarly, a once-daily IM injection would not be ideal for the patient & logistically difficult.

Question:

A 49-year-old male presents to your surgery complaining of feeling depressed because he is convinced that his wife is being unfaithful. They have just celebrated their 25th wedding anniversary and throughout the marriage they have always been dedicated to one another and he is his wife's sole carer, as she is bedbound.

Considering the history, you wonder how likely it is that his claims are true.

What is the medical name for delusional jealousy?

A.Othello syndrome

B.Fregoli syndrome

C.Folie a deux

D.Erotomania

E.Factitious disorder

Answer:Othello syndrome

Explanation:

Othello syndrome - delusional jealously, usually believing their partner is unfaithful

Important for meLess important

Othello syndrome is pathological jealousy, most commonly the belief that their partner is not faithful, and can be isolated delusion or secondary to an affective state, schizophrenia or a personality disorder.

The patient often obsessively searches for evidence, but is not satisfied when none is found. Can then result in violent behaviour.

Question:

A 59-year-old female is admitted to the Emergency Department with a 30 minute history of central chest pain radiating to her left arm. An ECG shows ST elevation in leads II, III, aVF. Which coronary artery is most likely to be affected?

A.Right coronary

B.Left anterior descending

C.Left main stem

D.Left circumflex

E.Anterior interventricular

Answer:Right coronary

Explanation:

Inferior MI - right coronary artery lesion

Important for meLess important

Question:

Fragile X is associated with each one of the following, except:

A.Small, firm testes

B.Learning difficulties

C.Joint laxity

D.Long thin face

E.Large low set ears

Answer:Small, firm testes

Explanation: