Question:

A 26-year-old man is being investigated for a 5-day history of dysuria and urinary frequency at the GP. He states that he also started to notice urethral discharge yesterday.

He has no significant past medical history and is not currently sexually active. He has a family history of renal cell carcinoma.

On examination, he is abdomen is soft and non-tender, and there is no evidence of organomegaly.

A urine dipstick shows ++nitrites, and ++ leucocytes and is negative for erythrocytes. His urine is cloudy in appearance.

What is the most appropriate management for this patient?

A.Mid-stream urine culture

B.Non urgent urology referral

C.Referral to renal ultrasound scan

D.Sexually transmitted infection testing

E.Urgent (within 2 weeks) referral to urology

Answer:Mid-stream urine culture

Explanation:

All men with a suspected UTI should have a urine culture sent before starting antibiotics

Important for meLess important

Mid-stream urine culture is the correct answer. This patient has features of a urinary tract infection (dysuria and urinary frequency). Although a sexually transmitted infection is a reasonable differential, this man has stated that he is not sexually active, making this diagnosis less likely than a urinary tract infection. All men should have a mid-stream urine culture sent before starting antibiotics because they have a longer urinary tract at risk of atypical and resistant bacterial colonisation.

Non urgent urology referral is incorrect. This is not recommended as this patient has only suffered from a single urinary tract infection. A referral will be indicated if he suffers from repeated infection with complications.

Referral to renal ultrasound scan is incorrect. This will be required if there is suspicion of any structural or functional complication of the kidney. A renal ultrasound scan would be warranted with recurrent episodes of urinary tract infections, persistent haematuria, and evidence of pyelonephritis may warrant a renal ultrasound.

Sexually transmitted infection testing is incorrect. Although a sexually transmitted infection is an important differential to a urinary tract infection, this patient has stated he is not currently sexually active; hence it would be appropriate to perform a midstream urine culture first and exclude a urinary tract infection before performing sexually transmitted infection testing.

Urgent (within 2 weeks) referral to urology is incorrect. This is warranted if patients over the age of 45 present with unexplained visible haematuria without urinary tract infection or visible haematuria that persists or recurs after successful treatment of urinary tract infection. This patient is 26 and has not presented with any episodes of haematuria in the past or currently. Given his family history, it is important to perform a urine dipstick to exclude a renal mass.

Question:

A 78-year-old woman presents to the emergency department with severe dyspnoea, confusion and cough productive of purulent sputum. She is admitted and prescribed IV amoxicillin and clarithromycin.

Her symptoms fully resolve and she is discharged 7 days later with appropriate safety netting advice.

What further investigation should be requested for this patient?

A.Chest X-ray 4 weeks after resolution

B.Chest X-ray at 6 weeks after resolution

C.Full blood count 2 weeks after resolution

D.Full blood count 4 weeks after resolution

E.Sputum culture 2 weeks after resolution

Answer:Chest X-ray at 6 weeks after resolution

Explanation:

All cases of pneumonia should have a repeat chest X-ray at 6 weeks after clinical resolution

Important for meLess important

Patient's who are admitted and treated for pneumonia in hospital should have a chest X-ray 6-12 weeks after clinical resolution of symptoms. This is to ensure resolution of consolidation, and to detect any underlying lung pathology or scarring of lung parenchyma which may have been hidden by the consolidation.

All other investigations may be helpful, but are not in line with current NICE guidance.

Question:

A 74-year-old woman presents to her GP concerned about skin changes she has noted on her left hand. She describes small crusty lesions having appeared over the last year and she tells you she is growing increasingly concerned about them. The patient is keen to remove the lesions. However, does not want any invasive surgical treatments.

The lesions are shown below.

© Image used on license from DermNet NZ

Given the likely diagnosis, what would be the most appropriate treatment option?

A.Curettage and cautery

B.Surgical removal +/- radiotherapy

C.Topical fluorouracil

D.Topical permethrin

E.Topical steroids and emollients

Answer:Topical fluorouracil

Explanation:

This image shows a patient's left hand with marked discolouration and numerous red lesions with a yellow/white crust overlying them. This is indicative of actinic keratosis.

Topical fluorouracil is correct. This patient is presenting with a likely diagnosis of actinic keratosis. Looking at the picture, it is evident that this patient has skin changes over the skin on his left hand. There are numerous small, crusty lesions of numerous different colours. This, in combination with this being a sun-exposed area, is indicative of a diagnosis of actinic keratosis. Actinic keratoses are premalignant skin lesions and therefore, often require treatment to prevent any further malignant changes. In this case, the most appropriate treatment option is topical fluorouracil. Fluorouracil is a chemotherapy agent used to treat actinic keratoses - it should be applied over a 2-3 week course.

Curettage and cautery is incorrect. Curettage and cautery is a useful treatment options for actinic keratoses. It involves electro-surgery to remove pre-malignant lesions. This is a simple and effective procedure. However, would be inappropriate for this patient as she has specified that she does not want to receive any surgical interventions.

Surgical removal +/- radiotherapy is incorrect. This patient, as mentioned above, has a likely diagnosis of actinic keratosis. Surgical removal and radiotherapy would be far too intensive of a treatment option for actinic keratoses. Also, this patient has specified that she does not want surgical intervention. This option would be more appropriate for a patient with melanoma, BCC or SCC.

Topical permethrin is incorrect. This is the first-line treatment option for a patient with scabies. There is nothing in the history to indicate that this patient has scabies and therefore, this treatment option would be incorrect.

Topical steroids and emollients is incorrect. As mentioned previously, this patient has a likely diagnosis of actinic keratoses. Topical steroids and emollients alone would not be an appropriate treatment option. Although topical steroids can be co-prescribed with topical fluorouracil to soothe irritation, they cannot be used as a sole management option as this would not work to resolve the underlying pre-malignant skin lesions.

Question:

A 76-year-old woman comes into surgery to see you to discuss the results of recent investigations she had. The patient came in complaining of lower back pain. She had blood results which are as follows.

Bilirubin 16 µmol/L (3 - 17)

ALP 220 u/L (30 - 100)

ALT 33 u/L (3 - 40)

γGT 54 u/L (8 - 60)

Albumin 38 g/L (35 - 50)

As a result of these, she had a lumbar spine x-ray. The report is as follows.

Lumbar Spine X-Ray Findings of mixed lytic/sclerotic lesions

Given the likely diagnosis, what treatment would you consider initiating first-line?

A.Bezafibrate

B.Calcium acetate

C.Ibuprofen

D.Lenvatinib

E.Risedronate

Answer:Risedronate

Explanation:

Paget's disease of the bone is treated with bisphosphonates

Important for meLess important

Risedronate is correct. The likely diagnosis in this question is Paget's disease of the bone. The scenario describes an elderly woman presenting with bone pain and isolated raise in ALP. Furthermore, the X-ray findings in this patient are indicative of later stage Paget's disease. The first-line treatment for this patient would be oral bisphosphonate. Of the above list, risedronate is the only available oral bisphosphonate.

Bezafibrate is incorrect. Bezafibrate is used to decrease serum triglycerides in patients in which statins are contraindicated or not tolerated. This has no use in treating Paget's disease of the bone.

Ibuprofen is incorrect. Whilst it would be important to ensure this patient had adequate analgesia for her back pain. This would not be first-line for treating her underlying disease pathology.

Lenvatinib is incorrect. Lenvatinib is a tyrosine kinase inhibitor. This would not be indicated in treating this patient's Paget's disease of the bone.

Question:

A 45-year-old man presents to his general practitioner with back pain radiating to his right leg. He has no past medical history and does not take any regular medications.

On examination, there is sensory loss on the posterolateral aspect of the right leg and lateral aspect of the foot. There is a weakness of plantar flexion and a reduced ankle reflex.

What nerve root is most likely to be affected?

A.L3

B.L4

C.L5

D.S1

E.T10

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

S1 is the right answer. The patient presents with low back pain radiating to his leg, suggesting radiculopathy. The distribution of sensory findings, weakness of plantar flexion and reduced ankle reflex suggests an S1 lesion.

L3 is incorrect. Involvement of this nerve root would cause sensory loss over the anterior thigh and a weak quadriceps. The femoral stretch test may be positive and the knee reflex reduced.

L4 is incorrect. Involvement of this nerve root would cause sensory loss over the anterior knee, a weak quadriceps and reduced knee reflex.

L5 is incorrect. Involvement of this nerve root would cause weakness of the foot and big toe dorsiflexion. The reflexes would be intact. The sciatic stretch test may be positive.

T10 is incorrect. Injury to a nerve root at T10 would not cause pain radiating down the leg.

Question:

A 65-year-old man who is undergoing bone marrow transplant requires a blood transfusion. Irradiated packed red cells are requested. What is the purpose of requesting irradiated blood products in this situation?

A.Depletes the packed cells of platelets reducing the risk of thrombotic complications

B.Ensures the blood products are free of viruses and organisms

C.Destroys HLA markers reducing the risk of blood transfusion reaction

D.Reduces the HbA2/Hb ratio

E.Depleted T-lymphocyte numbers reduce the risk of transfusion graft versus host disease

Answer:Depleted T-lymphocyte numbers reduce the risk of transfusion graft versus host disease

Explanation:

Irradiated blood products are used as they are depleted in T-lymphocytes

Important for meLess important

The most common indications for irradiated blood products are conditions where the immune system is compromised.

Question:

A 25-year-old woman attends cervical cancer screening. Her sample has come back as being positive for high-risk HPV and cytology shows low-grade dyskaryosis.

What is the next step in this situation?

A.Refer for colposcopy

B.Refer for loop excision of the transformation zone

C.Return to normal recall

D.Repeat sample at 3 months

E.Repeat sample at 12 months

Answer:Refer for colposcopy

Explanation:

Cervical cancer screening: if sample is hrHPV +ve + cytologically abnormal → colposcopy

Important for meLess important

According to the cervical cancer screening guidelines, this patient should be referred for a colposcopy. This allows close examination of the cervix and identification of disease.

Loop excision of the transformation zone may be required if the colposcopy findings show significant abnormalities. It would not be the next step without initial colposcopy.

Returning this patient to normal recall is inappropriate. She has abnormal findings that require further investigation.

Repeating the sample at 3 months is not required as this patient has high-risk HPV and requires specialist assessment. Repeating in 3 months could be considered in the case of an inadequate sample.

Repeating the sample at 12 months is also not the next step. This may be recommended after colposcopy, but at this stage, she needs to be assessed further. Repeating the sample at 12 months could be considered in the case of high-risk HPV with normal cytological findings.

Question:

A 45-year-old lady is referred to the Surgical Assessment Unit by her GP. She had an ultrasound scan last week which showed biliary dilatation and subsequent imaging has confirmed the presence of gallstones. This morning she woke up feeling sweaty, with severe right upper quadrant pain and her husband noticed her skin looked more yellow than usual. What is the most likely diagnosis?

A.Primary biliary cirrhosis

B.Acute pancreatitis

C.Cholecystitis

D.Ascending cholangitis

E.Viral hepatitis

Answer:Ascending cholangitis

Explanation:

Charcot's cholangitis triad: fever, jaundice and right upper quadrant pain

Important for meLess important

This patient has Charcot's triad of fever, right upper quadrant pain and jaundice suggesting that ascending cholangitis is the most likely diagnosis especially with the history of confirmed gallstones. Treatment is with intravenous antibiotics.

Question:

A 53-year-old man presents to the Medical Admissions Unit complaining of weight gain and increased fatigue. He is known to have cirrhosis secondary to alcoholic liver disease, and was admitted to hospital once last year for an episode of hepatic encephalopathy, which was treated successfully with phosphate enemas and rifaximin.

His regular medications include thiamine, lactulose and acamprosate, and he has no known drug allergies.

On inspection, he is not jaundiced. PR examination reveals an empty rectum. His JVP is not raised, and there is mild peripheral oedema up to the middle of his calves. His abdomen is soft and non-tender, with some shifting dullness.

His blood test results are as follows:

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

Female: (115 - 160)

Platelets 115 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Na+ 127 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 65 µmol/L (55 - 120)

Bilirubin 16 µmol/L (3 - 17)

ALP 98 u/L (30 - 100)

ALT 30 u/L (3 - 40)

γGT 110 u/L (8 - 60)

Albumin 27 g/L (35 - 50)

Bedside ultrasonography reveals the presence of moderate ascites, which is not tense.

Which of the following represents the most appropriate initial management option for his ascites?

A.Fluid restriction

B.Spironolactone

C.Abdominal paracentesis

D.Furosemide

E.20% human albumin solution (HAS)

Answer:Spironolactone

Explanation:

Patients with ascites secondary to liver cirrhosis should be given an aldosterone antagonist

Important for meLess important

This patient has presented with ascites in the context of decompensated alcoholic liver disease with cirrhosis. Patients with cirrhosis are prone to the development of ascites for a number of reasons, including hypoalbuminaemia due to an impairment of hepatic synthetic function, as well as fluid overload due to hyperaldosteronism. Spironolactone is the correct answer - as a mineralocorticoid receptor antagonist, it acts to reverse the hyperaldosteronism underpinning the patient's ascites.

Fluid restriction may be indicated for patients with ascites with serum sodium < 125mmol/L, but would not be appropriate as a stand-alone intervention for this patient.

Abdominal paracentesis may be used to provide temporary symptomatic relief to patients with tense ascites. However, this patient's ascites is not tense, and it would be more appropriate to initiate him on a therapy which sustainably reverses his fluid overload.

Furosemide may be used as an adjunctive diuretic in ascites due to chronic liver disease, but is less effective than spironolactone as monotherapy.

20% human albumin solution (HAS) has a number of uses in chronic liver disease, including: volume replacement after large volume paracentesis; the treatment of spontaneous bacterial peritonitis; and the management of hepatorenal syndrome. However, is not used as primary treatment for ascites, even in the context of hypoalbuminaemia.

Question:

A 2-month-old girl is brought to the emergency department with her father. Her father reports a 2 hour history of a non-blanching rash over her body. He reports that in the past 24 hours she has seemed unsettled, refusing feeds and crying more often than usual.

Observations reveal a temperature of 38.6ºC and examination confirms the non-blanching petechial rash with generalised hypotonia. Examination also reveals a bulging anterior fontanelle.

Given the most likely diagnosis and following appropriate investigation, which of the following would be the most appropriate initial management option?

A.Intravenous (IV) cefotaxime

B.IV cefotaxime and IV amoxicillin

C.IV amoxicillin and IV dexamethasone

D.IV cefotaxime and IV dexamethasone

E.IV cefotaxime, IV amoxicillin and IV dexamethasone

Answer:IV cefotaxime and IV amoxicillin

Explanation:

Do not use corticosteroids in children younger than 3 months with suspected or confirmed bacterial meningitis

Important for meLess important

This clinical picture points to a diagnosis of acute bacterial meningitis. In a child younger than 3 months old, the most appropriate treatment option here would be IV cefotaxime and IV amoxicillin.

IV cefotaxime is useful to cover for pneumococcal and haemophilus influenza. However, children less than 3 months are at risk of listeria monocytogenes as a cause of bacterial meningitis. Therefore, without amoxicillin to cover for this, there would be inadequate cover.

IV dexamethasone is given in cases of bacterial meningitis unless the patient is younger than three months. It helps to reduce the risk of neurological sequelae.

Question:

A 50-year-old man is admitted with severe cardiac chest pain. ECG on admission shows ST elevation in the anterior leads and you decide to thrombolyse the patient. What is the mechanism of action of alteplase?

A.ADP-receptor blocker

B.Activates plasminogen to form plasmin

C.Inhibits plasmin

D.Inhibits the conversion of fibrinogen to fibrin

E.Activates thrombin to form thromboplastin

Answer:Activates plasminogen to form plasmin

Explanation:

Question:

You are asked to review a term neonate on the postnatal wards. On examination of the palate, you notice a white-coloured nodule at the roof of the mouth. This is not interfering with feeding and baby is alert and active. What is the most likely diagnosis?

A.Epstein's pearl

B.Bohn's nodule

C.Neonatal teeth

D.Dermoid cyst

E.Candida infection

Answer:Epstein's pearl

Explanation:

Epstein's pearls can be mistaken for neonatal teeth

Important for meLess important

Epstein's pearls are found in the posterior hard palate, along the midline. They do not require treatment.

Bohn's nodules are found on the inner labial aspect of the maxillary alveolar ridges.

Neonatal teeth are very rare and usually present at the site of the incisors.

Dermoid cysts may contain teeth but are rarely found in the oral cavity.

Oral candida infection can present as whitish patches on the inside of the mouth.

Question:

A 35-year-old woman is seen in the clinic with a 4-month history of fatigue, joint pain, photosensitive skin, and a rash across her face and cheeks. She has no medical history and takes the combined oral contraceptive pill. Some initial tests show:

Hb 109 g/L (115 - 160)

Platelets 170\* 109/L (150 - 400)

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

Antinuclear antibodies positive

Anti-double-stranded DNA antibodies positive

Antiphospholipid antibodies positive

Anticardiolipin antibodies negative

She has no history of thromboembolism, nor has she had any miscarriages.

What UKMEC category does this place her current contraceptive in?

A.UKMEC 1 (no restriction with use)

B.UKMEC 2 (advantages generally outweigh disadvantages)

C.UKMEC 3 (disadvantages generally outweigh advantages)

D.UKMEC 4 (unacceptable health risk)

E.UKMEC 5 (unacceptable health risk)

Answer:UKMEC 4 (unacceptable health risk)

Explanation:

Positive antiphospholipid antibodies (e.g. in SLE) is UKMEC 4 for the COCP

Important for meLess important

Fatigue, joint pain, photosensitive skin and a rash across the face and cheeks suggest the presence of systemic lupus erythematosus (SLE), which is supported by positive antinuclear and anti-double-stranded DNA antibodies. Many patients with SLE may have positive antiphospholipid antibodies, but do not have antiphospholipid syndrome (APS), as they do not meet the diagnostic criteria for it nor have any symptoms of it. This is the case here as this patient has negative anticardiolipin antibodies and has no history of thromboembolism or miscarriage.

UKMEC 4 (unacceptable health risk) is correct as this describes an unacceptable health risk when using the contraceptive implicated. The combined oral contraceptive pill (COCP) slightly increases the risk of thromboembolism and stroke in all people using it. Although this patient has antiphospholipid antibodies but does not have APS (as they do not meet the diagnostic criteria for it nor have any symptoms of it), their risk of APS developing and its increased risk of thromboembolism is still present. Therefore, the COCP calls in the UKMEC 4 category, as the risk of thromboembolism is unacceptably high and outweighs the benefits. If this patient were to continue taking the COCP, she may go on to develop APS or taking it may potentiate her first episode of thromboembolism occurring.

UKMEC 1 UKMEC 1 (no restriction with use) is incorrect. UKMEC 1 describes any condition for which there is no restriction for the use of the COCP.

UKMEC 2 UKMEC 2 (advantages generally outweigh disadvantages) is incorrect. UKMEC 2 describes a condition where using the COCP has advantages that generally outweigh the disadvantages.

UKMEC 3 UKMEC 3 (disadvantages generally outweigh advantages) is incorrect. This describes where the COCP's disadvantages generally outweigh the advantages and where possible, the COCP should be avoided. Example conditions are current gallbladder disease, immobility, being more than 35 years old and smoking less than 15 cigarettes/day, and a BMI >35 kg/m².

UKMEC 5 (unacceptable health risk) is incorrect as there is no UKMEC 5 category.

Question:

A 32-year-old woman with polycystic ovarian syndrome is struggling to conceive. She and her partner have been trying for 18 months, with no success. On examination, there is hirsutism and she has a BMI of 24 kg/m².

What is the most appropriate management option for this patient?

A.Clomifene

B.In vitro fertilisation

C.Metformin

D.Third-generation combined oral contraceptive pill

E.Weight reduction

Answer:Clomifene

Explanation:

Infertility in PCOS - clomifene is typically used first-line

Important for meLess important

Clomifene is correct. This patient is experiencing subfertility, which can occur due to polycystic ovarian syndrome (PCOS). The first-line option for managing infertility in PCOS is clomifene.

Metformin is incorrect. While there is ongoing debate as to whether metformin, clomifene, or a combination of both should be used to stimulate ovulation in patients with PCOS, with current evidence, metformin is not a first-line treatment of choice.

In vitro fertilisation is incorrect. This is not a first-line treatment.

Weight reduction is incorrect. While weight reduction can improve fertility in some patients with PCOS, this woman has a BMI of 24 kg/m².

Third-generation combined oral contraceptive pill is incorrect. This woman should not be taking a contraceptive pill if she is trying to conceive. The combined oral contraceptive pill may be used to regulate her menstrual cycle and treat her hirsutism, however, this patient is trying for pregnancy.

Question:

A 5-month-old boy presents to the emergency department, following a 1-week history of a persistent dry cough and difficulty feeding. His notes indicate that he had presented a week ago with a mild fever and coryzal symptoms. He has no other past medical history. On examination, the respiratory rate is 56/min and a wheeze is heard bilaterally on auscultation. There are no signs of an increased work of breathing and chest expansion is symmetrical. His temperature is 37.5ºC and oxygen saturation is 98% on room air.

Which of the following is the most appropriate next step in the management?

A.Antibiotics after doing a chest X-ray

B.Antibiotics immediately

C.Continue observation then discharge with safety-netting advice

D.High-flow oxygen

E.Salbutamol inhaler

Answer:Continue observation then discharge with safety-netting advice

Explanation:

Bronchiolitis does not require antibiotics, children requires supportive management only

Important for meLess important

The correct option is to continue observation and then discharge with safety-netting advice. This is because the most likely diagnosis is bronchiolitis (coryzal prodrome with mild fever, persistent cough, wheeze), where the initial management is supportive. Safety-netting advice should include the red-flag symptoms requiring escalation (worsening work of breathing e.g. grunting, fluid intake 50-75% normal/no wet nappy for 12 hours, apnoea/cyanosis, exhaustion).

High-flow oxygen is not indicated as the oxygen saturation is currently within normal range. However, it would be recommended if saturations are persistently below 92% on room air.

Antibiotics should not be prescribed immediately as bronchiolitis is most commonly viral. However, antibiotics may be considered if secondary bacterial pneumonia (e.g. high fever >39ºC/persistently focal crackles) or respiratory failure are suspected.

Antibiotics prescribed after a chest X-ray is incorrect as chest X-rays should not be routinely performed in bronchiolitis. This is because the X-ray changes in bronchiolitis can mimic pneumonia so cannot be reliably used to determine further management.

Although bronchodilators, such as salbutamol inhalers, may be indicated in viral-induced wheeze (unlikely here since the child's age is less than 1 year), they are of no benefit in bronchiolitis.

Question:

A 65-year-old male presents with left sided hemiparesis, and decreased level of consciousness. On examination he has a blood pressure of 145/75 mmHg and pulse 110 beats per minute (regular). On auscultation he has crepitations to the mid zones and mild ankle oedema. He has a past medical history of a myocardial infarction 4 months previously. An ECG confirms persistent ST elevation in leads V1-V4.

What is the most likely cause of the stroke?

A.Infective endocarditis

B.Atrial fibrillation

C.Left ventricular thromboembolism

D.Atrial myxoma

E.Paradoxical embolism

Answer:Left ventricular thromboembolism

Explanation:

Persistent ST elevation after previous MI, is very suggestive of a left ventricle aneurysm. Blood stagnates around a left ventricle aneurysm, thereby promoting platelet adherence and thrombus formation. Embolisation of left ventricular thrombi can lead to embolic stroke or other systemic embolisms.

Question:

A concerned 32-year-old woman enquires about a swelling that has appeared on her baby's head, reporting confidently that the swelling was not there at birth, having first noticed it half an hour ago. The baby was born 12 hours ago at 38 by vaginal delivery with forceps.

On examination, there is a well-demarcated, fluctuant swelling that does not cross suture lines, situated over the parietal bone. The baby appears well otherwise, with normal skin colour and tone, as well as normal observations.

What is the most likely diagnosis?

A.Caput succedaneum

B.Cephalhaematoma

C.Chignon

D.Normal skull shape

E.Subgaleal hemorrhage

Answer:Cephalhaematoma

Explanation:

Cephalohaematoma: Several hours after birth, doesn't cross suture lines, can take months to resolve

Important for meLess important

Cephalhaematoma is the correct answer - this is a haemorrhage between the skull and the periosteum of any age human, including a newborn baby, secondary to rupture of blood vessels crossing the periosteum. Because the swelling is subperiosteal, its boundaries are limited by the individual bones, in contrast to a caput succedaneum. The swelling often appears after 2-3 days after birth and may persist for months as the blood clot is slowly re-absorbed. If severe, the child may develop jaundice, anaemia or hypotension. In some cases, it may be an indication of a linear skull fracture or be at risk of an infection leading to osteomyelitis or meningitis. Cephalhaematoma is more common in prolonged and/or instrumental deliveries.

Caput succedaneum is a fluid collection with poorly defined margins caused by the pressure of the presenting part of the scalp against the dilating cervix (tourniquet effect of the cervix) during delivery. For the purpose of exams, this swelling would cross suture lines. The swelling is also present at birth and typically over the vertex. Therefore, this is not the most likely diagnosis.

A chignon is a swelling of an infant's head after a ventouse suction cup has been used for the delivery. While this may be a valid differential without a visual aid given the instrumental delivery, a chignon would be apparent immediately and tends to disappear rather quickly, generally after a few hours (though it may last up to two weeks), therefore it is not the most likely diagnosis in this case.

Normal skull shape is not consistent with your examination findings of a well-demarcated, fluctuant swelling which is new and has appeared two days after birth.

A subgaleal haemorrhage is bleeding in the potential space between the skull periosteum and the scalp galea aponeurosis. Diagnosis is generally clinical, with a large fluctuant boggy mass developing over the scalp (especially over the occiput), crossing suture lines and with superficial skin bruising (making it a less likely diagnosis in this case). The swelling develops gradually 12–72 hours after delivery, although it may be noted immediately after delivery in severe cases. If enough blood accumulates, a visible fluid wave may be seen. Patients may develop periorbital ecchymosis ('raccoon eyes'). They may also go into haemorrhagic shock and/or become jaundiced, while the baby in this case remains well.

Question:

A 67-year-old man with a 10-year history of gastro-oesophageal reflux disease is investigated for dysphagia. An endoscopy shows an obstructive lesion highly suspicious of oesophageal cancer. What is the biopsy most likely to show?

A.Squamous cell carcinoma

B.Normal squamous epithelium

C.Adenocarcinoma

D.Leiomyoma

E.Metaplastic columnar epithelium

Answer:Adenocarcinoma

Explanation:

Oesophageal adenocarcinoma is associated with GORD or Barrett's

Important for meLess important

Metaplastic columnar epithelium would be seen with Barrett's but this is not consistent with the obstructive lesion seen on endoscopy.

Question:

A 36-year-old woman is reviewed on the surgical ward, reporting abdominal pain and vomiting. She has had a procedure to remove a gallstone earlier that day. Her observations show a heart rate of 102 beats/min, blood pressure of 132/92mmHg, temperature of 38.6ºC, oxygen saturation of 99% in room air, and respiratory rate of 20/min. She has blood sent and a CT abdomen is requested.

What is the most likely diagnosis?

A.Atelectasis

B.Cholangitis

C.Common bile duct perforation

D.Duodenal perforation

E.Pancreatitis

Answer:Pancreatitis

Explanation:

Acute pancreatitis is the most common complication of ERCP

Important for meLess important

This patient has symptoms consistent with acute pancreatitis (which is one of the most common post-operative complications from ERCP). Patients will typically present with:

Abdominal pain radiating to the back.

Nausea and vomiting.

Tachycardia due to pain.

Pyrexia.

A full blood count, lipase, and CT abdomen should be requested to confirm the diagnosis. Pancreatitis post-ERCP is believed to occur due to:

Irritation of the pancreatic duct from repeated instrumentation.

Hydrostatic injury from a large volume of contrast administration.

Thermal injury from electrocautery near the pancreatic duct can cause oedema leading to obstruction of the duct.

Atelectasis is one of the most common postoperative respiratory complications. It is caused by the collapse of alveoli. This is not the most likely answer as this patient is not in respiratory distress, has oxygen saturations and has a respiratory rate within normal limits.

While cholangitis is a potential complication of ERCP, it is not as common as acute pancreatitis post-ERCP. Furthermore, it is unlikely to present so acutely post-operatively. It would be expected to occur several days after the procedure and she would be less likely to experience vomiting (unless the vomiting is secondary to pain).

Common bile duct perforation is a rare post-ERCP complication. Perforation secondary to ERCP occurs in 1% of procedures and is not common. Most incidences of perforation are identified during the procedure and common bile duct perforation can often be managed with the insertion of a biliary stent.

Duodenal perforation is rarer than common bile duct perforation from ERCP. It is more likely to require surgical management. It is likely to be identified during the procedure - if it is not identified during the procedure, the patient will experience severe abdominal pain and distention very quickly after the procedure is completed.

Question:

On the geriatrics ward round, you review an 89-year-old lady who was admitted with a community acquired pneumonia and acute kidney injury (AKI) requiring intravenous antibiotics and fluids. She was delirious on admission but this has been improving. Her confusion screen bloods are as follows:

Calcium 2.2 mmol/L (2.1 - 2.6)

Phosphate 1.0 mmol/L (0.8 - 1.4)

Magnesium 0.8 mmol/L (0.7 - 1.0)

Vitamin B12 550 pg/ml (110 - 1500)

Folate 5.6 µg/ml (2.5 - 20)

Thyroid stimulating hormone (TSH) 4.6 mU/L (0.5 - 5.5)

Free thyroxine (T4) 6.0 pmol/L (9.0 - 18)

Free T3 3.6 pmol/L (4 - 7.4)

Her regular medications include: bisoprolol, digoxin, ramipril, atorvastatin and rivaroxaban.

She is currently asymptomatic and feels much better on day 6 of her 7 day course of antibiotics.

What is the most appropriate action for her abnormal thyroid function tests?

A.Ask her GP to repeat thyroid function tests (TFTs) in 6 weeks

B.Start levothyroxine

C.Stop antibiotics now and recheck TFTs tomorrow

D.Repeat TFTs tomorrow

E.Radio-isotope scan

Answer:Ask her GP to repeat thyroid function tests (TFTs) in 6 weeks

Explanation:

Sick euthyroid is common in unwell, elderly patients and often needs no treatment

Important for meLess important

Abnormal TFTs are very common in elderly patients when they are unwell. This lady has no history of thyroid disease and is not currently on levothyroxine, which suggests that this is more likely to be sick euthyroid rather than a new presentation of hypothyroidism.

Though starting levothyroxine may be reasonable, this would more preferably be done once the current illness had resolved.

It is unlikely that her antibiotics are causing deranged TFTs, and given she is currently asymptomatic with her TFTs, it wouldn't be appropriate to discontinue her antibiotics before she has completed her course.

Her thyroid function tests tomorrow are likely to be very similar.

A radio-isotope scan is not indicated in this case as there is no suspicion of malignancy.

Question:

Tom, a 29-year-old man, presents to the emergency department with right-sided abdominal pain. The pain radiates to the anterior hip and is relieved by flexing his hips to touch knees to chest. Tom denies any recent trauma. He has a history of Crohn's disease and takes regular azathioprine.

On examination, his temperature is 38.2ºC. He mobilises across the room with a limp and has pain on extension and internal rotation of his right hip.

Bloods show:

Lab test Result Reference range

WBC 15.3 \* 109/L (4.0 - 11.0)

ESR 20 mm/hr < (15)

CRP 15 mg/L (< 5)

What is the most appropriate investigation at this stage?

A.Abdominal ultrasound

B.Hip x-ray

C.CT abdomen

D.Colonoscopy

E.Hip joint aspiration

Answer:CT abdomen

Explanation:

CT abdomen is the investigation of choice for suspected psoas abscess

Important for meLess important

Tom presents with right-sided abdominal pain which is relieved by hip flexion. He has a low-grade temperature and has a positive psoas sign. These signs and symptoms, together with his history of immunosuppression, is suggestive of psoas abscess. CT abdomen is the investigation of choice for suspected psoas abscess. MRI has a similar sensitivity to contrast CT but is less accessible.

Tom's history and examination are less suggestive of retrocaecal appendicitis. While abdominal ultrasound is the preferred imaging modality to investigate appendicitis in children and pregnant women, in other adults, abdominopelvic CT is preferred.

Hip x-ray is not the most helpful investigation here as the clinical history and examination are less suggestive of osteomyelitis or avascular necrosis.

Colonoscopy is not the most helpful investigation to order next as his presentation is unlikely due to a flare-up of his Crohn's disease.

Hip joint aspiration is not the most helpful investigation here as the clinical picture is not suggestive of septic arthritis.

Question:

You are asked to attend a meeting at a local nursing home. There is currently an increased incidence of MRSA in the patients and a strategy is being drawn up to tackle this. What is the most effective single step to reduce the incidence of MRSA?

A.The use of personal protective equipment for staff including gloves and aprons

B.Hand hygiene

C.Screening patients for MRSA on admission

D.Cohort nursing

E.Limiting the number of visitors

Answer:Hand hygiene

Explanation:

Whilst tackling MRSA requires a multi-pronged approach the evidence base demonstrates that hand hygiene is the single most important step

Question:

A 56-year-old man presents to the ED complaining of a 3-day history of persistent fever and a productive cough. He has been experiencing the symptoms for three days and they do not seem to improve. He was previously fit and well.

On examination, he looks distressed and he has a productive cough with yellow sputum. His heart rate is 92/min, respiratory rate 22/min, blood pressure 130/95 mmHg and temperature 39.2 ºC. On auscultation, bibasal crackles are audible and a crusty lesion can be observed on his upper lip.

He has a past medical history of asthma.

What is the most likely causative agent of his presentation?

A.Haemophilus influenzae

B.Klebsiella pneumoniae

C.Mycoplasma pneumoniae

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Streptococcus pneumoniae

Explanation:

Pneumonia caused by Streptococcus pneumoniae is associated with cold sores

Important for meLess important

The correct answer is Streptococcus pneumoniae. This patient presents with cough, fever and shortness of breath, all classical features of pneumonia. This suspicion is confirmed by the bibasal crackles heard on auscultation. Additionally, this patient has a cold sore on his upper lip. Streptococcus pneumoniae is the most common cause of community-acquired pneumonia and it has been associated with the development of cold sores, making this the most likely answer.

Haemophilus influenzae infections are particularly common in patients with chronic obstructive pulmonary disease. This patient does not have a past medical history of this condition. Additionally, it has not been associated with cold sores.

Klebsiella pneumoniae infections are classically seen in alcoholics. There is no mention of alcohol abuse in the stem. Additionally, it has not been associated with cold sores.

Mycoplasma pneumoniae causes an atypical pneumonia, usually associated with dry cough. In this stem, the patient has a productive cough. Additionally, it has not been associated with cold sores, but with erythema multiforme.

Staphylococcus aureus infections often occur in patients following influenza infection. There is no mention of this in the stem, additionally, it has not been associated with cold sores.

Question:

A 50-year-old woman is brought in to the GP by her concerned son. The patient has established mental health issues meaning she rarely leaves home however she is able to carry out activities of daily life unaided.

Her son is concerned as over the past several months the patient has reported increased generalised joint and bone pain, particularly affecting the spine and legs, with associated general weakness. On examination, she has long bone tenderness, weakness of the proximal muscles and difficulty walking with a ‘waddling gait’.

Based on the patient's presentation what is the most likely diagnosis?

A.Osteomalacia

B.Osteopenia

C.Osteoporosis

D.Paget disease

E.Scurvy

Answer:Osteomalacia

Explanation:

Bone pain, tenderness and proximal myopathy (→ waddling gait) → ?osteomalacia

Important for meLess important

This patient has presented with joint and bone pain, tenderness, and evidence of proximal myopathy in the form of a waddling gait, all suggestive of osteomalacia. With the patient rarely leaving home she is at risk of a lack of sunlight and therefore vitamin D deficiency. This vitamin D deficiency results in decreased bone mineralisation and softening of the bone. Unlikely other bone pathologies, patients with osteomalacia are not only at risk of bone fractures but also commonly experience joint and bone pain and muscle weakness especially in the form of proximal myopathy.

Osteopenia is due to low bone density and normally precedes osteoporosis. As with osteoporosis, patients are at risk of bone fractures but the low bone mass itself does not normally cause symptoms. Pain (unless fractures are present) and weakness is not commonly associated with the condition.

Osteoporosis is the more severe form of reduced bone mass when compared to osteopenia. As such patients are at higher risk of bone fractures however again the condition itself does not cause symptoms. Again, joint pain, proximal weakness and a waddling gait are not associated with osteoporosis.

Paget disease is due to dysregulation of bone remodelling resulting in excessive bone breakdown and subsequent disorganised new bone formation. Although affected patients can experience bone pain, most patients are asymptomatic. The commonest features of the condition include skull frontal bossing, headaches, and hearing loss (secondary to auditory foramen narrowing). Joint pain, proximal weakness and the subsequent waddling gait are not associated with Paget disease.

Scurvy is a result of vitamin C deficiency and therefore is rarely seen unless in cases of extreme self-neglect or alcoholism. Symptoms can include weakness and bone pain but patients will normally have skin changes, easy bruising, petechiae, poor wound healing and gum disease. There is no evidence of these features on examination nor any clear evidence of dietary deficiency making scurvy unlikely.

Question:

A 25-year-old man with a history of schizophrenia is prescribed olanzapine. Which one of the following adverse effects is he most likely to experience?

A.Anorexia

B.Parkinsonism

C.Hypertension

D.Weight gain

E.Agranulocytosis

Answer:Weight gain

Explanation:

Weight gain is an extremely common adverse effect of atypical antipsychotics such as olanzapine

Question:

This chest x-ray was taken from a 30-year-old woman who presented with a productive cough.

© Image used on license from Radiopaedia

What is the underlying diagnosis?

A.Breast cancer

B.Samter triad

C.Kartagener syndrome

D.Right middle lobe and lower lobe pneumonia

E.Cystic fibrosis

Answer:Kartagener syndrome

Explanation:

This patient has x-ray findings consistent with dextrocardia and bronchiectasis (tram-track opacities). Hyperinflation is also seen in this film.

Question:

A 78-year-old woman presents with increasing shortness of breath and a productive cough. Nursing home staff are concerned as she has been having fevers today and the sputum appears red and jelly-like.

She has a background of previous alcohol dependence, type 2 diabetes mellitus and a recent ischaemic stroke. She is currently risk feeding and awaiting follow up with speech and language therapy in the community.

Chest x-ray demonstrates right upper zone consolidation.

What is the most likely cause of the pneumonia?

A.Haemophilus influenzae

B.Klebsiella

C.Mycoplasma

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Klebsiella

Explanation:

Klebsiella pneumonia-> commonly due to aspiration

Important for meLess important

Klebsiella pneumonia is more common in diabetics and patients with a history of alcohol excess. It is also frequently caused by aspiration. In this scenario, the recent stroke has caused problematic dysphagia. Klebsiella commonly affects the upper lobes of the lungs.

Haemophilus influenzae is common in older patients with chronic obstructive pulmonary disease (COPD) and can present as a hospital-acquired pneumonia. It does not cause 'red-currant jelly' sputum.

Mycoplasma is an atypical pneumonia which classically presents with a gradual onset dry cough and occasionally other features, such as autoimmune haemolytic anaemia and erythema multiforme.

Staphylococcus aureus pneumonia commonly occurs after influenza and can also be a complication of measles infection. On chest x-ray, multi-lobar consolidation, cavitation or a pneumothorax might be seen.

Streptococcus pneumoniae is the most common cause of pneumonia and characteristically presents with a high fever and pleuritic chest pain.

Question:

A 75-year-old woman is referred to hospital after routine blood tests sent by the GP showed an acute kidney injury (AKI). Upon admission, she is catheterised and given a fluid bolus; urine output showed a good improvement. The patient has severe dementia and is unable to give any history, she takes memantine for this and has no other significant past medical history of note. During catheterisation, a urine sample was sent for analysis:

Urine osmolality 1000 mOsm/kg (50-1200)

Urine Na+ 10 mmol/L (40-250)

What is the likely aetiology of the acute kidney injury?

A.Acute tubular necrosis

B.Interstitial nephritis

C.Memantine nephrotoxicity

D.Prerenal disease

E.Ureteric calculi

Answer:Prerenal disease

Explanation:

Prerenal disease - urine osmolality > 500 mOsm/kg

Important for meLess important

Prerenal disease is correct. Causes of acute kidney injury are broadly categorised as prerenal, renal or post-renal. Prerenal causes include anything that may lead to hypoperfusion of the kidney, such as dehydration, shock or haemorrhage. In a hypovolaemic state, whereby prerenal AKI can occur, the physiological response of the renal system is to retain salt and water in an effort to replenish the deplete circulatory volume. With this concept in mind, urine becomes concentrated (high osmolality) due to the reabsorption of water, and low in sodium, as the mechanism of fluid reabsorption relies on the retention of sodium. Further, prerenal AKI typically responds well to a fluid bolus as this is directly treating the underlying cause of the problem.

Acute tubular necrosis (ATN) is an example of a 'renal' cause of AKI. In ATN there is necrosis of tubular epithelial cells leading to impairment of reabsorptive capacity and therefore, renal function. ATN can be caused by ischaemia, sepsis and nephrotoxic drugs, amongst other things, and can be a consequence of prerenal disease if left untreated. Importantly, due to a failure of reabsorption in ATN, urine is dilute (low osmolality) with a high sodium concentration. Accordingly, this patient's AKI is not due to ATN.

Interstitial nephritis is another cause of 'renal' AKI. Interstitial nephritis is the inflammation of the renal interstitium, often precipitated by medications such as NSAIDs, antibiotics and proton pump inhibitors. Patients are often febrile and systemically unwell with nausea, vomiting and fatigue. Due to failure of reabsorptive capacity, urine would typically show changes comparable to that of ATN, with additional red cell casts, proteinuria and eosinophiluria.

Although medications are an important cause of AKI, precipitating both ATN and interstitial nephritis, memantine is not a known nephrotoxic agent.

Ureteric calculi is an example of post-renal AKI if causing an obstruction. An obstructive stone would manifest with signs or symptoms of significant pain, and urine output would not show a great response to a fluid bolus. Urinary investigations would be variable and are not a reliable means of diagnosis. Non-contrast CTKUB is the gold-standard investigation for calculi.

Question:

A 64-year-old lady presents to the emergency department with a painful calf. On examination, she has a painful right calf and the whole leg has swollen by 4cm when compared to the left. You call to arrange a Doppler ultrasound and you are told they will be there in 5 hours time.

Given the current presentation and ongoing management, which of the following is the next best step in the management of this patient?

A.Await the results of the Doppler ultrasound

B.Arrange a D-dimer and start a direct oral anticoagulant if positive

C.Give a direct oral anticoagulant + arrange a D-dimer + await the results of the Doppler ultrasound

D.Give treatment dose low molecular weight heparin + await the results of the Doppler ultrasound

E.Perform Simmonds' test to check for the rupture of the Achilles tendon + await the results of the Doppler ultrasound

Answer:Give a direct oral anticoagulant + arrange a D-dimer + await the results of the Doppler ultrasound

Explanation:

If investigating a suspected DVT, and either the D-dimer or scan cannot be done within 4 hours, then start a DOAC

Important for meLess important

This question is asking about the management of a patient presenting with a painful swollen calf. This is most likely a deep vein thrombosis (DVT). We can calculate her Well's score to be 3 due to calf swelling >3 cm compared to the other leg, localized tenderness along the deep venous system and entire leg swelling.

Due to this score, a Doppler ultrasound is required. However, if this cannot be arranged within 4 hours then you should begin treatment immediately. Therefore the correct answer is to give a direct oral anticoagulant. This is now preferred to low molecular weight heparin as it is more convenient and can be continued if the scan is positive. A D-dimer is also recommended as this can help the interpretation of the scan.

As established above, awaiting the results of the Doppler ultrasound is incorrect as it will take too long.

There is no indication of Achilles tendon rupture here and performing such a test can theoretically increase the risk of dislodging the clot.

Question:

A patient's husband offers you a £10 note for helping his wife recover from a chest infection. He insists that he just wants to give a little back because he knows you and the staff have been working hard. What is the best course of action to take?.

A.Thank him for his generosity and take the money

B.Explain that it wouldn't be right for you to accept any money, but thank him for the gesture

C.Thank him for his generosity and explain that you will give it to the hospital charity

D.Explain that you shouldn't accept the money, but you do not want to be rude and damage your relationship so accept it

E.Explain that it wouldn't be right for you to accept any money, but explain that the hospital reception can accept it

Answer:Explain that it wouldn't be right for you to accept any money, but thank him for the gesture

Explanation:

GMC guidance states that as a doctor

'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'

Based on this, option 2 is the correct answer. Option 5 although it does not implicate you, you would still be endorsing / encouraging the patient to give money to the hospital (although a donation wouldn't be so bad as per option 3)

Accepting the money would be inappropriate although it may seem the easiest in the situation as you may not wish to offend / damage relations.

The guidance on this can get grey when gifts are offered that are not physical money. It is generally regarded as okay to accept a card, a small gift but any money or large gift would not be.

http://www.gmc-uk.org/guidance/ethicalguidance/21161.asp

Question:

A 36-year-old man with type 1 diabetes attends the diabetes clinic for his annual review.

He holds a Group 1 driving licence and informs his specialist that he has had two episodes of hypoglycaemia 1 and 4 months ago respectively. Both occurred while awake after he had several alcoholic drinks and required the assistance of his partner.

He otherwise normally has full hypoglycaemia awareness. Furthermore, he practises appropriate glucose monitoring before and during driving and has never had a hypoglycaemia episode while behind the wheel.

What is the appropriate advice regarding his driving?

A.Increase frequency of blood glucose monitoring before and during driving

B.Inform DVLA and will need to surrender driving licence

C.Inform DVLA for monitoring purposes, can resume driving as normal

D.No need to inform DVLA, but will need to notify if has another hypoglycaemic episode in next 2 months

E.No need to inform DVLA, can resume driving as normal

Answer:Inform DVLA and will need to surrender driving licence

Explanation:

Patient with diabetes who have had two hypoglycaemic episodes requiring help needs to surrender their driving licence

Important for meLess important

All patients with diabetes who are treated with insulin must notify the DVLA. For the DVLA to license an insulin-treated individual with a Group 1 licence, they must meet all the following criteria:

Adequate hypoglycaemia awareness

No more than 1 episode of severe hypoglycaemia while awake in the preceding 12 months AND the most recent episode occurred more than 3 months ago

Practises appropriate glucose monitoring

Not regarded as a likely risk to the public while driving

Meets the visual standards for acuity and visual field

Under regular review

This man has had 2 episodes of severe hypoglycaemia while awake in the last 12 months, which is defined as needing the assistance of another person for treatment. He must therefore inform the DVLA who will most likely require him to surrender his driving licence.

Increase frequency of blood glucose monitoring before and during driving is incorrect. All insulin-treated patients with a Group 1 licence must perform glucose testing no more than 24 hours before starting their journey, and every 2 hours after driving has started. More frequent self-monitoring may be required in higher-risk situations, but there is no clause in DVLA guidance that would permit this man to resume driving if he were to increase his testing frequency.

Inform DVLA for monitoring purposes, can resume driving as normal is incorrect. This man has had 2 severe hypoglycaemia episodes and this would be considered as too high a risk to the public if he were to continue driving at this time.

No need to inform DVLA, but will need to notify if has another hypoglycaemic episode in next 2 months is incorrect. This man may be permitted to continue driving if he had only 1 severe episode more than 3 months ago, but as he has had 2 episodes, he would not meet the criteria for licensing.

No need to inform DVLA, can resume driving as normal is incorrect. This would be an unlawful decision and would pose a risk to the public.

Question:

A 59-year-old male presents to his general practitioner describing episodes of central chest tightness that are brought on by exertion and relieved by rest. His past medical history includes osteoarthritis, gastro-oesophageal reflux disease, gout and depression. His medications include: omeprazole, diclofenac, paracetamol, codeine and sertraline.

Given the likely cause of his presentation, which of his regular medications should now be stopped?

A.Codeine

B.Diclofenac

C.Omeprazole

D.Paracetamol

E.Sertraline

Answer:Diclofenac

Explanation:

Diclofenac is now contraindicated with any form of cardiovascular disease

Important for meLess important

This patient is presenting with symptoms of stable angina. Diclofenac is contraindicated with any form of cardiovascular disease so should be stopped. The patient should then be commenced on aspirin, a statin, sublingual glyceryl trinitrate and a beta-blocker or calcium-channel blocker.

In this patient, diclofenac is likely to have been used to treat gout or osteoarthritis. An alternative NSAID such as ibuprofen could be used, but this should still be used with caution in cardiovascular disease. Colchicine could be used in place of diclofenac if the patient suffers an acute flare up of gout and there is no renal impairment.

Paracetamol and codeine have no contraindications in cardiovascular disease.

Omeprazole also has no contraindication in cardiovascular disease. Of note, omeprazole has been shown to reduce the efficacy of clopidogrel so these two medications should not be prescribed together where possible.

Sertraline has no contraindications in cardiovascular disease. However, it can increase the risk of bleeding due to its effect on platelet function so it should be used with caution in patients who are on other drugs that may increase bleeding i.e. aspirin, ticagrelor or clopidogrel.

Question:

An 85-year-old comes for review. She has recently had private health screening and has been advised to see a doctor regarding her thyroid function tests (TFTs).

TSH 9.2 mU/L

Free thyroxine 14 pmol/L

She is currently well and asymptomatic. What is the most appropriate management?

A.Start levothyroxine

B.Start carbimazole

C.Order a thyroid ultrasound scan

D.Start levothyroxine + carbimazole ('block and replace')

E.Repeat TFTs in a few months time

Answer:Repeat TFTs in a few months time

Explanation:

This patient has subclinical hypothyroidism. By both the TSH and age criteria advocated by NICE Clinical Knowledge Summaries she should be monitored for now.

Question:

You are asked to do a home visit to see a 57-year-old man with a history of lung cancer. He has new-onset severe lower thoracic back pain worsening over the course of the past two days. The pain is worse when coughing, and when lying flat. It is increasingly difficult to mobilise in the house but he is normally independent and continues to work part-time. On examination, he has bilateral paraesthesia in the legs. His current analgesia consists of paracetamol 1g four times daily which is no longer helping.

What would be the most appropriate drug therapy?

A.Amitriptyline

B.High dose dexamethasone

C.Lidocaine 5% medicated plaster

D.Naproxen

E.Short-acting morphine

Answer:High dose dexamethasone

Explanation:

If neoplastic spinal cord compression is suspected, high-dose oral dexamethasone should be given whilst awaiting investigations

Important for meLess important

High dose oral dexamethasone is correct. This patient is presenting with symptoms suggestive of neoplastic spinal cord compression: bilateral lower limb symptoms, worsening pain worse particularly when coughing, and an increased risk due to a background of known lung malignancy. A steroid medication, unless contraindicated, should be given prior to hospital transfer. Further investigation is appropriate in this patient's circumstances. MRI is the preferred method of imaging when there are no contraindications. This should be carried out within 24 hours.

Amitriptyline is incorrect. Although it can be used to treat neuropathic pain it would not be appropriate to use this medication for this patient given the suspected diagnosis of neoplastic spinal cord compression.

Naproxen is incorrect. This patient is presenting with red flag symptoms suggestive of spinal cord compression which will not be treated by this medication.

Lidocaine 5% medicated plaster is incorrect. It would not be appropriate for use in this patient who has a suspected neoplastic spinal cord compression.

Short-acting morphine is incorrect. Whilst this would be considered as an analgesic option for a patient with severe pain and known malignancy; it is not the most appropriate drug therapy for this patient as it does not treat the suspected cause of his pain which is neoplastic spinal cord compression.

Question:

A 22-year-old man presents in general practice with chronic back pain. There is no history of trauma but he has had an episode of anterior uveitis in the last year. You suspect ankylosing spondylitis (AS) and perform Schober's test, which is positive.

What commonly used investigation could provide evidence to support this diagnosis?

A.Chest radiograph

B.Full-blood count

C.CT chest, abdomen and pelvis

D.Human leukocyte antigen B27

E.Pelvic radiograph

Answer:Pelvic radiograph

Explanation:

Diagnosis of ankylosing spondylitis can be best supported by sacro-ilitis on a pelvic X-ray

Important for meLess important

A pelvic radiograph may reveal sacroiliitis which would support a diagnosis of AS.

Although a chest radiograph may show a bamboo spine, this is a late sign and unlikely to be seen at this stage in this patient.

A full-blood count is unlikely to reveal anything diagnostically useful.

Although a CT chest, abdomen and pelvis will reveal detailed imaging and may reveal sacroiliitis, this is not commonly used for this purpose due to the unnecessarily large radiation exposure.

HLA-B27 testing is not commonly done in clinical practice and would merely demonstrate a predisposition to AS. Moreover, HLA-B27 is not specific to AS and is commonly positive in healthy patients.

Question:

You are the on-call doctor covering a general surgical ward. You are bleeped and asked to assess a deteriorating patient that began receiving a blood transfusion 1 hour ago. His observations are as follows:

Observations

Temperature: 38ºC

Oxygen saturation: 88%

Heart rate: 110/min

Respiratory rate: 24/min

Blood pressure: 80/65 mmHg

On examination of the chest, you hear crackles at the lung bases.

You request an urgent chest x-ray and phone your senior for help. They ask you what you think is the most likely diagnosis.

What is the most likely diagnosis?

A.Acute haemolytic transfusion reaction

B.Pneumothorax

C.Pulmonary embolism

D.Transfusion related acute lung injury (TRALI)

E.Transfusion-associated circulatory overload (TACO)

Answer:Transfusion related acute lung injury (TRALI)

Explanation:

TRALI is differentiated from TACO by the presence of hypotension in TRALI vs hypertension in TACO

Important for meLess important

Transfusion-related acute lung injury (TRALI) is the most likely diagnosis. This is because the patient is receiving a blood transfusion and has developed signs of respiratory distress (tachypnoea, low saturations). Furthermore, pyrexia and hypotension are key features of TRALI that differentiate it from other transfusion-related reactions, particularly TACO.

An acute haemolytic reaction is unlikely because of the timing of the reaction. An immediate reaction would be seen with something like an ABO incompatibility and chest findings such as bibasal crackles would not be seen.

A pneumothorax similarly would not cause crackles to be heard and is not necessarily associated with a blood transfusion. It would also not explain the patient's pyrexia.

A pulmonary embolism could explain the patient's tachycardia, tachypnoea, low oxygen saturations, and hypotension, but none of these are specific. A fever may also occur with a pulmonary embolism. However, in this scenario, TRALI is much more likely.

Transfusion-associated circulatory overload (TACO) is an important differential and it is sometimes difficult to distinguish from TRALI. TACO presents with dyspnoea and features of fluid overload. It is more commonly seen in those with a background of cardiac failure. Pyrexia is not usually a feature, and patients are typically hypertensive rather than hypotensive.

Question:

A 47-year-old man is reviewed in the smoking cessation clinic. Which one of the following conditions would contraindicate the prescription of bupropion?

A.History of supraventricular tachycardia

B.Previous episodes of acute pancreatitis

C.Epilepsy

D.Depression

E.Hypertension

Answer:Epilepsy

Explanation:

Bupropion should not be used in a patient with epilepsy as it reduces seizure threshold

Important for meLess important

Question:

A 66-year-old man presents to the emergency department complaining of persistent vomiting. He believes he may have developed infective gastroenteritis from eating undercooked meat two days prior. He has been unable to keep food down since yesterday.

On examination, he appears distressed, has dry mucous membranes and has a prolonged capillary refill. As part of his admission, the on-call doctor performs an arterial blood gas.

What is this most likely to show?

A.Metabolic alkalosis

B.Mixed respiratory and metabolic alkalosis

C.Normal anion gap metabolic acidosis

D.Raised anion gap metabolic acidosis

E.Reduced anion gap metabolic acidosis

Answer:Metabolic alkalosis

Explanation:

Vomiting / aspiration - metabolic alkalosis

Important for meLess important

The correct answer is metabolic alkalosis. In the question, the patient is vomiting profusely, due probably to infective gastroenteritis. This will lead to metabolic alkalosis due to H+ ions being lost in the stomach acid when vomiting.

Mixed respiratory and metabolic alkalosis is incorrect. This patient is in metabolic alkalosis due to H+ ions being lost via the expelled stomach acid. However, there is no evidence of respiratory disorder, so the lungs are more likely to compensate for metabolic acidosis by reducing the respiratory rate to retain CO2.

Normal anion gap metabolic acidosis is incorrect. The patient would not be in metabolic acidosis, as described above, due to the loss of H+ ions instead of bicarbonate. A normal anion gap metabolic acidosis would be seen in a scenario where there is a loss of bicarbonate such as prolonged diarrhoea.

Raised anion gap metabolic acidosis is incorrect. The patient would not be in metabolic acidosis for the reasons outlined above. A raised anion gap metabolic acidosis would be seen in some form of organic acid production leading to metabolic acidosis such as diabetic ketoacidosis.

Reduced anion gap metabolic acidosis is incorrect. In this case the patient would be in metabolic alkalosis due to the loss of H+ ions via the gastric contents. A reduced anion gap is typically due to conditions that cause hypoalbuminaemia, or electrolyte disturbances such as hypercalcaemia.

Question:

A 27-year-old pregnant woman is brought to the emergency department by ambulance due to drowsiness. Her partner reports that she has been vomiting and had a fever for the past week. They returned from a trip to Mexico one month ago.

On examination, she is jaundiced, febrile and her GCS is 13. She has a flapping tremor.

Her blood results show the following:

Bilirubin 431 µmol/L (3 - 17)

ALP 956 u/L (30 - 100)

ALT 2741 u/L (3 - 40)

Platelets 20 \* 109/L (150 - 400)

Prothrombin time (PT) 21 seconds (10 - 13)

Activated partial thromboplastin time (APTT) 40 seconds (21 - 31)

Fibrinogen 27 mg/dL (200 -400)

What is the most likely cause of her presentation?

A.Hepatitis A

B.Hepatitis B

C.Hepatitis C

D.Hepatitis D

E.Hepatitis E

Answer:Hepatitis E

Explanation:

Severe hepatitis in a pregnant woman - think hepatitis E

Important for meLess important

This patient has presented with hepatitis with reduced GCS, a flapping tremor, and a clotting screen consistent with disseminated intravascular coagulation. Fulminant liver failure in a pregnant woman who has recently returned from Mexico is consistent with hepatitis E. The incubation period of 3 weeks until symptom onset is in keeping with hepatitis E.

Hepatitis A presents similarly to hepatitis E, but severe hepatitis in pregnant women is more typically secondary to hepatitis E.

Hepatitis B, hepatitis C and hepatitis D are blood-borne viruses. The patient is more likely to have a hepatitis infection spread via faeco-oral route given her recent travel to Mexico.

Question:

A 58-year-old man presents to his GP with a 6-month history of colicky abdominal pain. The pain is worse after eating and he also complains of nausea and vomiting. On questioning, the patient admits to having lost 12 kg over the last two months.

On abdominal examination, there are no palpable masses present and a digital rectal examination is normal. On auscultation, a bruit is audible over the upper abdomen.

What is the most likely explanation for this patient’s presentation?

A.Colorectal cancer

B.Crohn's disease

C.Intestinal angina

D.Ulcerative colitis

E.Chronic appendicitis

Answer:Intestinal angina

Explanation:

Intestinal angina (or chronic mesenteric ischaemia) is classically characterised by a triad of severe, colicky post-prandial abdominal pain, weight loss, and an abdominal bruit - by far the most common cause is atherosclerotic disease in arteries supplying the GI tract

Important for meLess important

A triad of severe, colicky post-prandial abdominal pain, weight loss, and an abdominal bruit points towards intestinal angina. In particular the bruit is unlikely to occur in any of the other pathologies given.

Reference: Reference: Wilkinson & Longmore, Oxford Handbook of Clinical Medicine (10th Ed.), p. 620.

Question:

A 22-year-old woman books an urgent appointment. She reports a two day history of progressive soreness, redness and discharge from her left eye. She reports a gritty feeling in the eye. She denies any exposure to foreign bodies. She is systemically well. She concedes that she has been wearing contact lenses daily up to 16 hours at a time. She has not worn contact lenses since her symptoms began and is using her glasses instead.

On examination the left eye is red and inflamed with excessive tearing. The right eye is normal. There is no abnormality of the periorbital tissues. Visual acuity is normal whilst wearing her glasses.

What is the most appropriate management?

A.Prescribe artificial tears

B.Prescribe chloramphenicol eye drops

C.Prescribe dexamethasone eye drops

D.Advise to not wear contact lenses for the next seven days

E.Refer for same day ophthalmology assessment

Answer:Refer for same day ophthalmology assessment

Explanation:

Contact lens wearers who present with a red painful eye should be referred to eye casualty to exclude microbial keratitis

Important for meLess important

The most common cause of unilateral red eye is conjunctivitis, this can generally be managed in primary care with simple antibiotic eye drops. Special care has to be taken with contact lens wearers, they are at risk of microbial keratitis. Distinction between the two is difficult and requires a slit-lamp examination. Complications can be serious including visual loss, hence same day referral to ophthalmology is indicated.

Contact lenses should certainly not be used but medical treatment is also needed.

Steroid eye drops should not be prescribed for acute red eye from primary care.

Artificial tears are useful in uncomplicated dry eyes but there are clear signs of infection here.

Question:

A 32-year-old woman is referred to the joint antenatal and diabetic clinic after being diagnosed with gestational diabetes mellitus. She is currently 25 weeks pregnant and this is her first pregnancy. There is no history of any pregnancy-related problems in her family but her father has type 1 diabetes mellitus. The examination is normal, other than a raised BMI of 32 kg/m².

Which of the following would be diagnostic for this woman's condition?

A.2-hour glucose level >= 5.6 mmol/L

B.Fasting plasma glucose >= 5.6 mmol/L

C.Glucose >= 6.4 mmol/L 2-hours after mealtime

D.Glucose >=7.8 mmol/L 1-hour after mealtime

E.Random plasma glucose >= 7.8 mmol/L

Answer:Fasting plasma glucose >= 5.6 mmol/L

Explanation:

Gestational diabetes can be diagnosed by either a:

fasting glucose is >= 5.6 mmol/L, or

2-hour glucose level of >= 7.8 mmol/L

'5678'

Important for meLess important

This patient has been diagnosed with gestational diabetes mellitus in her first pregnancy - she was at an increased risk of this due to her raised BMI and the presence of a first-degree relative with diabetes mellitus. Women with risk factors and no previous history of gestational diabetes mellitus undergo an oral glucose tolerance test at around 24 weeks. Gestational diabetes mellitus is diagnosed if the patient has fasting glucose above 5.6 mmol/L or 2-hour glucose above 7.8 mmol/L on either of these occasions. The correct answer is therefore fasting plasma glucose of above 5.6 mmol/L.

A 2-hour glucose level above 5.6 mmol/L would not be diagnostic of gestational diabetes mellitus. The 2-hour glucose level needs to be above 7.8 mmol/L for diagnosis.

Glucose of 6.4 mmol/L 2-hours after mealtime is one of the glucose targets for women with gestational diabetes mellitus so this answer is not correct.

Glucose of 7.8 mmol/L 1-hour after mealtime is another glucose target for women with gestational diabetes mellitus so this is not the correct answer.

Random plasma glucose tests are not part of the diagnostic process for gestational diabetes mellitus.

Question:

An 80-year-old right-handed woman has recently been admitted with an acute ischaemic stroke affecting part of the left hemisphere. She is seen in clinic a month later. She is able to understand questions and produce fluent connected speech, however she frequently substitutes incorrect sounds. When she makes an error she notices but finds it difficult to correct the error. She is unable to repeat phrases.

What type of aphasia does she have?

A.Anomic aphasia

B.Broca’s aphasia

C.Conduction aphasia

D.Global aphasia

E.Wernicke’s aphasia

Answer:Conduction aphasia

Explanation:

Conduction dysphasia: speech fluent, but repetition poor. Comprehension is relatively intact

Important for meLess important

This woman has likely had a stroke affecting the arcuate fasciculus in her dominant hemisphere, the connection between Wernicke's and Broca's area. She has conduction aphasia, with fluent speech and good comprehension but word finding difficulties and difficulty repeating phrases.

Broca's aphasia results in non-fluent, laboured and halting speech.

Wernicke's aphasia results in neologisms and nonsense sentences which is fluent.

Global aphasia causes severe expressive and receptive deficits.

Anomic aphasia is a deficit of expressive language which results primarily in word finding difficulties.

Question:

A 24-year-old man presents with rectal bleeding and a 'sharp, stinging' pain on defecation. This has been present for the past two weeks. He has a tendency towards constipation and notices that when he wipes himself fresh blood is often on the paper. Rectal examination is limited due to pain but no external abnormalities are seen. What is the most likely diagnosis?

A.Internal haemorrhoids

B.Anal carcinoma

C.Rectal polyp

D.Anogenital herpes

E.Anal fissure

Answer:Anal fissure

Explanation:

The combination of pain and bleeding is very characteristic of anal fissures. Pain is a feature of thrombosed external haemorrhoids but is unusual with internal haemorrhoids. Superficial anal fissures may be difficult to see on examination.

Question:

Which of the following is considered an unacceptable risk (UK Medical Eligibility Criteria 4 (UKMEC4)) regarding prescribing the combined oral contraceptive pill (COCP)?

A.Personal history of migraines with no aura

B.Breast feeding and 4 weeks postpartum

C.Breast feeding and 7 weeks postpartum

D.Family history of pulmonary embolism in a first degree relative aged <45 years old

E.BMI > 35kg/m

Answer:Breast feeding and 4 weeks postpartum

Explanation:

The UK Medical Eligibility Criteria (UKMEC) provide guidance on the contraindications to the use of contraception..

UKMEC regarding the use of the COCP.

UKMEC1 - No restriction

UKMEC2 - Advantages > Disadvantages

UKMEC3 - Disadvantages > Advantages

UKMEC4 - Unacceptable risk

UKMEC3:

- > 35 years old and smoker of < 15 cigarettes per day

- BMI > 35

- Migraine with no aura

- Family history of deep vein thrombosis or pulmonary embolism in first degree relative < 45 years old

- Controlled hypertension

- Immobility e.g. Wheelchair use

- Breast feeding and 6 weeks to 6 months postpartum

UKMEC4:

- >35 years old and smoker of > 15 cigarettes per day

- migraine with aura

- Personal history of deep vein thrombosis or pulmonary embolism

- Personal history of stroke or ischaemic heart disease

- Uncontrolled hypertension

- Breast cancer

- Recent major surgery with prolonged immobilisation

- Breast feeding and < 6 weeks postpartum

Source - FSRH UKMEC for contraceptive use.

Question:

A 43-year-old man presents to surgery with lethargy. Examination is unremarkable apart from a blood pressure of 192/112 mmHg. Routine blood tests reveal:

Na+ 146 mmol/l

K+ 2.4 mmol/l

Bicarbonate 34 mmol/l

Urea 5.3 mmol/l

Creatinine 75 µmol/l

What is the most likely diagnosis?

A.Phaeochromocytoma

B.Renal artery stenosis

C.Diabetes mellitus

D.Bartter's syndrome

E.Primary hyperaldosteronism

Answer:Primary hyperaldosteronism

Explanation:

Primary hyperaldosteronism can present with hypertension, hypernatraemia, and hypokalemia

Important for meLess important

Hypokalaemia associated with hypertension points towards a diagnosis of primary hyperaldosteronism. Bartter's syndrome is associated with normotension

Question:

A 58‐year‐old man presented to the emergency department at 10:00 pm with severe central chest pain radiating to the left arm.

An ECG confirmed acute ST-elevation myocardial infarction. He underwent percutaneous coronary intervention and was subsequently admitted to the coronary care unit.

The patient improved over the next 18 hours however he then developed ventricular fibrillation and went into cardiac arrest.

After several cycles of CPR, it was not possible to restore circulation and the man died.

What feature of this case most strongly necessitates that this death is reported to the coroner?

A.The cause of death is unknown

B.The death occurred within 24 hours of admission to hospital

C.The death was may be due to an accident

D.The death may be due to neglect by others

E.The death occurred as a direct result of the treatment received

Answer:The death occurred within 24 hours of admission to hospital

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

Ventricular fibrillation is a common cause of sudden death following an acute MI.

This death occurred within 24 hours of admission to hospital and therefore is reportable to the coroner, even though the cause of death is known.

There is nothing to suggest that death was accidental, occurred due to neglect or occurred as a direct result of treatment.

Question:

A 34-year-old woman presents to the practice acutely short of breath. An ambulance is called and a quick history is taken. She takes the combined oral contraceptive pill and has recently been discharged after laparoscopic cholecystectomy. Her observations are below:

Blood pressure 98/57 mmHg

Respiratory rate 26 breaths per minute

Temperature 36.7ºC

Oxygen saturation 93% on room air

Oxygen is given by face mask and an ECG is taken while waiting for the ambulance.

Given the likely diagnosis, what is the most likely finding on the ECG?

A.Right axis deviation

B.Right bundle branch block

C.S1Q3T3

D.Sinus tachycardia

E.T-wave inversions V1-V4

Answer:Sinus tachycardia

Explanation:

The most common ECG change in PE is sinus tachycardia

Important for meLess important

This patient is likely suffering from a pulmonary embolism (PE). The most common finding on ECG in patients with PE is sinus tachycardia (seen in 44% of cases). Therefore, in this case, it would be the most likely finding on the ECG. The percentages and explanations of the following answers are derived from life in the fast lane - ECG changes in PE.

Right axis deviation is a common finding in PE and occurs in 16% of cases due to the increasing strain and demand on the right ventricle to overcome the pulmonary occlusion.

Right bundle branch block is a common finding and occurs in 18% of cases. It also develops secondary to the increasing strain and demand on the right ventricle.

S1Q3T3 is demonstrated by a deep S-wave in lead I, a Q-wave in lead III and an inverted T-wave in lead III. It is associated with PE, however, it is neither sensitive nor specific for the condition and would not be the most common finding.

T-wave inversions in leads V1-V4 can be due to right ventricular strain. This occurs for the same reason as the previous two conditions. The high pulmonary artery pressures lead to increasing demand on the right ventricle which can cause ischaemia. This is not the most common finding in pulmonary embolism.

Question:

A 6-year-old boy is seen in the emergency department complaining of swelling around his right eye. This has been present or the past 2 days and during this time he has been feverish and lethargic. He denies any loss of vision or trauma to the eye.

Basic observations reveal a temperature of 38.2ºC. On examination you see evidence of right-sided proptosis, and all eye movements are reduced and painful in the affected eye. Fundoscopy is normal, visual acuity is 6/6 in the left and 6/12 in the right eye.

What is the most likely diagnosis?

A.Conjunctivitis

B.Iritis

C.Retinoblastoma

D.Orbital cellulitis

E.Corneal abrasion

Answer:Orbital cellulitis

Explanation:

Orbital cellulitis typically presents as sudden onset unilateral swelling of the eye, usually accompanied by proptosis and reduced eye movements. There may also be pain and other visual changes depending on the severity of the condition.

Diagnosis is usually only clinical but microbiology and imaging modalities such as Computerised tomography (CT) may be used in severe/ resistant cases.

Conjunctivitis and iritis are both causes of red eye, but do not typically cause orbital swelling. Retinoblastoma usually affects children under 5-years-old, it is usually picked up during routine fundoscopy or due to a deterioration in vision. Corneal abrasion does not present with orbital swelling and typically occurs after trauma to the eye.

Emergency referral should be made to secondary care for all paediatric cases of suspected orbital cellulitis where the mainstay of treatment is with IV antibiotics.

Question:

Which one of the following statements regarding maturity-onset diabetes of the young (MODY) is true?

A.There is usually a strong family history

B.Body mass index is typically > 30

C.Doesn't respond to glimepiride

D.Autosomal recessive inheritance

E.Frequent episodes of diabetic ketoacidosis are typical

Answer:There is usually a strong family history

Explanation:

Question:

A 5-year-old boy presents with his mother to the GP surgery with a 5-day history of right-sided otalgia and reduced hearing. On examination, he has a temperature of 38.5ºC and a heart rate of 120 bpm. There is swelling around his right ear and the ear appears to be displaced anteriorly. The canal appears normal however the tympanic membrane is red and bulging.

What is the most appropriate next step in management?

A.Analgesia

B.Amoxicillin

C.Topical antibiotic and steroid combination drops

D.Amoxicillin and topical antibiotic and steroid combination drops

E.Refer to secondary care

Answer:Refer to secondary care

Explanation:

This child is unwell and has signs of mastoiditis. He should be referred urgently to ENT for admission and further assessment.

The revised 2015 NICE guidelines on otitis media advise that patients should be referred for immediate assessment if they present with any suspected acute complications such as meningitis, mastoiditis, or facial nerve paralysis

Question:

You are a doctor in the rheumatology clinic reviewing a 70-year-old woman with a new diagnosis of osteoporosis. Based on the FRAX/NOGG guidance and the results of her DEXA scan, she is prescribed alendronic acid as part of her treatment plan. You counsel her on the correct way of taking this medication. After doing so, she enquires why she cannot take this medication like all her other medications after breakfast.

If she cannot take this medication as instructed, what is she at most risk of developing?

A.Acute phase response

B.Atypical stress fracture

C.Hypocalcaemia

D.Oesophageal reaction

E.Osteonecrosis of the jaw

Answer:Oesophageal reaction

Explanation:

Oral bisphosphonates should be swallowed with plenty of water while sitting or standing on an empty stomach at least 30 minutes before breakfast (or another oral medication); the patient should stand or sit upright for at least 30 minutes after taking

Important for meLess important

Oral bisphosphonate therapy is common and requires effective counselling on administration. Taking plenty of water with the drug minimises the risk of oesophageal retention. Oral bisphosphonates can react with the oesophageal lining and increase the risk of esophagitis. Therefore, The correct option is oesophageal reaction . Oesophageal disorders and an unsafe swallow are contraindications for oral bisphosphonate therapy.

Acute phase response may occur as a reaction to the bisphosphonate therapy itself, as opposed to the route of administration.

Atypical stress fractures are a known associated risk with long-term bisphosphonate therapy. However, this risk is not affected by the route of administration.

Hypocalcaemia may occur with long-term bisphosphonate therapy but is not associated with the route of administration.

Osteonecrosis of the jaw is a known, rare side effect of bisphosphonate therapy. However, there is no mention of specific risk factors for this rare condition, making this option incorrect.

Question:

A 39-year-old man from Burkina Faso presents to his GP complaining of a persistent cough and 2kg of unintentional weight loss over the past 6 weeks. He denies night sweats.

He has never smoked or drunk alcohol and mentions his job as a baker.

On examination, he has sensitive, erythematous pretibial nodules. A Mantoux test is negative.

What is the most likely diagnosis?

A.Berylliosis

B.Lung squamous cell carcinoma

C.Mycoplasma pneumoniae infection

D.Primary tuberculosis

E.Sarcoidosis

Answer:Sarcoidosis

Explanation:

Painful shin rash + cough → ?sarcoidosis

Important for meLess important

Sarcoidosis. This is correct. Sarcoidosis, dubbed by some 'the great imitator', can be difficult to diagnose. Sarcoidosis should be a differential to keep in mind with patients presenting with a persistent cough and a painful shin rash. This rash is most likely erythema nodosum, inflammation of the subcutaneous fat usually found on the shins (but can present on the thighs and forearms). Sarcoidosis can also affect the kidneys, giving hypercalcaemia, the lymphatic system, giving lymphadenopathy, and other organs/systems. It is more common in people of Scandinavian or African descent.

Berylliosis. Incorrect, as this condition is caused by exposure to beryllium dust. This is almost always an occupational exposure and is seen in workers of the electronics and metal extraction industries. This man is a baker, so is more likely to suffer from so-called 'Baker's lung' if any occupational condition, which is caused by long-term inspiration of flour.

Lung squamous cell carcinoma. Incorrect. While lung cancer is an important differential to check for in a patient with weight loss and a chronic cough, it is unlikely this man has a squamous cell carcinoma (SCC) of the lungs. This is because lung SCC is heavily associated with smoking, which this man has no history of, and isn't typically linked with erythema nodosum. Furthermore, he is a relatively young man, so the age of onset points more towards sarcoidosis. These factors combined, along with the weight loss being fairly small, suggest sarcoidosis over lung SCC.

Mycoplasma pneumoniae. In a patient this age, atypical causes of pneumonia such as Mycoplasma pneumoniae should be suspected. This can present with a dry cough and vague symptoms of feeling generally unwell. However, Mycoplasma pneumoniae is associated more with erythema multiforme than erythema nodosum, the concurrence of which there is only anecdotal evidence for in the literature. Furthermore, while not unheard of, weight loss is unusual in Mycoplasma pneumoniae infection.

Primary tuberculosis. While tuberculosis (TB) can cause a cough, weight loss, and erythema nodosum, the stem specifies a Mantoux test is negative. This is a test done to check for TB, and a negative result makes TB unlikely. Furthermore, there is no indication this man is immunocompromised, which is usually when latent TB would opportunistically manifest (usually if the CD4+ count is <350). Therefore, sarcoidosis is more likely.

Question:

A 50-year-old man is admitted with a gunshot wound to the leg following an accident whilst clay pigeon shooting. He asks that you not tell the police as he is worried that this will affect his reputation as a solicitor. As the emergency department doctor, what should you do?

A.Notify the police without telling the patient but withhold the patients details at this stage

B.Notify the police and give full details of the patient, the incident and the injuries

C.Follow the patient's 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 the police at this stage

E.Tell the patient that you will withhold all treatment until they let you call the police

Answer:Tell the patient that you must notify the police but will not give their personal details to the police at this stage

Explanation:

You should always attempt to tell a patient if you intend to break confidentiality and explain the reasons behind this, even if the patient does not agree with you.

Breaking confidentiality in the case of knife and gun crime warrant special consideration, according to GMC Guidelines. They advise that you should inform the police quickly when a person arrives with a gunshot wound or injury from an attack, to enable them to assess the risk to the patient or others, and to gather statistical information about gun and knife crime in the area

Even accidental shootings involving lawfully held guns raise serious issues for the police about, for example, gun licensing. Although it is unlikely that these circumstances do not pose a risk, the police should still make this decision.

GMC Guidelines state that 'Personal information, such as the patient's name and address, should not usually be disclosed in the initial contact with the police. The police will respond even if the patient's identity is not disclosed.'

You should never withhold treatment for a patient in need unless this would put you or your colleagues at direct risk.

Question:

A 22-year-old patient presents to a walk in clinic with acute severe asthma. He is short of breath but still able to talk in full sentences. He had a near-fatal exacerbation of his asthma two years ago. His observations are shown below. His peak expiratory flow rate is 62% of his normal measurement.

HR 95bpm

RR 21 / min

SpO2 95%

Which feature of the history or observations would prompt you to admit him to hospital?

A.Young age

B.Previous near-fatal attack

C.Oxygen saturation

D.Respiratory rate

E.Peak flow rate

Answer:Previous near-fatal attack

Explanation:

Patients with moderate acute severe asthma should be admitted to hospital in the presence of a previous near-fatal attack

Important for meLess important

This patient is having a moderate attack of acute severe asthma. These patients are managed in the community unless they have had a previously near-fatal attack or have other comorbidities which would make a moderate asthma attack more likely to be fatal.

NICE guidance on hospital admission in acute asthma states:

'Admit people with a moderate asthma exacerbation with worsening symptoms despite initial bronchodilator treatment and/or who have had a previous near-fatal asthma attack.'

Question:

A 45-year-old female presented with symptoms of tremor, palpitations and weight loss. On assessment by her doctor there appeared to be neck swelling. Upon investigation by an ultrasound scan, a toxic multinodular goitre was demonstrated.

What would nuclear scintigraphy show in this case?

A.Absent uptake

B.Diffuse uptake

C.Increased uptake

D.Patchy uptake

E.Trace uptake

Answer:Patchy uptake

Explanation:

In toxic multinodular goitre, nuclear scintigraphy reveals patchy uptake

Important for meLess important

Nuclear scintigraphy uses very small, tracer amounts of radioactive molecules to diagnose diseases involving bone, soft tissues and vessels.

Patchy uptake is seen with toxic multinodular goitre.

Diffusely and increased activity with a decreased background is seen in Graves disease.

Trace or absent uptake may indicate the presence of thyroiditis resulting in inflammation or destruction of thyroid tissue.

Question:

A 29-year-old woman with known Crohn's disease attends the surgical outpatient clinic complaining of a swollen, tender lump next to her anus. On examination, it is warm, tender to touch, and somewhat fluctuant. She previously had a similar lump a few months ago, which was managed surgically.

She is well in herself with normal observations and no change in bowel habit. However, she remembers long stays in hospital due to her Crohn's disease as a teenager and is very concerned that these lumps might mean that she needs to be admitted again.

What is the best management for her current condition?

A.Incision & drainage

B.Low anterior resection & stoma formation

C.Oral metronidazole

D.Seton placement

E.Topical steroids

Answer:Incision & drainage

Explanation:

Patients with Crohn's who develop a perianal abscess require incision and drainage

Important for meLess important

The correct answer is incision and drainage. This history is most consistent with a perianal abscess due to the tender, swollen, fluctuant nature of the lump, and the history of Crohn's disease. Single or recurrent perianal abscesses in a Crohn's patient should be managed with incision and drainage. Perianal disease is common in Crohn's and can be very disabling for patients, so must be treated adequately.

Low anterior resection and stoma formation might be a surgical option if this were a cancerous lesion, but is not appropriate for perianal abscesses.

Oral metronidazole is incorrect - this is too conservative a management option for an abscess. Abscesses by definition are somewhat walled off from the rest of the body, making it difficult for systemically absorbed antibiotics to penetrate the focus of infection. The best management option is to incise and drain the pus, allowing the abscess to heal.

Seton placement is the treatment for a perianal fistula, not an abscess. The patient's presentation is more likely to represent an abscess due to the presence of a lump and absence of any discharge. However, if untreated, perianal abscesses can progress to fistulae, so it is important to manage them appropriately.

Topical steroids is a treatment option for haemorrhoids. However, the placement of the lump next to the anus (rather than inside the anal canal) and lack of blood in the stool make haemorrhoids less likely than a perianal abscess.

Question:

A 76-year-old man with a history of ischaemic heart disease and hypertension presents for review. He had a myocardial infarction 20 years ago but has had no problems since. His current medication is clopidogrel, atorvastatin, ramipril and bisoprolol. He has recently been feeling light-headed an ECG shows atrial fibrillation.

What antithrombotic medication should he now be taking?

A.Continue clopidogrel monotherapy

B.Switch to aspirin + clopidogrel

C.Switch to an oral anticoagulant + clopidogrel

D.Switch to an oral anticoagulant

E.Switch to long-term low molecular weight heparin

Answer:Switch to an oral anticoagulant

Explanation:

Patients with stable CVD who have AF are generally managed on an anticoagulant and the antiplatelets stopped

Important for meLess important

This patient is at risk of stroke given his CHADS-VASC score (cardiovascular disease, hypertension, age etc). He, therefore, requires treatment. As his cardiovascular disease is stable, he should stop his antiplatelet and switch to oral anticoagulant monotherapy.

Question:

A 46-year-old woman presents to surgery complaining of a dry mouth and dry eyes for the past 6 months. She has also generalised arthralgia and is more tired than normal. Which one of the following autoantibodies is most associated with primary Sjogren's syndrome?

A.Anti-RNP

B.Anti-Ro

C.Anti-smooth muscle

D.Anti-centromere

E.Anti-Sm

Answer:Anti-Ro

Explanation:

Question:

A teenager attends the sexual health clinic experiencing pain on urinating and some penile discharge. He is concerned he has a sexually transmitted infection. On closer questioning you discover that he is only 11 years old, despite looking older. You enquire about his partner, but the boy will not give you any further information. He doesn't want you to tell his parents or anyone else about this encounter. What is the best course of action?

A.Inform his parents

B.Explain why you are unable to keep it a secret and tell him you will have to inform social services and his parents

C.Respect his confidentiality and don't inform anyone

D.Treat his infection and advise him that it's against the law for him to take part in sexual intercourse at his age

E.Refuse to treat his infection until he involves his parents

Answer:Explain why you are unable to keep it a secret and tell him you will have to inform social services and his parents

Explanation:

This is a possible case of sexual abuse and should be referred to social services for investigation.

GMC guidelines state that:

'You should usually share information about sexual activity involving children under 13, who are considered in law to be unable to consent.'

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/childrenguidance6469sexualactivity.asp

Question:

A 66-year-old man with stage 5 chronic kidney disease has been on haemodialysis for the past few years. Due to an unplanned holiday, he has missed 6 dialysis sessions and has presented to the emergency department this morning in a poor way. The registrar orders an ECG and is extremely worried.

Which of the following ECG signs would be most concerning?

A.Absent T-waves

B.Inverted T-waves in aVR

C.Sine wave appearance on the ECG

D.First-degree heart block

E.New onset left axis deviation

Answer:Sine wave appearance on the ECG

Explanation:

A sinusoidal ECG pattern is indicative of severe hyperkalaemia

Important for meLess important

The most worrying sign on an ECG given the background history would be a sine wave on the ECG. This is indicative of severe hyperkalaemia (K > 9 mmol/L). Tall T-waves indicate moderate hyperkalemia

Absent T-waves - this is a feature of hypokalemia

Inverted T-wave in aVR is a normal feature of an ECG

First-degree heart block - this could be normal. Even if this is not normal for the patient it is not as worrying as a sine-wave.

New onset left axis deviation - New onset left bundle branch block is a worrying sign that could indicate a STEMI. Left axis deviation would unlikely present acutely and so it was noticed it would more likely be due to poor lead placement than anything.

Question:

A 78-year-old woman has been in hospital for two months after an initial admission with a fall, complicated by severe pneumonia. She reports a four-day history of worsening diarrhoea.

Her observations are as follows: blood pressure 85/40mmHg; heart rate 115/min; respiratory rate 22/min; temperature 38.1ºC; oxygen saturations 96% on air.

Her stool sample is reported as Clostridium difficile (C. difficile) positive. A CT scan of the abdomen and pelvis demonstrates a grossly dilated ascending colon with no obvious evidence of obstruction.

What is the best medical treatment for this patient’s presentation?

A.IV vancomycin and IV metronidazole

B.IV vancomycin and oral metronidazole

C.Oral fidaxomicin and IV metronidazole

D.Oral vancomycin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

Oral vancomycin and IV metronidazole is the correct option as this is the antibiotic regimen indicated for life-threatening C. difficile infection. This patient's infection is defined as life-threatening due to her septic parameters, and the CT evidence of severe dilatation, which would be an indication for a surgical referral. Other features of life-threatening C. difficile infections include partial or complete ileus, toxic megacolon, or CT evidence of severe disease. The vancomycin provides excellent cover for C. difficile infection and when taken orally is readily available in the gut where its place of action is most needed. Furthermore, the intravenous metronidazole has excellent bioavailability in this form to be absorbed into the gut from the bloodstream.

IV vancomycin and oral metronidazole is an incorrect option as intravenous vancomycin is less effective at treating enteric infections than oral vancomycin due to reduced bioavailability in the gut.

For a similar reason, IV vancomycin and IV metronidazole is also not the best option as it involves intravenous vancomycin.

Oral fidaxomicin and IV metronidazole is an incorrect option as fidaxomicin is a second-line treatment and not licensed for use in cases of life-threatening C. difficile infection, such as the case above.

Oral vancomycin alone is not indicated to be used alone in life-threatening C. difficile as the IV metronidazole provides systemic antibiotic cover for these septic patients. This is particularly important, as these patients are prone to perforations, or may require surgery, both of which require wider antimicrobial coverage.

Question:

A 45-year-old man presents to the emergency department accompanied by a friend. The man is drowsy and smells of alcohol, but his friend states he was complaining of sudden onset crushing retrosternal pain, worse on swallowing.

He has a past medical history of alcoholic liver disease.

His vital signs are a heart rate 130/min, respiratory rate of 24/min a temperature of 37.7ºC, oxygen saturation of 98% and blood pressure of 100/74 mmHg.

On examination, there are crackles on auscultation of his chest wall and dried vomit around his mouth. An ECG shows sinus rhythm.

What is the most likely diagnosis?

A.Boerhaave's syndrome

B.Duodenal ulcer rupture

C.Mallory-Weiss tear

D.Oesophageal varices rupture

E.Plummer-Vinson syndrome

Answer:Boerhaave's syndrome

Explanation:

Boerhaave's syndrome is a spontaneous rupture of the oesophagus that occurs as a result of repeated episodes of vomiting

Important for meLess important

The correct answer is Boerhaave's syndrome. This man presents with the classic triad of retrosternal chest pain and subcutaneous emphysema on the background of alcoholism. Individuals with bulimia and alcoholics may have forceful vomiting against a closed glottis, which causes a massive build-up of pressure in the oesophagus. This can lead to a transmural rupture of the oesophagus. Subcutaneous emphysema forms due to air escaping from the oesophageal rupture and can be felt or heard below the skin. Individuals with this condition tend to be systemically unwell and require urgent surgery.

Bleeding oesophageal varices would more often present with massive life-threatening haematemesis. The pain would also be expected more epigastric, rather than retrosternal. This diagnosis also wouldn't explain the subcutaneous emphysema.

A duodenal ulcer haemorrhage is incorrect. Posterior duodenal ulcers can erode into the gastroduodenal artery, causing an upper GI bleed. It often presents with hypotension, melena and haematemesis, which are not present here. It wouldn't typically cause retrosternal chest pain, as the pain would be more localised to the epigastric area.

Mallory-Weiss syndrome is incorrect. This is a small tear at the gastroesophageal junction, which is classically found in alcoholics or people with recurrent vomiting. It usually presents with haematemesis on a background of vomiting. It would not explain the subcutaneous emphysema or haemodynamic instability seen here.

Plummer-Vinson syndrome is a rare oesophageal disorder presenting with oesophageal webs, inflammation and iron-deficient anaemia. It does not present with acute chest pain, subcutaneous emphysema or haemodynamic instability.

Question:

A 29-year-old woman presents to her GP with 4 weeks of heavy, irregular vaginal bleeding which she can no longer tolerate. She denies abdominal pain, unusual vaginal discharge, and dysuria. She is sexually active with her partner of 6 months and was started on the Nexplanon implant 4 weeks ago.

Her abdomen is non-tender, her heart rate is 79/min, her respiratory rate is 17/min, her blood pressure is 117/79 mmHg, her oxygen saturation is 98%, and her temperature is 37.5°C. A pregnancy test is performed and is negative.

What is the GP most likely to suggest to help her symptoms?

A.3-month course of the combined oral contraceptive pill

B.3-month course of the progesterone only pill

C.Single dose of intramuscular methotrexate

D.Urgent referral for endometrial cancer

E.Vaginal misoprostol

Answer:3-month course of the combined oral contraceptive pill

Explanation:

A common side effect of Nexplanon is unscheduled bleeding. This may be managed by a three month course of a combined oral contraceptive

Important for meLess important

3 month course of the combined oral contraceptive pill is correct. The patient is suffering from heavy, unscheduled bleeding, which is a side effect of the contraceptive implant (Nexplanon). The combined oral contraceptive pill will provide additional contraception and is known to make periods lighter and more regular, thus, it can be co-prescribed for 3 months with the implant to manage unscheduled bleeding.

3 month course of the progesterone-only pill is incorrect. The patient is suffering from unscheduled bleeding, which is a side effect of the contraceptive implant (Nexplanon). It is the combined oral contraceptive pill and not the progesterone-only pill that can be co-prescribed with the implant to manage this unscheduled bleeding. This is because the progesterone-only pill can also cause irregular bleeding.

Single dose of intramuscular methotrexate is incorrect. This is the medical management of an ectopic pregnancy. Although this patient has irregular vaginal bleeding, there are no other symptoms to suggest this is an ectopic pregnancy: she is on contraception, she has no abdominal pain, and her pregnancy test is negative. The bleeding is a side effect of the implant contraceptive and can be managed with a 3-month course of the combined oral contraceptive pill.

Urgent referral for endometrial cancer is incorrect. Endometrial cancer is considered when patients present with post-menopausal bleeding. This patient is much younger and her irregular bleeding is very likely to be due to the Nexplanon contraception rather than something more sinister.

Vaginal misoprostol is incorrect. This is the medical management for a miscarriage. This woman is not pregnant as demonstrated by the negative pregnancy test. Her vaginal bleeding is a side effect of the implant contraceptive and can be managed with a 3-month course of the combined oral contraceptive pill.

Question:

A 78-year-old man is brought into the emergency department by ambulance after collapsing. Apparently, he complained of pain in his abdomen and back before falling to the ground. A diagnosis of a ruptured abdominal aorta aneurysm is suspected.

Given his presumed diagnosis, what is the most appropriate management in terms of blood products?

A.No blood products needed

B.Group and save

C.Crossmatch 6 units of blood

D.Give prothrombin complex concentrate

E.Crossmatch 6 units of blood and give prothrombin complex concentrate

Answer:Crossmatch 6 units of blood

Explanation:

Crossmatch should be arranged in patients with suspected ruptured abdominal aorta aneurysm, most commonly 6 units are ordered

Important for meLess important

This question is asking about the acute management of a patient with a suspected ruptured abdominal aortic aneurysm. In cases of patients presenting like this, it is best to cross match the patient's blood. This is because they are likely to need blood either now or in the near future. You should also consider activating the massive transfusion protocol as this is useful in the acute setting where blood loss has occurred.

A crossmatch indicates that you will be giving the patient blood, whereas a group and save only saves the patient's blood type for future reference and future blood transfusions. In this case, you need blood now, thus a crossmatch is the better option.

Prothrombin complex concentrate is used in the reversal of warfarin, and thus there is no indication in this case as the patient is not known to be on warfarin.

Question:

A 45-year-old woman presents with a 3 month history of fatigue, weight gain and menstrual irregularities.

Lab results reveal the following:

Na+ 130 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Urea 5 mmol/L (2.0 - 7.0)

Creatinine 84 µmol/L (55 - 120)

Plasma osmolality 268 mOsm/kg (285-295 mOsm/kg)

Urine osmolality 562 mOsm/kg (500-800 mOsm/kg)

Urine Na+ 28 mmol/L (<20 mmol/L)

What is the most likely cause of these electrolyte abnormalities?

A.Addison's disease

B.Diabetes insipidus

C.Hypothyroidism

D.Nephrotic syndrome

E.Psychogenic polydipsia

Answer:Hypothyroidism

Explanation:

Hypothyroidism causes a euvolaemic hyponatraemia

Important for meLess important

Hypothyroidism is a less common cause of euvolaemic hyponatraemia.

This patient presents with common symptoms of hypothyroidism. In patients with severe hypothyroidism, reduced cardiac output can lead to compensatory antidiuretic hormone (ADH) release via the carotid sinus baroreceptors. This, in turn, increases total body water and dilutes plasma concentrations of sodium, resulting in euvolaemic hyponatraemia- increased total body water with 'normal' total body sodium. Hence, this is the correct answer.

SIADH is another important differential diagnosis of euvolaemic hyponatraemia. In this case this would be excluded by clinical (and biochemical) signs of hypothyroidism.

Addison's disease is not consistent with the biochemical picture. The loss of mineralocorticoid activity would alter renal reabsorption and excretion, raising plasma potassium and urinary sodium (>20 mmol/L).

Diabetes insipidus would cause hypernatraemia rather than hyponatraemia due to the loss of ADH activity.

Nephrotic syndrome is a cause of hypervolaemic hyponatraemia, characterised by oedema. In nephrotic syndrome, urinary sodium is usually <20 mmol/L due to the activation of renin-angiotensin-aldosterone system triggering reabsorption in the kidneys.

Psychogenic polydipsia would also cause hypervolaemic hyponatraemia.

Question:

Which of the following antibodies is most specific for diffuse cutaneous systemic sclerosis?

A.Anti-nuclear factor

B.Anti-centromere antibodies

C.Anti-Scl-70 antibodies

D.Rheumatoid factor

E.Anti-Jo 1antiobodies

Answer:Anti-Scl-70 antibodies

Explanation:

Limited (central) systemic sclerosis = anti-centromere antibodies

Important for meLess important

Although ANA is positive in 90% of patients with systemic sclerosis, anti-Scl-70 antibodies are the most specific test for diffuse cutaneous systemic sclerosis

Question:

A 36-year-old gentleman has presented to the emergency department with hypertension, nuchal rigidity and a GCS score of 9/15. A CT head identifies an intraparenchymal, intracerebral bleed. He has no bleeding disorders but his coagulation screen identifies a prolonged bleeding time. His Hb level is currently 120g/L. He has a normal prothrombin time, normal activated partial thromboplastin time and normal levels of fibrinogen and D-dimer. His platelet count is found to be 90x109/L. Which one of the following management plans is appropriate?

A.Immediately transfuse fresh frozen plasma and provide supportive care

B.Provide supportive care and only perform platelet transfusion if platelet level falls below 30x109/L

C.Immediate platelet transfusion and provide supportive care

D.Any transfusion would be inappropriate for this patient

E.Immediate packed red cells transfusion and provide supportive care

Answer:Immediate platelet transfusion and provide supportive care

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

This gentleman has presented with a haemorrhagic intraparenchymal stroke (bleeding at a critical site). Given this, it would be appropriate to transfuse this gentleman for a platelet level of <100 x 109/L. In this question, his platelet levels are already below this threshold and hence he is suitable for immediate platelet transfusion. This should be treated urgently in an attempt to reduce any further bleeding.

<30 x 109/L is the threshold for platelet transfusion in patients with more moderate clinically significant bleeding (lower WHO grade and not occurring in a critical site such as the CNS)

The patient does not currently require a transfusion of packed red cells as his haemoglobin is well within a normal range. Fresh frozen plasma is used to treat conditions in which there are low levels of coagulation factors with a low INR. This patient has a normal PT and APTT and hence this is unlikely to be the cause of his bleeding.

(NICE guideline [NG24] 1.3)

Question:

A 71-year-old male presents to the Emergency Department on your night shift with a 1-day history of severe right leg pain and discolouration to his foot. The pain is present at rest, and he describes pins and needles in the same leg. This is now getting worse, so he decided to attend the emergency department. On examination, the patient has a pale right foot which is cold and painful to touch. There are no palpable pedal pulses on palpation. He has a history of ischaemic heart disease, chronic obstructive pulmonary disease, diabetes mellitus and is a current smoker.

Which of the following investigations should be performed first aid with the diagnosis?

A.Ankle brachial pressure index (ABPI)

B.Bedside handheld doppler

C.CT angiogram

D.Invasive angiography

E.Ultrasound of lower limb veins

Answer:Bedside handheld doppler

Explanation:

A handheld arterial Doppler examination should be performed in patients with suspected acute limb ischaemia

Important for meLess important

This patient presents with signs and symptoms of acute limb ischaemia (the six P's: pain, pallor, pulseless, perishingly cold limb, paresthesia and paralysis). Therefore, urgent action is required. Handheld Doppler is a quick and easy test that can help diagnose acute limb ischaemia and can be done at the bedside at any time day or night. It is, therefore, the first-line investigation. Other investigations may take longer to organise or may not be as easily available, so this method is quick and easy to help establish the diagnosis. In acute limb ischaemia, there will be an absent or reduced signal.

ABPI is used to assess peripheral arterial perfusion in the lower limbs and the severity of chronic peripheral arterial disease (PAD). A normal ABPI is required before patients are given pressure dressings for venous ulcers or lymphoedema. Normal ABPI is 0.9-1.2, ABPI < 0.9 indicates some degree of PAD, ABPI < 0.5 indicates severe PAD and ABPI > 1.2 indicates arterial calcification. In an emergency such as this, where the patient presents with acute limb ischaemia, ABPI would not be beneficial as it does not identify the site of arterial occlusion and would not guide the acute management.

CT angiogram assesses the arterial system using IV contrast; it is the next step to help locate the arterial occlusion and provide more detailed imaging. However, a handheld Doppler examination would be more appropriate in the first instance.

Invasive angiography is an interventional radiological procedure that can be used to identify arterial occlusion. Angioplasty can then be performed, which involves dilating the narrowed vessel to improve blood flow. Unfortunately, this procedure is not available at all hospitals as it requires specialist interventional radiologists or vascular surgeons. Due to its invasive nature and lack of availability in some centres, it is not the first-line investigation.

Ultrasound of lower limb veins is not indicated in this scenario as it assesses the venous system. Arterial duplex ultrasound can be used to assess the peripheral vascular disease. However, this can only be performed by a trained operator, thus making handheld arterial Doppler the first line.

Question:

Macey is a 32-year-old woman who is 38 weeks pregnant. A routine urine sample grew E.coli. She denied any dysuria and reported feeling well in herself.

What is the most appropriate management?

A.Repeat urine sample

B.Amoxicillin for 3 days

C.Nitrofurantoin for 3 days

D.Amoxicillin for 7 days

E.Nitrofurantoin for 7 days

Answer:Amoxicillin for 7 days

Explanation:

Pregnant women with a UTI should be treated with an antibiotic for 7 days

Important for meLess important

Asymptomatic bacteruria in pregnancy should be treated to reduce the risk of pyelonephritis in the mother and of premature delivery. She should be treated with a 7 day course of antibiotics.

Nitrofurantoin should not be used near term due to the risk of neonatal haemolysis.

Question:

A 19-year-old patient comes to see you regarding hormonal contraception.

She has no regular partners and reports sporadic condom use. Her last menstrual period was two weeks ago.

Her past medical history is significant for menorrhagia and mild cerebral palsy affecting her lower limbs and she mobilises with a wheelchair. She would like a contraceptive which starts working as soon as possible as she is going on holiday in two days, and would prefer not to have an intrauterine method of contraception.

Which of the following contraceptives is the most suitable?

A.Combined oral contraceptive pill

B.Contraceptive implant

C.Intrauterine device (copper coil)

D.Intrauterine system (hormonal coil)

E.Progesterone-only pill

Answer:Progesterone-only pill

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

This patient requires quick-acting contraception. Of the options listed, the intrauterine device (copper coil) is the quickest acting; being effective immediately. However, given the history of menorrhagia, it is not recommended to commence the IUD.

She has also indicated that she would prefer not to have intrauterine contraception, which makes the IUS (and IUD) less suitable, despite the fact that it may improve her menorrhagia.

The next quickest option is the progesterone-only pill. The POP becomes effective within 2 days if started mid-cycle, before which time barrier methods of contraception are needed. As this is the next quickest method of contraception without the presence of contraindications, the POP is the correct answer.

As this patient is a wheelchair user, the combined oral contraceptive pill is not recommended first line (UKMEC 3). NICE BNF advises seeking specialist advice before prescribing the COCP for wheelchair users as the risk of venous thromboembolism may outweigh the benefits of treatment. Additionally, it takes 7 days to become effective during which time barrier methods should be used.

The IUS, contraceptive injection and implant also all take 7 days before they can be relied upon for contraception, whereas the POP is effective after 2 days. Therefore, the progesterone-only pill is the most suitable contraceptive to initiate.

Question:

A 43-year-old woman comes for review. A few months ago she developed redness around her nose and cheeks. This is worse after drinking alcohol. She is concerned as one of her work colleagues asked her if she had a drink problem despite her drinking 10 units per week.

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What is the most likely diagnosis?

A.Mitral stenosis

B.Seborrhoeic dermatitis

C.Alcohol-related skin changes

D.Acne rosacea

E.Systemic lupus erythematosus

Answer:Acne rosacea

Explanation:

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

This is a typical history of acne rosacea

Question:

You refer a 24-year-old female to rheumatology with intermittent pain and swelling of the metacarpal phalangeal joints for the past 3 months. An x-ray shows loss of joint space and soft-tissue swelling. Rheumatoid factor is positive and a diagnosis of rheumatoid arthritis is made. What initial management is she most likely to be given to help slow disease progression?

A.Infliximab

B.Methotrexate + short-course of prednisolone

C.Methotrexate + Infliximab

D.Methotrexate + sulfasalazine + short-course of prednisolone

E.Diclofenac

Answer:Methotrexate + short-course of prednisolone

Explanation:

In 2018 NICE updated their rheumatoid arthritis guidelines. They now recommend disease-modifying antirheumatic drug (DMARD) monotherapy with a short-course of bridging prednisolone. In the past dual DMARD therapy was advocated as the initial step.

Question:

A 77-year-old woman presents after a routine eye test which revealed a reproducible peripheral vision defect in her right eye. She claims she hasn't noticed any symptoms or changes in vision. Tonometry reveals left intraocular pressure as 16mmHg and right as 18mmHg (10-21mmHg). Direct ophthalmoscopy shows a cup-to-disc ratio of 0.8 (increased). Gonioscopy is normal. She has no relevant past medical history.

What is the most likely diagnosis?

A.Chronic open-angle glaucoma

B.Dry age-related macular degeneration

C.Hypertensive retinopathy

D.Optic neuritis

E.Peripheral cataract

Answer:Chronic open-angle glaucoma

Explanation:

Glaucoma can result from normal intraocular pressure (normal tension glaucoma)

Important for meLess important

Chronic open-angle glaucoma is the correct answer. The symptoms this patient is having are indicative of chronic glaucoma, which often presents with peripheral vision loss that comes on slowly so patients don't notice it. Glaucoma can occur in patients with normal intraocular pressure. Furthermore, the investigations conducted point toward a diagnosis of glaucoma, especially the increased cup-to-disc ratio. Gonioscopy reveals a normal drainage angle and therefore this is open-angle glaucoma.

Dry age-related macular degeneration is incorrect in this case. Typically macular degeneration presents with blurred central vision and metamorphopsia. Patients often complain that straight lines become curved. Furthermore, drusen are common on ophthalmoscopy in age-related macular degeneration. Changes in the cup-to-disc ratio are not associated with age-related macular degeneration.

Hypertensive retinopathy is incorrect in this case. Hypertensive retinopathy is often asymptomatic but can present with reduced acuity. The fact that this patient has no past medical history makes hypertensive retinopathy unlikely. Hypertensive retinopathy has a characteristic appearance on ophthalmoscopy, and there will be signs of arteriovenous nipping and copper wiring signs. Furthermore, hypertensive retinopathy is not associated with cup-to-disc ratio changes.

Optic neuritis is incorrect. Optic neuritis is commonly found as a symptom of multiple sclerosis. Typically it presents as a painful loss of vision, often with the first signs being a loss of colour vision or acuity. This typically occurs over hours to days. The lack of any loss of acuity or colour vision rules out optic neuritis. Furthermore, you would expect to see other signs of multiple sclerosis such as sensory or motor symptoms, or other cranial nerve palsies.

Peripheral cataract is incorrect. Cataracts are often asymptomatic if they aren't in the visual axis. If they do present with symptoms it is generally a loss of vision with problems such as haloes due to light scattering. A peripheral cataract can easily be visualised on slit lamp examination, and there would be no optic disc involvement.

Question:

A 22-year-old man has been admitted to the psychiatric ward following concerns from his GP that he was experiencing symptoms of psychosis. The psychiatric team is considering a diagnosis of schizophrenia.

Which of these features in the history would be most consistent with this diagnosis?

A.Low appetite

B.Recent foreign travel

C.Insomnia

D.History of psoriasis

E.Family history of Alzheimer's dementia

Answer:Insomnia

Explanation:

Circadian rhythm disturbance is a feature of schizophrenia

Important for meLess important

Sleep disturbances, most commonly insomnia, are often reported by patients as their symptoms of schizophrenia develop.

Low appetite, psoriasis, and foreign travel are not specifically associated with schizophrenia.

A family history of Alzheimer's is not a risk factor for schizophrenia, although a family history of other psychiatric disorders would increase your clinical suspicion.

Question:

A 9-day-old pre-term neonate stops tolerating his cow's milk feeds given by the nurses in the special care baby unit. He vomited after the most recent feed and the nurse noticed bile in the vomit. Stools are normal consistency but the last stool contained fresh red blood. On examination he is well hydrated but his abdomen is grossly distended and an urgent abdominal x-ray is requested. X-ray shows distended loops of bowel with thickening of the bowel wall. What is the next best step in management?

A.Continue oral feeds, switching to breast milk

B.Commence broad spectrum antibiotics

C.Commence IV fluids

D.Commence IV hydrocortisone

E.Commence erythromycin

Answer:Commence broad spectrum antibiotics

Explanation:

This scenario describes a case of necrotising enterocolitis. Given the history and examination along with the age and prematurity of the infant, bacterial necrotising enterocolitis is the most likely diagnosis. Due to the seriousness of this, broad spectrum antibiotics must be commenced immediately. For this reason, answer 2 is the correct answer.

Although necrotising enterocolitis is seen more often in bottle fed infants, changing feeds at this stage is futile.

IV fluids are important to maintain hydration but not as urgently needed in this case as antibiotics.

Erythromycin is given antenatally to prevent necrotising enterocolitis but is not useful in treatment.

Question:

A 70-year-old man presents with falls and weakness. He is unsure when it started, but says it has been over the last day and fell after standing up from sitting. He has a history of recurrent falls, anxiety, and type 2 diabetes and he takes metformin and bisoprolol. On examination, his speech is non-fluent and difficult, and his repetition is impaired. His right face, arm, and leg are weak, and there is a loss in the right half of his visual field bilaterally. His blood pressure is 96/75 mmHg, capillary blood glucose is normal, his oxygen saturations are 95%, and a CT scan is unremarkable.

What is the most likely diagnosis?

A.Chronic subdural haematoma

B.Left-sided partial anterior circulation infarct

C.Left-sided total anterior circulation infarct

D.Orthostatic hypotension secondary to beta-blocker

E.Right-sided total anterior circulation infarct

Answer:Left-sided total anterior circulation infarct

Explanation:

Total anterior circulation infarcts - all 3 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

Left-sided total anterior circulation infarct is correct. This patient has signs and symptoms consistent with a stroke due to the presence of weakness, aphasia, and visual loss on a background of type 2 diabetes, which is a risk factor for stroke. The Oxford (Bamford) stroke classification can be used to identify what type of stroke this is based on its signs and symptoms and can help with identifying where the affected vessel is. It assesses 3 key factors:

1. Unilateral hemiparesis/hemi-sensory loss of the face, arm, and leg.

2. Homonymous hemianopia (described as 'loss in the right half of his visual field bilaterally' in this question).

3. Dysfunction of a higher cognitive function (e.g. dysphasia).

This patient has all 3 of the above features, making the stroke likely to be a total anterior circulation infarct, which suggests the middle and anterior cerebral arteries are affected. The next part is to identify which cerebral hemisphere is affected. Since the patient is experiencing weakness in the right face, arm, and leg, the lesion is in the left cerebral hemisphere. This is because the nerve tracts from the brain (the corticospinal tract) project to the contralateral side and decussate (cross over).

It is crucial to remember that a normal CT head does not rule out an ischaemic stroke. It is often used to confirm there is no haemorrhage or alternative cause (e.g. intracranial masses).

Right-sided total anterior circulation infarct is incorrect. Although this patient has all 3 of the above features, making the likely diagnosis a total anterior circulation infarct, their weakness on the right side makes the diagnosis a left-sided total anterior circulation infarct, not the right. The contralateral nature of his weakness is because the nerve tracts from the brain (the corticospinal tract) project to the contralateral side and decussate (cross over).

Left-sided partial anterior circulation infarct is incorrect. This patient would have a partial anterior circulation infarct if they had 2 of the above criteria present. Since they have three, they have a left-sided total anterior circulation infarct.

Orthostatic hypotension secondary to beta-blocker is incorrect. Although the patient is taking bisoprolol, which can cause orthostatic hypotension in the elderly, and his blood pressure is low, a diagnosis of orthostatic hypotension would not explain his relatively sudden-onset focal neurological deficits (hemiparesis, visual field loss, and aphasia). As he has all 3 of the above criteria and his symptoms are right-sided, he has a left-sided total anterior circulation infarct. His falling after standing is likely to be due to the weakness he has, rather than orthostatic hypotension in this case.

Chronic subdural haematoma is incorrect. Although elderly people are at an increased risk of chronic subdural haematoma, the history is usually several weeks-months of confusion, fluctuating cognition, recurrent falls, and focal neurological deficits. This patient's symptoms have emerged over the last day, making this presentation more acute. It has not been enough time for the effects of a chronic subdural haematoma to manifest, making this diagnosis less likely. As he has all 3 of the above criteria and his symptoms are right-sided, he has a left-sided total anterior circulation infarct.

Question:

A 65-year-old man is admitted to the cardiology ward following an episode of syncope. He has little recall of the event and remembers walking his dog followed by waking up on the pavement. There is no history of chest pain or palpitations and he now feels back to his normal self. His past medical history includes hypercholesterolaemia and gastro-oesophageal reflux disease.

On examination, he appears comfortable at rest. Chest sounds are clear and heart sounds are normal. His neurological examination is unremarkable.

ECG: heart rate 35bpm with a clear dissociation between P waves and QRS complexes. QRS duration 120ms.

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

A.Catheter ablation

B.Insertion of an implantable cardioverter-defibrillator (ICD)

C.Observe for 48 hours and discharge for cardiology follow up

D.Synchronised electrical cardioversion

E.Transvenous pacing

Answer:Transvenous pacing

Explanation:

Risk factors for asystole in bradycardia (? needs transvenous pacing)

complete heart block with broad complex QRS

recent asystole

Mobitz type II AV block

ventricular pause > 3 seconds

Important for meLess important

This patient's ECG demonstrates a complete heart block. In complete heart block, there is no association between P waves (atrial activity) and QRS complexes (ventricular activity) as the atria and ventricles contract asynchronously. Symptoms can include dizziness, palpitations, or syncope (as seen in this patient). Complete heart block is a risk factor for asystole and therefore needs prompt treatment. The most appropriate treatment for this patient is transvenous pacing which involves inserting temporary pacing wires through an appropriate vein and passing them up to the right atrium of the heart.

Catheter ablation is a means of treating certain arrhythmias such as atrial fibrillation or ablating accessory pathways in Wolff-Parkinson White syndrome. Both arrhythmias may present as syncope, as seen in this patient. However the ECG findings of both arrhythmias are different to complete heart block with atrial fibrillation typically demonstrating an irregularly irregular rhythm with no discernible p waves, whilst Wolff-Parkinson White has a shortened PR interval and a slurred upstroke of the QRS complex (delta wave).

Insertion of an implantable cardioverter-defibrillator (ICD) is a treatment of choice for ventricular tachycardia and cardiomyopathies that may predispose patients to sudden cardiac arrest (e.g. hypertrophic obstructive cardiomyopathy). Syncope can be the first presenting symptom of such diseases. However, the dissociation of P waves and QRS complexes is characteristic of a complete heart block for which an ICD plays no role in the overall management.

Due to the risk of asystole in a patient with a complete heart block, it would be inappropriate to discharge them home without any intervention.

Synchronised electrical cardioversion may be used in the management of atrial fibrillation or a tachyarrhythmia with adverse signs of shock (e.g. hypotension, syncope, or heart failure). Although this patient did present with an episode of syncope, his ECG demonstrates a bradyarrhythmia given the heart rate of 35bpm. Therefore, synchronised electrical cardioversion is not the most appropriate next step in the management of this patient.

Question:

A 66-year-old woman is taken to the emergency department by her son, who suspects that she may have had a stroke.

On examination, she has right-sided facial pain and temperature sensation loss. She has left-sided arm and leg pain, with associated temperature sensation loss of the left arm and leg. Ataxia is also demonstrated, as well as nystagmus.

Given the findings, which artery is most likely to have been affected?

A.Anterior cerebral artery

B.Anterior inferior cerebellar artery

C.Middle cerebral artery

D.Posterior cerebral artery

E.Posterior inferior cerebellar artery

Answer:Posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome can be caused by PICA strokes

Important for meLess important

The cluster of signs and symptoms described here are indicative of lateral medullary syndrome, also known as Wallenberg syndrome. This is most commonly due to blockage of the posterior inferior cerebellar artery, causing ischaemia of the lateral part of the medulla oblongata in the brainstem. The loss of temperature sensation, and pain, arise from the involvement of the lateral spinothalamic tract.

Strokes involving the anterior cerebral artery classically present with contralateral hemiparesis and sensory deficits, with the lower extremities being affected worse than upper. The opposite side of the face being affected in this scenario points more towards lateral medullary syndrome here.

A stroke involving the anterior inferior cerebellar artery would present with symptoms similar to lateral medullary syndrome - this artery supplies the pons and the cluster of signs is known as lateral pontine syndrome. In addition to the findings of lateral medullary syndrome, facial paralysis and deafness would be expected, which are not described in this scenario.

Middle cerebral artery involvement would present with contralateral hemiparesis, with upper extremities affected more than lower. Contralateral homonymous hemianopia may also be present, and aphasia. These are not mentioned in this scenario.

Posterior cerebral artery involvement would present with contralateral homonymous hemianopia with macular sparing, and visual agnosia.

Question:

A 17-year-old girl presents due to painful periods. These have been present for the past three years and are associated with a normal amount of blood loss. Her periods are regular and there is no abnormal bleeding. She is not yet sexually active. What is the most appropriate first-line treatment?

A.Tranexamic acid

B.Referral for relaxation therapy

C.Paracetamol

D.Combined oral contraceptive pill

E.Ibuprofen

Answer:Ibuprofen

Explanation:

NSAIDs are offered first-line as they will inhibit prostaglandin synthesis, one of the main causes of dysmenorrhoea pains.

Question:

A 54-year-old woman who has had two Colle's fractures in the past three years has a DEXA scan:

T-score

L2-4 -1.4

Femoral neck -2.7

What does the scan show?

A.Osteoporosis in both the vertebrae and femoral neck

B.Osteoporosis in vertebrae, osteopaenia in femoral neck

C.Osteopaenia in both the vertebrae and femoral neck

D.Osteopaenia in vertebrae, osteoporosis in femoral neck

E.Normal bone density in vertebrae, osteoporosis in femoral neck

Answer:Osteopaenia in vertebrae, osteoporosis in femoral neck

Explanation:

Question:

A 62-year-old man presents 2 days after receiving a punch to his head on the right side. Since the injury, he feels his hearing has been muffled on the right side. On examination there is no bruising. Both his ears are obscured by a thin translucent layer of wax. On the right, Rinne's test demonstrates the tuning fork is easier to hear when pressed on the mastoid bone. On Weber's test the sound is heard best on the right hand side. What is the most likely diagnosis?

A.Otosclerosis

B.Base of skull fracture

C.Otitis media

D.Earwax

E.Perforated eardrum

Answer:Perforated eardrum

Explanation:

Tympanic membrane perforation is a relatively common complication of trauma to the skull. It is important to distinguish this from sensorineural hearing loss resulting from a base of skull fracture.

Rinne's test her shows that there is a conductive hearing loss in the affected ear. Weber's test confirms that there is no sensorineural hearing loss on the right.

http://patient.info/doctor/hearing-tests

http://www.rcsed.ac.uk/RCSEDBackIssues/journal/vol442/4420029.htm

Question:

A 25-year-old man attends the emergency department accompanied by his partner, after sustaining a head injury. His partner states he was making breakfast this morning when suddenly he went floppy and fell to the floor. She goes on to add, that he has experienced an episode like this previously but did not sustain any injuries.

A CT scan shows no abnormalities detected, however, the attending clinician suggests the patient is referred to an epilepsy clinic.

What medication may be started for this man's presentation?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Sodium valproate

Answer:Sodium valproate

Explanation:

Tonic or atonic seizures: sodium valproate is first-line for males

Important for meLess important

Sodium valproate is the correct answer. This patient is presenting with two episodes of an atonic seizure described with the complete loss of muscle tone and collapsing to the floor. The first-line medication for a male presenting with atonic seizures is sodium valproate. This medication will act to enhance GABA activity as well as inhibit sodium channels to suppress excitation.

Carbamazepine is incorrect. This medication is commonly used as the second line in focal seizures. Focal seizures typically present with clinical signs affecting a single side of the body and can be classified as frontal, parietal, temporal or occipital depending on their presentation. Although focal seizures can present with loss of consciousness, patients do not typically lose complete muscle tone in all four limbs.

Ethosuximide is incorrect. This is used as the first line for absent seizures. Absence seizures are commonly seen in 3-10 years old and girls are affected twice as commonly as boys. It is seen with sudden onset of absences that may last a few seconds associated with a quick recovery. There may be associated lip-smacking and purposeless movement of the eyes and mouth and hence flickering of the eyes.

Lamotrigine is incorrect. This is used in the first line in females presenting with atonic/ tonic seizures. Females cannot be given sodium valproate because it is highly teratogenic and can interfere with the neural tube development of the foetus.

Levetiracetam is incorrect. This again may be used as the first line in focal seizures and females presenting with generalised seizures.

Question:

A 46-year-old lady presents to the GP. Over the last 2 days, she has noticed that she is finding it harder to differentiate colours, particularly the colour red. She is worried she is going colour blind as her grandmother was born with the condition. Her only past medical history includes gastroesophageal reflux and Grave's disease. What is the most appropriate next step in the management of this patient?

A.Explain that loss of colour vision is not something she would develop in middle age and to return in a day if it has not subsided

B.Urgent referral to eye casualty

C.Ask her to arrange an eye test

D.Prescribe some steroid eye drops

E.Prescribe some antibiotic eye drops

Answer:Urgent referral to eye casualty

Explanation:

Any change in vision with thyroid eye disease requires urgent review by a specialist

Important for meLess important

This question is asking about the management of a patient with deteriorating colour vision. There are many causes of loss of colour vision, however, in a patient with Grave's disease, you would be worried about thyroid eye disease and thus an urgent referral to eye casualty is the correct answer. Any visual changes, including loss of colour vision, require urgent review in any patient with Grave's disease. In fact, the loss of the colour vision (particularly red) has been associated with upcoming sudden vision loss.

Explaining that loss of vision is not possible in middle age is wrong as there are many causes of colour vision loss, including diabetes, macular degeneration, glaucoma and chronic alcoholism.

As we have established this woman needs an urgent review by a specialist and thus arranging an eye test in her own time is not the correct answer. Prescribing steroid eye drops or antibiotic eye drops is incorrect for the same reason.

Question:

A patient with long-standing Crohn's disease presents to a Crohn's clinic complaining of pain, swelling and pus around the anus. His observations are normal and he reports being otherwise stable. You perform a rectal exam which elicits pain. On observation, you can see an inflamed opening in the skin surrounding the anus, and suspect it is an anal fistula.

Which is the single best investigation indicated for this patient?

A.Immediate surgical exploration of the fistula

B.Send blood tests for CRP and FBC as an infection screen

C.Abdominal x-ray

D.Pelvic CT

E.Pelvic MRI

Answer:Pelvic MRI

Explanation:

In those diagnosed with anal fistula, MRI is the best investigation to characterise the fistula course

Important for meLess important

At the moment, the patient is stable and 'well'. The most important consideration here is the characterisation of the fistula course. This will determine which type of surgery, if any, is indicated as treatment.

Surgical exploration could be useful in emergencies, where the patient is very unwell. It is otherwise unwise to perform surgery without knowing the structure and course of the fistula.

In those diagnosed with an anal fistula, MRI is the best investigation to characterise the fistula course. CT and x-rays are not as good at visualising the soft tissue of the fistula.

Blood tests will not help understand the course and structure of the fistula.

Question:

Fawzia is a 76-year-old woman with a history of hypertension who undergoes catheter ablation to treat her atrial fibrillation. She is subsequently found to be in sinus rhythm. Prior to this, she was taking warfarin for stroke prevention.

What is the correct longterm management of her anticoagulation?

A.Continue warfarin

B.Stop warfarin

C.Stop warfarin, start aspirin

D.Stop warfarin, start clopidogrel

E.Stop warfarin, start treatment dose low molecular weight heparin

Answer:Continue warfarin

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

Patients who've had a catheter ablation for atrial fibrillation still require long-term anticoagulation as per their CHA2DS2-VASc score. Hence warfarin should be continued if she was stable on it.

She would be at risk of stroke if her warfarin was stopped.

Antiplatelets would not protect her sufficiently from suffering a stroke.

Treatment dose LMWH would reduce her risk of stroke but stopping warfarin is not indicated.

Question:

A 70-year-old man presented with a watering and sore left eye:

What is the diagnosis?

A.Left-sided ectropion

B.Left-sided pinguecula

C.Stroke

D.Bell's palsy

E.Left-sided entropion

Answer:Left-sided ectropion

Explanation:

Question:

A 55-year-old man was seen in the Emergency Department after a fainting episode. He describes a history of fatigue and nausea. His past medical history includes type 2 diabetes mellitus and HIV infection and he admits that he has not been compliant with any medications, including his anti-retroviral therapy.

On examination, his pulse was 65 beats per minute and regular, blood pressure 90/62 mmHg and respiratory rate 26 breaths per minute.

Investigations:

Haemoglobin 14.0 g/dL (13.0-18.0)

White cell count 4 x 10^9/L (4-11)

Platelets 150 x 10^9/L (150-400)

Sodium 130 mmol/L (135-145)

Potassium 5.8 mmol/L (3.5-5.0)

Creatinine 80µmol/L (60-110)

Glucose 4.0 mmol/L (4.0-7.8)

What is the most appropriate next step management step?

A.Salbutamol nebuliser

B.Broad-spectrum antibiotics

C.Sliding scale insulin infusion

D.Intravenous hydrocortisone

E.Restart anti-retroviral medications

Answer:Intravenous hydrocortisone

Explanation:

Adrenal insufficiency affects approximately 10% of patients with HIV, commonly due to cytomegalovirus (CMV)-related necrotising adrenalitis. It is the failure of the adaptive immune system seen in HIV infection, and particularly AIDS, that increases susceptibility to CMV infection, and thus risk of CMV-associated adrenal failure.

The immediate management of hypoadrenalism involves rapid steroid replacement; fluid resuscitation would also be a priority.

There is no firm evidence here to suggest bacterial infection, and the hyperkalaemia should resolve with appropriate management of the hypoadrenalism.

Question:

A 67-year-old man is brought to the emergency department having collapsed.

His past medical history includes diverticulosis and atrial fibrillation.

Observations show a heart rate of 105bpm, and blood pressure 76mmHg systolic. On examination, he appears pale. Cardiovascular, respiratory and abdominal examinations are otherwise unremarkable.

His blood tests are shown below:

Hb 72 g/L Male: (135-180)

Female: (115 - 160)

Platelets 189 \* 109/L (150 - 400)

WBC 5.4 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 23.3 mmol/L (2.0 - 7.0)

Creatinine 111 µmol/L (55 - 120)

CRP 7 mg/L (< 5)

Lactate 1.3 mmol/L (0.4-2.2)

What is the most likely diagnosis?

A.Colorectal cancer

B.Diverticulitis

C.Duodenal ulcer

D.Haemorrhoids

E.Ischaemic colitis

Answer:Duodenal ulcer

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

Duodenal ulcer is correct. The haemoglobin drop and urea rise out of proportion to the creatinine suggest upper gastrointestinal bleeding. Duodenal ulcer is the most likely option of those listed to cause upper gastrointestinal bleeding.

Colorectal cancer is incorrect. If rectal bleeding occurs it is most often occult and would not present as rapid onset haemodynamic instability, and the urea rise would not be seen as the bleeding would be in the lower gastrointestinal tract.

Diverticulitis is incorrect. Although the patient has a history of diverticulosis, the normal abdominal examination and the normal inflammatory markers point away from an infectious/inflammatory process. The bleeding in diverticulitis would be lower gastrointestinal, so the urea rise would not be seen.

Haemorrhoids is incorrect. This would cause small volumes of fresh red bleeding and is unlikely to cause enough bleeding to present as haemodynamic instability and collapse. The urea rise would not be seen as the bleeding would be in the lower gastrointestinal tract.

Ischaemic colitis is incorrect. The normal abdominal examination, normal lactate and normal inflammatory markers point away from this diagnosis. The bleeding in ischaemic colitis would also be more likely to be lower gastrointestinal, so would be fresh red bleeding without the urea rise.

Question:

A cardiologist has asked you to start oral amiodarone for a patient who has previously been admitted with ventricular tachycardia. What tests is it important to ensure the patient has had prior to starting treatment?

A.TFT + LFT + U&E + chest x-ray

B.TFT + LFT

C.FBC + U&E

D.TFT + LFT + U&E

E.TFT + LFT + FBC

Answer:TFT + LFT + U&E + chest x-ray

Explanation:

A baseline chest x-ray is required due to the risk of pulmonary fibrosis / pneumonitis in patients treated with amiodarone. Urea and electrolytes are suggested by the BNF to detect hypokalaemia which may increase the risk of arrhythmias developing.

Question:

A 57-year-old man presents to the emergency department with a 2-day history of right upper quadrant abdominal pain. His past medical history is remarkable for type 2 diabetes mellitus and alcohol excess.

There are no clinical signs of jaundice, and the patient denies pale stools or dark urine.

An ultrasound of the biliary tree shows no gallstones, demonstrating some regional lymphadenopathy. Further imaging is suggestive of extramural compression of a branch of the biliary tree.

Given this information, where is the most likely location of the lesion?

A.Ampulla of Vater

B.Common bile duct

C.Common hepatic duct

D.Cystic duct

E.Sphincter of Oddi

Answer:Cystic duct

Explanation:

Blockage of the cystic duct or gallbladder does NOT cause jaundice

Important for meLess important

This patient's 2-day history of right upper quadrant abdominal pain is suggestive of hepatobiliary pathology.

The correct answer is cystic duct, as this is the anatomical site least associated with jaundice. Blockage of the cystic duct is not associated with jaundice as bile is still able to flow through the common hepatic duct and common bile duct to the sphincter of Oddi, where is it secreted into the duodenum. Similarly, this is why cholecystitis is only rarely associated with jaundice.

Ampulla of Vater is incorrect, as occlusion of the ampulla of Vater would be likely to cause jaundice by preventing the secretion of bile at the sphincter of Oddi. Lesions of the head of the pancreas occlude the ampulla of Vater, presenting with painless jaundice or 'Courvoisier's sign'.

Common bile duct is incorrect, as complete obstruction of the common bile duct would be very likely to cause jaundice. Bile would not be secreted at the duodenum, leading to symptoms of conjugated hyperbilirubinaemia.

Common hepatic duct is incorrect, as complete occlusion of the common hepatic duct would be likely to cause obstructive jaundice. The common hepatic duct transmits bile made in the liver to the common bile duct, and occlusion would lead to conjugated hyperbilirubinemia with pale stools and dark urine.

Sphincter of Oddi is incorrect, as complete occlusion of the sphincter of Oddi would be associated with obstructive cholestasis and jaundice with conjugated hyperbilirubinaemia.

Question:

An 88-year-old man presents to the GP struggling to cope. His wife died suddenly 5 months ago and he has not felt happy since. He spends the majority of the appointment staring at the floor, but engages with your questions. He explains that he is worried that he is 'going mad' as, over the last two months, he has started to see his wife sat in her old armchair, and sometimes sits and talks with her when he's alone. He confirms that he can hear her voice speaking back to him. He mentions that he mostly speaks to her while he is preparing food in the kitchen and when he is sat by himself at night. Despite these experiences, he is aware that what he sees and hears isn't real.

Aside from occasional memory loss, he does not report any other symptoms aside from some abdominal pain which he attributes to his irritable bowel syndrome. He is usually well medically. There is no previous history or family history of psychiatric conditions.

What is the most likely diagnosis?

A.Delirium secondary to urinary tract infection

B.Depression with psychotic features

C.Normal grief reaction

D.Lewy-body dementia

E.Abnormal grief reaction

Answer:Normal grief reaction

Explanation:

Pseudohallucinations can form a part of the normal greiving process

Important for meLess important

The key difference between pseudohallucinations and true hallucinations is that patients with pseudohallucinations understand that what they are seeing isn't real. Pseudohallucinations can be a frightening and confusing part of the grief reaction, but are considered non-pathological.

Option 1 is unlikely as there are no symptoms of UTI in his history. In the presence of urinary symptoms, this would be worth investigating further.

Option 2 is incorrect. This gentleman is clearly low in mood and avoids eye contact in the consultation, but he response well to questions. He also mentions that he is preparing food by himself. Hallucinations in depression with psychotic features are also likely to be true hallucinations. There are no additional symptoms to suggest that he has major depression with psychotic features.

Option 4 is incorrect. Lewy-body dementia is a progressive condition that can present with visual hallucinations as well as Parkinsonian features, executive function impairment and visuospatial impairment. Anterograde amnesia is less commonly associated with Lewy-body dementia. This gentleman does not fit this description.

Option 5 is incorrect as abnormal grief reactions are usually partially defined as being present 6+ months following the bereavement.

Question:

A 45-year-old man has attended a gastroenterology clinic to follow up on his ulcerative colitis which has been well controlled. He mentions that over the past 2 months he has progressively become more tired during the day and feeling itchy all over his body. However he does not complain of any pain or feeling febrile. Examination reveals a yellow tinge to his sclera. Blood tests were arranged which showed the following results.

Bilirubin 36 µmol/L (3 - 17)

ALP 310 u/L (30 - 100)

ALT 43 u/L (3 - 40)

γGT 94 u/L (8 - 60)

Albumin 41 g/L (35 - 50)

An autoimmune screen was performed which revealed the following positive results.

p-ANCA positive

What is the most likely diagnosis?

A.Ascending cholangitis

B.Autoimmune hepatitis

C.Common bile duct stones

D.Primary biliary cholangitis

E.Primary sclerosing cholangitis

Answer:Primary sclerosing cholangitis

Explanation:

Primary sclerosing cholangitis can have positive p-ANCA

Important for meLess important

The most likely diagnosis is primary sclerosing cholangitis. Fatigue, lethargy and cholestasis can all be caused by primary sclerosing cholangitis. Ulcerative colitis is also a risk factor for primary sclerosing cholangitis. p-ANCA can also be positive in primary sclerosing cholangitis, therefore supporting this being the most likely diagnosis.

Ascending cholangitis would also give a cholestatic presentation but would present with fever and right upper quadrant pain in addition.

Autoimmune hepatitis is associated with primary sclerosing cholangitis. However you would expect anti-smooth muscle antibodies antibodies to be positive in autoimmune hepatitis.

Common bile duct stones would give a cholestatic picture. However they would usually be associated with right upper quadrant pain which this patient denies.

Primary biliary cholangitis can present similarly with fatigue, lethargy and cholestasis. However primary biliary cholangitis would typically be positive for anti-mitochondrial antibodies and not p-ANCA.

Question:

A 21-year-old man is brought into the Emergency Department by ambulance following a seizure at home. Upon arrival he has a full tonic-clonic seizure which is still ongoing 10 minutes later. He has no known medical history except for a brief period of substance abuse several years ago.

His Glasgow coma score (GCS) is 13, respiratory rate 12 breaths/min, oxygen saturation 96% on air, heart rate 112 bpm, blood pressure 135/74 mmHg and temperature 37.4ºC.

On examination he has a large laceration to the back of his head due to hitting his head during the initial seizure at home.

Which investigation should be carried out as soon as possible?

A.CT head

B.Capillary blood glucose

C.Lumbar puncture

D.Toxicology screen

E.Urinalysis

Answer:Capillary blood glucose

Explanation:

Status epilepticus: rule out hypoxia and hypoglycaemia before thinking of other causes

Important for meLess important

CT head may show evidence of stroke, oedema, tumour or other structural causes of seizures however hypoglycaemia should be ruled out before thinking of other causes. Also in this case the history would suggest that the head injury occurred after the onset of the initial seizure.

Capillary blood glucose should be carried out as soon as possible as hypoglycaemia is a important reversible cause of status epilepticus.

Lumbar puncture may show signs of infection which could cause seizure but hypoglycaemia should be ruled out before thinking of other causes.

Toxicology screen could be considered if you suspect substance misuse/overdose however hypoglycaemia should be ruled out before thinking of other causes.

Urinalysis would not be an initial investigation as hypoxia and hypoglycaemia should be ruled out first.

Question:

A 74-year-old female presents with a 3-day history of diarrhoea and vomiting. She has a background of chronic kidney disease, congestive cardiac failure, atrial fibrillation and type 2 diabetes mellitus.

Her blood results were as follows:

Five weeks ago:

Na+ 140 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 7.1 mmol/L (2.0 - 7.0)

Creatinine 124 µmol/L (55 - 120)

Today:

Na+ 145 mmol/L (135 - 145)

K+ 5.9 mmol/L (3.5 - 5.0)

Bicarbonate 22 mmol/L (22 - 29)

Urea 15.4 mmol/L (2.0 - 7.0)

Creatinine 356 µmol/L (55 - 120)

Consequently, the admitting doctor reviews her current medications.

Which of the following would most likely be considered as safe to continue?

A.Digoxin

B.Furosemide

C.Metformin

D.Enalapril

E.Warfarin

Answer:Warfarin

Explanation:

This medication is usually safe to continue in AKI - warfarin

Important for meLess important

Warfarin is usually safe to continue in acute kidney injury and it's generally the anticoagulant of choice in patients with marked chronic kidney disease.

Digoxin is renally excreted and so could potentially accumulate - you should consider reducing the dose and maybe checking levels.

Furosemide and enalapril are nephrotoxic and should be held.

Metformin would carry a risk of lactic acidosis if continued in this situation.

Question:

A 75-year-old man presents to the clinic with persisting shortness of breath, reduced exercise tolerance, and peripheral oedema over the last month. At night, he sometimes wakes up short of breath and has been sleeping poorly. He suffered from an ST-elevation myocardial infarction 3 years previously. He is currently taking aspirin, ramipril, bisoprolol, and atorvastatin. An echocardiogram shows a left ventricular ejection fraction of 37%.

What drug would be the most appropriate for improving this patient's prognosis?

A.Digoxin

B.Furosemide

C.Ivabradine

D.Nifedipine

E.Spironolactone

Answer:Spironolactone

Explanation:

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

Important for meLess important

Spironolactone is correct. This patient has signs and symptoms consistent with chronic heart failure, characterised by shortness of breath, peripheral oedema, paroxysmal nocturnal dyspnoea, and reduced ejection fraction. They are already taking the first-line options for the management of heart failure, but are still symptomatic. The next step would be to add an aldosterone antagonist (e.g. spironolactone or eplerenone). Aldosterone antagonists decrease the morbidity and mortality associated with symptomatic chronic heart failure by reducing the risk of volume overload and increased strain on the heart, therefore improving its prognosis.

Digoxin is incorrect. Digoxin is a third-line option that a specialist may consider, but it has not been proven to reduce mortality (and hence, the prognosis) in patients with heart failure and is more effective for improving symptoms. This patient is already taking the first-line options (ramipril and bisoprolol) and should be offered the second-line option of aldosterone receptor antagonists (such as spironolactone and eplerenone).

Furosemide is incorrect. There have been no long-term studies of diuretic therapy in heart failure, and hence, their effects on morbidity and mortality are unknown. Therefore, furosemide and other diuretics only provide symptomatic relief by alleviating oedema. This patient is already taking the first-line options (ramipril and bisoprolol) and should be offered the second-line option of aldosterone receptor antagonists (such as spironolactone and eplerenone).

Ivabradine is incorrect. This is a third-line option that may be considered by a specialist, however, it is indicated in patients that have a left ventricular ejection fraction <35%, which does not apply to this patient. This patient is already taking the first-line options (ramipril and bisoprolol) and should be offered the second-line option of aldosterone receptor antagonists (such as spironolactone and eplerenone).

Nifedipine is incorrect. This is a calcium channel blocker. NICE recommends that calcium channel blockers (except amlodipine) should be avoided in heart failure as they can further depress cardiac function and worsen symptoms by reducing cardiac contractility.

Question:

A 60-year-old man who is known to have lung cancer comes for review. For the past three weeks he has lost his appetite, has been feeling sick and generally feels tired. On examination he appears to be mildly dehydrated. You order some blood tests:

Calcium 3.12 mmol/l

Albumin 40 g/l

Glucose (random) 6.7 mmol/l

Urea 10.2 mmol/l

Creatinine 115 µmol/l

Which one of his existing medications is most likely to be contributing to his presentation?

A.Amlodipine

B.Simvastatin

C.Bendroflumethiazide

D.Aspirin

E.Lisinopril

Answer:Bendroflumethiazide

Explanation:

Thiazides cause hypercalcaemia

Important for meLess important

Question:

A 30-year-old man presents to the Emergency Department with a 2-day history of progressive dyspnoea which is worse on exertion and when lying down. It is associated with stabbing chest pains.

The patient has no medical history and is a non-smoker. He had symptoms of a flu-like illness 10 days ago but these have since improved.

Examination reveals bilateral basal crackles. An ECG shows ST elevation in leads V1-V4 and chest x-ray shows bilateral pulmonary infiltrates.

Blood tests show:

Hb 140 g/L (135-180)

WBC 14\*109/L (4.0 - 11.0)

Creatinine 60 µmol/L (55 - 120)

CRP 80 mg/L (< 5)

Troponin 60 ng/L (<14)

What is the likely diagnosis?

A.Anterior myocardial infarction

B.Infection with Mycoplasma pneumoniae

C.Myocarditis

D.Pericarditis

E.Pulmonary embolism

Answer:Myocarditis

Explanation:

Myocarditis presents with ST elevation and acute pulmonary oedema in a young patient with a recent flu-like illness

Important for meLess important

The most likely diagnosis is myocarditis, which describes a group of disorders characterised by inflammation of the myocardium in the absence of ischaemia. Patients are usually under 50 and have a history of recent viral illness, as in this presentation. Common symptoms are chest pain and features of pulmonary oedema. Typically, inflammatory markers and troponin will be raised, and ECG will show non-specific ST segment and T wave changes. Focal ST elevation is a possible finding, as in this patient. Myocarditis can manifest as new-onset congestive heart failure (due to inflammation reducing the contractile strength of the heart), as evidenced by the presence of orthopnea and pulmonary oedema on chest x-ray. Whilst myocarditis and pericarditis present similarly and may co-exist, isolated pericarditis would not cause left ventricular failure.

Myocardial infarction is an important consideration, given the patient has ST elevation and raised troponin. However, it would be uncommon in a young patient with no risk factors, is not associated with viral symptoms, would be more likely to cause a central crushing chest pain and is not associated with raised inflammatory markers.

Mycoplasma pneumoniae is a cause of atypical pneumonia that is most commonly seen in under 30s. It can cause breathlessness, flu-like symptoms and bilateral pulmonary infiltrates. However, it would be more likely to present with a cough and rash (typically erythema multiforme) than with chest pain. Furthermore, whilst inflammatory markers would be raised, troponin would not be elevated and there would not be ecg changes. Instead, there may be anaemia due to haemolysis.

Pericarditis is the major differential and also presents with viral symptoms, raised inflammatory markers and chest pain in a younger patient. However, isolated pericarditis would not cause signs and symptoms of left ventricular dysfunction, troponin is less likely to be raised and there is classically global concave ST elevation, rather than the focal ecg changes seen in this patient.

A pulmonary embolism could cause acute breathlessness and chest pain in a younger patient but would not be associated with signs and symptoms of left ventricular dysfunction. Inflammatory markers and troponin would not be raised and chest x-ray would typically be normal.

Question:

A 20-year-old man is on the post-op recovery unit after a tonsillectomy performed 3 hours ago. He is recovering well and is about to be transferred to an ENT ward. The nurse looking after the patient notices a small amount of new bleeding in the peritonsillar area. The patient is now complaining of pain.

His temperature is 37.2ºC, his heart rate is 97 bpm, his blood pressure is 125/73 mmHg, and his respiratory rate is 13 /min. He has no other past medical history and does not 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.Give analgesia, monitor, and provide supportive treatment

C.Prescribe antibiotics, monitor, and provide supportive treatment

D.Repeat observations in 1 hour then return to theatre if not resolved

E.Urgent ENT assessment and consider return to theatre

Answer:Urgent ENT assessment and consider return to theatre

Explanation:

All post-tonsillectomy haemorrhages should be assessed by ENT

Important for meLess important

Urgent ENT assessment and consider return to theatre is correct. Haemorrhage is one of the most important and concerning complications following tonsillectomy, even in small amounts. This patient has a primary haemorrhage as the bleeding has occurred within 6-8 hours of his operation. This requires immediate ENT input. Transfer to the ward should be delayed until this review has occurred to ensure ENT do not require him to return to theatre urgently. All post-tonsillectomy haemorrhages, regardless of timeframe, should urgently be assessed by ENT. Post-tonsillectomy haemorrhages can have associated risks that 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. Although this may be considered initially to stop the bleeding, it is only a temporary measure and can be difficult and unpleasant for patients with sensitive gag reflexes. This is not a definitive step in this patient's management. The most important step would be to have the patient urgently assessed by ENT.

Give 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 post-tonsillectomy haemorrhage. The most important step would be to have the patient urgently assessed by ENT.

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. For this step to be considered, the patient would require an ENT assessment first. This patient's post-tonsillectomy haemorrhage is primary, not secondary, and regardless of what type of post-tonsillectomy haemorrhage it is, all patients with them need an urgent assessment by ENT.

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 most important step would be to have the patient urgently assessed by ENT.

Question:

A 34-year-old lady visits her GP inquiring about a new rash. It arose on her shins 2 days ago and is described as red, round and slightly painful. On examination, the lesion appears consistent with erythema nodosum. She has no history of trauma however she states she gave birth 4 months ago. Past medical history includes type 1 diabetes mellitus (T1DM) and sarcoidosis. Currently, she is taking insulin, corticosteroids and paracetamol.

What in this patient's history is the likely cause of her rash?

A.Recent pregnancy

B.Diagnosis of sarcoidosis

C.Diagnosis of T1DM

D.Usage of insulin

E.Usage of corticosteroids

Answer:Diagnosis of sarcoidosis

Explanation:

Sarcoidosis is a cause of erythema nodosum

Important for meLess important

This lady's prior diagnosis of sarcoidosis is the likely culprit. Pregnancy can cause erythema nodosum, however, this lady is currently not pregnant. The other answers are not known causes of this condition. A helpful mnemonic is used to explain the causes:

NO – idiopathic

D – drugs (penicillin sulphonamides)

O – oral contraceptive/pregnancy

S – sarcoidosis/TB

U – ulcerative colitis/Crohn's disease/Behçet's disease

M – microbiology (streptococcus, mycoplasma, EBV and more)

Question:

Which one of the following statements regarding the aetiology of venous thromboembolism (VTE) is correct?

A.Third generation combined oral contraceptive pills are safer than second generation ones

B.VTE develops in around 5% of patients with Goodpasture's syndrome

C.Female gender is a risk factor recurrent VTE

D.The second trimester of pregnancy is associated with a greater risk than the puerperium

E.Tamoxifen therapy increases the risk of VTE

Answer:Tamoxifen therapy increases the risk of VTE

Explanation:

Question:

A 24-year-old woman who is 25 weeks pregnant with her second child, is invited to the antenatal clinic for a blood glucose check as she had gestational diabetes during her first pregnancy. She undergoes the oral glucose tolerance test and is found to have a fasting glucose level of 7.2mmol/L and a 2hr glucose level of 8mmol/L.

What is the most appropriate management?

A.Diet and exercise/lifestyle advice

B.Empagliflozin

C.Glibenclamide

D.Insulin

E.Metformin

Answer:Insulin

Explanation:

Gestational diabetes - insulin should be commenced if fasting glucose level is >= 7 mmol/l insulin at the time of diagnosis

Important for meLess important

Insulin - this is the correct answer. This patient's fasting glucose level and 2hr glucose level are both high thus necessitating treatment. Insulin should be commenced if the fasting glucose level is >= 7 mmol/L at the time of diagnosis.

Diet and exercise/lifestyle advice - this is incorrect. A fasting glucose above 7 requires medication. Whilst the patient can be advised to maintain a healthy diet and exercise regularly, this must be done in conjunction with medication. Simply eating healthy and exercising will not be enough to prevent the complications of gestational diabetes.

Empagliflozin - this is incorrect. SGLT-2-inhibitors have no role in the management of gestational diabetes.

Glibenclamide - this is incorrect. Glibenclamide is only used where the patient has declined insulin. There is nothing in this patient's history to indicate they have declined insulin.

Metformin - this is incorrect. Metformin should be used where the fasting glucose level is below 7mmol/L AND glucose targets are still not being met despite lifestyle changes for 1-2 weeks. This patient's blood glucose level is well above 7mmol/L, therefore, offering metformin would not be correct.

Question:

A 32-year-old man is referred to endocrinology from his GP with a three-month history of polyuria and polydipsia. He has a background of bipolar disorder for which he has been taking lithium for six months.

Neurological examination is normal apart from a fine tremor.

His blood test results are as follows:

Na+ 144 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 7.2 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

Glucose 6.8 mmol/L (4.0-7.0)

Following monitored fluid deprivation for eight hours, his urine osmolality is measured as follows:

Urine osmolality 250 mOsm/kg (50 - 1200)

For the next part of the test, desmopressin is prescribed.

What is the most likely urine osmolality result following administration of desmopressin?

A.250 mOsm/kg

B.500 mOsm/kg

C.750 mOsm/kg

D.1000 mOsm/kg

E.1250 mOsm/kg

Answer:250 mOsm/kg

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 250 mOsm/kg.

This patient is presenting with polyuria and polydipsia with a raised plasma osmolality (can be calculated as 302mOsm/kg).

Normal urine osmolality has a wide range between 50 and 1200 mOsm/kg depending on the state of hydration.

While patients with psychiatric problems are more likely to have psychogenic polydipsia, if this was the diagnosis water deprivation would result in concentrated urine.

A rise in urine osmolality to >700 mOsm/kg is a normal response to dehydration. However, following water deprivation his urine does not concentrate, suggesting diabetes insipidus (DI).

Lithium causes nephrogenic DI. Given that the patient takes lithium and there are no risk factors for cranial DI (e.g. recent surgery, head injury or signs of a pituitary tumour), the most likely cause is nephrogenic DI. We would therefore expect the urine to remain dilute (<300 mOsm/kg) following administration of desmopressin.

All of the other options represent increased concentration of his urine following desmopressin, which would indicate cranial diabetes insipidus.

Question:

A 32-year-old primiparous woman who is 9 weeks pregnant. She enquires about iron supplementation. Her blood tests show:

Hb 109 g/L Male: (135-180)

Female: (115 - 160)

What haemoglobin cut-off should be used in order to commence treatment in this patient?

A.95

B.100

C.105

D.110

E.115

Answer:110

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

110 is the correct target for this woman as she is in her first trimester. Based on her result, she would benefit from iron supplementation.

While memorising target numbers can be a tedious process, these are a common topic in the AKT and easy to learn as they decrease by 5 units on each 'step':

115 for non-pregnant women, 110 in early pregnancy, 105 in later pregnancy, and 100 after childbirth.

95 is incorrect as it is not a target for haemoglobin in the first trimester, although individual Hb targets may be needed for patients with haemoglobinopathies such as sickle cell or thalassaemia.

100 is the cut-off for women in the postpartum period with uncomplicated deliveries. This woman is in the first trimester, therefore this cut-off is not the correct one for her.

105 is incorrect for this woman as she is in the first trimester of pregnancy, but it is a correct target for the second and third trimesters.

115 is the target for non-pregnant, non-postpartum women and therefore is not the correct answer in this specific case.

Question:

A 3-year-old girl presented to the general practitioners 1 week ago for recurrent epistaxis and bruising on her flanks. Clotting has also been assessed and revealed a prolonged prothrombin time.

Results (with normal ranges for a 3-year-old)

Hb 80g/l (115-135)

Platelets 100 \* 109/l (150-450)

WBC 10.0 \* 109/l (5.0-17.0)

Neutrophils 1.0 \* 109/l (1.5-8.5)

What is the most likely diagnosis?

A.Aplastic anaemia

B.EBV infection

C.Myelodysplasia

D.Acute myeloid leukaemia

E.Acute lymphoblastic leukaemia

Answer:Acute lymphoblastic leukaemia

Explanation:

With the symptoms of epistaxis and bruising leukaemia is the most likely choice out of the options given. This is compounded by the anaemia associated with low platelets. Disseminated intravascular coagulation is also hinted at by the low platelets and prolonged prothrombin time. This would also fit with acute lymphoblastic leukaemia. Acute myeloid leukaemia is unlikely due to the age group. White blood cells are normal which would point away from a long standing infection. Although aplastic anaemia and myelodysplasia would give lowered erythrocytes and platelets, they would not produce the symptoms of epistaxis and bruising.

Question:

A 3-year-old boy from a Turkish family is referred to the local paediatric unit due to recurrent lethargy and pallor. His parents report no other symptoms such as fever, pain or poor feeding. He had been treated with a course of ciprofloxacin for otitis externa two weeks ago. Admission bloods show:

Hb 5.2 g/dl

WBC 10.7 \*109/l

Platelets 346 \*109/l

Reticulocytes 5%

What is the most likely underlying diagnosis?

A.Sickle cell disease

B.Beta-thalassaemia major

C.Acute lymphoblastic leukaemia

D.Pyruvate kinase deficiency

E.Glucose-6-phoshate dehydrogenase deficiency

Answer:Glucose-6-phoshate dehydrogenase deficiency

Explanation:

Ciprofloxacin may cause haemolysis in patients with G6PD deficiency

Important for meLess important

Ciprofloxacin is a common cause of haemolysis in patients with glucose-6-phoshate dehydrogenase deficiency

Question:

You are asked to speak to a family who have just received a diagnosis of pulmonary hypoplasia on fetal MRI. Which of the following conditions is the most common cause of pulmonary hypoplasia?

A.Polyhydramnios

B.Congenital diaphragmatic hernia

C.Diaphragm agenesis

D.Tetralogy of Fallot

E.Osteogenesis imperfecta

Answer:Congenital diaphragmatic hernia

Explanation:

Pulmonary hypoplasia in CDH occurs alongside the hernial development rather than as a direct result of it, as part of a sequence

Important for meLess important

Infants with congenital diaphragmatic hernia (CDH) have associated pulmonary hypoplasia. This is not necessarily due to direct compression of the lung by herniated viscera but rather occurs as part of a sequence alongside the hernial development.

Oligohydramnios, rather than polyhydramnios, leads to pulmonary hypoplasia. It is believed that oligohydramnios decreases the size of the intrathoracic cavity, thus preventing foetal lung growth.

Diaphragm agenesis, tetralogy of Fallot and osteogenesis imperfecta are all less common causes of pulmonary hypoplasia.

Question:

An 18 month old child attends the paediatric assessment unit with his mother. He has been brought in as he has had a fever, barking cough and difficulty breathing at night. He has been diagnosed with croup and you have been asked to see him to review. After history and assessment you are confident there is no stridor or respiratory distress. What would your next step in management be?

A.Give antibiotics

B.Give oxygen

C.Full ENT exam

D.Give nebulised adrenaline

E.Give oral dexamethasone

Answer:Give 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 child has mild croup, the severity of croup is based upon; respiratory rate, respiratory distress, heart rate, O2 saturations and exhaustion. Treatment of mild croup is oral dexamethasone 0.15mg/kg single dose and review. Systemic dexamethasone and nebulised adrenaline 5ml of 1:1000 are used in severe croup, alongside oxygen administration. Antibiotics should not be given unless an underlying bacterial infection is suspected. You should not perform an ENT exam due to the possibility of an epiglottis diagnosis.

Question:

A 56-year-old female with a history of ulcerative colitis presents to her GP with generalised fatigue and pruritus. The GP decides to send her for blood tests and the liver function tests (LFT) results are shown below:

Bilirubin 24 µmol/L (3 - 17)

ALP 180 u/L (30 - 100)

ALT 22 u/L (3 - 40)

γGT 82 u/L (8 - 60)

Albumin 41 g/L (35 - 50)

Following this an ultrasound is done, showing bile duct dilatation.

What is the next best investigation of choice?

A.Liver biopsy

B.Endoscopic retrograde cholangiopancreatography (ERCP)

C.CT abdomen

D.Magnetic resonance cholangiopancreatography (MRCP)

E.Percutaneous transhepatic cholangiography (PTC)

Answer:Magnetic resonance cholangiopancreatography (MRCP)

Explanation:

Magnetic resonance cholangiopancreatography (MRCP) is now the standard procedure to diagnosis primary sclerosing cholangitis as it is sensitive and non-invasive

Important for meLess important

The patient has a cholestatic picture on LFTs and with a history of ulcerative colitis there should be a high clinical suspicion of primary sclerosing cholangitis. The ultrasound supports this, and MRCP is now the standard procedure to visualise the intrahepatic and extrahepatic bile ducts.

MRCP: because it is noninvasive with comparable diagnostic accuracy to ERCP, it is typically the first test of choice.

ERCP: more invasive than MRCP. May be used if patient unable to tolerate MRCP (metal implants).

PTC: involves transhepatic insertion of a needle into a bile duct, and therefore invasive.

Liver biopsy: a procedure in which a small needle is inserted into the liver to collect a tissue sample.

CT: less sensitive and specific than MRCP.

Question:

A 37-year-old man presents to the emergency department with severe abdominal pain. The pain is localised in the epigastric area and it is relieved by leaning forwards. He vomited twice, but there was no blood in the emesis.

On examination, he looks clammy and unwell. His heart rate is 90/min, blood pressure 100/72 mmHg, respiratory rate 22/min and temperature 39.2 ºC.

He has a complex past medical history and takes multiple medications per day.

Of the medications below, what is the most likely cause of his symptoms?

A.Clozapine

B.Mesalazine

C.Phenytoin

D.Ramipril

E.Sertraline

Answer:Mesalazine

Explanation:

Mesalazine can cause drug-induced pancreatitis

Important for meLess important

The correct answer is mesalazine. This patient is presenting with the classical features of acute pancreatitis: severe epigastric pain relieved by leaning forwards, accompanied by vomiting and fever. The causes of this condition can be multiple, but it can be often drug-induced. Mesalazine has been found to be a positive causative agent, but the mechanism of this is still unknown. It has been postulated that salicylic acid may increase the permeability of the pancreatic duct, causing inflammation.

Phenytoin is a drug used in the management of seizures. It can cause many side effects, including hepatitis but it has not been shown to cause pancreatitis.

Clozapine is an atypical antipsychotic used in the management of complicated schizophrenia. It can cause agranulocytosis, neutropaenia, constipation, myocarditis and seizures, but it has not been shown to cause pancreatitis.

Ramipril is an angiotensin-converting enzyme inhibitor. It has not been associated with pancreatitis, but it might cause cough, angioedema and hyperkalemia.

Sertraline is an SSRI which has been associated with perforated peptic ulcers, which would present with haematemesis (which the patient denies in this case), epigastric pain and melena.

Question:

Which one of the following statements regarding macular degeneration is true?

A.Drusen are characteristic of wet macular degeneration

B.Photodynamic therapy is useful in dry macular degeneration

C.Asian ethnicity is a risk factor

D.Male sex is a risk factor

E.Wet macular degeneration carries the worst prognosis

Answer:Wet macular degeneration carries the worst prognosis

Explanation:

Question:

A 54-year-old woman is admitted to the hospital after an acute confusion episode following taking part in a half marathon in August. She repeatedly asks the same questions and seems unable to retain any new information.

She has a history of ischaemic heart disease and hyperlipidemia. She has not had any head injuries, and physical examination, including a full neurological exam, is normal. A toxicology screen, alcohol level, and basic labs including glucose and electrolytes are normal. CT head is awaited, and it is 13 hours since the onset of symptoms.

What is the most likely diagnosis?

A.Basilar artery thrombosis

B.Heat stroke

C.Lacunar syndrome

D.Rhabdomyolysis

E.Transient global amnesia

Answer:Transient global amnesia

Explanation:

Transient global amnesia - acute onset of anterograde amnesia, patent may keep asking the same questions, resolves within 24 hours

Important for meLess important

The correct answer is transient global amnesia (TGA). TGA is often precipitated by particularly strenuous activity, high-stress events, or coitus, but it can be seen with migraines. Treatment for TGA is largely supportive. There is no specific therapy for this condition, nor is one necessary. The patient should be examined carefully for any accompanying neurological deficits or evidence of head trauma, both of which would exclude TGA as the diagnosis. The patient should be observed in the hospital until the memory deficit resolves. Although no clear risk factors have been identified, it has been noted more often in patients with a history of ischemic heart disease and hyperlipidemia.

Basilar artery thrombosis is incorrect. Patients with basilar artery occlusion exhibit acute neurologic signs including motor deficits, hemiparesis or quadriparesis, facial palsies, dizziness, headache, and speech abnormalities–especially dysarthria and difficulty articulating words. Patients may also complain of nausea, vomiting, and changes in vision.

Lacunar syndrome comprises pure motor hemiparesis, pure sensory stroke, ataxic hemiparesis, sensorimotor stroke, or dysarthria-clumsy hand syndrome.

Heat stroke is incorrect. Although heat stroke can cause confusion, it tends to be associated with a headache, tachycardia and tachypnoea which are not mentioned in the question stem.

Rhabdomyolysis is incorrect. Although important to consider given the history of exercise, confusion tends to be a symptom which occurs in elderly patients with rhabdomyolysis. Younger patients tend to complain of muscular pain and you would expect characteristic changes on blood tests (high potassium, low calcium, high phosphate).

Question:

Input from the infectious diseases team is requested for a 40-year-old sewerage worker who presented to the emergency department complaining of fever and right upper quadrant abdominal pain. He mentions that in the preceding week he experienced a flu-like illness and he noticed his eyes had gone red. On examination, there is tender hepatomegaly and the patient appears jaundiced.

What test is most commonly used to confirm this patient's underlying condition?

A.Blood culture

B.CSF culture

C.PCR

D.Serology

E.Urine culture

Answer:Serology

Explanation:

Serology is the most commonly used test for the diagnosis of leptospirosis, however, antibodies may not be present until after 7 days

Important for meLess important

This patient has presented with leptospirosis. His background as a sewerage worker puts him at risk as leptospirosis is classically spread by contact with infected rat urine. A flu-like illness and conjunctival haemorrhage are features of the early bacteraemic phase that typically lasts for a week. Hepatitis is feature of the second immune phase, which can present with jaundice and hepatomegaly as in this patient.

Serology is most commonly used as the diagnostic test for leptospirosis and thus is the correct answer, however antibodies may not develop until after 7 days.

PCR can also be used for diagnosis, however it is used less commonly than serology.

The use of cultures is limited as it may take several weeks for culture growth. Blood and CSF cultures are usually positive for the first 10 days of disease. Urine cultures usually become positive in the second week of illness.

Question:

A 65-year-old woman with a history of chronic obstructive pulmonary disease (COPD) is admitted to the Emergency Department with breathlessness. This is her first admission with an exacerbation of COPD. Blood gases taken on room air shortly after admission are as follows:

pH 7.38

pCO2 4.9 kPa

pO2 8.8 kPa

What should her target oxygen saturations be?

A.94-98%

B.86-90%

C.90-94%

D.>98%

E.> 95% first 48 hours, > 90% rest of admission

Answer:94-98%

Explanation:

When managing patients with COPD, once the pCO2 is known to be normal the target oxygen saturations should be 94-98%.

Question:

A 50-year-old man with Tourette's and poorly controlled type 2 diabetes comes in to see you. This patient drinks 21 units of alcohol per week and smokes 20 cigarettes a day. He is concerned as he has been experiencing intermittent episodes of chest pain on exertion and requests an angiogram as his father died of a myocardial infarction aged 56 years. You refer the patient for suspected angina, give worsening advice regarding chest pain and prescribe a glyceryl trinitrate (GTN) spray for use as required. When you are prescribing this you notice a medication on this patient's prescription list and advise him that he should not be taking this medication while being investigated for chest pain or if he is using his GTN spray. What medication does this relate to?

A.Metformin

B.Sildenafil

C.Sitagliptin

D.Gliclazide

E.Atorvastatin

Answer:Sildenafil

Explanation:

PDE 5 inhibitors (e.g. sildenafil) - contraindicated by nitrates and nicorandil

Important for meLess important

The answer here is sildenafil. Concomitant use of both a nitrate and phosphodiesterase inhibitor may have lead to significant hypotension and the potential to precipitate myocardial infarction. There are no noted interactions in the BNF between nitrates and metformin, gliclazide, sitagliptin or atorvastatin.

Question:

A newborn baby is noted to have low-set ears, rocker bottom feet and overlapping of her fingers. What is the most likely diagnosis?

A.Patau syndrome

B.Edward's syndrome

C.William's syndrome

D.Fragile X

E.Pierre-Robin 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

Question:

A 73-year-old man complains of a sore right eye:

What is the diagnosis?

A.Dacryocystitis

B.Chalazion

C.Entropion

D.Blepharitis

E.Ectropion

Answer:Entropion

Explanation:

If left untreated this patient may develop a corneal ulcer. The definitive management of entropion is surgical although eye lubricants and tape (to pull the eyelid outwards) may be used whilst awaiting surgery.

Question:

A 34-year-old man presents to the emergency department with a witnessed tonic-clonic seizure. His partner reports that he has had intermittent fevers for three days and has been complaining of a progressive headache for two weeks. He has recently had a sinus infection but is normally fit and well.

You arrange an urgent CT head that shows a frontal ring enhancing lesion.

What is the most appropriate first-line treatment for this patient?

A.Amphotericin B and fluconazole

B.Ceftriaxone and aciclovir

C.Ceftriaxone and metronidazole

D.Dexamethasone

E.Sulfadiazine and pyrimethamine

Answer:Ceftriaxone and metronidazole

Explanation:

Brain abscess: IV 3rd-generation cephalosporin + metronidazole

Important for meLess important

Given the history and characteristic CT findings, the most likely diagnosis here is a bacterial brain abscess secondary to the patient’s recent sinusitis. The first-line treatment for brain abscess is with broad spectrum antibiotics such as ceftriaxone and metronidazole . Ceftriaxone is a third-generation cephalosporin with excellent blood brain barrier penetration; it provides good gram-positive and excellent gram-negative cover but lacks anaerobic cover hence the need for the addition of metronidazole (intracranial abscesses secondary to sinusitis are often polymicrobial). In addition to antimicrobials, it would also be important to start the patient on anti-epileptic medication and consult neurosurgery for advice about potential drainage.

Ceftriaxone and aciclovir are typically used together to cover for both bacterial meningitis and viral encephalitis in patient’s presenting with fever and neurological symptoms or signs. There are no immediate clues in the history to suggest meningism or encephalitis in this patient and given the CT head findings, a brain abscess is the more likely diagnosis.

Sulfadiazine and pyrimethamine are used in the treatment of cerebral toxoplasmosis. Whilst this condition can also present with ring-enhancing lesions on CT head, it is rarely seen in people who are immunocompetent. It is admittedly possible that this man could have HIV and this could be his first presentation; however, given the history of sinusitis and the lack of any apparent risk factors for HIV in the question stem, bacterial brain abscess is the more likely diagnosis.

Amphotericin B and fluconazole are the treatment for intracranial cryptococcus infection. This condition typically presents with headache, fever, and neurological symptoms/signs in people who are immunocompromised. It is not associated with ring-enhancing lesions; if present, changes seen on imaging include meningeal enhancement and cerebral oedema.

Dexamethasone is a steroid that can be used to reduce cerebral oedema in a number of conditions, including malignancy. Whilst it can be used as an adjunct in the management of brain abscess (particularly if there is significant oedema), antimicrobials are first-line therapy.

Question:

A 54-year-old man presents to the GP with 3 episodes of dizziness and fainting. An ECG is performed that shows a bradycardia with intermittently non-conducted P waves, there is no sign of PR elongation or shortening of the waves that are conducted.

Given the most likely diagnosis, what is the best long-term management options?

A.Reassurance with 6 monthly review

B.Pacemaker insertion

C.Accessory pathway ablation

D.Beta blocker

E.Atropine

Answer:Pacemaker insertion

Explanation:

Mobitz II is an indication for a pacemaker

Important for meLess important

This question is asking about a 54-year-old man presenting with symptomatic type-2 heart block. More specifically Mobitz type II heart block, as characterised by intermittently non-conducted P waves. This is treated with a pacemaker.

Reassurance with 6 monthly reviews is not appropriate as this man is symptomatic and requires a pacemaker.

Accessory pathway ablation is the treatment of Wolff-Parkinson-White.

This patients heart rate is already low, a beta blocker would be contraindicated.

Atropine would be used in the acute setting of symptomatic bradycardias or in those with low blood pressure.

Question:

A 29-year-old woman goes into labour. The midwife examines her and states that the head is now at the level of ischial spine. What terminology is used to describe the head in relation to the ischial spine?

A.Engagement

B.Station

C.Restitution

D.External rotation

E.Expulsion

Answer:Station

Explanation:

Station is the term used to describe the head in relation to the ischial spine. The station is '0' when the head is directly at the level of the ischial spines, if the station was describes as -2, it would be 2cm above the ischial spines, and it was +2 it would be 2cm below the ischial spine.

Question:

A 31-year-old woman who is 5 months pregnant presents to her GP. She has noticed marks on her legs for two months, that are sore with tight clothes. She has had two episodes of loose stool which have now resolved, which she puts down to stress. She has no allergies and is well. Her mother who was diagnosed with tuberculosis two years ago, moved to the UK last year.

Her observations are:

Heart rate: 75bpm

Respiratory rate: 14/min

Temperature: 37ºC

Oxygen saturation: 99%

Blood pressure 125/84mmHg

On examination, the following is seen:

© Image used on license from DermNet NZ

Given the likely diagnosis, which factor is most likely related to her rash?

A.Drug reaction

B.Pregnancy

C.Sarcoidosis

D.Streptococcal infection

E.Tuberculosis

Answer:Pregnancy

Explanation:

Pregnancy is correct. The image demonstrates lots of visible circular nodular markings on both legs which are red. This pregnant woman has noticed some erythematous nodules on her shins bilaterally. They are tender (sore on tight-fitting clothing or palpation). Multiple erythematous nodules on the shins which are tender suggest erythema nodosum. This is a skin condition that has multiple aetiologies including pregnancy, combined oral contraception, infection, malignancy and drug reactions.

Drug reaction is incorrect. There is no mention of this patient taking any medications and hence this is not the most likely factor relating to her erythema nodosum. Some examples of medications that can precipitate erythema nodosum include the combined oral contraceptive pill and penicillins. A drug allergy (or any allergy) may present with features such as wheals (commonly called hives) or itch, which were not present here.

Sarcoidosis is incorrect. Sarcoidosis can present with a multitude of signs and symptoms including lupus pernio (a painful skin rash), shortness of breath and erythema nodosum. Although she seems to have erythema nodosum, no other features point to a possible diagnosis of sarcoidosis.

Streptococcal infection is incorrect. In this case, the patient is pregnant but otherwise well with normal observations (making infection less likely). There is no mention of pyrexia or coryza or a sore throat and therefore no localising signs of infection.

Tuberculosis is incorrect. Although this patient has a family history of tuberculosis which places her at higher risk, there are no symptoms present other than a rash. Textbook symptoms of tuberculosis include haemoptysis and constitutional b symptoms such as fever, night sweats and weight loss. It is possible for the patient to have latent tuberculosis (which is asymptomatic and not infective unless it becomes active tuberculosis), however, this is less likely than a precipitant which is known to be present such as pregnancy.

Question:

A 4-month-old baby girl is reviewed. Four weeks ago you started a trial of alginate therapy (Gaviscon) for frequent regurgitation associated with distress. Unfortunately, this has not resulted in any improvement in the symptoms and her mother now reports she appears to be refusing feeds. There are no other new symptoms such as diarrhoea, rash and she appears to be putting on weight steadily. She continues to be completely bottle fed after her mother stopped breastfeeding at 6 weeks of age. What is the most appropriate next step in management?

A.Trial of proton pump inhibitor

B.Trial of metoclopramide

C.Restarting breastfeeding

D.Trial of hydrolysed formula milk

E.Suggest stopping formula milk and introducing solids

Answer:Trial of proton pump inhibitor

Explanation:

PPI should be trialled in infants with GORD who do not respond to alginates/thickened feeds and who have 1. feeding difficulties, 2. distressed behaviour or 3. faltering growth

Important for meLess important

NICE would recommend a trial of a proton pump inhibitor in this situation where initial measures have failed to settle symptoms.

Metoclopramide should not be used without specialist advice due to the risk of side-effects such as dystonia.

It is not practical to restart breastfeeding once it has stopped and there is no reason to suggest that this would improve symptoms.

Whilst a differential diagnosis of cow's milk protein intolerance should be considered there is nothing to suggest that diagnosis now.

The baby is too young to stop milk feeds.

Question:

A 28-year-old pregnant woman presents to the antenatal clinic for her 12 week booking appointment. She is nulliparous with no past medical history of note. The midwife takes a blood sample to be screened for HIV, rubella and syphilis. A midstream urine sample is sent for culture to screen for asymptomatic bacteriuria.

Which other infectious disease is routinely screened for in pregnancy?

A.Hepatitis B

B.Hepatitis C

C.Chlamydia

D.Group B streptococcus

E.Toxoplasmosis

Answer:Hepatitis B

Explanation:

Hepatitis C is not routinely screened for during pregnancy

Important for meLess important

Hepatitis C is not routinely screened for during pregnancy. NICE guidelines state that there is insufficient evidence of its clinical and cost-effectiveness. Hepatitis B is screened for at the booking appointment as the risk of mother-child transmission can be reduced through effective post-natal interventions.

Chlamydia screening should not be routinely offered in antenatal care. Patients under the age of 25 should be should be given the details of their local National Chlamydia Screening Programme due to the higher prevalence of chlamydia in this age group. There is no regular Group B streptococcus screening programme in the UK. Toxoplasmosis is not routinely screened for as the risks of screening may outweigh the potential benefits of treatment. Women should be advised on how to prevent toxoplasmosis infection, such as through washing hands before handling food, thoroughly washing all fruits and vegetables before eating and avoiding cat faeces in cat litter or soil.

Question:

A 23-year-old man presents to his GP, asking to be screened for a condition that runs in his family. He explains that his brother and father have both suffered from kidney problems and have been told that the condition is hereditary. Additionally, he says that his brother suffered from a 'bleed on the brain' at a young age.

Examination is unremarkable and he is well in himself.

Given the likely diagnosis, which investigation is most appropriate?

A.Computed tomography (CT) of abdomen/pelvis

B.Computed tomography (CT) of head

C.Genetic 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

The diagnosis alluded to here is autosomal dominant polycystic kidney disease (ADPKD) - the most common cause of inherited kidney disease. In addition to renal disease, it is associated with intracranial aneurysms, hence the history of his brother having a 'bleed'. The most appropriate imaging modality is ultrasound - in patients with a positive family history, diagnosis is made by the visualisation of two cysts, unilateral or bilateral, if aged <30 years. If between 30-59 years of age, two cysts in both kidneys are the diagnostic criteria. If 60 or over, the diagnostic criteria are four cysts in both kidneys.

A CT scan of the abdomen/pelvis may be performed if the ultrasound is inconclusive. However, the most appropriate investigation in this scenario, given that the patient has had no imaging yet, is ultrasound.

If he were presenting with an acute-onset headache, a CT scan of the head would be indicated to rule out intracranial bleeding. However, he is well, and so the focus is on diagnosing the underlying condition - ADPKD - for which ultrasound of the kidneys is most appropriate.

Genetic testing is not routinely performed. It should be considered if imaging is inconclusive. Two loci have been identified, PKD1 on chromosome 16 and PKD2 on chromosome 4.

MRI scanning may be considered if ultrasound is equivocal, especially in patients <30 years of age. As with CT scanning, ultrasound should be performed first.

Question:

A 62-year-old female is admitted with a suspected infective exacerbation of COPD. A chest x-ray shows no evidence of consolidation. What is the most likely causative organism?

A.Pseudomonas aeruginosa

B.Haemophilus influenzae

C.Staphylococcus aureus

D.Streptococcus pneumoniae

E.Moraxella catarrhalis

Answer:Haemophilus influenzae

Explanation:

If the patient had pneumonia then Streptococcus pneumoniae would be the most likely causative organism. However, the chest x-ray shows no evidence of consolidation making a diagnosis of pneumonia unlikely.

Haemophilus influenzae is the most common cause of infective exacerbations of COPD. The patient should be treated with a course of amoxicillin or a tetracycline together with prednisolone.

Question:

A 32-year-old woman presents with a skin rash. She states that it gets worse when she is on holiday in counties with warmer climates. A systematic enquiry was otherwise unremarkable. On examination, you note blistering and hyperpigmentation over her face and the dorsal aspect of the hands. Observations are within normal limits.

What enzyme is the patient deficient in?

A.Coproporphyrinogen oxidase

B.Myeloperoxidase

C.Porphobilinogen deaminase

D.Protoporphyrinogen oxidase

E.Uroporphyrinogen decarboxylase

Answer:Uroporphyrinogen decarboxylase

Explanation:

Porphyria cutanea tarda is caused by an inherited defect in uroporphyrinogen decarboxylase

Important for meLess important

Uroporphyrinogen decarboxylase is correct. This is a classic case of porphyria cutanea tarda (PCT) which is the most common type of porphyria. PCT is caused by a defect in the liver enzyme uroporphyrinogen decarboxylase. The symptoms of PCT are limited to the skin. It does not cause people to become acutely unwell, as in the acute types of porphyria.

Coproporphyrinogen oxidase is incorrect. This enzyme is associated with hereditary coproporphyria (HCP). Although this condition can also present with a photosensitive rash, it often presents with neurological symptoms and visceral involvement (e.g. colic).

Myeloperoxidase is incorrect. A deficiency of myeloperoxidase is associated with generalised pustular psoriasis. This condition is characterised by recurrent flares of widespread sterile pustules with erythematous, painful skin. In this clinical case, the presence of a photosensitive blistering and hyperpigmented rash makes myeloperoxidase deficiency an unlikely diagnosis.

Porphobilinogen deaminase is incorrect. This enzyme is associated with acute intermittent porphyria (AIP) which presents with neurological and visceral involvement. Cutaneous manifestations do not occur with this type of porphyria.

Protoporphyrinogen oxidase is incorrect. This enzyme is associated with variegate porphyria. Variegate porphyria (VP) is an inherited porphyria characterized by cutaneous blistering and acute neurovisceral attacks. Although this remains within the differential diagnosis, the absence of neurovisceral involvement makes this a less likely diagnosis.

Question:

A newborn male baby is found to have an undescended right testicle during the routine 6-8 week examination. It is neither palpable in the scrotum or inguinal canal. What is the most appropriate management?

A.Outpatient referral to urology to be seen within 4 weeks

B.Review at 3 months

C.Immediate referral to urology

D.Arrange ultrasound abdomen and scrotum

E.Review at 12 months

Answer:Review at 3 months

Explanation:

Unilateral undescended testicle - review at 3 months - if persistent refer

Important for meLess important

If the testicle has not descended by around 3 months then referral should be considered for orchidopexy.

Question:

A 44-year-old man is referred to the renal team. He has a long history of chronic sinusitis and was investigated last year for haemoptysis but no cause was found. A number of recent urine dipstick tests has shown persistent microscopic haematuria.

Na+ 140 mmol/l

K+ 4.8 mmol/l

Urea 11.4 mmol/l

Creatinine 145 µmol/l

ESR 61 mm/hr

CRP 30 mg/l

anti-GBM Negative

cANCA (PR3) Positive

pANCA (MPO) Negative

ANA Negative

Given the likely diagnosis, what findings would be expected on renal biopsy?

A.Segmental tuft necrosis

B.Kimmelstiel-Wilson nodules

C.Crescentic glomerulonephritis

D.'Full-house' immunoglobulin deposition

E.Membranous glomerulonephritis

Answer:Crescentic glomerulonephritis

Explanation:

Question:

An 82-year-old woman presents to her GP complaining of losing vision in her peripheries for 4 months and generally worse visual acuity. She now describes having 'tunnel vision'. She has a past medical history of hypertension and type 2 diabetes mellitus and wears prescription glasses for her short-sightedness. Fundoscopy reveals optic disc cupping and hemorrhages.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Cataracts

C.Central retinal artery occlusion

D.Diabetic retinopathy

E.Primary open-angle glaucoma

Answer:Primary open-angle glaucoma

Explanation:

Glaucoma primarily causes visual field defects

Important for meLess important

Primary open-angle glaucoma is correct. This elderly woman is presenting with insidious onset of peripheral vision loss and a loss of visual acuity, indicative of optic nerve atrophy secondary to chronically increased intraocular pressure (IOP). Diagnosis can be confirmed by fundoscopy, tonometry to assess IOP and slit-lamp examination. Fundoscopy would reveal optic disc cupping, pallor, and disc hemorrhages.

Acute angle-closure glaucoma would present more suddenly, accompanied by eye pain, seeing halos, and a semi-dilated non-reacting pupil. Systemic symptoms such as nausea, vomiting, and abdominal pain may be seen. Furthermore, this woman has myopia, whereas angle-closure glaucoma is associated with hypermetropia.

Central retinal artery occlusion is incorrect. This would present with a sudden loss of vision due to thromboembolism from atherosclerotic plaque. Fundoscopy would show a 'cherry red' spot on a pale retina.

Diabetic retinopathy is a plausible answer, given the history of T2DM. However, this would present with blurred vision, rather than peripheral visual field loss. Furthermore, fundoscopy would show microaneurysms, cotton-wool spots, and hard exudates.

Cataracts is incorrect. This would present with an insidious blurring of the total visual field, rather than a specific region being impacted. Reduced visual acuity and halos would also be seen. Finally, fundoscopy would reveal the cataract.

Question:

A 23-year-old man presents to his GP with testicular pain. He reports pain in the left testicle, with associated swelling that has come on over the course of the day. He reports feeling generally unwell and a little nauseous.

On examination, the left testicle is swollen and erythematous. It is tender to palpation, particularly over the top of the testicle, but the pain eases when the testicle is lifted.

What management is most appropriate at this stage?

A.10 days of oral levofloxacin

B.Referral for ultrasound scan (2 week wait)

C.Single dose ceftriaxone and 10-14 days of doxycycline

D.Single dose doxycycline and 10-14 days of ceftriaxone

E.Urgent referral to urology for surgical intervention

Answer:Single dose ceftriaxone and 10-14 days of doxycycline

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

Single dose ceftriaxone and 10-14 days of doxycycline is the correct answer. This man is presenting with symptoms consistent with epididymo-orchitis, including unilateral testicular pain, redness and swelling. The fact that the pain eases when the testicle is lifted (positive Prehn's sign) and the localisation of the pain to the top of the testicle where the epididymis is, rather than the whole testes, points more towards a diagnosis of epididymo-orchitis than an alternative diagnosis. Epididymo-orchitis is usually due to sexually transmitted infections in younger individuals and urinary tract infections in older individuals (in this case, it is more likely due to an STI).

At this stage, we don't know the organism behind the infection. If the organism is unknown, treatment is with a single dose of IM ceftriaxone and a 10-14 day course of oral doxycycline, therefore this is the most appropriate management at this stage. This covers a range of causative infections including Chlamydia trachomatis and Neisseria gonorrhoeae. It is likely that at this stage, we would take swabs to determine the causative mechanism and could later alter treatment according to organism and sensitivity, however, this treatment is most appropriate whilst the organism is unknown.

10 days of oral levofloxacin is incorrect. This is not the correct antibiotic for epididymo-orchitis of an unknown organism. It could be given if the cause was a urinary pathogen rather than a sexually transmitted pathogen, however, in this case, the age of the patient makes a sexually transmitted disease more likely.

Referral for ultrasound scan (2 week wait) is incorrect. This would be the correct management if suspecting testicular cancer, however, testicular cancer usually presents as a painless lump and would not present as acutely as in this case.

Single dose doxycycline and 10-14 days of ceftriaxone is incorrect. These are the correct antibiotics given to treat epididymo-orchitis of unknown cause, however, ceftriaxone is a single dose and doxycycline is a 10-14 days course.

Urgent referral to urology for surgical intervention is incorrect. This would be the correct management if we suspected testicular torsion. Though torsion is a differential for acute testicular pain, the fact that the pain eases on lifting the testicle points more towards epididymitis than torsion and also torsion would tend to present with more severe, acute pain.

Question:

A 49-year-old man presents to the GP with a year history of twitching and cramps in his legs. He tells you that he has had problems recently with swallowing both liquids and food. He has no past medical history. On examination you note hypophonia and tongue fasciculations. . Given these signs, which of the following conditions should be considered for further investigation?

A.Achalasia

B.Night cramps

C.Benign fasciculation syndrome

D.Motor neuron disease

E.Laryngeal carcinoma

Answer:Motor neuron disease

Explanation:

Tongue fasciculations are one of the signs of bulbar onset motor neuron disease

Important for meLess important

Tongue fasciculations represent one of the bulbar signs of motor neuron disease. Although benign fasciculation syndrome is a common cause of tongue fasciculations, the rest of the history points to something more sinister. The rest of the conditions are red herrings.

Question:

An 85 year old man has attended surgery to discuss an ambulatory blood pressure monitoring reading of 142/84 mmHg. He has no past medical history of coronary heart disease, renal disease or diabetes, and his only regular medication is lansoprazole. His 10-year cardiovascular risk score was recently calculated to be 8%. Management should include follow up with which one of the following?

A.Lifestyle advice

B.Calcium channel blocker

C.Diuretic

D.ACE inhibitor

E.Beta-blocker

Answer:Lifestyle advice

Explanation:

An ambulatory blood pressure reading of greater than or equal to 135/85 mmHg confirms a diagnosis of stage 1 hypertension. However, the National Institute for Clinical Excellence (NICE) suggest that antihypertensive treatment should be offered only if the person is:

aged less than 80 years with stage 1 hypertension with one or more of, target organ damage, established cardiovascular disease, renal disease, diabetes, and/or a 10 year cardiovascular risk of 10% or more.

If stage 2 hypertension is diagnosed then antihypertensive medication should be started regardless of age. Lifestyle advice should be reinforced in all patients.

Question:

Which one of the following statements regarding infantile spasms is incorrect?

A.EEG shows hypsarrhythmia in the majority of children

B.Carries a good prognosis

C.More common in male children

D.Typically presents in the first 4 to 8 months

E.Causes characteristic 'salaam' attacks

Answer:Carries a good prognosis

Explanation:

Question:

A 56-year-old woman presents to the GP because she has been experiencing some visual changes. The doctor performs a fundoscopy and finds the following appearance:

The only previous fundoscopy was three years ago and was normal.

What additional feature would you find on examination?

A.A butterfly malar rash

B.A new heart murmur

C.An irregularly irregular pulse

D.Hyperglycaemia

E.Hypertension

Answer:Hypertension

Explanation:

The answer is hypertension as this fundoscopy shows hypertensive retinopathy (stage 4):

Cotton-wool spots (widespread white-ish areas resulting from ischaemia)

Retinal haemorrhages (red blotches around the centre of the image)

A 'macular star' composed of intraretinal lipid exudates (the radial, sunburst pattern of white streaks around the macular)

The optic nerve head is swollen, which is the feature that separates grade 3 and grade 4 hypertensive retinopathy

A butterfly malar rash may indicate SLE, a cause of lupus retinopathy which can mimic many other retinopathies. However, hypertension is far more common in any population so is a more likely cause.

A new heart murmur may indicate endocarditis, which can produce Roth spots on fundoscopy.

An irregularly irregular pulse is strongly indicative of atrial fibrillation; this may cause micro-emboli in the retina, but fundoscopy is not used in the assessment and examination in most cases.

Hyperglycaemia indicates diabetic retinopathy, which would involve cotton wool spots, flame haemorrhages, and dot-blot haemorrhages.

Question:

A 59-year-old patient is admitted to the emergency department with fever, dysphasia and progressive right-sided weakness. A CT head with contrast reveals a rim-enhancing lesion with a central cavity and surrounding oedema within the left frontal lobe. An MRI brain with contrast is performed that shows that the lesion is diffusion-restricting.

What is the most likely diagnosis?

A.Brain abscess

B.Meningioma

C.Glioblastoma

D.Low-grade glioma

E.Subdural empyema

Answer:Brain abscess

Explanation:

An abscess is a collection of pus encapsulated by a pyogenic membrane

Important for meLess important

The presence of fever raises suspicion of an infection and not in keeping with a brain tumour.

Since the lesion is within the brain parenchyma of the frontal lobe, a subdural empyema is not correct. Similarly, a meningioma is not within the brain, it is an 'extra-axial' lesion. A brain abscess is the most likely diagnosis and can be differentiated from a high-grade tumour (such as a glioblastoma) since it will show restricted diffusion on diffusion-weighted imaging. A low-grade glioma does not typically have an intratumoral cavity.

Question:

A 32-year-old female enters the clinic with a 3-week history of a mild rash on her face. She explains how it is very sensitive to the sunlight and has been wearing hats for protection. She is two months postpartum and has no past medical history of note.

On examination, there is an erythematous rash with superficial pustules affecting the forehead, nose and cheeks.

Which of the following would best treat the underlying condition?

A.Camouflage cream

B.Hydrocortisone cream

C.Sunscreen preparation

D.Topical calcineurin inhibitor

E.Topical metronidazole

Answer:Topical metronidazole

Explanation:

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

Acne rosacea commonly affects fair-skinned populations above the age of 30. Sunlight, pregnancy, certain drugs and food can all exacerbate the condition. NICE recommend a course of metronidazole first-line for mild to moderate disease. Other topical agents which can be used include brimonidine, oxymetazoline, benzoyl peroxide and tretinoin.

Systemic antibiotics such as erythromycin and tetracycline can be utilised in moderate to severe disease.

Camouflage creams and suncream can be very useful for patients with ance rosacea but this would not treat the underlying condition.

Steroids creams are not utilised in the treatment of acne rosacea.

Topical calcineurin inhibitors are sometimes used in the management of certain skin conditions such as seborrheic dermatitis, lichen planus and vitiligo.

Question:

A 38-year-old man presents to surgery due to a 3 month history of scrotal swelling and discomfort.

On examination, there is unilateral swelling in the left scrotum which transilluminates. The swelling is soft and non-tender. Due to the presence of fluid, the testis is not fully palpable.

What is the most appropriate next course of action?

A.Reassess in 3 months' time

B.Provide reassurance

C.Refer urgently for testicular biopsy

D.Refer urgently for CT abdomen and pelvis

E.Refer urgently for testicular ultrasound

Answer:Refer urgently for testicular ultrasound

Explanation:

Adult patients with a hydrocele require an ultrasound to exclude underlying causes such as a tumour

Important for meLess important

Adult patients with a hydrocele require an ultrasound to exclude underlying causes such as a tumour.

Whilst the most common aetiology of a non-acute hydrocele such as the one presented here is idiopathic, malignancy should always be ruled out first. Hence, reassessing the patient at a later date or providing reassurance would only be appropriate after testicular ultrasound excludes malignancy.

Testicular biopsy has no place in the investigation of suspected testicular cancer as it may cause dissemination of the malignancy through seeding along the needle's track.

Whilst a unilateral hydrocele can be an unusual presentation of a renal carcinoma invading the renal vein, a CTAP would not be the first-line investigation in this scenario. If malignancy is confirmed, CT may have a role in staging the malignancy.

Question:

A 53-year-old woman goes to see her GP after complaining of cold hands and feet for the past two weeks.

There have been recent changes to her medications, with a new medication added in order to optimise her blood pressure control.

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

A.Bendroflumethiazide

B.Bisoprolol

C.Candesartan

D.Losartan

E.Ramipril

Answer:Bisoprolol

Explanation:

Beta-blockers may cause cold peripheries

Important for meLess important

Beta-blockers are commonly used in the management of hypertension. Peripheral coldness is a common side effect of beta-blocker use.

Bendroflumethiazide is a thiazide diuretic. Common side effects of this class of drugs includes; constipation, diarrhoea, dizziness and dry mouth.

Candesartan and losartan are angiotensin receptor blockers. They are not know to cause cool peripheries.

Ramipril is an ACE inhibitor. A common side effect of ramipril is a dry cough.

Question:

A 25-year-old para 1+0 presents at 36 weeks with painless vaginal bleeding. She reports that she has had intermittent spotting over the last 4 weeks, but they have increased in volume and frequency. Her blood pressure is 125/80mmHg and her heart rate is 85bpm. On examination, her abdomen is soft and non-tender, and the fetal head is not engaged and high.

What examination should you perform to confirm your initial working diagnosis?

A.LFTs and urine dipstick

B.Vaginal examination

C.Abdominal ultrasound

D.Transvaginal ultrasound

E.Cardiotocography of the fetus

Answer:Transvaginal ultrasound

Explanation:

The findings, in this case, are classical of placenta praevia.

The RCOG recommends the use of transvaginal ultrasound as it improves the accuracy of placental localisation and is considered safe.

Question:

A 75-year-old woman presents to the emergency department with new sudden-onset weakness. She was watching the television on her couch when she realised she could not lift herself.

On examination, she has 2/5 strength in the left upper and lower limb and 5/5 strength in the right upper and lower limb, with normal sensation bilaterally. Her right eye is depressed and abducted with a wide pupil. Additionally, she has a consensual light reflex on the left pupil but lacks a direct reflex on the right. She has a past medical history of type 2 diabetes.

Given the most likely diagnosis, where is the lesion?

A.Left midbrain branches of the posterior cerebral artery

B.Left ophthalmic artery

C.Left posterior inferior cerebellar artery

D.Right midbrain branches of the posterior cerebral artery

E.Right posterior inferior cerebellar artery

Answer:Right midbrain branches of the posterior cerebral artery

Explanation:

Ipsilateral oculomotor palsy and contralateral weakness of the upper and lower extremity - branches of the posterior cerebral artery that supply the midbrain

Important for meLess important

Right midbrain branches of the posterior cerebral artery is correct. This patient is presenting with new-onset upper and lower limb weakness on the left side and oculomotor nerve palsy on the right side. The oculomotor nerve palsy is described as a 'depressed and abducted' (or 'down and out') eye when looking straight, as the only muscles acting on the eye when the oculomotor fails are the abducens and the superior oblique, giving it this characteristic position. Additionally, there is a consensual reflex to light on the left eye, indicating that the optic nerve works and receives the signal, but no direct reflex on the right side, indicating that the oculomotor nerve does not work.

This pattern is characteristic of an occlusion of a branch of the posterior cerebral artery most commonly or the paramedian branches of basilar bifurcation perforating arteries, which supply the midbrain. Damage to the corticospinal fibres causes contralateral hemiparesis, as it occurs before the decussation in the medulla. Damage to oculomotor nerve fibres causes ipsilateral oculomotor nerve palsy, as the fibres do not cross.

Left midbrain branches of the posterior cerebral artery is incorrect. Damage to this vessel would cause right-sided upper and lower limb weakness and left oculomotor palsy. In this case, the symptoms are on the opposite sides, making that answer incorrect.

Left ophthalmic artery is incorrect. This event would cause a pattern called 'amaurosis fugax'. This is described as a painless black curtain coming down vertically into the field of vision in one eye, which is not described here. Additionally, it would not cause any motor symptoms as no motor nuclei are supplied by this artery.

Left posterior inferior cerebellar artery is incorrect. Damage to this vessel would cause left facial pain and temperature loss (due to damage to the trigeminal nucleus, and the fact that the fibres of the trigeminal nerve do not decussate), right limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus).

Right posterior inferior cerebellar artery is incorrect. Damage here would cause right facial pain and temperature loss (due to damage to the trigeminal nucleus, and the fact that the fibres of the trigeminal nerve do not decussate), left limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus).

Question:

A 32-year-old lady presents to your GP clinic. She claims that your male colleague Dr X felt her inappropriately when examining her breast. She is angry and wants to make a formal complaint. What is the best course of action to take?

A.Apoligise and sympathize with the patient and offer to examine her yourself

B.Suggest she speak to Dr X herself to clear the air.

C.Explain that you cannot comment what happened as you weren't present but talk her through the normal process for examining a breast and help her with her complaint.

D.Help her with her complaint

E.Explain that Dr X is a great doctor and it is unlikely that he meant to upset the patient.

Answer:Explain that you cannot comment what happened as you weren't present but talk her through the normal process for examining a breast and help her with her complaint.

Explanation:

You should never comment on what happened in any situation if you weren't present and this should be stated when speaking to any patient with a complaint. It is appropriate to apologize for what has happened but conversely do not be overly apologetic. Here, the best course is to listen to what had occurred and talk the patient through what a normal examination entails as it may be the case that the exam was done correctly but the patient wasn't expecting certain aspects.

Answer 1 is incorrect as you should never sympathize with a patient, although an examination may be useful in reassuring the patient in some circumstances. Answer 2 is not helping the situation at all and the patient would likely be reluctant to do so. Answer 4 isn't helping to solve the problem and a complaint may not be appropriate or necessary. You should not intimate to a patient that they are wrong and that the Dr in any circumstance is right.

To prevent these sort of situation GMC guidance states:

When conducting any exam, but more specifically for intimitate exams, you should:

a. explain to the patient why an examination is necessary and give the patient an opportunity to ask questions

b. explain what the examination will involve, in a way the patient can understand, so that the patient has a clear idea of what to expect, including any pain or discomfort

c. get the patients permission before the examination and record that the patient has given it

d. offer the patient a chaperone

e. if dealing with a child or young person

http://www.gmc-uk.org/guidance/ethicalguidance/21168.asp

Question:

You are an FY2 on an oncology ward taking care of a thirty-year-old woman who is a known carrier of the BRCA1 gene, dying of stage IV breast cancer. After a long conversation about treatment options you and the patient decide together that continued life-preserving interventions are of little to no use. To this end the patient agrees to have a do not attempt cardiopulmonary resuscitation order (DNACPR) placed on her and will begin to make end of life care plans. As you walk away from the bed the patient begins to eat some hard boiled sweets and a few moments later a nurse urgently calls you back to the patient. The patient is choking and back slaps and chest thrusts fail to dislodge the sweet. She suffers an arrest. How should you proceed?

A.Wait fifteen minutes to ensure there will be no spontaneous return of circulation and then declare her time of death

B.Immediately declare time of death and document in the notes following the pre-requisite examinations

C.Initiate CPR, call for help, dial 2222 and proceed with immediate life support

D.Perform an emergency tracheostomy

E.Phone her husband and young child and ask them to come in to say goodbye before you declare time of death

Answer:Initiate CPR, call for help, dial 2222 and proceed with immediate life support

Explanation:

This question focuses on some of the nuances of DNACPR orders. DNACPRs are contextual to the anticipated cause of death and choking is not a common cause of death in terminal breast cancer. This is referred to as a, 'not envisaged arrest' and the guidance is that you should resuscitate. Choking and being hit by a bus are the two most commonly used examples to illustrate this question.

Particularly in a young patient who may have expected several more months of life, intervention in this instance is certainly backed by law and will be likely to result in a very grateful patient.

It is best practice to not assess death straight away due to the risk of spontaneous return of circulation, though this is less likely in choking than in other causes of death. As an FY2 you should not be performing unsupervised emergency tracheostomies on the ward.

Please refer to the resus councils notes on this topic for more information - https://www.resus.org.uk/dnacpr/decisions-relating-to-cpr/

Question:

A seven-year-old boy is brought to the GP by his mother as she has noticed some unusual activity during the night. He has made grunting and gargling sounds for the last year whilst asleep. On entering the room, his eyes are wide open, and his mouth is pulled to one side with excessive hypersalivation onto the pillow. He has had no episodes during the day.

She is particularly worried as he was found shaking on the floor last night. This lasted around 30 seconds, though he was weak and confused for hours afterwards. His older brother has a diagnosis of epilepsy.

What is the most likely diagnosis?

A.Benign rolandic epilepsy

B.Juvenile myoclonic epilepsy

C.Lennox-Gastaut syndrome

D.Temporal lobe epilepsy

E.West syndrome (infantile spasms)

Answer:Benign rolandic epilepsy

Explanation:

Benign rolandic epilepsy is characterised by partial seizures at night

Important for meLess important

Benign rolandic epilepsy is correct. This is a form of childhood epilepsy characterised by partial seizures, which tend to occur during sleep. The seizures usually consist of hemifacial paraesthesias, oropharyngeal manifestations (e.g. strange noises) and hypersalivation. Occasionally these seizures can progress to generalised tonic-clonic seizures. Most children with benign rolandic epilepsy have a family history of the condition and are usually seizure-free during the day.

Juvenile myoclonic epilepsy is incorrect. This is a form of childhood epilepsy characterised by myoclonic and generalised tonic-clonic seizures, typically occurring when the child is sleep-deprived and not during sleep itself. Some children also have absence seizures.

Lennox-Gastaut syndrome is incorrect. This is characterised by multiple types of seizures, including tonic-clonic, atonic and myoclonic, resulting in progressive intellectual impairment. Many children also have behavioural problems and developmental delays.

Temporal lobe epilepsy is incorrect. Focal temporal lobe seizures can result in deja vu, hallucinations, aphasia and automatism, e.g. lip-smacking. They can progress to generalised tonic-clonic seizures. These seizures don't occur exclusively at night-time.

West syndrome is incorrect. This usually develops in the first year of life and involves sudden involuntary contractions of the head/neck/trunk and extensions of the arms/legs. Seizures don't occur exclusively at night-time.

Question:

A 65-year-old male presented to his GP with bone pain, particularly in his spine and ribs. He has no significant past medical history. Family history - father died of lung cancer aged 49. His GP performed basic blood tests which demonstrated a raised calcium level. After being referred to the specialist doctor he had a blood film completed which showed a 'rouleaux formation'. What is the most likely diagnosis from the information above?

A.Metastatic lung cancer

B.Hyperparathyroidism

C.Paget's disease of bone

D.Sickle cell anaemia

E.Myeloma

Answer:Myeloma

Explanation:

Metastatic lung cancer, hyperparathyroidism, Paget's disease of the bone and myeloma are all causes of bone pain tenderness.

From that, metastatic lung cancer, hyperparathyroidism and myeloma are all causes of hypercalcaemia.

A 'rouleaux formation' is a stacking of red blood cells seen in a blood film. It is characteristic of a myeloma.

If you did not know what a rouleaux formation was, the fact that the specialist doctor requested a blood film was still a clue in itself. Metastatic lung cancer, Paget's disease and hyperparathyroidism are not haematological conditions and therefore would not be investigated with a blood film.

The most important symptoms/complications of myeloma can be remembered by the acronym CRAB:

C - calcium raised

R - renal failure

A - anaemia (technically a pancytopenia)

B - bone pain

Also remember - Bence Jones proteins found in urine

Reference - Oxford Handbook of Clinical Medicine; 9th Edition; Page 362-363

Question:

A 40-year-old woman had attended for her routine cervical smear which is performed without any issues. The GP receives the result that the sample from the smear was inadequate. According to her records, she previously had an inadequate smear 6 years ago but this had not been an issue with subsequent smears.

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 3 months

Explanation:

Cervical cancer screening: if smear inadequate then repeat within 3 months

Important for meLess important

Repeating the cervical smear in 3 months is correct because her routine smear was inadequate. According to the current NHS cervical screening programme, if a first cervical smear is inadequate then the smear should be repeated within 3 months.

Referral for colposcopy is incorrect because it is not indicated. Colposcopy would be indicated if there were 2 consecutive inadequate smears that are 3 months apart.

Repeating the cervical smear in 3 years is incorrect because this would be in line with the interval of routine recall for a patient her age. Returning to routine recall is not the appropriate action to take for an inadequate smear.

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

Repeating the cervical smear after 12 months is incorrect because it would only be appropriate if the most recent smear was also hrHPV positive but with no cytological abnormalities.

Question:

A 34-year-old man presents to the emergency department with a one-week history of fatigue. There is no evidence of bleeding on systematic inquiry or examination. He has recently completed a course of anti-malarial prophylaxis for travel to Uganda.

Blood results are as follows:

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

Female: (115 - 160)

Reticulocytes 322 \* 109/L (50-100)

Platelets 182 \* 109/L (150 - 400)

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

Blood film Polychromasia; Frequent blister cell

Thick and thin blood films No abnormality detected

Direct antiglobulin test (DAT) Weakly positive for IgG (1+)

What is the most likely diagnosis?

A.Auto-immune haemolytic anaemia

B.G6PD deficiency

C.Hereditary spherocytosis

D.Malaria

E.Methemoglobinemia

Answer:G6PD deficiency

Explanation:

Malaria prophylaxis (e.g. primaquine) can trigger haemolytic anaemia in those with G6PD deficiency

Important for meLess important

Anaemia with reticulocytosis is suggestive of haemolysis or bleeding. The lack of any obvious bleeding source favours haemolysis in this case. The differential diagnosis for haemolysis is wide including immune and non-immune mediated mechanisms.

The presence of blister cells highly suggests G6PD deficiency since these are a result of oxidative damage which occurs with this condition. They would not be expected with any of the other causes of haemolysis.

G6PD deficiency is correct. The presence of haemolysis with blister cells on the blood film is highly suggestive of G6PD deficiency. Furthermore, several antimalarials (e.g. primaquine) are well-known precipitants of a haemolytic crisis in those with G6PD deficiency.

Auto-immune haemolytic anaemia is incorrect. A positive DAT is associated with autoimmune haemolytic anaemia. However, it is important to remember that this is a non-specific test and can be positive due to a variety of other reasons. The presence of blister cells and exposure to primaquine favours the diagnosis of G6PD deficiency.

Hereditary spherocytosis is incorrect. Although this condition can also present with haemolysis, one would expect to find spherocytes on the blood film.

Malaria is incorrect. Although this remains within the differential diagnosis, the absence of malaria parasites on thick and thin blood films makes this an unlikely diagnosis.

Methemoglobinemia is incorrect. Although methaemoglobinaemia can occur as a consequence of primaquine exposure, it would present with hypoxia, cyanosis, and cardiovascular instability rather than anaemia.

Question:

Alan is a 66-year-old man who comes to see you complaining of a new-onset headache which started 2 weeks ago. Alan's past medical history includes type 2 diabetes and hypercholesterolaemia, and he has a body mass index of 31kg/m².

As part of your examination, you check Alan's blood pressure which is 196/122 mmHg. A repeat reading is 188/120 mmHg. You carry out fundoscopy which shows evidence of retinal haemorrhage.

What is the most appropriate initial management?

A.Carry out investigations for target organ damage as soon as possible

B.Commence a calcium channel blocker immediately

C.Provide lifestyle advice to improve diabetes control and support weight loss

D.Refer for same-day specialist assessment

E.Arrange for ambulatory blood pressure monitoring (ABPM) and review in 1 week

Answer:Refer for same-day specialist assessment

Explanation:

If new BP >= 180/120 mmHg + retinal haemorrhage or papilloedema then admit for specialist assessment

Important for meLess important

NICE guidelines state:

'Refer people for specialist assessment, carried out on the same day, if they have a clinic blood pressure of 180/120 mmHg and higher with signs of retinal haemorrhage or papilloedema (accelerated hypertension).

Accelerated hypertension is a severe increase in blood pressure to 180/120 mmHg or higher (and often over 220/120 mmHg) with signs of retinal haemorrhage and/or papilloedema (swelling of the optic nerve). It is usually associated with new or progressive target organ damage and is also known as malignant hypertension.

In such a case, referral for same-day specialist assessment is vital. This allows for assessment and treatment to lower blood pressure within hours in order to minimise further end-organ damage and reduce the risk of life-threatening events such as myocardial infarction, encephalopathy and intracerebral haemorrhage or subarachnoid haemorrhage.

Question:

A 55-year-old man presents with fever, fatigue, and chest pain. The patient was discharged after a successful mitral valve replacement 6 weeks ago. An urgent echo showed the presence of a new valvular lesion. Three sets of blood cultures are taken, and a diagnosis of infective endocarditis is confirmed.

Given the background, what is the most likely causative organism?

A.Coxiella burnetii

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

Staphylococcus epidermidis is the most common causative organism of infective endocarditis in patients who have had recent valvular replacements. As this patient has had a mitral valve replacement 6 weeks ago (less than 2 months), it is the correct answer.

Coxiella burnetii is incorrect. This is a zoonotic agent that is typically transmitted from contact with livestock. While this can cause infective endocarditis, this patient has no risk factors for exposure (e.g. working as a vet/farmer), and it is, therefore, unlikely to be the cause.

Staphylococcus aureus is incorrect. Although this is generally the most common cause of infective endocarditis, this is not the case in certain patient populations, such as patients who have had recent valve replacements.

Streptococcus bovis is incorrect. This is an organism found in the natural bowel flora. In cases of colorectal cancer, this bacteria can move across the bowel wall and into the bloodstream, resulting in infective endocarditis. As there is no indication that this patient has an underlying colorectal cancer, this is unlikely to be the cause.

Streptococcus viridans is incorrect. This was previously the most common cause of infective endocarditis, however, this is no longer the case except in developing countries. This is still the most common cause in cases of infective endocarditis that are linked to poor dental hygiene.

Question:

A 58-year-old woman with a past medical history of rheumatoid arthritis presents to the practice with shortness of breath and persistent fatigue. She has no history of cardiorespiratory disease. She has a regular heart rate, there is no heart murmur present on auscultation, and her chest is clear. She has bilateral pitting ankle oedema.

Observations:

Heart rate 92/min

Oxygen saturation 97%.

Respiratory rate 18 breaths per minute.

Blood pressure 150/95mmHg.

Blood results:

Test Value Range

Hb 119g/L Female 115-165g/L

NT-pro-BNP 2113pg/ml If <400 pg/ml diagnosis of heart failure less likely

What is the next recommended investigation?

A.Chest x-ray

B.Routine (within 6 weeks) specialist review and echocardiogram

C.Urgent (within 2 weeks) specialist review and echocardiogram

D.Urgent ECG

E.Urinalysis

Answer:Urgent (within 2 weeks) specialist review and echocardiogram

Explanation:

Patients with clinical signs of heart failure and raised BNP greater than 400 pg/ml should have a transthoracic doppler echo within 2 weeks

Important for meLess important

Urgent (within 2 weeks) specialist review and echocardiogram is the correct answer in accordance with current guidelines. This patient’s examination findings and blood results are consistent with a diagnosis of heart failure. This patient has no history of previous myocardial infarction and has an NT-pro-BNP result greater than 2000pg/ml. As a GP, it may be possible to refer directly for an echocardiogram, or referral for this may need to be via the local cardiology/heart failure team- this will depend upon the area where you work.

Chest x-ray is incorrect. Although not an unreasonable investigation for this patient; on the basis of symptoms of breathlessness, this would not be the most appropriate next investigation given her normal respiratory examination and investigation results suggestive of a cardiac cause of her breathlessness.

Routine (within 6 weeks) specialist review and echocardiogram is incorrect as the patient has an NT-pro-BNP result greater than 2000. If this patient's BNP result were between 400-2000pg/mL this option would be correct.

Urgent ECG is incorrect. Although this is an appropriate and important investigation for patients with suspected cardiac disease, it would not be the next most appropriate investigation in this case.

Urinalysis is incorrect. Peripheral oedema can be associated with renal disease such as nephrotic syndrome. However, this condition would not explain the patient’s breathlessness. The detection of proteinuria may be suggestive of chronic kidney disease which is a common comorbidity in patients with heart failure.

Question:

An 18-year-old man presents to the emergency department with fever, headache, photophobia and neck stiffness. He is started on ceftriaxone and the sepsis 6 bundle is completed within 30 minutes.

The following day the microbiologist calls with blood culture results:

Peripheral blood culture Gram-negative diplococcus

What is the most common complication of this condition?

A.Focal neurological deficit

B.Hydrocephalus

C.Seizures

D.Sensorineural hearing loss

E.Waterhouse-Friderichsen syndrome

Answer:Sensorineural hearing loss

Explanation:

Sensorineural hearing loss is the most common complication following meningitis

Important for meLess important

Meningococci (Neisseria meningitidis) are gram-negative diplococci that cause meningitis and meningococcal septicemia. Symptoms, usually severe, include headache, nausea, vomiting, photophobia, lethargy, petechial/purpuric rash, multiple organ failure, shock, and disseminated intravascular coagulation.

Sensorineural hearing loss is correct. Sensorineural hearing loss is the most common complication following meningitis.

Whilst all the other options can occur as complications, they are much less common than sensorineural hearing loss.

Question:

A 30-year-old female presents with a painless rash on both lower limbs and prolonged gum bleeding this morning whilst brushing her teeth.

She has no medical history nor any regular medication.

She is apyrexial and her vital signs are within the normal ranges. Clinical examination revealed multiple lower limb petechiae measuring 1-4mm in size. There were no lesions nor active bleeding in the oral cavity. Clinical examination was otherwise normal.

Blood tests show:

Hb 126 g/L (115 - 160)

Platelets 26 \* 109/L (150 - 400)

WBC 7.2 \* 109/L (4.0 - 11.0)

Clotting screen Normal

U&Es Normal

HCV, HBV, HIV Negative

Peripheral blood smear True thrombocytopenia

Pregnancy test Negative

Which is the most appropriate initial treatment for her condition?

A.Intravenous corticosteroids

B.Intravenous immunoglobulins

C.Observation only

D.Oral prednisolone

E.Platelet transfusion

Answer:Oral prednisolone

Explanation:

First-line treatment for ITP is oral prednisolone

Important for meLess important

This is a typical presentation of an uncomplicated case of primary immune thrombocytopenic purpura (ITP). Reversible causes of ITP have been excluded by the investigations. From the options provided the appropriate first-line treatment for this case will be oral prednisolone. Corticosteroids help suppress the immune-mediated destruction of platelets.

Intravenous immunoglobulins is a second-line therapy for minor bleeding, or first-line (along with other agents) for severe bleeding. This patient only has features suggesting minor bleeding.

Intravenous corticosteroids are unnecessary in this patient, as she has no contraindications to receiving treatment via the oral route, nor any features of severe/critical bleeding.

Observation only is reserved for asymptomatic adults with a platelet count >=30 \* 109/L. This patient has a platelet count <30 \* 109/L and also has petechiae with mild mucosal bleeding, therefore not asymptomatic, and requires treatment due to increased bleeding risk with the low platelet count.

Platelet transfusions are reserved for those with life- or organ-threatening bleeding and may be used to control active bleeding for surgery; however, they are ineffective as a treatment for ITP due to continued immune-mediated platelet destruction. This is not the appropriate choice for this case, as there is no evidence of significant active bleeding.

Question:

What is the most likely outcome following the diagnosis of minimal change nephropathy in a 10-year-old male?

A.Chronic kidney disease requiring renal replacement therapy within 30 years

B.Full recovery and no further episodes

C.Full recovery but with later recurrent episode

D.Chronic kidney disease not requiring renal replacement therapy

E.Chronic kidney disease requiring renal replacement therapy within 10 years

Answer:Full recovery but with later recurrent episode

Explanation:

As 1/3 of patients have infrequent relapses and 1/3 of patients have frequent relapses a majority (2/3) will have later recurrent episodes. It is important however to stress to patients that generally speaking the longer term prognosis in minimal change glomerulonephritis is good.

Question:

A 19-year-old woman attends a walk-in sexual health clinic.

She had sexual intercourse with her boyfriend on Saturday. They usually use condoms as contraception, but they did not on this occasion as they had none available.

The patient has a history of severe asthma controlled with oral steroids, but is otherwise fit and well.

It is now Wednesday.

What is the most appropriate form of emergency contraception?

A.Combined oral contraceptive pill

B.Intrauterine device

C.Intrauterine system

D.Levonorgestrel

E.Ulipristal acetate

Answer: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 (IUD) is the most effective method of emergency contraception, and should be offered first-line to all women who have experienced unprotected sexual intercourse (UPSI). The IUD can be offered for up to 5 days after the UPSI, or up to 5 days after the earliest estimated date of ovulation.

The combined oral contraceptive pill is incorrect. This cannot be used as emergency contraception.

The intrauterine system is incorrect. This cannot be used as emergency contraception.

Levonorgestrel is incorrect. Although levonorgestrel can be prescribed as emergency contraception, it must be offered within 72 hours of the UPSI. This patient has presented 4 days after the UPSI, so levonorgestrel is not an option. Regardless, the IUD is more effective than levonorgestrel and so should be offered first-line, even if presenting within 72 hours of the UPSI.

Ulipristal acetate is incorrect. This drug can be prescribed as emergency contraception within 5 days of the UPSI. However, the IUD is more effective and so should be offered first-line. Furthermore, caution should be used when prescribing ulipristal acetate to those with severe asthma.

Question:

A 40-year-old man attends his General Practice to discuss a friend who recently died of a ruptured abdominal aortic aneurysm (AAA). He asks what screening programmes there are currently available for the condition.

Which of the following is correct?

A.Abdominal ultrasound scan aged 65 and then every 5 years

B.Single abdominal CT scan aged 65

C.Abdominal CT scan aged 65 and then every 3 years

D.Single abdominal ultrasound aged 65

E.No current screening programme in place

Answer:Single abdominal ultrasound aged 65

Explanation:

Screening for an abdominal aortic aneurysm consists of a single abdominal ultrasound for males aged 65

Important for meLess important

In England, abdominal aortic aneurysm screening (AAA) is offered to men during the year they turn 65.

If normal (<3cm) the patient will require no further future scans as the chances of developing a AAA after 65 years old is small.

Question:

A 28-year-old woman is seen in the neurology clinic with a 3-month history of headaches. The headaches typically affect her right side and are associated with photophobia, nausea and vomiting. Her symptoms settle after a period of 4-6 hours each time. She has no past medical history of note and takes no regular medications.

On examination, her observations are recorded within normal limits. There is equal power in all 4 limbs with no sensory or coordination disturbance. Her cranial nerve examination is unremarkable.

Given the likely diagnosis, what is the most appropriate medication to be given as prophylaxis for future headaches?

A.Amitriptyline

B.Aspirin

C.Propranolol

D.Sumatriptan

E.Verapamil

Answer:Propranolol

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

This patient's headache is likely to represent a migraine, given the unilateral presentation associated with photophobia and vomiting along with a normal neurological examination. To prevent the recurrence of migraines, prophylaxis can be offered to patients. Propranolol is the preferred pharmacological prophylaxis, particularly in women of childbearing age, as topiramate is teratogenic and associated with birth defects such as a cleft palate.

Amitriptyline is a third-line agent used in the prophylaxis of migraines. Typically, alternative drugs such as propranolol should be used initially, unless contraindicated.

Aspirin is used in the acute treatment of migraines. However, it plays no role in the prophylaxis of migraine.

Sumatriptan is another medication used in the acute treatment of migraines. However, long-term sumatriptan is not used to prevent the recurrence of migraines.

Verapamil is used in the prophylaxis of cluster headaches. Cluster headaches also typically have a unilateral presentation. However, the pain is usually described as being acutely severe and associated with eye pain and watering. Unlike migraines, cluster headaches are not necessarily associated with photophobia and vomiting.

Question:

An 84-year-old man presents for a diabetes review at his GP surgery. He has stopped taking his modified-release metformin due to gastrointestinal side effects. He has a past medical history of gout and tinnitus and has been admitted to the hospital in the last two months with myocardial infarction. His HbA1c has risen to 52 mmol/mol.

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

A.Commence SGLT-2 monotherapy

B.Commence insulin

C.Commence metformin

D.Commence sulfonylurea

E.Offer advice on diabetic foods

Answer:Commence SGLT-2 monotherapy

Explanation:

T2DM initial therapy: if metformin is contraindicated + patient has a risk of CVD, established CVD or chronic heart failure → SGLT-2 monotherapy

Important for meLess important

Given this man's history of CVD, he should be commenced on SGLT-2 monotherapy given his adverse reaction to metformin in the past.

Insulin could be used if there is inadequate control with SGLT-2 monotherapy.

Commence metformin is incorrect as he did not tolerate the modified-release form of metformin (often given when patients have gastrointestinal side effects with the immediate-release formulation).

Sulfonylurea could be used if there is inadequate control with SGLT-2 monotherapy.

Diabetic foods are not recommended by NICE.

Question:

A 48-year-old man presents to the emergency department with a fall. He reports a two-week history of persistent fatigue and dizziness on standing. On inspection, you note he has areas of increased pigmentation in the creases of his hands, as well as areas of well-demarcated hypopigmentation on his forearms.

Based on the likely diagnosis, which of the following investigation results is most likely?

A.Hypernatremia

B.Hypoglycaemia

C.Hypokalaemia

D.Increased dehydroepiandrosterone (DHEA)

E.Polycythaemia

Answer:Hypoglycaemia

Explanation:

Addison's disease is a cause of hypoglycaemia

Important for meLess important

Hypoglycaemia is the most likely investigation finding. Glucocorticoids such as cortisol act by various mechanisms to increase blood glucose levels, one of these mechanisms being through an increase in hepatic gluconeogenesis. This means that a reduction in cortisol could lead to hypoglycaemia.

Hypernatremia and hypokalaemia are incorrect because Addison's leads to aldosterone deficiency. Aldosterone increases Na+ retention and increased K+ excretion - a lack of aldosterone would lead to hyponatremia and hyperkalaemia.

Increased dehydroepiandrosterone (DHEA) is incorrect because Addison's involves the entire cortex. Leading to a deficiency of androgens as well as cortisol and aldosterone.

Polycythaemia would not be seen in Addison's disease. Pernicious anaemia is often associated with Addison's due to their overlapping autoimmune aetiologies. Pernicious anaemia occurs due to an autoimmune attack on the parietal cells within the gastric mucosa, these cells are responsible for the production of intrinsic factor. Intrinsic factor is vital for B12 absorption and therefore a deficiency of this will result in macrocytic, megaloblastic anaemia.

Question:

A 31-year-old woman presents to her GP with progressively worsening menstrual pain that usually commences a few days before her period. She tried to take paracetamol and ibuprofen to alleviate the pain, but they are not effective in doing so. She also describes extreme discomfort when she has penetrative sex.

Digital vaginal examination reveals nodularity and marked tenderness in the posterior fornix of the cervix. Bimanual examination reveals a fixed, retroverted uterus.

Given the likely diagnosis, which of the following investigations is considered the gold standard?

A.Hysteroscopy

B.Laparoscopy

C.MRI pelvis

D.Transabdominal ultrasound

E.Transvaginal ultrasound

Answer:Laparoscopy

Explanation:

Laparoscopy is the gold-standard investigation for patients with suspected endometriosis

Important for meLess important

The diagnosis here, given the description of severe dysmenorrhoea (which does not respond to NSAIDs) and deep dyspareunia, is endometriosis. This condition commonly affects (around 10% of) women of reproductive age. The gold standard for diagnosing this condition is laparoscopy. This investigation can identify areas of ectopic endometrial tissue. Adhesions, peritoneal deposits and endometrial deposits on the ovaries (chocolate cysts) may be visualised during the procedure.

Hysteroscopy would not play a role here, as endometriosis refers to the growth of endometrial tissue outside of the womb. Hysteroscopy would only involve investigation of the womb itself.

MRI pelvis is sometimes used and is useful for imaging the entire abdomen and pelvis, but its specificity and sensitivity varies depending on the location of the disease.

Transabdominal ultrasound is not the gold standard diagnosis for endometriosis. It would not allow for adequate visualisation of the ectopic endometrial tissue.

Although transvaginal ultrasound is often requested in primary care as an initial investigation, it is not adequately reliable or accurate enough to diagnosis endometriosis.

Question:

A 35-year-old man is seen due to an extensive petechial rash on his lower legs for the last 2 weeks. He has minimal past medical history other than asthma and surgical removal of nasal polyps aged 23 and 29 years. Blood tests show

Hb 131 g/L Male: (135-180)

Female: (115 - 160)

Platelets 230 \* 109/L (150 - 400)

WBC 18.9 \* 109/L (4.0 - 11.0)

Eosin 5.2 \* 109/L (0.0 - 0.4)

Na+ 139 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 12.6 mmol/L (2.0 - 7.0)

Creatinine 250 µmol/L (55 - 120)

CRP 90 mg/L (< 5)

Which antibody is associated with the likely diagnosis?

A.pANCA

B.cANCA

C.Anti-centromere antibodies

D.Anti-cardiolipin antibodies

E.Anti-GBM antibodies

Answer:pANCA

Explanation:

Churg-Strauss syndrome - positive pANCA serology

Important for meLess important

Churg-Strauss disease is associated with pANCA.

There are three stages to the presentation of Churg-Strauss disease.

The initial phase is characterised by allergy with many patients having a history of asthma or allergic rhinitis. This inflammation of the nasal passages can lead to the development of nasal polyps.

The second phase is eosinophilia

The third stage is the vasculitis itself which affects small and medium-sized blood vessels and therefore resulting in damage to many organs. Given this patient's kidney failure, it appears to be affecting his renal blood supply.

Other common affected organs are the lungs, the digestive tract and most dangerously, the heart.

The features in the history that tell us it is Churg-Strauss syndrome are the history of asthma and recurrent nasal polyps (the first stage), eosinophilia (the second stage) and impaired kidney function and petechial rash (the third stage).

Question:

A 19-year-old man comes for review after burning himself with an iron. On examination he has a 4 by 3 cm area of pale pink skin the left forearm. In the middle of the area there are two small, fluid filled blisters. What is the most accurate description for this type of injury?

A.Partial thickness (deep dermal) burn

B.Partial thickness (superficial dermal) burn

C.Superficial epidermal burn

D.Major scald

E.Minor scald

Answer:Partial thickness (superficial dermal) burn

Explanation:

Question:

A 4-year-old girl is brought to the GP surgery by her father. She has a one-year history of asthma which has previously been controlled with a salbutamol inhaler twice daily and beclometasone 50 micrograms bd. She has an audible wheeze that has been gradually worsening over the last few weeks and has not responded to additional doses of salbutamol. Her father also reports that she has a night-time cough for the past 4 weeks.

What is the most appropriate next step in management?

A.Increase the salbutamol inhaler to four times daily

B.Increase the beclometasone to 100 micrograms bd

C.Add a trial of a long-acting beta-agonist

D.Add a trial of a leukotriene receptor antagonist

E.Refer to a paediatrician specialising in respiratory disease

Answer:Add a trial of a leukotriene receptor antagonist

Explanation:

Child aged < 5 years with asthma not controlled by a SABA + paediatric low-dose ICS - asthma management in children < 5 years - add a leukotriene receptor antagonist

Important for meLess important

Question:

For which one of the following indications is carbamazepine least likely to be a useful management option?

A.Trigeminal neuralgia

B.Absence seizures

C.Bipolar disorder

D.Temporal lobe epilepsy

E.Focal impaired awareness seizures

Answer:Absence seizures

Explanation:

Carbamazepine is generally ineffective in absence seizures

Question:

You are reviewing a patient's blood results:

K+ 6.2 mmol/l

Which one of the following medications is most likely to be responsible for this result?

A.Sodium bicarbonate

B.Bendroflumethiazide

C.Furosemide

D.Spironolactone

E.St John's Wort

Answer:Spironolactone

Explanation:

Question:

A 33-year-old patient presents with a right sided facial paralysis. She felt unwell yesterday with a mild right sided headache. This morning she woke up and was unable to smile, frown or close her eye fully on the right side of her face. Her observations are unremarkable. You diagnose her with Bell's Palsy. What do you prescribe?

A.Aciclovir and lubricating eye drops

B.Prednisolone and lubricating eye drops

C.Prednisolone and aciclovir

D.Aciclovir

E.Prednisolone

Answer:Prednisolone and lubricating eye drops

Explanation:

The answer here is prednisolone and lubricating eye drops. Evidence has shown that use of corticosteroids increases the likelihood of complete recovery compared with placebo or aciclovir. As this patient cannot close her eye, eye drops and tape would be important to protect the cornea. NICE does not recommend the use of aciclovir in the management of Bell's palsy.

Question:

A concerned couple attend your GP practice as they are worried their 15-year-old daughter may be bulimic. She has recently become obsessed with her appearance and disappears frequently after meals. They wonder if she might be purging and want to know more.

Which of the following can you inform them is true about purging?

A.Purging is defined as extreme restriction or cessation of eating to lose weight

B.Purging occurs after every meal in an individual with bulimia

C.Purging behaviours can include exercising, laxatives or diuretics

D.Purging behaviours typically occur before binging episodes

E.Purging behaviours are not required to diagnose bulimia

Answer:Purging behaviours can include exercising, laxatives or diuretics

Explanation:

Purging behaviours in bulimia are not only vomiting, can be use of laxatives or diuretics or exercising

Important for meLess important

Bulimia nervosa is an eating disorder characterised by episodes of uncontrolled overconsumption (binging) followed by purgative behaviours (which include inducing vomiting, taking laxatives or diuretics, or intensely exercising).

It is fasting which is defined as restricting or ceasing eating, and this is more commonly associated with anorexia nervosa.

Purging does not have to occur with every meal, and occurs, on average, only once a week, usually following a binging episode.

Question:

A 52-year-old man attends your GP surgery complaining of stress at work. His blood pressure is noted to be 183/121 mmHg. He is not complaining of any chest pain or shortness of breath and on examination, the lungs sound clear and there is no peripheral oedema. You order him some blood tests. You arrange to see him again in 7 days to repeat his blood pressure.

What one finding, during the consultation, would make you want to start drug treatment immediately?

A.2+ blood on urinalysis

B.A family history of ischaemic heart disease

C.Body mass index (BMI) of 31 kg/m²

D.HbA1c of 6.2% 2 months ago

E.He is anxious about an upcoming work event

Answer:2+ blood on urinalysis

Explanation:

Criteria for considering immediate treatment based on a clinic reading - 180/120 mmHg

Important for meLess important

2+ blood on urinalysis is the right answer because haematuria is an example of target organ damage. NICE CKS guidelines for when a person's blood pressure is 180/120 mmHg or higher state ''If target organ damage is identified, consider starting antihypertensive drug treatment immediately, without waiting for the results of ambulatory blood pressure monitoring (ABPM) or home blood pressure monitoring (HBPM).''.

A family history of ischaemic heart disease is the wrong answer because, although this does represent a risk factor, it is not an indicator to forgo ABPH or HBPM.

A BMI of 31 kg/m² is not evidence of target organ damage and therefore is not a reason to skip the ABPH or HBPM step as per NICE guidelines.

HbA1c of 6.2% 2 months ago (consistent with prediabetes) is the wrong answer because this is not an example of target organ damage and is not considered a reason to forgo ABPH or HBPM.

He is anxious about an upcoming work event, although representing an acute life stressor, would not be sufficient reason to skip the ABPH or HBPM step as per NICE guidelines.

Question:

A 75-year-old man is undergoing investigations after experiencing shortness of breath and persistent cough for the past year. A chest x-ray showed opacification in the lower lobes but was not diagnostically conclusive. A high-resolution CT scan confirms the presence of pulmonary fibrosis affecting the lower lobes of both lungs.

Which of the following conditions is the most likely to have caused this patient's CT findings?

A.Sarcoidosis

B.Ankylosing spondylitis

C.Tuberculosis

D.Idiopathic pulmonary fibrosis

E.Coal Workers Pneumoconiosis

Answer:Idiopathic pulmonary fibrosis

Explanation:

Idiopathic pulmonary fibrosis predominately affects the lower zones

Important for meLess important

Many conditions causing lung fibrosis have a tendency to preferentially affect either the upper or lower zones. Idiopathic pulmonary fibrosis tends to affect the lower zones and is, therefore, the most likely answer in this case.

The other possible answers tend to predominantly affect the upper lobes.

Question:

A 12-year-old boy attends his general practice with his mum and dad. His parents say that he has had trouble with his speech recently, has been behaving unusually, and they have noticed some strange colours in his eyes. The GP thinks that this may be the rare disease, Wilson's, so sends off a variety of blood tests including iron studies and copper studies.

Which of the following blood results would the GP expect, if this is indeed Wilson's disease?

A.Increased iron studies

B.Increased serum copper

C.Increased serum caeruloplasmin

D.Reduced 24hr urinary copper excretion

E.Reduced serum copper

Answer:Reduced serum copper

Explanation:

Wilson's disease - reduced total serum copper

Important for meLess important

Wilson's disease is a problem with copper, in which excess copper is deposited in tissues, causing a low serum copper. It has many unusual manifestations, the most common of which are behavioural or speech changes. Some tell-tale signs that you might see in exam questions include brown rings in the eyes (Kayser-Fleischer rings), blue nails, and a reduced serum copper and reduced caeruloplasmin. Management is with penicillamine.

Question:

A 36 year old man presents to the Emergency Department with a 2 day history of painful left knee. There is no history of trauma. He has been well except for a bout of food poisoning after eating a kebab 2 weeks ago. He reports no personal or family history of rheumatological conditions and has never had any sexually transmitted infections either. On examination, the knee is swollen, erythematous and tender. Aspiration reveals clear fluid which contains no white cells or crystals. What is the most likely diagnosis?

A.Septic arthritis

B.Gout

C.Reactive arthritis

D.Ruptured Baker's cyst

E.Pseudogout

Answer:Reactive arthritis

Explanation:

The absence of white cells and crystals immediately rules out septic arthritis and gout or pseudo-gout. A ruptured baker's cyst would typically present with a painful swelling behind the knee, and without erythema. The answer here is reactive arthritis (previously known as Reiter's arthritis) which is associated with chlamydia and gonorrhoea, but also gastroenteritis.

Question:

A 32-year-old woman with a background of Raynaud's presents to her GP with worsening skin changes and fatigue.

Over the last year, she has developed a hardening of the skin over her torso and upper arms. On further questioning, she also describes constipation and 10kg of unintentional recent weight loss.

Her blood pressure is 175/75mmHg. Other observations are normal. You perform some routine blood tests.

Na+ 137 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Urea 12.5 mmol/L (2.0 - 7.0)

Creatinine 160 µmol/L (55 - 120)

What test will confirm the diagnosis?

A.Anti Scl-70 antibodies

B.Anti-centromere antibodies

C.Anti-cyclic citrullinated peptide antibodies

D.Anti-nuclear antibodies

E.Anticardiolipin antibodies

Answer:Anti Scl-70 antibodies

Explanation:

Diffuse cutaneous systemic sclerosis is associated with anti Scl-70 antibodies

Important for meLess important

Anti Scl-70 antibodies is the correct answer. The clues that this is diffuse cutaneous systemic sclerosis are that the scleroderma is affecting the trunk and proximal limbs, hypertension, and renal involvement. Therefore, anti Scl-70 antibodies would confirm the diagnosis as they are associated with diffuse cutaneous systemic sclerosis.

Anti-centromere antibodies are incorrect. They are associated with limited cutaneous systemic sclerosis. If this patient had limited cutaneous systemic sclerosis the distribution of scleroderma would typically be in the face and hands and there would be no renal involvement or hypertension.

Anti-cyclic citrullinated peptide antibodies are associated with rheumatoid arthritis; therefore, this option is incorrect as this patient likely has diffuse cutaneous systemic sclerosis.

Anti-nuclear antibodies are associated with autoimmune hepatitis, SLE, dermatomyositis, rheumatoid arthritis, and systemic sclerosis; therefore, this option is incorrect as this patient likely has diffuse cutaneous systemic sclerosis.

Anticardiolipin antibodies are associated with antiphospholipid syndrome. Therefore, this option is incorrect as this patient likely has diffuse cutaneous systemic sclerosis.

Question:

A 52-year-old male went to see his general practitioner with a 3-month history of fatigue, polyuria, polydipsia and recurrent urinary tract infections. He has a background medical history of polycystic kidney disease and congestive cardiac failure.

Bloods results are shown below:

Hb 150 g/L Male: (135-180 g/L)

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

WBC 6 \* 109/L (4.0 - 11.0 \* 109/L)

Na+ 136 mmol/L (135 - 145 mmol/L)

K+ 4.8 mmol/L (3.5 - 5.0 mmol/L)

Bicarbonate 28 mmol/L (22 - 29 mmol/L)

Urea 14 mmol/L (2.0 - 7.0 mmol/L)

Creatinine 250 µmol/L (55 - 120 µmol/L)

eGFR 25 ml/min (>90 ml/min)

HbA1c 70 mmol/mol (<48 mmol/mol)

Fasting blood glucose is 12.5 mmol/L. In addition to diet and lifestyle recommendations, he is started on a medication to help lower his blood glucose levels.

Which anti-hyperglycaemic medication should this patient be prescribed?

A.Gliclazide

B.Insulin

C.Metformin

D.Pioglitazone

E.Sodium-glucose co-transporter-2 (SGLT2) inhibitor

Answer:Gliclazide

Explanation:

For type 2 diabetics requiring treatment, metformin is contraindicated in those with eGFR < 30

Important for meLess important

Gliclazide is the correct answer. The patient has the symptoms and a fasting glucose consistent with a diagnosis of type 2 diabetes mellitus (T2DM). Gliclazide is a sulfonylurea. It works in the beta islet cells of the pancreas to cause insulin exocytosis. It may be used in patients with an eGFR of < 30 ml/min, however, it will need to be given at lower doses to avoid hypoglycaemia.

Insulin is not the first-line treatment in type 2 diabetes and is normally only given when other anti-hyperglycaemic agents have failed to produce adequate glucose control.

Metformin would be the first-line pharmacological treatment for T2DM, however, it is contraindicated in patients with an eGFR < 30 ml/min. This is due to the increased risk of lactic acidosis.

Pioglitazone is a thiazolidinedione. Aside from being associated with an increased risk of fractures ('glitazones and broken bones'), it may exacerbate heart failure and so is contraindicated in these patient groups.

Sodium-glucose co-transporter-2 (SGLT2) inhibitors prevent the reabsorption of glucose from the proximal convoluted tubule of the kidneys. This causes glycosuria and a reduction of glucose levels in the blood. A common side effect of this is an increased risk of urinary tract infections (UTIs). This would therefore not be the first choice drug for a patient already suffering recurrent UTIs, likely as a result of glycosuria secondary to his diabetes.

Question:

A 56-year-old woman presents to her GP with a four-week history of difficulty getting up from her chair and general fatigue. She describes suffering from eyelid swelling and feeling generally run down for around two months, and now finds it difficult to walk and comb her hair.

On examination, she has reduced power in her hips and shoulders, a heliotrope rash around her eyes, and a thick red rash on her knuckles. Her GP suspects a rheumatological disease and refers her for further investigations.

Given the likely diagnosis, what additional urgent investigation is needed?

A.Fundoscopy

B.Malignancy screen

C.Pregnancy test

D.Renal biopsy

E.Skin biopsy

Answer:Malignancy screen

Explanation:

In patients with a new diagnosis of dermatomyositis, urgent malignancy screen is needed

Important for meLess important

The proximal muscle weakness, heliotrope rash, and knuckle rash (Gottron's papules) are consistent with dermatomyositis as the most likely diagnosis. All patients with a new diagnosis of dermatomyositis should be investigated for an underlying cancer and, therefore, this patient needs an urgent malignancy screen. Common malignancies include lung, breast, ovarian, prostate and colorectal hence a malignancy screen would generally involve a chest x-ray; faecal occult blood testing; mammography, CA-125 and pelvic ultrasound (in females); prostate-specific antigen (in males) and potentially a CT chest/abdomen/pelvis. You should also ensure basic blood tests like a serum corrected calcium and LFTs have been done as a quick screen for bone and liver metastases respectively.

The history of eyelid swelling and heliotrope rash is consistent with dermatomyositis so this, combined with no history of ocular symptoms, means fundoscopy is not indicated.

The patient's age means she is unlikely to be pregnant and a pregnancy test is not indicated.

A renal biopsy would be important in the presence of rheumatological renal disease (such as glomerulonephritis) or if systemic lupus erythematosus was suspected. However, the signs and symptoms above make dermatomyositis more likely.

Skin biopsy is used to aid diagnosis in patients with suspected dermatomyositis without the classic symptoms of myopathy. However, this patient presents classically, and so her rheumatology team would most likely pursue the usual confirmatory investigations of creatine kinase and muscle biopsy, as well as a malignancy screen to check for comorbid cancer.

Question:

A 53-year-old female presents to the emergency department with severe shortness of breath and a cough productive of green sputum. She has a past medical history of recurrent respiratory tract infections, rapidly progressive glomerulonephritis, hypertension and gallstones. Her observations show a fever, tachycardia and low oxygen saturation. On examination you note nasal crusting and a saddle-shaped nasal deformity.

What is the most likely underlying disease process?

A.Granulomatosis with polyangiitis (Wegener’s granulomatosis)

B.Alport syndrome

C.Systemic lupus erythematosus (SLE)

D.COPD

E.Goodpasture’s syndrome

Answer:Granulomatosis with polyangiitis (Wegener’s granulomatosis)

Explanation:

Consider granulomatosis with polyangiitis when a patient presents with ENT, respiratory and kidney involvement

Important for meLess important

This question describes a patient with all the classic features of granulomatosis with polyangiitis (GPA), formerly known as Wegener’s granulomatosis. The combination of ENT, respiratory and renal involvement in a patient should always raise alarm bells for GPA.

Alport syndrome causes renal disease with hearing impairment but not respiratory disease. Systemic lupus erythematosus (SLE) causes renal disease and a multitude of other symptoms, but respiratory infections are not classic. COPD would not explain the renal and ENT involvement. Goodpasture’s syndrome is a good differential as it has renal and respiratory involvement, but the nasal crusting and saddle-shaped nasal deformity are classic features of GPA.

Question:

A 23-year-old woman at 37-week’s gestation is brought to labour ward. She reports having been in labour for 4 hours and her uterine contractions are currently 2 minutes apart. Her 34-week scan identified grade III placenta praevia.

On examination, her cervix is dilated to 8cm and effaced by 90%. Foetal cartography measurements are within normal limits. There are no signs of vaginal bleeding.

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

A.Administer anti-D and continue with vaginal delivery

B.Administer oxytocin infusion and continue with vaginal delivery

C.Continue with normal vaginal delivery

D.Emergency caesarean section

E.Administer tocolytics and proceed with routine caesarean section in 24 hours

Answer:Emergency caesarean section

Explanation:

If a woman with known placenta praevia goes into labour (with or without bleeding), an emergency caesarean section should be performed

Important for meLess important

Placenta praevia is the term given to a low-lying placenta, either partially or fully located in the lower uterine segment. Risk factors for placenta praevia include multiple pregnancies and multiparous pregnancies. In some cases, placenta praevia is detected incidentally on routine antenatal scanning. Whilst in others, placenta praevia may present with the onset of symptoms including vaginal bleeding and haemodynamic shock that is out of keeping with the visible findings. If placenta praevia is detected on routine imaging, particularly grade III and IV placenta praevia, discussions should be made about an elective caesarean section at 37-38 weeks. This is because there is a greater risk of postpartum haemorrhage in patients with placenta praevia. However, this patient has spontaneously gone into labour and therefore immediate action needs to be taken. For this reason, an emergency caesarean section is correct.

Anti-D is recommended in pregnancy when mothers have a negative rhesus status, as the passage of foetal blood into the maternal circulation can trigger antibody production to foetal blood cells. In this question, the mother's rhesus status is not given and, when in doubt, anti-D is a sensible option. However, it is not recommended to continue with a normal vaginal delivery and the priority should be to take this patient to theatre for an emergency caesarean section.

Oxytocin stimulates uterine contraction and can be used in the induction of labour. However, inducing labour in patients with placenta praevia is not recommended and potentially dangerous as it stimulates a vaginal delivery with the associated risks of postpartum haemorrhage.

Discharging home to continue the pregnancy as normal carries serious risks including the risk of postpartum haemorrhage if the patient has a vaginal delivery.

Tocolytics, such as nifedipine, are commonly used in pre-term labour to relax the uterus and halt contractions and labour. Uterine relaxation may reduce the likelihood of separation of the placenta from the uterine wall. However, the use of tocolysis in labour for patients with placenta praevia is not routinely indicated and an emergency caesarean section should take priority.

Question:

A 62-year-old woman presents to her GP with yellowing of her skin. She feels it has worsened over the past 4 days and now complains of increased itch. There is no history of abdominal pain, vomiting or fever and she denies recent travel. She has a past medical history of rheumatoid arthritis and hyperlipidaemia and she was recently discharged from the hospital with a course of antibiotics for community-acquired pneumonia.

Blood tests are taken:

Bilirubin 88 µmol/L (3 - 17)

ALP 223 u/L (30 - 100)

ALT 50 u/L (3 - 40)

Albumin 35 g/L (35 - 50)

What is the most likely cause of this patient's presentation?

A.Co-amoxiclav

B.Methotrexate

C.Morphine

D.Paracetamol

E.Simvastatin

Answer:Co-amoxiclav

Explanation:

Co-amoxiclav is a well recognised cause of cholestasis

Important for meLess important

Co-amoxiclav is correct. This patient has evidence of cholestasis given the history of jaundice and pruritis. The blood tests show an elevated bilirubin and ALP in keeping with a cholestatic picture of jaundice. Of the medications that this patient has been taking, co-amoxiclav is the only drug that causes cholestatic jaundice.

Methotrexate is incorrect. One of the complications of taking methotrexate is the risk of liver cirrhosis. In liver cirrhosis, liver enzymes are relatively normal. Therefore, this patient's acute onset of cholestatic jaundice is most likely secondary to an alternative medication, such as co-amoxiclav.

Morphine is incorrect. Opiates such as morphine are renally excreted and do not cause liver dysfunction.

Paracetamol is incorrect. In excess, this drug causes a hepatocellular picture of liver dysfunction. In this instance, there would be an elevated ALT rather than ALP.

Simvastatin is incorrect. Like paracetamol, statins cause a hepatocellular picture of liver dysfunction. Given the normal ALT and raised ALP, it is unlikely that statins have contributed to this patient's presentation.

Question:

A 62-year-old patient is receiving a blood transfusion following a car accident. She has a past medical history of COPD and is a known CO2 retainer.

Five minutes into the transfusion, she complains of pain in her chest and abdomen. Her observations are a heart rate of 101 beats per minute, a respiratory rate of 20 breaths per minute, a blood pressure of 99/52 mmHg, a temperature of 38.1 ºC and an oxygen saturation of 89%.

What is the most likely diagnosis?

A.Acute haemolytic reaction

B.Non-haemolytic febrile reaction

C.Sepsis due to bacterial contamination

D.Transfusion-associated circulatory overload

E.Transfusion-associated lung injury

Answer:Acute haemolytic reaction

Explanation:

Fever, abdominal pain, hypotension during a blood transfusion → acute haemolytic reaction

Important for meLess important

Transfusion reactions lead to a variety of symptoms, many of which are overlapping. This woman is slightly tachycardia, tachypnoeic, hypotensive and feverish. Her oxygen saturations may be perceived as low, however since she is a known CO2 retainer, these are within the 88-92% target range. The main differentiating symptom here is pain. The main transfusion reaction which results in the abdomen, chest, back or loin pain is an acute haemolytic reaction. Macrophage activation due to receiving incompatible blood creates a systemic inflammatory response, part of which is diffuse pain.

Non-haemolytic febrile reaction is incorrect. This reaction presents only with a mild fever, and would not explain the derangement in other vital signs, or the pain.

Sepsis due to bacterial contamination is incorrect. This may present with a similar picture, however, it is considerably rarer due to the rigorous procedure through which blood products are sterilised. Human error resulting in ABO incompatibility is more common.

Transfusion-associated circulatory overload is incorrect. This would result in pulmonary oedema and hypertension, whereas this patient is hypotensive instead.

Transfusion-associated lung injury is incorrect. This would lead to hypotension and hypoxia. Whilst it may present with chest pain, abdominal pain would be unlikely. Since this patient's normal oxygen saturations are likely to be between 88-92%, she is not hypoxic enough for this to be the most likely diagnosis.

Question:

You are the F1 on an elderly care ward dealing with a patient who was admitted with an exacerbation of COPD which is now resolved. Her recent blood tests are now available and show an abnormal serum potassium of 2.5. You decide to keep her on the ward for further management because of this. On informing the patient of her findings and your decision, she is insistent that she wants to be discharged so she can go home. You explain to her extensively the danger and risk of death associated with leaving her potassium level untreated but she still insists. What is the appropriate action?

A.Ask her to repeat the information you have given her, to show she understands and facilitate her discharge against medical advice

B.Tell her you are obliged to stop her from leaving and hurting herself in the process

C.Detain her under the mental health act

D.Bleep psychiatry and ask them to detain her under the mental health act

E.Call her family, explain the situation and ask them to persuade her to stay

Answer:Ask her to repeat the information you have given her, to show she understands and facilitate her discharge against medical advice

Explanation:

If someone is competent and has capacity you cannot force them to accept treatment. This question hinges on the patient's understanding of the risks associated with declining treatment.

It is not acceptable to detain someone under the mental health act because they decline medical treatment.

It is not acceptable to breach confidentiality because a patient declines treatment.

You cannot lie to a patient because they are making a choice you do not agree with.

(GMC- Good medical practice- principles of autonomy, capacity, confidentiality)

Question:

An 82-year-old man presents with a 6-week history of cough productive of offensive smelling sputum, occasionally tinged with blood. He has also been noticing fevers and night sweats. Recently, he has been investigated by speech and language therapists regarding the safety of his swallow since he had a stroke 1 year ago.

A chest x-ray shows a well-circumscribed 4cm lesion in the right lower lobe of his lung, which has an air-fluid level present. There is no mediastinal lymphadenopathy. A sputum sample has shown growth of multiple bacteria and was acid-fast bacilli negative.

What is the most likely diagnosis?

A.Adenocarcinoma of the lung

B.Lung abscess

C.Sarcoidosis

D.Squamous cell carcinoma of the lung

E.Tuberculosis

Answer:Lung abscess

Explanation:

Lung abscesses most commonly occur secondary to aspiration and are typically polymicrobial in nature

Important for meLess important

The correct answer is lung abscess . The presence of fever suggests a probable infective cause of symptoms. Also, the history of unsafe swallow and location in the right lower lobe suggests possible aspiration as the underlying cause of the lesion. Aspiration pneumonia is known to cause lung abscesses.

Malignancy can rarely cause cavitating lesions if there is erosion into an airway. However, it is less likely to cause fevers and much less likely to show an air-fluid level on a chest x-ray. Therefore adenocarcinoma and squamous cell carcinoma are not the correct options.

Sarcoidosis is unlikely to present for the first time in an 82-year-old man. It is also unlikely to present with parenchymal disease without the presence of mediastinal lymphadenopathy. A wide range of x-ray changes are possible with sarcoidosis but cavitating lesions are rare and it does not usually cause an air-fluid level.

Tuberculosis can present similarly but typically affects the apices, although lower lobe involvement is possible. The microbiology results are key, as the negative acid-fast bacilli test makes tuberculosis much less likely. The presence of multiple bacteria and an air-fluid level also are more suggestive of lung abscess than tuberculosis.

Question:

A 56-year-old patient is seen in the multiple myeloma clinic 6 weeks after diagnosis. Her past medical history includes atrial fibrillation, indigestion, hypertension and low back pain. Her blood results are shown below:

Hb 98 g/l

Platelets 120 \* 109/l

WBC 5 \* 109/l

Na+ 144 mmol/l

K+ 4.8 mmol/l

Urea 10 mmol/l

Creatinine 160 µmol/l

Calcium 2.7mmol/L

The haematologist consultant suggests stopping one of her medications that may be responsible for the abnormal blood results.

Which one of the following drugs does he stop?

A.Paracetamol

B.Naproxen

C.Amlodipine

D.Omeprazole

E.Elotuzumab

Answer:Naproxen

Explanation:

NSAIDs can precipitate renal failure in patients with multiple myeloma

Important for meLess important

The abnormal creatinine and urea point towards reduced kidney function most likely due a nephrotoxic drug. NSAIDs (ibuprofen, naproxen) are known to precipitate renal failure in patients with multiple myeloma (MM).

Paracetamol is not known to precipitate renal failure in patients with MM.

Amlodipine is a calcium channel blocker and is not known to precipitate renal failure in patients with MM.

Omeprazole, a proton pump inhibitor, is not known to precipitate renal failure in patients with MM.

Elotuzumab is a humanized monoclonal antibody used in relapsed MM. It does not cause renal failure in patients with MM.

Question:

A 33-year-old woman presents to the GP as she has not had a period for 6 months. She has also noticed that she is sweating more at night and has had started to have the occasional hot flush, although she thinks this may just be due to the weather. She does not want children and has only come today to check there is no sinister cause for her lack of periods. She has no past medical history and no family history.

Blood tests are as follows:

TSH 2 mU/L (0.5 - 5.5)

T4 10 pmol/L (9 - 18)

Prolactin 15 µg/L (<25)

FSH 75 iu/L (<40)

Oestradiol 45 pmol/L (>100)

Bloods repeated 6 weeks later show no change.

What is the most appropriate management?

A.Combined hormone replacement therapy for 5 years

B.Combined hormone replacement therapy until the age of 51

C.No management is required

D.Oestrogen-only hormone replacement therapy until the age of 51

E.Progestogen-only pill until the age of 51

Answer:Combined hormone replacement therapy until the age of 51

Explanation:

Premature ovarian insufficiency: hormone replacement therapy (HRT) or a combined oral contraceptive pill should be offered to women until the age of 51 years

Important for meLess important

Amenorrhea, climacteric symptoms (hot flushes and night sweats), lost oestradiol and raised gonadotrophins are all consistent with ovarian failure. As this patient is under 40, this is premature ovarian failure. The mainstay of treatment is hormone replacement therapy (which can also be given as the combined oral contraceptive pill) which is given until the age of natural menopause (around 51 years) to prevent osteoporosis, as well as to protect against symptoms of oestrogen deficiency and possible cardiovascular complications. As this patient has a uterus, she must not have unopposed oestrogen (due to the risk of endometrial cancer), so combined replacement should be given. Of the above options, the most appropriate answer is combined hormone replacement therapy until the age of 51.

Combined hormone replacement therapy for 5 years is incorrect; although it is the correct treatment, it is needed until the age of natural menopause (i.e. longer than 5 years) to protect against osteoporosis.

No management is required is incorrect. Hormone replacement therapy should be offered to all women with premature ovarian failure, not only to treat symptoms of low oestrogen but also to protect bone mineral density.

This patient has a uterus. She, therefore, must not receive oestrogen-only hormone replacement therapy. Unopposed oestrogen will lead the uterine lining to proliferate, increasing the risk of endometrial cancer.

The progestogen-only pill alone is inadequate treatment. Oestrogen is needed to treat symptoms of low oestrogen (such as hot flushes) and to promote bone mineral density. Progesterone is added to oppose oestrogen and reduce the risk of endometrial cancer.

Question:

Jessica is a 15-year-old girl who is admitted with abdominal pain. An ultrasound scan report comes back with findings consistent with appendicitis. Her parents do not want her to go for surgery.

Jessica appears intelligent, mature beyond her years and is currently clinically stable. After lengthy discussions with her parents and the surgical team, Jessica states she would like to go for surgery. Her parents are unhappy and say they will sue the hospital if she has an operation.

What is the right course of action?

A.Obtain written consent for appendicectomy from Jessica and take her to theatre

B.Try and convince one of her parents to consent for treatment, only then take her to theatre

C.Do not take her to theatre as her parents will have grounds to sue

D.Take her to theatre as she has verbally consented for treatment

E.Do not take her to theatre as she cannot consent to treatment

Answer:Obtain written consent for appendicectomy from Jessica and take her to theatre

Explanation:

This question concerns Gillick competence.

The medical team would judge that in this situation Jessica has capacity, given that she appears to be an intelligent young lady, has discussed the situation at length, and appears to understand the situation in front of her. Therefore she can consent to the procedure despite her parents' wishes.

Given she is stable, written consent should be obtained in lieu of verbal consent, which could be used in an emergency situation. Though it may be tempting to try and convince her parents of the benefits of surgery, this may delay Jessica's treatment.

Waiting for a decision from her parents is not necessary if she has given her own valid consent.

GMC: 0-18 years guidance: Introduction: 31. Parents cannot override the competent consent of a young person to treatment that you consider is in their best interests. But you can rely on parental consent when a child lacks the capacity to consent.

Question:

A 28-year-old woman who is 9 weeks pregnant comes to see you for her booking appointment. She has a sister with Down syndrome and would like more information about the screening programme. You counsel her about the combined test. Along with nuchal translucency, which of the following blood markers are measured?

A.Beta-human chorionic gonadotrophin (beta-hCG) and alfa-fetoprotein (AFP)

B.Beta-human chorionic gonadotrophin (beta-hCG) and pregnancy associated plasma protein A (PAPP-A)

C.Unconjugated oestriol and alfa-fetoprotein (AFP)

D.Beta-human chorionic gonadotropin (beta-hCG) and inhibin A

E.Unconjugated oestriol and pregnancy associated plasma protein A (PAPP-A)

Answer:Beta-human chorionic gonadotrophin (beta-hCG) and pregnancy associated plasma protein A (PAPP-A)

Explanation:

This is a question about Down Syndrome screening tests in pregnancy.

The combined test is recommended at 10-14 weeks gestation. It involves an ultrasound scan for nuchal translucency and a blood test for levels of Beta-human chorionic gonadotrophin (beta-hCG) and pregnancy associated plasma protein A (PAPP-A). In pregnancies with Down Syndrome, PAPP-A is low and beta-hCG raised.

If the window for the combined test was missed, at 14-20 gestation, the quadruple test will be offered. This involves a blood test for levels of alfa-fetoprotein (AFP), unconjugated oestriol, beta-hCG and inhibin A. In pregnancies with Down Syndrome, AFP and unconjugated oestriol are low and beta-hCG and inhibin A are raised.

Question:

You are working in palliative care and are asked to see a 60-year-old man due to drowsiness.

He has metastatic prostate cancer and chronic kidney disease stage 4. His most troublesome symptoms include pain, nausea, and agitation and he has commenced a syringe driver.

When you assess him he responds only to voice. Power is 5/5 in all four limbs but you notice frequent myoclonic jerks. Pupils measure <1mm and do not react to light.

What medication is most likely to have contributed to this presentation?

A.Dexamethasone

B.Haloperidol

C.Levomepromazine

D.Midazolam

E.Morphine

Answer:Morphine

Explanation:

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

Important for meLess important

This is likely opiate toxicity due to morphine which has accumulated due to his chronic kidney disease. The typical presentation can include reduced conscious level, slow respiratory rate, myoclonic jerks, and pinpoint pupils. In the early stages, not all of these features will be present. In patients with CKD, alternative opiates such as oxycodone or alfentanil are preferred to morphine.

Dexamethasone can cause agitation, confusion, and hyperglycaemia but drowsiness is not a typical side effect.

Haloperidol is often used as an anti-emetic in palliative care. It can cause drowsiness and myoclonus has also been reported, but it would not account for pinpoint pupils.

Levomepromazine is used for nausea and terminal agitation. It may cause drowsiness and movement disorders such as tardive dyskinesia, but myoclonus and pinpoint pupils would be unusual.

Midazolam can cause drowsiness but would not account for myoclonic jerks or pinpoint pupils. These features suggest morphine is more likely to be the primary factor in this case.

Question:

A 62-year-old man presents to the emergency room with central chest pain radiated to his left arm. He underwent percutaneous coronary intervention (PCI) which was successful and he was later admitted to the ward. Five days following PCI the man experiences chest pain similar to before.

He has some blood tests and the results are below:

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

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 12.5 \* 109/L (4.0 - 11.0)

Troponin T 0.12 ng/mL (<0.04)

What blood test would be most useful in this situation?

A.Troponin T in 12 hours

B.Troponin I

C.Lactate dehydrogenase (LDH)

D.Creatine kinase MB (CK-MB)

E.Aspartate transaminase (AST)

Answer:Creatine kinase MB (CK-MB)

Explanation:

Creatine kinase (CK-MB) remains elevated for 3 to 4 days following infarction. Troponin remains elevated for 10 days. This makes CK-MB useful for detecting re-infarction in the window of 4 to 10 days after the initial insult

Important for meLess important

Troponin T in 12 hours - troponin stays raised for up to 10 days after infarction and therefore it would be difficult to differentiate between the cause of a raised reading.

Troponin I - troponin stays raised for up to 10 days after infarction and therefore it would be difficult to differentiate between the cause of a raised reading.

LDH - stays raised for up to 10 days after infarction and therefore it would be difficult to differentiate between the cause of a raised reading.

CK-MB - remains elevated for 3-4 days following infarction so useful for detecting re-infarction 4 to 10 days after the initial infarct.

AST - is not specific for heart disease so not as useful in this case.

Question:

A 6-year-old boy attends the emergency department with acute shortness of breath. His parents report that he has had a cold for a few days but today has been struggling more with his breathing. He has had prior attendances with viral-induced wheeze and recently received a provisional diagnosis of asthma from his GP.

His observations show a respiratory rate of 30/min, heart rate 130/min, saturations 94% and temperature of 37.4ºC. He has intercostal and subcostal recession and a global expiratory wheeze but responds well to salbutamol.

What acute medication/medications should he be prescribed on discharge?

A.Salbutamol inhaler + 10 days prednisolone PO

B.Salbutamol inhaler + 3 days prednisolone PO

C.Salbutamol inhaler + 3 days prednisolone PO + 7 days amoxicillin PO

D.Salbutamol inhaler + 7 days beclomethasone inhaler

E.Salbutamol inhaler alone

Answer:Salbutamol inhaler + 3 days prednisolone PO

Explanation:

Steroid therapy should be given to all children who have an asthma attack

Important for meLess important

While a formal diagnosis has not been made, this acute presentation combined with interval symptoms (exertional breathlessness and nighttime cough) suggests that this patient has suffered an acute exacerbation of asthma. For this, a salbutamol inhaler + 3 days prednisolone PO are the correct acute medications to prescribe on discharge. For all children suffering an acute exacerbation of asthma 3-5 days of oral prednisolone should be given. It is important to ensure that all patients have an adequate supply of their salbutamol inhaler with advice on when and how to use it.

A course of 10 days prednisolone PO is longer than the recommended 3-5 days and there is no indication that a longer course would be warranted in this child.

While a salbutamol inhaler + 3 days prednisolone PO + 7 days amoxicillin PO has the necessary salbutamol and correct prednisolone course, there is no indication of an underlying bacterial chest infection so prescribing antibiotics would be incorrect.

Beclomethasone may be a useful medication for the longer-term prophylactic management of this child's asthma but it is not used in short courses (e.g. 7 days) after acute exacerbations. Similarly, oral steroids should be given to all children with acute asthma irrespective of whether they are usually on an inhaled corticosteroid.

All children should receive a short course of oral steroids on discharge and so a salbutamol inhaler alone would not meet with guidance.

Question:

John, 84, has been previously diagnosed with metastatic prostate cancer. He is brought to the emergency department by his family due to confusion which begun approximately one day ago. John had previously been complaining of increased drowsiness, nausea, decreased appetite and aching pains in his legs prior to the onset of confusion. John's medications include MST, Oramorph and co-danthramer. His last set of blood results were taken by his GP 2 months ago and showed a slight hypernatraemia. Which of the following electrolyte imbalances is the most likely cause of his current symptoms?

A.Hypocalcaemia

B.Hyponatraemia

C.Hyperkalaemia

D.Hypercalcaemia

E.Hypernatraemia

Answer:Hypercalcaemia

Explanation:

Metastatic malignancy is one of the causes of a hypercalcaemia, which is the case in this question.

The mnemonic for remembering the symptoms of hypercalcaemia is stones, bones, groans, thrones and psychiatric overtones. Breaking this down we get:

Stones (renal)

Bones (bone pain)

Groans (abdominal pain, nausea and vomiting)

Thrones (polyuria)

Psychiatric overtones (confusion and cognitive dysfunction, depression, anxiety, insomnia, coma)

Question:

Which one of the following may be associated with an increased risk of venous thromboembolism?

A.Fluoxetine

B.Selegiline

C.Diazepam

D.Amitriptyline

E.Olanzapine

Answer:Olanzapine

Explanation:

Question:

A 43-year-old man requests a 'medical' as he is concerned about his risk of heart disease. His father died at the age of 45-years following a myocardial infarction. His lipid profile is as follows:

HDL 1.4 mmol/l

LDL 5.7 mmol/l

Triglycerides 2.3 mmol/l

Total cholesterol 8.2 mmol/l

Clinical examination reveals tendon xanthomata around his ankles. What is the most likely diagnosis?

A.Mixed hyperlipidaemia

B.Nephrotic syndrome

C.Alcohol excess

D.Non-familial hypercholesterolaemia

E.Familial hypercholesterolaemia

Answer:Familial hypercholesterolaemia

Explanation:

The presence of tendon xanthomata and cholesterol levels meet the diagnostic criteria for familial hypercholesterolaemia

Question:

A 45-year-old man presents to the GP complaining of skin thickening in his hands over the past 3 months. He complains that this has led to his fingers becoming fixed in a flexed position and that they are often red and swollen.

On further questioning, he complains of exertional dyspnoea and cough when he goes running, as well as erectile dysfunction.

Given the likely diagnosis, which autoantibody blood test is most likely to be positive?

A.Anti Jo-1

B.Anti RNA polymerase III

C.Anti Ro

D.Anti centromere

E.Anti scl-70

Answer:Anti scl-70

Explanation:

Diffuse cutaneous systemic sclerosis is associated with anti Scl-70 antibodies

Important for meLess important

The correct answer is anti-scl-70. The patient is presenting with diffuse systemic sclerosis. This is evident from the symptoms of skin thickening around the fingers, symptoms of respiratory involvement (pulmonary fibrosis) and erectile dysfunction. The autoantibody most commonly associated with diffuse systemic sclerosis is anti-scl-70. Anti-topoisomerase I is another antibody often used in the diagnosis of diffuse systemic sclerosis.

Anti-Jo1 is incorrect. The patient is presenting with symptoms of diffuse systemic sclerosis. This is most commonly associated with anti-Scl-70 antibodies on blood tests. Anti-Jo1 antibodies are generally found in polymyositis and dermatomyositis.

Anti-RNA polymerase III is incorrect. The patient is presenting with symptoms of diffuse systemic sclerosis. Whilst anti-RNA polymerase III antibodies are associated with systemic sclerosis, they are not as sensitive or specific when compared to anti-scl-70 antibodies. Furthermore, they generally indicate progression to renal disease and are not strongly associated with pulmonary disease.

Anti-Ro is incorrect. The patient is presenting with symptoms of diffuse systemic sclerosis, commonly associated with anti-scl-70 antibodies. Anti-Ro antibodies are generally associated with Sjogren's syndrome.

Anti-centromere is incorrect. The patient is presenting with symptoms of diffuse systemic sclerosis, which is commonly associated with anti-scl-70 antibodies. Anti-centromere antibodies are most commonly associated with limited systemic sclerosis, also known as CREST syndrome. This classically presents with a pentad of calcinosis, Raynaud's phenomenon, oesophageal dysmotility, sclerosis, and telangiectasia. The main differentiating factor in this question is that this patient has symptoms of lung fibrosis, indicating a more severe systemic involvement. Furthermore, symptoms like erectile dysfunction would not be expected in CREST syndrome.

Question:

A 23-year-old man is admitted with a gunshot wound to the leg following a fight. He asks you to not tell the police as he doesn't want to get his friends into trouble and doesn't wish to press charges. As the emergency department doctor, what should you do?

A.Notify the police without telling the patient but withhold the patients details at this stage

B.Notify the police and give full details of the patient, the incident, the injuries and the patient's reluctance to talk to the police

C.Follow the patient's 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 the police at this stage

E.Tell the patient that you will withhold all treatment until they let you call the police

Answer:Tell the patient that you must notify the police but will not give their personal details to the police at this stage

Explanation:

You should always attempt to tell a patient if you intend to break confidentiality and explain the reasons behind this, even if the patient does not agree with you.

Breaking confidentiality in the case of knife and gun crime warrant special consideration, according to GMC Guidelines. They advise that you should inform the police quickly when a person arrives with a gunshot wound or injury from an attack, to enable them to assess the risk to the patient or others, and to gather statistical information about gun and knife crime in the area

Even accidental shootings involving lawfully held guns raise serious issues for the police about, for example, gun licensing.

GMC Guidelines state that 'Personal information, such as the patients name and address, should not usually be disclosed in the initial contact with the police. The police will respond even if the patients identity is not disclosed.'

You should never withhold treatment for a patient in need unless this would put you or your colleagues at direct risk.

Question:

A 62-year-old man presents to his GP for review and stool sample results. He has now had diarrhoea for 13 days, passing watery stool up to ten times per day with some flecks of blood. He is drinking well but feels tired and feverish.

On examination, he appears tired with dry mucous membranes. His heart rate is 110bpm, blood pressure 124/78mmHg, and temperature 37.8ºC. His stool sample is positive for campylobacter.

What would be the most appropriate first-line treatment?

A.Cefotaxime

B.Clarithromycin

C.Co-amoxiclav

D.Metronidazole

E.Vancomycin

Answer:Clarithromycin

Explanation:

Campylobacter infection is often self-limiting but if severe then treatment with clarithromycin may be indicated

Important for meLess important

Campylobacter is usually a self-limiting infection, but antibiotics are indicated if patients are immunocompromised or if it is severe (multiple episodes loose stool, bloody diarrhoea, fever). In this case, the prolonged duration with profuse diarrhoea and fever would indicate starting antibiotics. If antibiotics are used they should be clarithromycin or azithromycin.

Co-amoxiclav is a broad spectrum antibiotic suitable to treat diverticulitis. Caution is needed with co-amoxiclav as it can cause clostridium difficile infection.

Cefotaxime can be used to treat typhoid or severe salmonella infections, but not campylobacter infections.

Metronidazole is a useful antibiotic for anaerobic infections, it can be used for clostridium difficile infections.

Vancomycin is second-line treatment for clostridium difficile.

Question:

A 26-year-old primigravida woman presents for an ultrasound scan at 34 weeks gestation. It is discovered that her baby is in the breech position.

What is the most appropriate course of action?

A.Book for Caesarean section at 38 weeks

B.Book for Caesarean section at 40 weeks

C.Offer immediate external cephalic version

D.Offer external cephalic version if still breech at 36 weeks

E.Offer external cephalic version if still breech at 38 weeks

Answer:Offer external cephalic version if still breech at 36 weeks

Explanation:

External cephalic version is recommended if the foetus is breech at 36 weeks

Important for meLess important

Before 36 weeks, it is likely that the foetus will move spontaneously into the correct position and it is therefore not necessary to perform this uncomfortable procedure before this time.

There is no need to immediately book the patient in for a Caesarean section, but if ECV is unsuccessful then a decision must be taken whether to go ahead with a breech presentation vaginal delivery, which carries a number of risks, or perform a Caesarean section.

Question:

A concerned mother attends the emergency department with her 15-day baby. She has been generally unwell and not feeding well for the past two days. Her stools have been paler than usual. On examination, she appears distressed, she is apyrexial, visibly jaundiced and has hepatomegaly. The mother contracted a CMV (cytomegalovirus) infection during her pregnancy.

A newborn jaundice screen includes the following results:

Bilirubin 22µmol/L (<21)

Conjugated bilirubin 7µmol/L (<2)

ALP 117IU/L (30-100)

ALT 78IU/L (0-41)

Bile acids 69g/L (35-50)

What is the most likely diagnosis?

A.Hypothyroidism

B.Bile duct stenosis

C.Biliary atresia

D.Alagille syndrome

E.CMV infection

Answer:Biliary atresia

Explanation:

Biliary atresia typically presents in the first few weeks of life with jaundice, appetite and growth disturbance

Important for meLess important

Biliary atresia is correct. This is a cause of prolonged neonatal jaundice, presenting after 14 days. Other symptoms include hepatomegaly, splenomegaly, abnormal growth and cardiac murmurs if associated cardiac abnormalities are present. Conjugated bilirubin is abnormally high. Bile acids and aminotransferases are also typically raised, but cannot be used to differentiate between other causes of neonatal cholestasis and biliary atresia.

Bile duct stenosis would present in a similar way but is less common.

CMV infection can cause neonatal jaundice and the mother having a CMV infection during pregnancy does increase the risk. However, in the case the neonate is apyrexial. This may also present with other features such as microcephaly, sensorineural deafness, pinpoint petechial ‘blueberry muffin’ skin lesions and hepatosplenomegaly.

Hypothyroidism can cause neonatal jaundice but may have other features such as poor feeding, constipation and hypothermia. Further, it is unconjugated rather than conjugated bilirubin that is predominately raised here.

Alagille syndrome is a rare genetic disorder that has multi-organ involvement. Symptoms usually develop during the first three months of life and can include jaundice, poor weight gain, purities, congenital heart defects. This is less common than biliary atresia.

Question:

A 3-year-old girl presents with a 3 day history of fever and bloody diarrhoea. Over the past 24 hours she has had 5 episodes of loose bloody stools. On examination she has a temperature of 39.6ºC, a heart rate of 175 bpm and her abdomen is soft with generalised tenderness. It is also noted that she has a reduced urinary output. Blood tests show a haemolytic anaemia and raised urea.

What is the most likely diagnosis?

A.Campylobacter gastroenteritis

B.Salmonella gastroenteritis

C.Norovirus

D.Rotavirus

E.Escherichia coli gastroenteritis

Answer:Escherichia coli gastroenteritis

Explanation:

A short history of bloody diarrhoea is very suggestive of haemorrhagic gastroenteritis which can occur due to a variety of pathogens including Campylobacter, Salmonella and Escherichia coli.

In this case, the haemolytic anaemia and raised urea suggest haemolytic uraemic syndrome. Haemolytic anaemia and renal failure form two parts of the classic triad of haemolytic uraemic syndrome. The third part of the triad is thrombocytopenia. It is usually caused by Escherichia coli subtype 0157. Treatment is supportive as antibiotics are contraindicated.

Question:

This picture shows fundoscopy from a 64-year-old man.

What is the diagnosis?

A.Retinitis pigmentosa

B.Branch retinal vein occlusion

C.Central retinal vein occlusion

D.Treated diabetic retinopathy

E.Optic neuritis with optic atrophy

Answer:Treated diabetic retinopathy

Explanation:

The fundus shows evidence of previous laser treatment.

Question:

A 34-year-old man has a chest X-ray as part of a routine pre-employment medical examination. He is generally well although has recently been diagnosed with hypertension which is providing difficult to control. The X-ray report includes a finding of 'notching of the inferior border of the ribs'.

Which of the following conditions is likely to be responsible for the patient's X-ray finding?

A.Marfan's syndrome

B.Coarctation of the aorta

C.Renal artery stenosis

D.Liver cirrhosis

E.Acromegaly

Answer:Coarctation of the aorta

Explanation:

Notching of the inferior border of the ribs is present in around 70% of adults with coarctation of the aorta

Important for meLess important

Notching of the inferior border of the ribs occurs in adults and older children with coarctation of the aorta. The aortic obstruction gives rise to the development of dilated intercostal collateral vessels to allow sufficient blood flow to reach the descending aorta. The pressure of these vessels erodes the inferior margin of the ribs. Coarctation also explains this patient's refractory hypertension.

Acromegaly, liver cirrhosis and renal artery stenosis do not cause rib notching. In rare cases, rib notching has been reported in Marfan's but this affects the upper margin of the ribs.

Question:

A 78 year old lady attends surgery with worsening shortness of breath over the past four months. She also complains of left sided chest pain and light-headedness on exertion, which resolve with rest. On examining her you find she has an ejection systolic murmur radiating to the carotids. Which of the following findings could you also expect to find on examination?

A.Collapsing pulse

B.Loud second heart sound (S2)

C.Corrigan's sign

D.Narrow pulse pressure

E.Raised jugular venous pressure (JVP)

Answer:Narrow pulse pressure

Explanation:

This lady has symptoms and signs consistent with aortic stenosis. The mnemonic 'SAD' (syncope, angina, dyspnoea on exertion) is a useful aide-memoire for the symptoms of aortic stenosis, but many patients with mild disease are asymptomatic.

The typical murmur of aortic stenosis is a crescendo-decrescendo, low-pitched ejection systolic murmur, heard loudest in second right intercostal space, which radiates to the carotids. If severe stenosis is present other examination findings may include:

narrow pulse pressure

slow rising pulse

a thrill palpable over the cardiac apex

a fourth heart sound (S4) indicative of left ventricular hypertrophy

a soft/absent S2

A collapsing pulse is found in aortic regurgitation

Corrigan's sign refers to the rapid upstroke and collapse of the carotid artery pulse, also seen in aortic regurgitation.

The JVP provides an indirect measure of central venous pressure with an indication of right atrial pressure. It is therefore unaffected by changes in left ventricular pressures and aortic valve disease.

Question:

A 4-year-old girl presents to her GP following a productive cough and wheeze. On examination a systolic murmur is heard in the second intercostal space lateral to the left sternal edge. It has an intensity of 1/6 and is not audible when she lies flat. Which of the following is the most likely diagnosis?

A.Coarctation of the aorta

B.Ventricular septal defect

C.Innocent murmur

D.Atrial septal defect

E.Pulmonary stenosis

Answer:Innocent murmur

Explanation:

The correct answer is Innocent murmur. They are Soft, Systolic, Short, Symptomless, Standing/Sitting (vary with position). Coarctation of the aorta is heard as an ejection systolic murmur which can be heard through to the back. Additionally, the murmur does not change on position. On examination hypertension of the upper extremities is present and a difference between blood pressure in the arms and legs is detected. Ventricular septal defect present as a pansystolic murmur. Atrial septal defect is an ejection systolic murmur but is often associated with fixed splitting of the 2nd heart sound. Pulmonary stenosis is an ejection systolic murmur heard at the left upper parasternal edge

Question:

A 60-year-old man comes to see you in GP complaining of difficulty in swallowing, which has been getting slowly worse over the past 3 months. After taking a full history you discover that he has lost around two kilos in weight, although he puts this down to not eating as much, he has no pain when swallowing and has not had any episodes of regurgitating food.

While he is telling you this, you notice that his voice sounds a little different to how it normally is.

What is the most likely diagnosis?

A.Achalasia

B.Globus hystericus

C.Oesophageal spasm

D.Oesophageal carcinoma

E.Bulbar palsy

Answer:Oesophageal carcinoma

Explanation:

Progressive dysphagia is characteristic of oesophageal carcinoma, and with the addition of weight loss, this needs to be investigated urgently for possible oesophageal carcinoma. With oesophageal cancer there can also be hoarseness due to laryngeal nerve damage.

Achalasia can have a similar presentation, but patients notice mostly trouble with swallowing solids and liquids equally and starts intermittently, regurgitation of food is also a feature.

Patients with oesophageal spasm characteristically have pain when swallowing.

Bulbar palsy presents with symptoms of weakness, such as drooling, weak and wasted tongue, dysphonia and problems articulating.

Question:

A 40-year-old man presents to the emergency department with severe abdominal pain. It started around 24 hours ago, is generalised over the whole abdomen and he rates it as 8/10 in severity. He has not vomited but feels nauseous and has a reduced appetite. His observations are:

Heart rate 102 beats per minute

Respiratory rate 19 per minute

Saturations 97% on air

Temperature 37.8ºC

On examination, his abdomen is generally tender but there are no signs of peritonitis. Bowel sounds are present. Digital rectal examination (DRE) results in the patient complaining of worsening pain in the right side of his abdomen.

What is the most likely diagnosis?

A.Acute appendicitis

B.Mesenteric adenitis

C.Pelvic abscess

D.Prostatitis

E.Sigmoid diverticulitis

Answer:Acute appendicitis

Explanation:

Right-sided tenderness on PR exam, think appendicitis

Important for meLess important

The most likely cause of this patient's symptoms is acute appendicitis. They are presenting with typical symptoms of generalised severe abdominal pain with associated loss of appetite and a low-grade fever. It can be difficult to diagnose these patients initially as the pain may not localise until later on in their presentation, but right-sided tenderness during a DRE is an important examination sign found in appendicitis.

Mesenteric adenitis can present very similarly to appendicitis. However, it generally follows a recent viral infection and would be associated with a higher temperature than the mild pyrexia associated with appendicitis. Also, mesenteric adenitis would be much more common in children rather than adults.

A pelvic abscess would also present with abdominal pain. However, it would be more likely to present with a higher temperature than in this case and is also often associated with diarrhoea.

Prostatitis could present with referred pain to the abdomen, but it would generally be associated with pain in the perineum, penis, rectum or back. There would also often be associated urinary symptoms and DRE would reveal a tender, boggy prostate gland.

Sigmoid diverticulitis is another important cause of abdominal pain. It would generally present in patients who are older than 50. Patients also generally complain of bloating, a change in bowel habit and pain in the left lower quadrant.

Question:

A 28-year-old patient presents to the emergency department with a right red eye and sensitivity to light that started 1 hour ago. Examination of the right eye reveals a painful, red eye, with a small and irregularly-shaped pupil. Examination of the left eye is unremarkable. The patient is referred to ophthalmology.

What is the most likely medical management that the patient received?

A.IV acetazolamide

B.Pilocarpine drops

C.Steroid and chloramphenicol ointment

D.Steroid and cycloplegic drops

E.Steroid and pilocarpine drops

Answer:Steroid and cycloplegic drops

Explanation:

Anterior uveitis is most likely to be treated with a steroid + cycloplegic (mydriatic) drops

Important for meLess important

The photophobia and small, irregularly-shaped pupil makes a diagnosis of anterior uveitis the most likely.

Steroids are given to reduce inflammation and cycloplegics (atropine or cyclopentolate) dilate the pupil which helps with pain relief and photophobia.

Chloramphenicol is an antibiotic used in treating bacterial conjunctivitis without the need for steroids.

Acetazolamide is a carbonic anhydrase inhibitor that is used in managing acute angle-closure glaucoma.

Pilocarpine is a muscarinic receptor agonist and can be used in managing primary open-angle glaucoma and acute close angle glaucoma.

Question:

A 59-year-old man attends the emergency department with chest pain. He states that his pain is central, heavy and non-radiating. He has hypertension and high cholesterol. His regular medications are amlodipine and atorvastatin. He has a 40 pack year smoking history and reports drinking one bottle of whisky a week.

His observations are as follows: heart rate 98 beats per minute, blood pressure 164/92mmHg, temperature 37.8ºC, oxygen saturations 96% on room air and a respiratory rate of 20/minute.

ECG findings are as follows. Sinus tachycardia. Leads V1, V2, and V3 show horizontal ST depression. Leads V1 and V2 show tall R waves.

What is the likely cause for the abnormality seen on the ECG?

A.Lateral ST elevation myocardial infarction (STEMI)

B.New left bundle branch block (LBBB)

C.Non ST elevation myocardial infarction (NSTEMI)

D.Posterior myocardial infarction

E.Right bundle branch block (RBBB)

Answer:Posterior myocardial infarction

Explanation:

A posterior MI causes ST depression not elevation on a 12-lead ECG

Important for meLess important

Posterior myocardial infarction is the correct answer. Posterior infarctions are often missed so it is important to be aware of them. A posterior MI can cause reciprocal changes on an ECG. This is commonly ST depression and tall R waves in the anterior leads. A good way to think about reciprocal change is an 'upside down' ST elevation seen in leads opposite to the site of infarction.

There are no STEMI findings. The ECG findings would state elevation in the ST segment.

LBBB has different ECG characteristics. This would include broad QRS complexes, a dominant S wave in V1 and broad monophasic R waves in the lateral leads.

Widespread ST depression can be due to an NSTEMI. When it is localised to a particular territory, one should suspect that it is reciprocal depression.

RBBB has different ECG characteristics. These would include a broad QRS complex, an RSR pattern in V1-V3 and wide, slurred S waves in the lateral leads.

Question:

A father brings his 2-year-old daughter to see the GP as her walk has changed.

He explains that she started walking shortly after 12 months old. He has noticed that, over the last 2 days, her walking has been different. There is no history of trauma.

The GP assesses her and notices an asymmetric gait. She appears well otherwise and basic observations are within normal limits. She is up-to-date with her immunisations and is developing normally.

What is the most appropriate next step?

A.Full blood count including inflammatory markers

B.Refer for routine hip x-ray

C.Refer for urgent hip ultrasound

D.Refer for urgent hip x-ray

E.Refer for urgent paediatric assessment

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. This 2-year-old patient has presented with an acute limp. All acute limps in patients under 3 years should be urgently assessed by secondary care paediatric teams to rule out septic arthritis or traumatic injury. Note that septic arthritis can present in patients who are otherwise well so normal observations are not necessarily reassuring in this patient.

Full blood count including inflammatory markers is incorrect. While this will likely form part of the patient's management in secondary care, this patient has a medical emergency (acute limp) and thus the first step is to refer to urgent assessment.

Refer for routine hip x-ray is incorrect. A hip x-ray may be useful in determining the cause of the limp, for example, trauma, but acute limp in a patient <3 years old is a medical emergency and thus this patient requires urgent assessment.

Refer for urgent hip ultrasound is incorrect. Hip ultrasound is useful for investigating developmental dysplasia of the hip in newborns and in suspected transient synovitis where there are questions about the diagnosis. However, hip ultrasound does not form part of the immediate management of patients with acute limps.

Refer for urgent hip x-ray is incorrect. This patient requires urgent secondary care assessment to rule out and manage potential emergencies such as septic arthritis. An urgent hip x-ray is not indicated at this stage, though it may be ordered by secondary care specialists to investigate the cause of this patient's limp.

Question:

Lucy, a 21-year-old student, visits her GP with a several-month history of low-mood. She is struggling on her university course because her concentration is poor and she feels tired, although she finds herself waking early each morning and being unable to get back to sleep. Lucy no longer enjoys spending time with her friends and family and admits feeling 'hopeless' about the future. She has come to the doctor today as her symptoms are significantly affecting her university work.

Lucy denies any thoughts of suicide and there is no evidence of psychotic features on examination. She is otherwise healthy and denies alcohol or drug use.

Lucy is keen to start some treatment for her symptoms. Which would be most appropriate?

A.A trial of amitriptyline

B.A trial of fluoxetine

C.Referral for individual guided self-help

D.Same day referral to mental health services

E.An agreed period of watchful waiting with review in 2 weeks

Answer:A trial of fluoxetine

Explanation:

SSRIs are the first-line antidepressant for 'less severe' depression

Important for meLess important

Lucy presents with a history typical of depression. She describes all three core symptoms of depression (low mood, fatigue, and anhedonia) and describes at least three other symptoms (difficulty concentrating, poor sleep, and feeling hopeless). Given the number of symptoms and the effect on Lucy's functioning, this sounds like moderate/severe depression.

NICE states that the first-line management for moderate and severe depression should be both an antidepressant and a psychological therapy. The first-line antidepressant is usually a selective serotonin reuptake inhibitor (SSRI). The psychological therapy should be high-intensity, such as cognitive behavioural therapy or interpersonal therapy. Of the options above, starting fluoxetine (an SSRI) is, therefore, the most appropriate.

Starting amitriptyline would not be appropriate as this is a tricyclic antidepressant. Tricyclic antidepressants are not offered first-line due to the likelihood of side effects and the risk of overdose.

Individual guided self-help is an example of a low-intensity psychological intervention. This is not appropriate for a patient with moderate/severe depression.

The history does not suggest Lucy is a risk to herself or others and Lucy is willing to trial treatment in the community. Urgent mental health review is therefore not indicated.

Watchful waiting is not recommended in this case given the severity of Lucy's symptoms. Furthermore, she has stated that she would like to try active treatment.

Question:

A baby is born at 32 weeks gestation and transferred to the neonatal unit. Over the next few hours, the baby exhibits nasal flaring, chest wall indrawing, and appears to be jaundiced. Observations are a heart rate of 72/min, a respiratory rate of 70/min, and a temperature of 38.1ºC.

Which organism is most commonly responsible for the likely diagnosis?

A.Listeria monocytogenes

B.Staphylococcus aureus

C.Staphylococcus epidermis

D.Group A streptococcus

E.Group B streptococcus

Answer:Group B streptococcus

Explanation:

Early-onset neonatal sepsis in the UK is most commonly caused by group B streptococcus infection

Important for meLess important

Group B streptococcus, otherwise known as Streptococcus agalactiae , is a beta-haemolytic streptococcus commonly associated with early-onset neonatal sepsis (within the first 72h of life).

Staphylococcus epidermis is associated with late-onset neonatal sepsis.

Group A streptococcus, otherwise known as Streptococcus pyogenes , is associated with streptococcal pharyngitis and scarlet fever, but not neonatal sepsis.

Listeria monocytogenes and Staphylococcus aureus are rare causes of neonatal sepsis.

Question:

The on-call junior doctor is called to review a 58-year-old male inpatient on the cardiology ward. He was admitted 5 days ago for a myocardial infarction and underwent percutaneous coronary intervention. Over the past few hours, he has reported becoming increasingly breathless.

On examination, the patient looks breathless and uncomfortable. There are bilateral basal crackles on the chest, and a new pan-systolic murmur is heard upon auscultation of the heart - there is no previous documentation of this murmur. JVP is visibly elevated, and there is some pitting oedema of both ankles.

After starting initial treatment, the on-call cardiologist is urgently bleeped and comes to review the patient. She performs a bedside echocardiogram which demonstrates, on colour flow Doppler, a clear left-to-right shunt.

What is the likely diagnosis?

A.Acute mitral regurgitation

B.Left ventricular aneurysm

C.Left ventricular free wall rupture

D.Pericarditis

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 defect (VSD) is the correct answer. The history of acute heart failure developing several days post-myocardial infarction, along with the new pan-systolic murmur and the demonstration of the shunt on echocardiogram, strongly points to this diagnosis, which occurs in 1-2% of patients in this timeframe. With regards to post-MI VSD, urgent surgical correction is required, as mortality without surgery is extremely high.

Acute mitral regurgitation is incorrect. This is also a complication following MI, due to ischaemia or rupture of the papillary muscle. However, an early-to-mid systolic murmur would be heard, and echocardiogram would have demonstrated the regurgitation across the valve, rather than the intraventricular septal shunt in this scenario.

Left ventricular aneurysm is incorrect. This is another complication post-MI, and would present with persistent ST elevation and left ventricular failure. Again, the echocardiogram would demonstrate the structural defect.

Left ventricular free wall rupture is incorrect. This occurs 1-2 weeks after an MI, in approximately 3% of MIs. It also presents with acute heart failure, but secondary to tamponade - hypotension, raised jugular venous pressure and muffled heart sounds.

Pericarditis is incorrect - this would present within 48 hours of the MI, with typical pericarditis pain: worse on lying flat. A pericardial rub may also be heard on auscultation, and pericardial effusion may be seen on echocardiogram. Pericarditis may also present 2-6 weeks following the MI, known as Dressler's syndrome - thought to be an autoimmune reaction.

Question:

A 54-year-old woman presents systemically unwell. She has recently started carbimazole for hyperthyroidism. What is the most important blood test to perform?

A.Liver function tests

B.Full blood count

C.Prothrombin time

D.Urea and electrolytes

E.Cortisol

Answer:Full blood count

Explanation:

Agranulocytosis is associated with carbimazole use and needs to be excluded

Question:

You review a palliative care patient at home. They are currently on 30mg MST bd. This is controlling the pain but the patient is no longer able to swallow. After discussion with all concerned you agree to switch to morphine through a syringe driver. What would be the most appropriate dose to start on?

A.60mg over 24 hours

B.30mg over 24 hours

C.40mg over 24 hours

D.10mg over 24 hours

E.6mg over 24 hours

Answer:30mg over 24 hours

Explanation:

Source: Clinical Knowledge Summary - Palliative cancer care (last reviewed April 2015)

When changing the route of administration of one strong opioid to another, the most common switch is from oral morphine sulphate to subcutaneous diamorphine or morphine.

Diamorphine is much more soluble than morphine and therefore easier to administer in higher doses. It is also compatible with most other drugs which may need to be administered by a subcutaneous infusion. However, morphine is preferred in most cases as most people do not require doses large enough to cause solubility issues:

Parenteral diamorphine is approximately three times as potent as oral morphine, so the total daily dosage of oral morphine should be divided by three to obtain the 24-hour subcutaneous dose of diamorphine.

The oral to subcutaneous potency ratio of morphine is between 1:2 and 1:3 (that is, the subcutaneous dose is one third to one half of the oral dose). In practice, most centres divide the oral dose by two and re-titrate as necessary.

See also the British National Formulary section: Prescribing in palliative care - continuous subcutaneous infusions for further information and a table showing equivalent does of morphine sulphate and diamorphine hydrochloride given over 24 hours.

Question:

A 55-year-old woman presents to cardiology complaining of a 2-week history of chest pain, shortness of breath, dizziness, and infrequent syncope or pre-syncope.

She mentions during the history that she's experienced profoundly low mood since the recent sudden death of her husband and redundancy from her job, but an otherwise insignificant past medical history.

An ECG reveals widespread ST-elevation and ischaemic changes including T wave inversion. Blood testing shows moderately raised cardiac enzymes and coronary angiography is unremarkable.

What is the most likely diagnosis?

A.Myocarditis

B.Non-ST-elevation myocardial infarction

C.Pericarditis

D.ST-elevation myocardial infarction

E.Takotsubo cardiomyopathy

Answer:Takotsubo cardiomyopathy

Explanation:

Takotsubo cardiomyopathy is typically triggered by stress

Important for meLess important

Takotsubo cardiomyopathy is correct. The history of acute or subacute chest pain in a post-menopausal woman after an emotionally stressful experience or situation is typical of Takotsubo cardiomyopathy. Shortness of breath, dizziness and syncope are also common, as well as changes suggestive of cardiac ischaemia, despite the pathophysiology not being of ischaemic aetiology. The absence of obstruction during coronary angiography also points towards Takotsubo, and an echocardiogram would be the next investigation of choice. This would likely demonstrate a hypokinetic apex.

Myocarditis is incorrect. Myocarditis is a good differential for this presentation, however, is classically preceded by a recent infective illness, although can be drug-induced or caused by other factors. The ECG findings, elevated cardiac enzymes, and coronary angiography could be in keeping with myocarditis, but the history of high emotional stress points towards Takotsubo cardiomyopathy. Syncope is also an uncommon feature of myocarditis.

Non-ST-elevation myocardial infarction is incorrect, as coronary angiography would show obstructive coronary vessel changes to account for the ECG findings suggestive of cardiac ischaemia.

Pericarditis is incorrect. Pericarditis is a good differential to bear in mind considering the ECG changes of widespread ST-elevation and T wave inversion (both of which can be seen in pericarditis, although the latter tends to develop after the former normalises). However, an underlying physical cause would usually be indicated, such as a recent diagnosis of malignancy or viral infection. Furthermore, the pleuritic pain experienced in pericarditis is classically worsened by lying down and alleviated on learning forwards, which is not the case in this stem. The significant emotional history further points towards Takotsubo cardiomyopathy.

ST-elevation myocardial infarction is incorrect for the same reason as above, although a STEMI should always be ruled out, and all patients presenting with this presentation should be treated as a STEMI until proven otherwise (i.e. with coronary angiography).

Question:

A 12-year-old boy is seen in the paediatric clinic with his mother. She tells you that her son has been limping over the last week with complaints of pain in his left hip and groin. There is no history of trauma to note. His past medical history includes eczema and he completed a course of antibiotics for tonsillitis 3 weeks ago.

On examination, there is palpable tenderness in the left groin, hip and knee. There is a loss of internal rotation of left hip flexion due to extreme pain. He is in the 95th percentile of weight for his age.

What is the most likely diagnosis?

A.Juvenile idiopathic arthritis

B.Legg-Calvé-Perthe's disease

C.Septic arthritis

D.Slipped upper femoral epiphysis

E.Transient synovitis

Answer:Slipped upper femoral epiphysis

Explanation:

Obese boy with groin/thigh/knee pain → ?slipped capital femoral epiphysis

Important for meLess important

Slipped upper femoral epiphysis (SUFE) is correct. This is a rare hip condition seen in children (10-15 years), particularly obese boys. The condition causes displacement of the femoral head epiphysis posteroinferiorly causing hip, groin, and medial thigh +/- knee pain. Loss of internal rotation of the leg whilst in flexion may also be seen.

Juvenile idiopathic arthritis (JIA) is incorrect. JIA is characterised by joint inflammation persisting for at least six weeks in children under the age of 16 years. All other causes of joint inflammation must be excluded to make the diagnosis. The relatively short history of hip pain in this patient's presentation, combined with being overweight is more indicative of SUFE.

Legg-Calvé-Perthe's disease is incorrect. This is characterised by necrosis of the femoral head that is most often seen in young boys aged between 4-8 years. Symptoms include a painless limp and a restricted range of movement. The presence of painful hip movements in an overweight 12-year-old makes SUFE more likely.

Septic arthritis is incorrect. This is always an important differential diagnosis to consider. However, septic arthritis would be much more likely if the patient presented with a fever in association with symptoms of systemic upset.

Transient synovitis is incorrect. This is a self-limiting condition secondary to inflammation of the synovium, commonly due to a recent viral illness. Transient synovitis is most common between 3-8 years of age and symptoms include groin or hip pain with a limp and refusal to weight bear. Although there is a history of a previous infection, the timeframe since the infection and the age of the patient makes transient synovitis unlikely.

Question:

A 30-year-old immunosuppressed cardiac transplant patient on tacrolimus attends the emergency department feeling tired, feverish and reports to have neck and groin swellings for 1 week.

On examination, she has generalised lymphadenopathy with prominent cervical lymph nodes. Her examination is otherwise unremarkable. Her observations are unremarkable other than a temperature of 37.6ºC.

In her history, you note that she works in a veterinary surgery.

She is investigated and is diagnosed with Toxoplasmosis gondii .

Which of the options is the most appropriate for this patient's management?

A.Amoxicillin, metronidazole and IV fluids

B.No treatment required

C.Pyrimethamine plus efavirenz

D.Pyrimethamine plus sulphadiazine

E.Sulphadiazine plus amoxicillin

Answer:Pyrimethamine plus sulphadiazine

Explanation:

Immunocompromised patients with toxoplasmosis are treated with pyrimethamine plus sulphadiazine

Important for meLess important

Toxoplasmosis is a parasitic disease whose main reservoir is cats. It is caused by Toxoplasmosis gondii protozoa. It can cause a flu-like illness in humas with symptoms of malaise, lymphadenopathy and myalgia or may be asymptomatic. Most healthy individuals will clear the infection but it can cause complications such as anaemia, seizure or chorioretinitis. These complications mainly occur in neonates (born to mothers with acute infection) or immunocompromised patients.

Immunocompetent patients will often not require treatment.

It is important to note that immunocompromised patients are treated with pyrimethamine and sulphadiazine.

Pyrimethamine is a folic acid antagonist. It was a drug initially used against malaria but due to high resistance is no longer used. It is now used in the management of parasitic diseases including toxoplasmosis and actinomycosis.

Sulphadiazine is a sulphonamide antibiotic which works by inhibiting dihydropteroate synthase (DHPS), an enzyme involved in folate synthesis. It is classed as a 'bacteriostatic' antibiotic.

Question:

A 27-year-old woman attends the neurology clinic after a referral from her GP. She has been having one-minute episodes of repeatedly grabbing the air in front of her. She is not aware of these episodes, but her girlfriend has videoed one of the episodes. The patient can tell when she's going to have one of these episodes as she feels a strong sense of feeling that she has lived through the present situation before.

What is the likely diagnosis?

A.Frontal lobe seizure

B.Functional neurological disorder

C.Occipital lobe seizure

D.Parietal lobe seizure

E.Temporal lobe seizure

Answer:Temporal lobe seizure

Explanation:

Temporal lobe seizures typically feature epigastric aura and automatisms

Important for meLess important

The correct answer is temporal lobe seizure. These seizures tend to present with an aura, which can be a rising epigastric sensation, déjà vu, or hallucinations. They may or may not have impairment of consciousness.

Functional neurological disorder is a condition in which there is a problem with the functioning of the nervous system and how the brain and body send and receive signals, rather than a structural disease process. Given this patient's presentation, it is much more likely she has epilepsy.

Typical seizure types of the other lobes can be found below.

Question:

A 48-year-old man has heart failure. He attends the emergency department because he feels short of breath and has gained 11kg in weight. His blood pressure is 88/48 mmHg, heart rate 112 bpm, and is requiring 2L of oxygen. Capillary refill time is 3 seconds, and you can feel his liver edge 6cm below the costal margin. Regular medications include 40mg furosemide twice per day and ramipril.

His renal profile last month was normal. His U&Es on this admission are as follows:

Na+ 131 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 17 mmol/L (22 - 29)

Urea 14.7 mmol/L (2.0 - 7.0)

Creatinine 248 µmol/L (55 - 120)

What is the most appropriate treatment?

A.160mg IV furosemide infusion

B.40mg IV furosemide once a day

C.Continuous positive airway pressure (CPAP

D.Reduce furosemide to 20mg twice a day

E.Stop furosemide completely

Answer:160mg IV furosemide infusion

Explanation:

Increased doses of loop diuretics may be required in patients with poor renal function to ensure sufficient concentration is achieved within the tubules

Important for meLess important

160mg IV furosemide infusion is the correct answer. This man has a cardiorenal syndrome. This occurs when the cardiac output drops sufficiently to result in renal dysfunction. In this case, renal hypoperfusion has likely occurred due to the progression of his cardiomyopathy. Note features of low cardiac output or 'pump failure', such as hypotension, tachycardia, reduced peripheral perfusion, and hepatic congestion. The hyponatraemia seen is dilutional (extra water in the serum) and the low blood pressure is because of cardiac overload. Whilst it is often thought that in renal dysfunction, nephrotoxic agents need to be withheld and doses of diuretics tapered. In this case, it is the hypervolaemic state that has contributed to reduced cardiac output (shifting the Frank-Starling curve). This means that increased doses of diuretics are required to improve cardiac contractility, improve cardiac output, and thus increase renal perfusion. It would be sensible to start an infusion of furosemide at a reasonably high dose.

40mg IV furosemide once a day is not the correct answer. Whilst intravenous diuretics are the mainstay of therapy, in this case, 40mg of IV furosemide is likely to be less efficacious than his currently daily dose of oral furosemide (80mg). For this patient, intense furosemide therapy is required to remove fluid, improve cardiac contractility, and improve cardiac output. It would be appropriate to provide diuresis over 24 hours, meaning treatment can be withheld if his blood pressure were to become even lower (at which point, inotropic support may be required).

Continuous positive airway pressure (CPAP) is incorrect. CPAP is an excellent tool when faced with acute pulmonary oedema. However, it will not encourage diuresis and could be dangerous in a patient with a systolic blood pressure of less than 90 mmHg. For that reason, it should not be used in this case.

Reduce furosemide to 20mg twice a day is incorrect. In cardiorenal syndrome, higher doses of diuretics are required to increase renal perfusion. By reducing the dose of diuretics, this patient will likely deteriorate further, both clinically and biochemically.

Stop furosemide completely is incorrect. Furosemide is integral to the management of cardiovascular fluid overload. By escalating therapy, it will shift the Frank-Starling curve to improve cardiac output and, in turn, will improve renal function.

Question:

A 52-year-old male presents to the emergency department with sudden-onset left-sided flank pain which radiates to the groin. The pain is colicky in nature and is associated with nausea but no vomiting or fever.

His past medical history includes anxiety and depression, for which he takes sertraline.

Given the likely diagnosis, which is the first-line choice of analgesia?

A.IM diclofenac

B.IV ibuprofen

C.IV paracetamol

D.IV tramadol

E.Oral morphine

Answer:IM diclofenac

Explanation:

Guidelines continue to recommend the use of IM diclofenac in the acute management of renal colic

Important for meLess important

The most likely diagnosis is renal colic. This patient has the typical symptoms of renal calculi, including severe, sudden-onset 'loin-to-groin' pain with nausea. The NICE guidelines state that the first-line choice of analgesia for renal colic is IM diclofenac.

NSAIDs can be given as analgesia in renal colic, but ibuprofen cannot be given intravenously.

IV paracetamol can be given if NSAIDs are contraindicated or ineffective.

If both NSAIDs and IV paracetamol are contraindicated or ineffective, then opioid analgesics should be considered. However, they should not be used as first-line choice for analgesia due to side effects such as constipation and risk of respiratory depression. Therefore, IV tramadol and oral morphine are incorrect answers.

Question:

A 49-year-old female is referred to the gastroenterology out-patient clinic with a 3 month history of epigastric pain and diarrhoea. Her GP initially prescribed lansoprazole 30mg od but this didn't alleviate her symptoms. The only past medical history of note is hyperparathyroidism.

Endoscopy revealed multiple duodenal ulcerations. What is the likely diagnosis?

A.Multiple endocrine neoplasia type II a

B.Coeliac disease

C.Multiple endocrine neoplasia type I

D.Autoimmune polyendocrinopathy syndrome

E.Crohn's disease

Answer:Multiple endocrine neoplasia type I

Explanation:

Zollinger-Ellison syndrome: epigastric pain and diarrhoea

Important for meLess important

Zollinger-Ellison syndrome typically presents with multiple gastroduodenal ulcers causing abdominal pain and diarrhoea. High-dose proton pump inhibitors are needed to control the symptoms. Around a third of patients may have multiple endocrine neoplasia type I (MEN-I), explaining the hyperparathyroidism in this patient.

MEN-I

parathyroid (95%): hyperparathyroidism due to parathyroid hyperplasia

pituitary (70%)

pancreas (50%, e.g. Insulinoma, gastrinoma)

also: adrenal and thyroid

Question:

An 18-year-old man is seen in the acute mental health unit. He has not slept for 3 days and is working to be 'the most famous author' by writing 3 novels at once.

When asked about his mood, he starts talking about how much work he is doing, followed by extremely detailed descriptions of his 3 novels, then about his plans for publication, then about what he would do when famous, and then finally, he mentions his mood has been excellent due to these aforementioned topics. When changing the topic, he follows along and answers in a similar manner.

What is the most appropriate term to describe this patient's findings?

A.Circumstantiality

B.Flight of ideas

C.Knight's move

D.Perseveration

E.Tangentiality

Answer:Circumstantiality

Explanation:

Circumstantiality is the inability to answer a question without giving excessive, unnecessary detail

Important for meLess important

Circumstantiality is correct. This patient describes in excessive and unnecessary detail about their plans regarding their novels after being asked about their mood, then eventually coming back to the question and answering it, saying his mood has been excellent. This describes circumstantiality, where patients give extra and excessive detail before eventually returning to the original point.

Flight of ideas is incorrect. Although this patient is moving from one idea to another and they are related, they eventually return to the original topic (i.e. answering the question about his mood), making circumstantiality a more appropriate description. If this patient were to have answered the question about his mood first, then deviated from the topic entirely and moved to something completely different, albeit with discernible links, flight of ideas may be more appropriate. For example, in flight of ideas, this patient would have first replied with how excellent they were doing, then jumped to the details about his novels, then to his plans for production, then what he would do when he was famous.

Knight's move is incorrect. This would be characterised by the patient moving from one topic to another without any discernible links between them, which is not the case here. As well as this, the patient eventually returns to the original point and discusses their mood. In this case, this patient may have replied to the question about their mood, then moved on to completely different and unrelated subsequent topics with no logical links between them.

Perseveration is incorrect. This is where a patient repeats ideas or words despite attempting to change the topic. For example, if a patient were to be asked to describe a cat, and then describe other things, the patient would continually describe cats and keep the topic on that despite being asked to describe other things. This patient follows along whenever topics change, which rules out perseveration. If this patient were to demonstrate perseveration, they would have answered each following question with the same response to the question about his mood, which does not apply here.

Tangentiality is incorrect. Although this involves wandering from a topic, which is seen in this case, this patient returns to the topic and addresses it. If this patient were to demonstrate tangentiality, they would wander away from the topic and not return to it, which is not the case here as he eventually describes his mood.

Question:

A 56-year-old woman is found by paramedics in the street confused and smelling of alcohol and urine. She is noted to have slurred speech and, although drowsy, is responsive. Observations show a heart rate of 103bpm, blood pressure 118/78mmHg, and saturation of 95% in room air. A cardiorespiratory examination is unremarkable. She is wobbly on her feet with a broad-based gait. Neurological examination shows normal reflexes, power, and tone. Cranial nerve examination shows bilateral nystagmus, bilateral weakness in lateral abduction of the eyes, and past pointing.

What is the most likely diagnosis?

A.Acute alcohol intoxication

B.Extradural haemorrhage

C.Korsakoff's syndrome

D.Subarachnoid haemorrhage

E.Wernicke's encephalopathy

Answer:Wernicke's encephalopathy

Explanation:

Confusion, gait ataxia, nystagmus + ophthalmoplegia are features of Wernicke's encephalopathy

Important for meLess important

This patient is presenting with symptoms consistent with Wernicke's encephalopathy. This condition is caused by damage to the lower parts of the brain (brainstem, hypothalamus, medulla, and dorsomedial nucleus of the thalamus) by acute thiamine deficiency. While only 10% of patients exhibit all three 'textbook' features of ophthalmoplegia, ataxia, and confusion, nearly all have a degree of confusion and ataxia. Furthermore, patients who experience Wernicke's due to alcohol excess are more likely to present with the triad of symptoms alongside recent memory amnesia and autonomic dysfunction. This is a reversible state if caught early and lesions can be managed with immediate supplementation with intravenous or intramuscular thiamine.

Acute alcohol intoxication can present with ataxic gait, past-pointing, and confusion. It is unlikely to lead to nystagmus and weakness in lateral abduction (caused by ophthalmoplegia of the lateral rectus muscles).

Extradural haemorrhage is typically associated with head trauma, a transient loss of consciousness, and a lucid interval. They may have signs of raised intracranial pressure (headache and vomiting) and generalised neurology (acute confusion or seizures). This vignette does not reflect the typical presentation (as described) and, as such, a more likely diagnosis should be sought.

If left untreated, Wernicke's encephalopathy can lead to Korsakoff's syndrome. This is categorised by anterograde/retrograde amnesia, confabulation, and apathy. Patients may also have aphasia, apraxia, and defective executive function. This is an irreversible condition due to gliosis, however rehabilitation of patients can lead to them regaining some level of independence.

Subarachnoid haemorrhage (SAH) presents with thunderclap headache, nausea and vomiting, and meningism. Patients should have a CT head to asses for a bright hyperdensity in the basal cisterns (and a lumbar puncture if the CT head is unremarkable). This patient is presenting with an ataxic gait and confusion which is not in keeping with a typical presentation of SAH.

Question:

A 63-year-old man is undergoing a medication review with his GP.

He is currently taking amlodipine for hypertension, tamsulosin for benign prostatic hypertrophy and celecoxib for osteoarthritis of both knees whilst awaiting joint replacement. All of these problems are well controlled.

What other medication should be added to his prescription according to NICE guidelines?

A.Calcium carbonate

B.Colecalciferol

C.Finasteride

D.Glucosamine

E.Lansoprazole

Answer:Lansoprazole

Explanation:

NICE recommend co-prescribing a PPI with NSAIDs in all patients with osteoarthritis

Important for meLess important

NICE recommend co-prescribing a PPI or other gastric protection with NSAIDs or COX-2 inhibitors in all patients with osteoarthritis.

Therefore, the correct answer is lansoprazole, a PPI.

Calcium carbonate is incorrect. It is used as a standard calcium supplement or an antacid but is not required in osteoarthritis and insufficient gastric protection whilst taking an NSAID or celecoxib.

Colecalciferol is a vitamin D preparation and would not be indicated for any of the above conditions. Calcium and vitamin D supplementation would be recommended for bone protection in those with osteoporosis or taking long-term steroids for example.

Finasteride is incorrect. It is a 5α-reductase inhibitor used in the treatment of benign prostatic hypertrophy, but if his symptoms are well controlled there is no need to add this.

Glucosamine is also incorrect. It has a mixed evidence base for use in osteoarthritis though some studies suggest it has short-term benefits of reduced joint pain in knee osteoarthritis. The national guidance is that it should not be prescribed on the NHS due to poor efficacy and cost-effectiveness.

Question:

A 21-year-old university student comes to see you due to insomnia, anxiety, and flashbacks. Two weeks ago she was returning from a party late at night when she was approached by a young man who demanded she gave him her phone and purse. She was alone at the time and was terrified that he was going to hurt her. Since this event, she has been having flashbacks and nightmares which are affecting her sleep. She has avoided going out alone since this event and is wondering if you could prescribe something to help with her sleep.

Which of the following describes her response?

A.Acute stress disorder

B.Panic disorder

C.Depression

D.Generalised anxiety disorder

E.Post traumatic stress disorder

Answer:Acute stress disorder

Explanation:

Acute stress disorder is defined as an acute stress reaction that occurs in the 4 weeks after a traumatic event, as opposed to PTSD which is diagnosed after 4 weeks

Important for meLess important

This scenario has the potential to evolve into post-traumatic stress disorder but, as it is only two weeks after the event, it would be classified as an acute stress disorder. It would be important to monitor this patient and review again in two weeks.

Panic disorder is characterised by recurrent episodes of panic attacks and is often associated with agoraphobia. Panic attacks must be associated with >1 month of subsequent persisting anxiety about the recurrence of attacks.

Depression is characterised by persistent low mood and/or loss of pleasure in most activities and a range of associated emotional, cognitive, physical, and behavioural symptoms.

Generalized anxiety disorder is characterized by disproportionate, pervasive, uncontrollable, and widespread worry and a range of somatic, cognitive, and behavioural symptoms that occur on a continuum of severity. It must be pervasive and persistent and would be present for longer than two weeks.

Question:

You are doing a medication review on a 79-year-old man. His current medications include aspirin, verapamil, allopurinol and co-codamol. Which one of the following is it most important to avoid prescribing concurrently?

A.Colchicine

B.Digoxin

C.Simvastatin

D.Tramadol

E.Atenolol

Answer:Atenolol

Explanation:

Beta-blockers combined with verapamil can potentially cause profound bradycardia and asystole.

Question:

A 2-year-old boy is seen by his GP as he has had recurrent respiratory infections requiring hospitalisation. The health visitor has also noted that his weight has dropped from the 4th to the 2nd centile on the growth chart. He was born at term with a normal birth weight.

On examination, it is noted that he has nasal polyps.

What is the most likely underlying problem?

A.Cystic fibrosis

B.Recurrent bronchiolitis

C.Bronchopulmonary dysplasia

D.Tuberculosis

E.Neglect

Answer:Cystic fibrosis

Explanation:

Nasal polyps are associated with cystic fibrosis

Important for meLess important

Recurrent serious respiratory tract infections and weight loss in a child should prompt consideration of cystic fibrosis. In this question, this is the most likely answer due to the presence of nasal polyps, which are associated with cystic fibrosis. Recurrent bronchiolitis may also lead to hospitalisations, and could possibly cause weight loss due to poor feeding. However, bronchiolitis is not associated with nasal polyps. Bronchopulmonary dysplasia causes respiratory distress, but is usually seen in premature infants with low birth weights and is not associated with nasal polyps. There is no evidence of neglect in this question and the presence of nasal polyps indicates an underlying disease process.

Question:

A 75-year-old woman has suffered recurrent falls due to orthostatic hypotension. She has tried conservative measures such as taking in more fluid and salt. Her medications have been reviewed and some of her medications have been stopped. She has also tried wearing compression stockings. Nevertheless, she still suffers dizziness on standing up.

What is a possible medication option to reduce her symptoms?

A.Doxazosin

B.Prochlorperazine

C.Isoprenaline

D.Fludrocortisone

E.Dobutamine

Answer:Fludrocortisone

Explanation:

Fludrocortisone and midodrine are pharmacological options for treatment of orthostatic hypotension

Important for meLess important

Doxazosin is a selective a1-blocker that is used to treat hypertension. This medication will worsen orthostatic hypotensions. Prochlorperazine is used in vertigo. Isoprenaline and dobutamine are ionotropic agents, that are sometimes used for patients in shock. They are not used for orthostatic hypotension.

Fludrocortisone increases renal sodium reabsorption and increases the plasma volume. This helps to counteract the physiological orthostatic vasovagal reflex. Its efficacy is supported by 2 small observational studies and one small double-blind trials. The European Society of Cardiology has given a Class IIa recommendation to Fludrocortisone

Management of orthostatic hypotension (ESC 2018):

education and lifestyle measures such as adequate hydration and salt intake

discontinuation of vasoactive drugs e.g. nitrates, antihypertensives, neuroleptic agents or dopaminergic drugs

if symptoms persist, consider compression garments, fludrocortisone, midodrine, counter-pressure manoeuvres, and head-up tilt sleeping

Question:

A 41-year-old phlebotomist from Birmingham presents to her GP with a 2 month history of vague right upper quadrant pain and nausea. It is constant, does not radiate, and does not change following food. She describes no history of altered bowel habit, weight loss or fevers. She drinks around 10 units of alcohol per week, is a non smoker, and has no medical history of note.

Her GP arranges a set of blood tests and an ultrasound of her liver. Results are below:

FBC, U+E, LFT and clotting profile are normal.

HBs antigen Negative

Anti-HBs Positive

Anti-HBc Negative

IgM anti-HBc Negative

Ultrasound There is a single 12cm x 9cm, hyperechoic lesion in the left lobe of the liver. No other abnormalities detected. No abnormalities noted in the biliary tree.

What is the most likely cause of the patients symptoms?

A.Hepatocellular carcinoma

B.Hepatitis B infection

C.Hepatic haemangioma

D.Biliary colic

E.Gastroenteritis

Answer:Hepatic haemangioma

Explanation:

Hepatic haemangiomas are relatively common incidental findings on imaging, but larger lesions may present symptomatically

Important for meLess important

Hepatic haemangiomas are benign growths of endothelial tissue which are usually asymptomatic. They are commonly found incidentally on imaging for other reasons, with an incidence of up to 7.3% at autopsy. The majority of haemangiomas are under 10cm in diameter, and most do not grow significantly over time.

Larger growths may become symptomatic due to mass effect on adjacent structures (causing early satiety and nausea if the gastric outlet is affected, or obstructive jaundice if the biliary tree is obstructed). Distension of the liver capsule causes right upper quadrant pain.

Hepatic haemangiomas are much more common than hepatocellular carcinomas in Western populations with no risk factors.

The presence of anti-HBs shows previous hepatitis immunisation or immunity. As a UK phlebotomist, she will have received hepatitis B immunisation.

The symptoms of biliary colic and peptic ulcer disease typically change with food, and ultrasound would generally show evidence of biliary pathology (gallbladder thickening, presence of stones).

Question:

A 27-year-old primip who is 31 weeks pregnant presents to the antenatal clinic with tiredness and mild abdominal discomfort. Her pregnancy has been uneventful so far. She has a blood pressure of 122/84 mmHg and her symphysis-fundal height is 30cm. Urinalysis is normal. Routine blood tests reveal the following:

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

Female: (115 - 160)

Platelets 350 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

Bilirubin 10 µmol/L (3-17)

ALP 300 µmol/L (30-100)

ALT 20 iu/L (3-40)

Which is the most likely cause of her clinical findings?

A.Acute fatty liver of pregnancy

B.HELLP syndrome

C.Normal pregnancy

D.Obstetric cholestasis

E.Primary biliary cirrhosis

Answer:Normal pregnancy

Explanation:

Normal pregnancy can cause a raised ALP - it doesn't necessarily imply liver problems

Important for meLess important

This patient’s presentation of tiredness and mild abdominal discomfort are minor symptoms associated with a normal pregnancy. Furthermore, her blood tests reveal a raised ALP which is a physiological change in normal pregnancy.

Acute fatty liver of pregnancy would present with symptoms including jaundice, nausea and vomiting, headache, and hypoglycaemia. ALT would typically be raised.

HELLP syndrome would reveal a combination of haemolysis, elevated liver enzymes and low platelets on blood results.

Obstetric cholestasis would present with pruritis and a raised bilirubin.

Primary biliary cirrhosis would typically present with symptoms such as fatigue, pruritis and cholestatic jaundice with a raised ALP however the patient is not experiencing these symptoms.

Question:

A 60-year-old woman is brought to the emergency department with increased exertional dyspnoea and progressively worsening cough with yellow sputum for the last one week.

She has a 40-pack-year smoking history. On further exploration, she reports that she has had a dry chronic cough for the past 12 months but had been reluctant to seek medical attention.

Vital measurements indicate a blood pressure of 110/70 mmHg, a heart rate of 104 beats per minute, a temperature of 37.6 ºC and oxygen saturation of 88% on room air. Chest examination reveals a barrel-shaped chest, decreased breath sounds, and hyper-resonance to percussion in both lungs.

Which is the most common organism responsible for causing this condition?

A.Haemophilus influenzae

B.Human rhinovirus

C.Legionella pneumophila

D.Moraxella catarrhalis

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

The most common organism causing infective exacerbations of COPD is Haemophilus influenzae

Important for meLess important

The clinical features with the significant smoking history in this patient are suggestive of undiagnosed chronic obstructive pulmonary disease (COPD) and the increasing sputum production is indicative of an infective exacerbation. The most common organism causing infective exacerbations of COPD is Haemophilus influenzae.

Human rhinovirus is the most important pathogen among viruses that can lead to this condition, however, respiratory viruses account for only around 30% of exacerbations.

Legionella pneumophila does not commonly cause COPD. However, it is the most pathogenic of the atypical bacteria that cause a lung infection known as Legionnaires' disease.

Moraxella catarrhalis and Streptococcus pneumoniae account for a proportion of infective exacerbations of COPD but are less common than Haemophilus influenzae.

Question:

A 67-year-old man presents as he has developed a painful blistering rash around his right eye. On examination a vesicular rash covering the right trigeminal nerve dermatome is seen. Currently he has no eye symptoms or signs. Which one of the following is most likely to predict future eye involvement?

A.Presence of the rash on the tip of his nose

B.Smoking history

C.Increasing age

D.Previous courses of corticosteroids

E.Presence of the rash in the ear canal

Answer:Presence of the rash on the tip of his nose

Explanation:

This is Hutchinson's sign which is strongly predictive for ocular involvement.

Question:

A 27-year-old woman presents to the sexual health to perform a sexually transmitted infection screening panel. She feels well in herself and has no symptoms. She is currently taking the oral combined contraceptive pill without any side effects.

Her screening shows a positive non-treponemal test. The doctor arranges a consequent treponemal test, which results to be negative.

What do her results indicate?

A.Active syphilis infection

B.False-negative syphilis result

C.False-positive syphilis result

D.Partially treated syphilis infection

E.Successfully treated syphilis

Answer:False-positive syphilis result

Explanation:

Positive non-treponemal test + negative treponemal test is consistent with a false-positive syphilis result

Important for meLess important

The correct answer is false-positive syphilis result. This patient is positive to a non-treponemal test, which is not specific for syphilis, hence can give positive results for other reasons rather than a syphilis infection. When a patient results positive to a non-treponemal test, they are referred for a treponemal test, which is more specific for syphilis.

Hence, being positive to a non-treponemal test and negative to a treponemal test means that the first result was a false-positive. The reasons for this false-positive can be various, including pregnancy, SLE, anti-phospholipid syndrome, tuberculosis, leprosy, malaria, and HIV.

An active syphilis infection would be diagnosed with a positive non-treponemal test and a positive treponemal test. As mentioned above, a non-treponemal test can be positive for multiple reasons, but a treponemal test is very specific for syphilis, hence positivity to both is diagnostic for active syphilis infection.

A false-negative syphilis result would mean that the patient has syphilis but all the tests are negative. In this case, one of them is positive making the answer incorrect.

Partially treated syphilis would present with a positive treponemal test, as it tests for syphilis-specific antibodies, which remain positive once the immune system has been in contact with syphilis.

Successfully treated syphilis would present with a negative non-treponemal test and a positive treponemal test, as the cardiolipin tested by the non-treponemal test decreases over time, but the antibodies tested by the treponemal test remain.

Question:

Which one of the following statements regarding hepatitis A is false?

A.Has an incubation period of 2-4 weeks

B.It is a DNA virus

C.Doesn't cause chronic hepatitis

D.May cause hepatosplenomegaly

E.A vaccine is available

Answer:It is a DNA virus

Explanation:

Question:

A 32-year-old woman visits her GP complaining of a wide variety of symptoms that have become steadily worse over the past 6 months. She has put on over 3 stone of weight despite no change in her diet and she feels that this has concentrated on her face and neck. She also has noticed stretch marks on her abdomen and excessive hair growth over her body and face. After referral to an endocrinologist she is found to have an increased secretion of adrenocorticotropic hormone due to a pituitary adenoma.

Which of the following best describes this condition?

A.Cushing's disease

B.Cushing's syndrome

C.Cushing's triad

D.Addison's disease

E.Acromegaly

Answer:Cushing's disease

Explanation:

This patient is suffering from Cushing's disease which results from increased secretion of adrenocorticotropic hormone (ACTH) from the anterior pituitary, often caused as a result of a pituitary adenoma. Whilst the symptoms should allow you to remove both Addison's disease and acromegaly as answers, confusion often comes from the difference between the different cushing answers.

Cushing's triad is a set of three clinical signs irregular respirations, bradycardia and systolic hypertension resulting from raised intracranial pressure.

Cushing's syndrome is a collection of signs and symptoms due to prolonged exposure to cortisol and Cushing's disease is a specific type of Cushing's syndrome characterised by increased ACTH production of because of a pituitary adenoma (or sometimes due to excess production of hypothalamus CRH).

Question:

An overweight 42-year-old female presents to the emergency department with a 10-hour history of severe upper abdominal pain. The pain started suddenly and reached maximal intensity 15 minutes after the onset of symptoms. She reports that the pain radiates to her back and is somewhat eased by sitting forward.

She is nauseated and has had 3 episodes of vomiting so far. She however denies any history of diarrhoea or fever, and has no sick contact.

Apart from being on combined oral contraceptive pill for the past 4 years, she is not on any medication. She drinks 1 glass of wine per day and denies any recreational drug use.

She has no significant past medical history apart from a normal vaginal delivery 5 years ago and a history of biliary colic. She denies having had any previous surgery.

On clinical examination, she looks unwell, has a pulse rate of 110/min and is tender in the epigastric region.

Which of the following is most likely to yield the diagnosis?

A.Chest X-ray

B.Abdominal and pelvic ultrasound

C.Liver function test

D.Abdominal X-ray

E.Serum lipase

Answer:Serum lipase

Explanation:

This patient has acute pancreatitis, likely due to gallstones. The most helpful investigation is a serum lipase, looking for an elevation of more than 3 times the upper limit of normal.

While chest and abdominal x-rays are not useful in the diagnosis of pancreatitis, they are routinely ordered to exclude other potential causes of abdominal pain such as perforation or bowel obstruction. Additionally plain radiographs can help detect complications of pancreatitis including ileus, pleural effusion and atelectasis.

Full blood examination, urea and electrolytes and liver function test do not directly aid the diagnosis of pancreatitis. However, they are helpful in assessing the severity of the disease (e.g. by showing the degree of leucocytosis or of hypovolaemia) or give clues of the aetiology of pancreatitis (e.g. gallstone pancreatitis).

Initial investigations to help ascertain the cause include an abdominal ultrasound, calcium level and lipid profile.

References:

Wu BU, Banks PA. Clinical management of patients with acute pancreatitis. Gastroenterology 2013;144(6):1272-81.

Lee P, Stevens T. Acute pancreatitis. Cleveland Clinic Center for Ongoing Education. http://www.clevelandclinicmeded.com/medicalpubs/diseasemanagement/gastroenterology/acute-pancreatitis/Default.htm [website accessed 20 April 2015]

Question:

A 54-year-old man presents to his general practitioner with pain in his hands. He has no significant past medical history.

On examination, there were osteoarthritic changes in the hands. The skin was noted to have a slate grey appearance.

Plain radiography of the hands demonstrated hook-like osteophytes at the 2nd and 3rd digits at the metacarpophalangeal joints.

Given the likely diagnosis, what are the best means of monitoring treatment response in this condition?

A.Hba1c

B.Insulin-like growth factor 1 (IGF-1)

C.Serum iron

D.Total iron binding capacity

E.Transferrin saturation

Answer:Transferrin saturation

Explanation:

Ferritin and transferrin saturation are used to monitor treatment in haemochromatosis

Important for meLess important

Transferrin saturation is correct. The patient has haemochromatosis. Typical clinical features of this condition include secondary osteoarthritis (with hook-like osteophytes at the 2nd and 3rd digits at the metacarpophalangeal joints being pathognomonic) and a slate-grey appearance of the skin. A transferrin saturation > 55% is typical in untreated disease and this is the best marker to monitor treatment response.

Hba1c is incorrect. Haemochromatosis can cause diabetes due to iron deposition in the pancreas. This is a type 1 diabetes picture. The condition is also known as 'bronze diabetes' due to the colour of the skin. However, the patient will not definitely develop diabetes and therefore the best monitoring parameter for treatment response is transferrin saturation. Of course, if the patient did develop diabetes you may want to monitor the HbA1c.

Insulin-like growth factor 1 (IGF-1) is incorrect. This is a parameter used to measure disease activity in acromegaly. This condition can cause osteoarthritis. However, the slate grey appearance of the skin is not typical. Additionally, the other characteristic features of acromegaly are absent here.

Serum iron is incorrect. This is a poor reflection of total body iron stores and is not used for monitoring.

Total iron-binding capacity is incorrect. In haemochromatosis, this will be low. However, it is not used to monitor treatment response.

Question:

A 65-year-old man calls an ambulance as he has central crushing chest pain that radiates to his left arm and jaw. As he arrives at the emergency department his heart rate is found to be 50/min. An ECG is performed which shows ST elevation and bradycardia with a 1st-degree heart block.

Given the history, which of the following are the leads will most likely show the ST elevation?

A.I, aVL, V5 and V6

B.II, III and aVF

C.V1-V4

D.V1-2

E.Global ST elevation

Answer:II, III and aVF

Explanation:

A right coronary infarct supplies the AV node so can cause arrhythmias after infarction

Important for meLess important

This question is asking about the presentation of an ST-elevated myocardial infarction. The patient has presented 1st-degree heart block following his MI and so we can work out that his MI has most likely affected the inferior leads (right coronary arteries also provide blood supply to the AV node). Therefore the question requires you to know that leads II, III and aVF represent the inferior heart and the right coronary artery.

Question:

A 30-year-old lady presents to her GP with a sudden unexplained swelling of her feet, ankles and hands. She also reports a 3 day history of increasing passing urine frequency and says that her urine is appearing foamy. She has had mild breathlessness for 5 years now. Her medical history includes ischaemic heart disease, systemic lupus erythematosus and type 2 diabetes. A pregnancy test is positive and she tells you that she is roughly 8 weeks pregnant. Her blood pressure is 140/80 mmHg, her HbA1c measured 2 months ago was 42mmol/mol (6.0%) and a urine dipstick performed today tests positive for protein. Which one of the following diagnoses is likely to be responsible for this presentation?

A.Pre-eclampsia

B.Urinary tract infection

C.Heart failure

D.Lupus nephritis

E.Diabetic nephropathy

Answer:Lupus nephritis

Explanation:

Systemic lupus erythematosus with proteinuria on urinalysis - consider lupus nephritis

Important for meLess important

All patients with lupus nephritis will have proteinuria on urinalysis making this a good non-invasive marker to monitor patients with. The other symptoms are typical of lupus nephritis and her history of systemic lupus erythematosus should make you consider this.

Pre-eclampsia cannot occur before 20 weeks of pregnancy which rules this out as the diagnosis. If this were to be later on in pregnancy it could be difficult to differentiate between the two conditions. The patient has not had any new worsening of breathlessness or chest symptoms to indicate that this is cardiac related making this less likely than lupus nephritis. A UTI would usually present with dysuria and less commonly with oedema. It would also typically have more infective urine dipstick findings. Diabetic nephropathy is unlikely in this patient based on her diagnosis of type 2 diabetes which seems to be well controlled, and the symptoms which are not typical of diabetic nephropathy.

Question:

A 61-year-old man attends the emergency department with a one-hour history of palpitations and chest pain. His observations are as follows: heart rate 168 beats per minute, respiratory rate 22 per minute, oxygen saturations 98% on air, blood pressure 88/59 mmHg and temperature 37.1ºC. His ECG confirms the above heart rate and shows a regular broad complex tachycardia.

Which of the following would be the most appropriate treatment?

A.DC cardioversion

B.IV adenosine

C.IV magnesium

D.Intravenous (IV) amiodarone

E.Vagal manoeuvres

Answer:DC cardioversion

Explanation:

In the context of a tachyarrhythmia, a systolic BP < 90 mmHg → DC cardioversion

Important for meLess important

The correct answer is 'DC cardioversion'.

This patient has presented with a regular broad complex tachycardia. In the majority of patients, this will be ventricular tachycardia (VT). If a patient with a tachyarrhythmia has adverse features (shock, syncope, myocardial ischaemia or heart failure), they require DC cardioversion to terminate the arrhythmia. This man has a systolic blood pressure < 90 mmHg, which is one of the adverse features, so he should receive DC cardioversion.

IV adenosine is the treatment for regular narrow complex tachycardias such as supraventricular tachycardia (SVT) if vagal manoeuvres fail.

IV magnesium would be the treatment for a polymorphic VT such as torsade de pointes.

IV amiodarone is the correct treatment for regular broad complex tachycardias such as VT if adverse features are not present. Patients are given a loading dose of 300mg over 10-20 minutes, followed by an infusion of 900mg over the next 24 hours.

Vagal manoeuvres would be the initial management for narrow complex tachycardia such as SVT.

Question:

A 67-year-old patient with poorly controlled type 2 diabetes mellitus presents to the emergency department reporting sudden onset visual disturbance, present for the past 3-hours.

He reports dark spots obscuring his vision in his left eye, with a red hue to his vision.

Based on the above information, what is the most likely diagnosis?

A.Central retinal artery occlusion (CRAO)

B.Optic neuritis

C.Retinal detachment

D.Vitreous detachment

E.Vitreous haemorrhage

Answer:Vitreous haemorrhage

Explanation:

Vitreous haemorrhage is an important differential for sudden visual loss in diabetics

Important for meLess important

Despite all of the options being potential causes of visual disturbance, vitreous haemorrhage most appropriately fits the presentation described, particularly as it is the only condition listed which could result in a red hue to the vision. Vitreous haemorrhage occurs as a result of bleeding into the vitreous humour, most often from unstable retinal neo-vasculature. Therefore, any condition which risks the formation of retinal neo-vasculature is a risk factor for vitreous haemorrhage, including diabetic retinopathy and hypertensive retinopathy. Other risk factors include anti-coagulant use and trauma. Vitreous haemorrhage presents with dark spots obscuring vision/ complete loss of vision if the bleed is large enough. The bleed can also cause a red hue and potentially loss of red reflex if large enough. Dilated fundoscopy will visualise the haemorrhage and a slit lamp can be used to identify red blood cells located within the anterior chamber. This condition will resolve with time.

CRAO can be caused by atherosclerosis, and therefore is also linked to diabetes and can result in sudden onset unilateral loss of vision in the absence of pain. However, this would not explain the red hue to vision. Examination of a patient with CRAO may reveal a relative afferent pupillary defect (RAPD) and fundoscopy may show a pale retina with a cherry-red dot at the macula.

Optic neuritis refers to the pathology of the optic nerve, most commonly caused by multiple sclerosis. However, it can also be linked to diabetes and syphilis. It presents with unilateral loss of vision occurring over hours-days, with pain on eye movements. This condition can give rise to red desaturation, meaning that the colour red appears less vibrant. Much like CRAO, the examination can reveal an RAPD on swinging light test. It is treated with steroids.

Retinal detachment could explain the sudden onset visual loss. However, like many of the other options, it could not explain the red hue. It tends to present as a dense shadow, starting at the periphery of vision and progressing centrally. It may also cause the sensation that straight lines appear curved.

Vitreous detachment tends not to result in visual loss, but rather visual disturbance with flashes in peripheries and floaters/ cobwebs across the vision. Again, it is painless, but would not explain the red hue on vision.

Question:

A 73-year-old man who is a chronic alcoholic is brought to the Emergency Department by an ambulance. He was found collapsed in the street. On admission his airway, breathing and circulation are satisfactory. His GCS is 13/15 (eyes = 3, verbal = 4, movement = 6) although his level of consciousness appears to be fluctuating. There are no obvious signs of external head injury.

A CT head (without contrast) is performed:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Subarachnoid haemorrhage

B.Wernicke's encephalopathy

C.Subdural haematoma

D.Meningioma

E.Extradural haematoma

Answer:Subdural haematoma

Explanation:

CT scan demonstrates a right sided chronic subdural haemorrhage resulting in midline shift.

Question:

A mother brings her 9-month-old child to surgery. She is concerned he is not developing normally and is 'falling behind' the children of her friends. Whilst observing the child you notice he sits without support but makes little effort to move around the room. He has a crude pincer grip, appears shy when you try to interact and says 'mama' but little else. What is the most accurate description of his development?

A.Normal development

B.Isolated delay in gross motor skills

C.Global developmental delay

D.Isolated delay in fine motor skills

E.Isolated delay in speech

Answer:Normal development

Explanation:

The milestones described are normal for a 9-month-old

Question:

A 55-year-old gentleman is 1 week post right hemicolectomy for colorectal cancer. He complains of intermittent shortness of breath and his arterial blood gas shows the following;

Normal range

pH: 7.25 (7.35 - 7.45)

pO2: 11.1 (10 - 14)kPa

pCO2: 3.2 (4.5 - 6.0)kPa

HCO3: 11 (22 - 26)mmol/l

BE: -15 (-2 to +2)mmol/l

Na+ 110mmol/l

K+ 3mmol/l

Chloride 100mEq/L

Based on this information provided, what is the anion gap?

A.2

B.0.2

C.-1

D.+1

E.0

Answer:2

Explanation:

In calculating the anion gap the formula below is often used;

([Na+] + [K+]) - ([Cl] + [HCO3]) 113 - 111 = 2

The anion gap is used to classify metabolic acidosis into either;

Raised anion gap seen in e.g. diabetic ketoacidosis or,

Normal anion gap seen in patients with diarrhoea due to gastrointestinal bicarbonate loss.

Question:

A 28-year-old male athlete with no known medical illness collapses suddenly on the field in the middle of a football game. Despite immediate cardiopulmonary resuscitation (CPR), he is pronounced dead at the hospital.

Post-mortem examination reveals a hypertrophic inter-ventricular septum and left ventricular wall. There are no signs of trauma on the chest.

Which of the following statement is true regarding the most likely diagnosis in this scenario?

A.Patients should restrict their daily activities and refrain from exercising completely

B.Female patients experience exercise-induced ventricular arrhythmia more than their male counterparts

C.Sudden cardiac death is mainly caused by ventricular arrhythmia

D.Sudden cardiac death will only happen when a patient is exercising (i.e. never at rest)

E.There is no place for pharmacological and surgical treatment in the management of the condition

Answer:Sudden cardiac death is mainly caused by ventricular arrhythmia

Explanation:

Hypertrophic obstructive cardiomyopathy - is associated with sudden death in young athletes due to ventricular arrhythmia

Important for meLess important

Hypertrophic cardiomyopathy (HCM) can be classified as obstructive or non-obstructive.

Sudden cardiac death (SCD) in hypertrophic obstructive cardiomyopathy (HOCM) is caused mainly by ventricular arrhythmias that can be effectively treated by implantable cardioverter defibrillator (ICD) therapy.

The class III antiarrhythmic amiodarone has been used to prevent sustained ventricular arrhythmias and SCD in HCM patients with non-sustained ventricular tachycardia (NSVT).

Sudden cardiac death can happen when patients with HCM are exercising as well as at rest.

Some moderate-intensity and many low-intensity recreational activities were generally considered to be safe when performed in moderation, including biking, doubles tennis, swimming laps, golf, and skating, and should be considered on a case-by-case basis\*.

\*A.Pelliccia, M.S.Link. Athletes: Overview of Sudden Cardiac Death Risk and Sport Participation. UpToDate. Last updated: Apr 05, 2019.

Question:

A 64-year-old man presents with a 'rash' on his legs which has developed over the past few days:

© Image used on license from DermNet NZ

He complains of feeling generally 'run-down' but review of systems is unremarkable. What is the most likely underlying cause?

A.Vasculitis

B.Erythema multiforme

C.Necrotising fasciitis

D.Kaposi sarcoma

E.Venous eczema

Answer:Vasculitis

Explanation:

Kaposi sarcoma may cause similar skin changes to the larger lesions but would not typically cause petechiae.

Vasculitis is commonly limited to the skin and may be caused by infections, drugs, autoimmune disorders and malignancy.

Question:

A 45-year-old lady presents to your GP clinic with a history of depression. She admits to being a victim of domestic abuse from her husband after you notice a few bruises on her arms. You have assessed her as having capacity. She has no children and is adamant that she doesn't want her husband or the police involved. What is the best action to take?

A.Ask her husband to make an appointment with you to discuss the matter

B.Explore why she doesn't want to involve the police, but call them anyway as it is in her best interest

C.Explore why she doesn't want to involve the police or her husband, but respect her decision

D.Call the psychiatric team to assess her capacity, as they are more experienced then you

E.Advise her to be more careful at home

Answer:Explore why she doesn't want to involve the police or her husband, but respect her decision

Explanation:

Seeing as this patient has been deemed to have capacity then her decision must ultimately be respected. This is the case even though the decision not to disclose may put them at a potential risk. You should do your best to provide patients with information and support for these decision i.e support groups. If there was somebody else at home who would also be at risk (esp. children) then you should contact the relevant authorities immediately.

http://www.gmc-uk.org/guidance/ethicalguidance/confidentiality5152disclosurestoprotectpatient.asp

Question:

A 56-year-old man presents to the GP complaining of muscle weakness and constipation over the last three weeks. Over the same period, he reveals he has been increasingly tired and thirsty. His past medical history includes a previous STEMI and stage 1 chronic kidney disease (CKD). The GP decides to run some blood tests, shown below:

Examination reveals global muscle weakness.

Calcium 3.1 mmol/L (2.1-2.6)

Phosphate 0.6 mmol/L (0.8-1.4)

ALP 174 u/L (30 - 100)

Na+ 140 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Multiple myeloma

B.Paget's disease of bone

C.Primary hyperparathyroidism

D.Sarcoidosis

E.Secondary 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. The patient in the vignette has symptomatic hypercalcaemia (muscle weakness, constipation and polydipsia). The blood tests show a raised calcium, reduced phosphate level, and a raised ALP, all characteristic of primary hyperparathyroidism.

Multiple myeloma is incorrect. Despite this patient in the vignette presenting with hypercalcaemia, other signs of myeloma, such as bone pain, anaemia, and renal impairment, are absent. Furthermore, in cases of myeloma, there is rarely a raised ALP.

Paget's disease of bone is incorrect here. The patient in the vignette has symptomatic hypercalcaemia, whereas Paget's disease is often asymptomatic or presents with bone pain or complications of osteoblastic overactivity. Furthermore, whilst Paget's disease typically has a raised ALP, calcium levels are generally normal.

Sarcoidosis is incorrect. The patient in the vignette has symptomatic hypercalcaemia. However, in sarcoidosis, the patient commonly presents with features of granulomatous lung disease such as cough or dyspnoea. Furthermore, whilst hypercalcaemia is a feature of sarcoidosis, a raised ALP is not.

Secondary hyperparathyroidism is incorrect. Secondary hyperparathyroidism occurs due to hypocalcaemia, commonly due to chronic kidney disease (CKD). Whilst this patient has a history of CKD, secondary hyperparathyroidism is associated with a low calcium level and no changes to ALP levels.

Question:

You are working in general practice, a 53-year-old female presents with 2 months of per-vaginal (PV) bleeding. She passed through the menopause at 49-years-old, her body mass index (BMI) is 34kg/m² and she drinks 18-units of alcohol a week. She has only had one sexual partner her whole life. She has no pain during sex or post-coital bleeding. Which diagnosis is most likely?

A.Vaginal atrophy

B.Cervical cancer

C.Chlamydia trachomatis infection

D.Ovarian cancer

E.Endometrial hyperplasia

Answer:Endometrial hyperplasia

Explanation:

Endometrial hyperplasia may present with intermenstrual bleeding, post-menopausal bleeding, menorrhagia or irregular bleeding

Important for meLess important

Endometrial hyperplasia may present with intermenstrual bleeding, post-menopausal bleeding, menorrhagia or irregular bleeding. In this presentation she has presented with post-menopausal bleeding, she also is overweight which is a risk factor for this development.

Typically vaginal atrophy will present in a post-menopausal patient with pain during sex and dryness, they may also have some postcoital bleeding. Cervical cancer is a less likely diagnosis in this presentation given that she has only had one sexual partner, this can present with intermenstrual and postcoital bleeding. Chlamydia trachomatis infection is also unlikely and will typically present with discharge and urethritis symptoms. Ovarian cancer has an ominous presentation with abdominal bloating, change in bowels or urinary symptoms, rarely post-menopausal bleeding.

Question:

A 64-year-old man presents to the Emergency Department with sudden onset of central tearing chest pain of 10/10 intensity. It radiates through to the back. He has no shortness of breath and has not lost consciousness. He has not experienced pain like this before.

His only past medical history is hypertension for which he takes ramipril. He smokes 20 cigarettes/day and drinks a pint of beer every day.

His heart rate is 110/minute, respiratory rate is 22/minute. There are no findings on examination.

Investigations are undertaken and demonstrate that the problem is of Stanford B type; there is no evidence of end-organ ischaemia.

Which of the following is the appropriate definitive management option?

A.Close monitoring alone

B.Beta blockade and analgesia alone

C.Endovascular intervention

D.Open replacement

E.Cardiac bypass grafting

Answer:Beta blockade and analgesia alone

Explanation:

An uncomplicated dissection of descending aorta may be managed medically

Important for meLess important

This man presents with a classic history of aortic dissection. Stanford B means that the site of the dissection is the descending aorta. Management of uncomplicated (meaning without end-organ involvement) Stanford B dissections is medical as there is no evidence that surgical interventions offer superior outcomes. Appropriate first line medical management is IV beta blockade and analgesia. If blood pressure and heart rate remain raised then vasodilators may be considered. These patients should be admitted to a high-dependency unit or higher. Please also note that all patients with aortic dissection should receive beta blockade and analgesia even if surgery is planned.

Endovascular or open interventions are first line in Stanford A dissections or Stanford B where there is evidence of end-organ ischaemia. Further, if medical management of uncomplicated Stanford B fails then surgery would be a good option.

Question:

A 72 year-old woman presents to the GP with a large itchy, sore white plaque on her vulva. Upon examination, a diagnosis of lichen sclerosus is made. What is the first line management plan?

A.Topical tacrolimus

B.Topical clobetasol propionate

C.Symptom management with topical imiquimod cream

D.Surgical excision with access to reconstruction

E.Symptom management with analgesia

Answer:Topical clobetasol propionate

Explanation:

Lichen sclerosis is a dermatological condition that affects the vulva. The first line treatment is a strong topical steroid thus the answer is topical clobetasol propionate. In around 4-10% of women with lichen sclerosus, the disease will be resistant to steroids and in this case topical tacrolimus is the next line of treatment however this is only initiated in specialist clinics. Surgical excision with access to reconstruction is the first line treatment in vulval intraepithelial neoplasia but is not appropriate in treatment of lichen sclerosus. Topical imiquimod cream, a treatment for genital warts, has been described as inducing florid lichen sclerosus and as such is not a correct answer. Analgesia would not be sufficient treatment in this patient.

Guidelines: https://www.rcog.org.uk/globalassets/documents/guidelines/gtg58.pdf

Question:

You are asked to review Mr Jones' hypertension. He is a 66-year-old Caucasian and is currently taking ramipril, amlodipine and indapamide.

His clinic blood pressure reading is 153/88mmHg and he states that this is consistent with readings that he has been taking at home daily for the last 14 days.

Blood results from two weeks previously:

Na+ 139/L (135 - 145)

K+ 4.7/L (3.5 - 5.0)

Bicarbonate 23/L (22 - 29)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 67 µmol/L (55 - 120)

What is the most appropriate next step in managing Mr Jones' hypertension?

A.Add carvedilol

B.Add furosemide

C.Add spironolactone

D.Replace indapamide with candesartan

E.Replace indapamide with spironolactone

Answer:Add carvedilol

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

This is a case of poorly controlled hypertension which has reached step 4 of the NICE guidance for hypertension management.

Adding carvedilol is the most appropriate option as Mr Jones is already taking an ACE inhibitor, calcium channel blocker and thiazide-like diuretic. The next step in his management is to add an alpha or beta blocker as his K+ is greater than 4.5mmol/l.

Furosemide is not used for standard treatment of hypertension therefore is not appropriate in this case.

Low dose spironolactone could be added if his K+ was less than 4.5mmol/l.

Replacing indapamide for candesartan or spironolactone would be inappropriate in this case as his hypertension is poorly controlled on these three drugs and will likely need addition of a fourth drug as per step 4 treatment (detailed in notes below).

Question:

A 29-year-old woman is reviewed by her psychiatrist. She has been on citalopram for 4 years for depression.

The patient reports a significant improvement in her symptoms recently having started a new job and regular participation in cognitive behaviour therapy. As a result, she wishes to stop taking her medications. You advise her that to discontinue her medication she should slowly reduce the dose over a period of time.

When should the patient be advised to start reducing the dose of citalopram?

A.2 weeks following remission of symptoms

B.3 months following remission of symptoms

C.4 weeks following remission of symptoms

D.6 months following remission of symptoms

E.Immediately

Answer:6 months following remission of symptoms

Explanation:

Antidepressants should be continued for at least 6 months after remission of symptoms to decrease risk of relapse

Important for meLess important

Selective serotonin reuptake inhibitors (SSRIs) such as citalopram are considered first-line treatment for depression. If a patient makes a good response to antidepressant therapy they should continue on treatment for at least 6 months after remission before slowly reducing and then discontinuing the medication. This is to prevent the risk of relapse of symptoms.

A significant number of patients experience a relapse of their depressive symptoms following the discontinuation of antidepressants. Discontinuing antidepressants sooner than the recommended 6 months following symptom remission has been associated with an increased risk of relapse and is therefore not advised.

Question:

A 65-year-old woman presents to her GP following an ambulatory blood pressure monitoring that shows an average reading of 140/83 mmHg. She has a past medical history of well-controlled type 2 diabetes for which she takes metformin hydrochloride.

Which one of the following is the most appropriate management plan for this patient?

A.Bisoprolol

B.Indapamide

C.Ramipril

D.Amlodipine

E.Lifestyle advice only

Answer:Ramipril

Explanation:

Newly diagnosed patient with hypertension who has a background of type 2 diabetes mellitus - add an ACE inhibitor or an angiotensin receptor blocker regardless of age

Important for meLess important

Patients with a background of type 2 diabetes that receive a diagnosis of hypertension should be started on an ACE inhibitor (or angiotensin receptor blocker) regardless of age. Ramipril, an ACE inhibitor is, therefore, the correct answer.

If this patient did not have a background of type 2 diabetes the most appropriate initial management would be to prescribe a calcium channel blocker (e.g. amlodipine) due to her being over 55 years old.

If this patient's blood pressure remains elevated then the next step would to be consider the addition of a calcium channel blocker or a thiazide-like diuretic alongside the ACE inhibitor.

If blood pressure remains elevated following this then consider using the ACE inhibitor, calcium channel blocker, and thiazide-like diuretic in combination.

Indapamide is a thiazide-like diuretic that can be given either alongside an ACE inhibitor or as an additional therapy in combination with an ACE inhibitor and calcium channel blocker if BP is poorly controlled.

Bisoprolol is a beta-blocker that can be considered if blood pressure remains elevated despite the combination of ACE inhibitor, calcium channel blocker, and thiazide-like diuretic.

Question:

A 19-year-old man is referred to the general medical clinic. For the past six months his family have noted increasing behavioural and speech problems. He himself has noticed that he is more clumsy than normal and reports excessive salivation. His older brother died of liver disease. Given the likely underlying condition what is the most appropriate therapy?

A.Vitamin B6 supplements

B.Venesection

C.Ribavirin + interferon alpha

D.Pulsed methylprednisolone

E.Penicillamine

Answer:Penicillamine

Explanation:

Treatment for Wilson's disease is currently penicillamine

Important for meLess important

This man is likely to have Wilson's disease.

Question:

A 34-year-old man who is known to have HIV presents with a non-itchy skin eruption on his lower abdomen. He feels otherwise well and has had no similar 'rashes' previously.

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

What is the most likely diagnosis?

A.Molluscum contagiosum

B.Lichen planus

C.Keratosis pilaris

D.Kaposi sarcoma

E.Seborrhoeic dermatitis

Answer:Molluscum contagiosum

Explanation:

Question:

A 36-year-old woman presents with feeling tired and cold all the time. On examination a firm, non-tender goitre is noted. Blood tests reveal the following:

TSH 34.2 mU/l

Free T4 5.4 pmol/l

What is the most likely diagnosis?

A.Primary atrophic hypothyroidism

B.Pituitary failure

C.De Quervain's thyroiditis

D.Iodine deficiency

E.Hashimoto's thyroiditis

Answer:Hashimoto's thyroiditis

Explanation:

Hashimoto's thyroiditis = hypothyroidism + goitre + anti-TPO

Important for meLess important

The combination of a goitre with hypothyroidism points to a diagnosis of Hashimoto's. De Quervain's thyroiditis typically causes a painful goitre.

Question:

A 7-year-old girl with a history of asthma is brought to her GP by her mother. Her mother reports that her daughter tends to wake up at least once per week with a cough and wheeze. She adds that her child's school has informed her that her daughter has to use her salbutamol inhaler in almost all of her physical education lessons. The GP decides that further pharmacological therapy is indicated in the management of the child's asthma.

What is the most appropriate drug to add to this child’s regular prescription?

A.Budesonide

B.Ipratropium bromide

C.MART regime with beclometasone and formoterol

D.Montelukast

E.Salmeterol

Answer:Budesonide

Explanation:

Child aged 5-16 years with asthma not controlled by a SABA asthma management in children 5-16 - add a paediatric low-dose ICS

Important for meLess important

Budesonide is correct. NICE have established a pharmacological treatment pathway to manage asthma in 5-to-17-year-olds (NG80). Short-acting beta-2 agonist (SABA) reliever therapy alone is usually given first-line, but NICE recommend adding maintenance therapy if:

a) Symptoms are not controlled with SABA therapy alone; and/or

b) The child is experiencing three or more exacerbations per week; and/or

c) Exacerbations are causing nocturnal waking.

This child's symptoms are causing her to wake up at night, and she is likely to be having several exacerbations per week (for example, during physical education lessons at school). Provided that the child's inhaler technique is good - likely administered by her parents or school staff with the aid of a spacer device - further pharmacological therapy is indicated. NICE advise that a low-dose inhaled corticosteroid (ICS) such as beclometasone or budesonide should be used as first-line maintenance therapy, so budesonide is correct.

Ipratropium bromide is incorrect. This may be used during acute asthma exacerbations requiring secondary care input, but does not typically form a part of maintenance therapy for asthma.

MART regime with beclometasone and formoterol is incorrect. 'MART' stands for 'Maintenance and Reliever Therapy'; patients on MART regimes will use the same combination inhaler on a daily basis to prevent symptoms, and also as reliever therapy during acute asthma exacerbations. However, these are usually only instigated as a later treatment option, when other regimes such as ICS therapy, leukotriene receptor antagonists (LRTAs) and long-acting beta-2 agonists (LABAs) have already been tried.

Montelukast is incorrect. This is an LRTA which may be added to a child's maintenance therapy alongside an ICS when paediatric low-dose ICS therapy alone has not provided an adequate treatment response. ICS therapy should be trialled first, so it would be inappropriate to add montelukast at this time.

Salmeterol is incorrect. This is a LABA which may be added to a child's maintenance regime when ICS and LRTA combined maintenance therapy has been proven ineffective. Similarly to montelukast, NICE do not recommend trialling this medication without attempting ICS maintenance therapy first.

It is worth noting that a child may be referred to an asthma specialist in secondary care if LABA maintenance therapy has failed (either as a MART or fixed-dose regimen). In this setting, higher ICS doses or other drugs such as theophylline may be trialled.

Question:

A 13-year-old girl is brought to the emergency department in the middle of the night by her mother who is very concerned about her daughter's dramatic weight loss over the past few months, obsessive daily exercise routine and gradually dwindling appetite. Her GP has referred her to the eating disorders service, and the first appointment is in a weeks' time.

She is alert and stable but extremely underweight. Her observations are normal and examination was unremarkable.

Blood glucose 2.0 mmol/L (4.0 - 6.0)

The patient becomes increasingly agitated that she has missed her evening exercise routine and refuses anything to eat when offered, stating she simply wants to go home.

What is the most appropriate course of action?

A.Administer IV dextrose and discharge the patient afterwards

B.Admit under paediatrics for treatment

C.Discharge the patient home as she has an appointment with the eating disorders service in a weeks' time already

D.Do not allow the patient to leave the emergency department until she agrees to have something to eat

E.Refer to Child and Adolescent Mental Health Services

Answer:Admit under paediatrics for treatment

Explanation:

If a patient lack capacity then the medical team may make decisions for them (taking into account advance statements or LPAs)

Important for meLess important

The correct answer is to admit the patient under paediatrics for treatment. This child is dangerously hypoglycaemic and risks becoming comatose if left untreated. Anorexia nervosa is a remarkably difficult condition to treat and whilst she requires input from the eating disorders service and mental health team, she has a medical problem which needs to be corrected and therefore must be admitted under the paediatric team. As she is only 13 years old, she is not automatically deemed to have capacity to make decisions regarding the management of her condition and from the question stem, it is clear she lacks insight into the dangers of her behaviour, therefore if necessary, she may be treated against her will as it is in her best interest. Remember that Gillick competence is used in medical law to decide whether a child is able to CONSENT to their own medical treatment, but a minor cannot REFUSE treatment that is deemed in their best interest.

This patient has anorexia nervosa and as hinted in the history is unlikely to be cooperative in being administered IV dextrose. Even if successful, dextrose is rapidly metabolised and is only a short-term solution in normalising her blood glucose level. She will likely become dangerously hypoglycaemic again if discharged.

She requires treatment for her hypoglycaemia, therefore discharging her home to await her appointment in 1 weeks' time is not appropriate.

Forcing the child to stay in the emergency department until she agrees to eat is inappropriate and likely to be distressing to the patient. It also does not resolve the underlying problem as when she is discharged she will continue with her behaviour.

This child has already been referred to the eating disorders service which is part of the mental health team, however, the immediate concern is her dangerously low blood sugar level which requires medical treatment.

Question:

A 40-year-old woman undergoes CT chest, abdomen and pelvis to investigate weight loss and night sweats. The report includes a finding of bone metastases.

What is the most likely primary cancer in this patient?

A.Breast

B.Colon

C.Lung

D.Lymphoma

E.Renal

Answer:Breast

Explanation:

Woman with bone metastases- most likely to originate in the breast

Important for meLess important

In women, bone metastases are most likely to originate from the breast. In men, bone metastases are most likely to originate from the prostate.

After prostate and breast cancer, bone metastases are next most likely to originate from the lung

Lymphoma, colon and renal cancers can spread to the bone although this is more infrequent.

Question:

A 67-year-old woman went to see her GP because she was experiencing a headache that started 1 week ago and was different to her usual headaches. She also mentions getting pain in her jaw when eating food, which has also been affecting her for the past week. The GP suspects that she has giant cell arteritis and commences her on high-dose prednisolone and refers her to ambulatory emergency care for specialist assessment. She is concerned about taking these high-dose steroids as she has heard it can affect her bone health.

What is the most appropriate action to take with this patient?

A.Arrange a bone density scan

B.Reassure the patient

C.Start vitamin D and calcium supplements

D.Start alendronic acid, vitamin D and calcium supplements

E.Use NSAID treatment instead of steroids

Answer:Start alendronic acid, vitamin D and calcium supplements

Explanation:

Bone protection for patients who are going to take long-term steroids should start immediately

Important for meLess important

This patient has likely giant cell arteritis and therefore requires immediate treatment with high dose prednisolone. As she will require long-term steroid treatment for giant cell arteritis and is over the age of 65 years old, she requires immediate bone protection with a bisphosphonate such as alendronic acid.

If the patient was under 65 years old, then a bone density scan would be required to determine her need for bone protection medication.

Reassurance alone would not be appropriate in this case as the patient's age puts her at risk of steroid-induced osteoporosis from long-term steroid use.

It would be important to also start vitamin D and calcium supplements in this patient. However it is more important that this patient is also started on bone protection given their high risk of steroid-induced osteoporosis.

NSAIDs are not an appropriate treatment for giant cell arteritis and so should not be used instead of steroids.

Question:

A 64-year-old woman with a background of rheumatoid arthritis now presents with a high-stepping gait and an inability to dorsiflex her left foot. The foot is not painful.

On examination she is systemically well. There is reduced tone in the left foot but no pain on passive movement of the joint. There is no pain on straight leg raise and hip abduction is normal. Plantars are downgoing. There is some sensory loss over the dorsum of the left foot and the lateral left lower leg.

What is the most likely pathology?

A.Anterior cerebral artery infarct

B.L5 radiculopathy

C.Common peroneal nerve palsy

D.Septic arthritis

E.Charcot-Marie-Tooth syndrome

Answer:Common peroneal nerve palsy

Explanation:

'Foot drop' - ?common peroneal nerve lesion

Important for meLess important

Common peroneal nerve palsy is the most likely pathology here. This is due to the presence of lower motor neuron features along with a known risk factor (rheumatoid arthritis). Sensory loss in the distribution supplied by the common peroneal nerve also supports this.

Although anterior cerebral artery infarcts may present with foot drop, and acute UMN lesions can present with reduced tone (increased tone develops over hours), isolated infarcts in the anterior cerebral artery territory are particularly rare.

The absence of pain on straight leg raise makes L5 radiculopathy less likely. Hip abductors are also likely to be weak (L5, superior gluteal nerve).

Septic arthritis is unlikely as the patient is systemically well and there is no pain on passive movement of the joint.

Charcot-Marie-Tooth syndrome is a relatively rare familial peripheral neuropathy with symptoms often beginning in childhood. Symptoms are more likely bilateral and associated with pain, prominent sensory loss, and skeletal deformities such as pes cavus.

Question:

A 75-year-old male has been scheduled to undergo a coronary angiography for investigation of his ongoing, exertional chest discomfort.

The patient has a past medical history of diabetes, hypertension and increased body mass index of 27kg/m2 (weight 78kg, height 170cm). He is currently taking aspirin, metformin and amlodipine.

What step should be taken for the 48 hours post-procedure?

A.Give large volume intravenous fluid resuscitation (e.g. 10mL/kg/hr for 12hr pre-contrast)

B.Give N-acetylcysteine

C.Hold aspirin

D.Hold metformin

E.Monitor renal function only and if no deterioration no further action is required

Answer:Hold metformin

Explanation:

Patients who are high-risk for contrast-induced nephropathy should have metformin withheld for a minimum of 48 hours and until the renal function has been shown to be normal

Important for meLess important

Coronary angiography/percutaneous coronary intervention (PCI) can result in contrast-induced nephropathy, with around 5% of patients developing a significant rise in plasma creatinine. The patient is at high risk for contrast-induced nephropathy given he is above the age of 70 years. As such he should have his metformin held for a minimum of 48 hours for renal function to be demonstrated normal. This is due to the risk of lactic acidosis associated with metformin in renal impairment.

Preventive measures such as giving isotonic sodium bicarbonate or N-acetylcysteine have been used in the past to reduce the risk of contrast-induced nephropathy but there is no evidence to support their use.

Aspirin is normally continued to reduce the risk of thrombotic complication despite the small risk of bleeding in PCI. Only in very rare cases would aspirin have to be stopped - for instance, if there was continuous, uncontrolled bleeding or complications from an aneurysm.

Renal function should be monitored for a minimum of 48 hours; however, metformin should also be stopped to reduce the risk of lactic acidosis.

It is a misconception that large volumes of IV fluids should be used for pre-hydration prior to giving contrast. This is an incorrect management strategy and potentially dangerous for patients. Evidence currently supports the use of IV 0.9% sodium chloride but only at a maintenance rate of 1 mL/kg/hour for 12 hours pre and post-procedure. Larger volume resuscitation at 10ml/kg/hr in the absence of haemodynamic instability or dehydration can easily result in fluid overload and the associated complications.

Question:

A 64-year-old woman presents to the GP with worsening hearing loss. The GP performs Weber's test and Rinne's test.

Weber's test Sound heard loudest in the left ear

Rinne's test right ear Air sound greater than bone

Rinne's test left ear Bone sound greater than air

Given the examination findings, what is the most likely cause of this woman's presentation?

A.Exostosis affecting both ears

B.Exostosis affecting the left ear

C.Exostosis affecting the right ear

D.Acoustic neuroma of the right ear

E.Acoustic neuroma of the left ear

Answer:Exostosis affecting the left ear

Explanation:

This question is asking about a woman presenting with hearing loss. Weber's test and Rinne's test can both be used to help differentiate the causes of hearing loss.

In Weber's test, a vibrating tuning fork is placed in the centre of the head. The sound then travels to both ears. If the sound is her loudest in one ear, in this case the left, it can indicate either a conductive hearing loss of the left ear or a sensorineural loss of the right ear.

In Rinne's test, the tuning fork is placed next to each ear in turn. The fork is struck causing it to vibrate, placed on the skull near the ear, and then placed next to the ear. If when placed on the bone it is louder, it indicates a conductive hearing loss.

In this case, the results test indicate that there is a conductive hearing loss in the left ear. Now we have differentiated the type of hearing loss and the ear affected we can cut down the answers. Exostosis is caused by repeated exposure to cold water and wind which causes a benign bony growth in the external auditory canal, this is a form of conductive hearing loss. Acoustic neuromas are tumours of the vestibulocochlear nerve that are a form of sensorineural hearing loss. Therefore the correct answer is exostosis affecting the left ear a this is a conductive hearing loss of the left ear.

Question:

A 38-year-old woman presents with fever, malaise and jaundice. On examination she has moderate hepatomegaly. Laboratory analysis confirms a positive anti-smooth muscle antibody and anti-nuclear antibody. Antimitochondrial antibodies are negative.

What is the most likely diagnosis?

A.Budd-Chiari syndrome

B.Primary biliary cirrhosis

C.Systemic lupus erythematosus

D.Autoimmune hepatitis

E.Viral hepatitis

Answer:Autoimmune hepatitis

Explanation:

Autoimmune hepatitis occurs most frequently in women and has associations with many other autoimmune diseases. It is often associated with the presence of anti-nuclear and/or anti-smooth muscle antibodies.

Negative antimitochondrial antibodies make the diagnosis of primary biliary cirrhosis less likely.

Question:

A 60-year-old cancer survivor presents to the GP with back pain that started after a game of golf last week. The pain is worse when he is lying flat on his back at night; paracetamol has had minimal benefit. He does not experience any bowel or bladder symptoms.

On examination, the back pain is felt most around the thoracic region, but there is no neurologic deficit elicited.

What is the best recommendation for this patient?

A.Perform a digital rectal exam (DRE)

B.Prescribe NSAIDs

C.Refer patient for physiotherapy

D.Refer urgently to hospital for further investigation

E.Request spine X-ray

Answer:Refer urgently to hospital for further investigation

Explanation:

Back pain with previous history of cancer is a red flag

Important for meLess important

Even though the mechanism of the back pain appears to be a simple musculoskeletal injury sustained during a game of golf, it is always important to further investigate a patient suffering from back pain with a previous history of cancer. In this case, he has a total of 3 red flags warranting further urgent workup in the hospital setting, which are his previous cancer history, thoracic back pain and worsening pain when lying supine (suspicious of direct pressure on growth or tumour). The concern with back pain in cancer/ex-cancer patients is spinal metastases that may cause cord compromise.

It is not necessary to perform a DRE because the patient did not exhibit any symptoms suggesting cauda equina syndrome or cord compromise. DRE is important to assess for reduced anal tone and saddle anaesthesia that would suggest cauda equina; cauda equina typically causes sciatic-like lower back and leg pain.

Whilst prescribing stronger analgesia such as NSAIDs is likely to improve the symptoms of the patient, the priority in management here is to rule out any sinister cause of the back pain.

Physiotherapy will be helpful in the management of MSK back pain but it is more important in this case to first rule out possible metastases to his spine due to cancer recurrence.

An X-ray of the spine is insensitive to small lytic lesions and struggle to assess for compromise of the canal. A spine X-ray is considered if there is recent significant trauma or suspicion for osteoporotic vertebral collapse. For suspicion of metastases, an MRI or CT will be preferred.

Question:

A 72-year-old woman is admitted to the acute medical unit due to several days of watery diarrhoea. She is clinically dehydrated and febrile.

Blood and stool cultures return negative. However Clostridium difficile is detected in stool and toxin is also present.

What medication may have increased her risk of developing this condition?

A.Bendroflumethiazide

B.Furosemide

C.Omeprazole

D.Peptac

E.Prednisolone

Answer:Omeprazole

Explanation:

Omeprazole can increase your risk of severe diarrhoea (Clostridium difficile infections)

Important for meLess important

Proton pump inhibitors (PPIs) such as omeprazole and lansoprazole are recognised to increase a person’s risk of C. difficile diarrhoea. This risk increases further alongside other risk factors such as broad-spectrum antibiotic therapy. It is also recommended to stop PPIs once an episode is diagnosed, as this can reduce the risk of recurrence.

Bendroflumethiazide can cause diarrhoea as an adverse effect alongside electrolyte disturbances such as hypokalaemia. It does not specifically increase the risk of C. difficile but obviously should be withheld where there are concerns about volume depletion.

Furosemide is incorrect. This is a loop diuretic used in the management of fluid overload. Its main side effects include electrolyte imbalances and postural hypotension. It does not specifically increase the risk of C. difficile.

Peptac is incorrect. This forms a protective layer over the stomach acid, preventing reflux. However, unlike PPIs, it does not reduce gastric acid production and therefore does not increase the risk of C. difficile.

Prednisolone is incorrect. Although long-term corticosteroid therapy increases the risk of many infections, this has not been shown to be the case for C. difficile.

Question:

A 55-year-old lady presents to the emergency department with problems with her vision. She describes a red hue of her vision along with some dark spots in her right eye. The doctor refers her to eye casualty where they suspect a vitreous haemorrhage.

Which of the following may lead to an increased risk of this condition developing?

A.Previous history of conjunctivitis

B.Use of steroid eye drops

C.Being farsighted

D.Hypothyroidism

E.Use of warfarin

Answer:Use of warfarin

Explanation:

Vitreous haemorrhage is predisposed by blood thinning agents

Important for meLess important

This question is asking about a 55-year-old lady presenting with red-tinged vision along with dark spots. These are typical features of a vitreous haemorrhage. The question is asking about the risk factors for this condition and thus the correct answer is the use of warfarin.

Risk factors for vitreous haemorrhage include:

Diabetes

Trauma

Anticoagulants

Coagulation disorders

Severe short sightedness

Question:

Nora is a 19-year-old woman who comes to see you as she is struggling with her breathing. She has a past medical history of asthma since she was a young child and takes regular steroid inhalers.

On examination, Nora appears breathless but can complete her sentences in one breath. Her heart rate is 108 beats per minute and her respiratory rate is 24 breaths per minute. You take a peak expiratory flow rate (PEFR) which is 40% of her predicted PEFR. She has a widespread wheeze on auscultation of her chest.

Her symptoms have been worsening rapidly over the past 2 hours.

From your history and examination, which one of the following features indicates that Nora has severe acute asthma?

A.Symptoms worsening rapidly

B.Widespread bilateral wheeze

C.Respiratory rate ≥ 20 breaths per minute

D.PEFR 33 - 50% best or predicted

E.Heart rate ≥ 100 beats per minute

Answer:PEFR 33 - 50% best or predicted

Explanation:

Severe asthma PEFR 33 - 50% best or predicted

Important for meLess important

As per the British Thoracic Society (BTS) guidelines, features of severe acute asthma are any one of:

PEF 33–50% best or predicted

Respiratory rate ≥25/min

Heart rate ≥110/min

Inability to complete sentences in one breath

Increasing symptoms may indicate moderate acute asthma if there are no features of acute severe asthma.

A widespread bilateral wheeze does not indicate the severity of asthma. However, a silent chest would indicate life-threatening asthma.

Likewise a respiratory rate ≥ 20 breaths per minute or heart rate ≥ 100 beats per minute does not indicate the severity of asthma - the respiratory rate needs to be above or equal to 25 breaths per minute or the heart rate above or equal to 110 beats per minute to classify as acute severe asthma.

Therefore, the only remaining correct answer is PEFR 33 - 50% best or predicted.

Question:

A 35-year-old male presents to the Emergency Department with a 12 hour history of abdominal pain. The pain is on his right side and he feels it shooting from the side of his abdomen down into his groin. Urine dipstick is positive for blood and leucocytes. He asks for pain relief. What would be the most appropriate analgesic given the likely diagnosis?

A.Morphine

B.Diclofenac

C.Ibuprofen

D.Codeine

E.Paracetamol

Answer:Diclofenac

Explanation:

Guidelines continue to recommend the use of IM diclofenac in the acute management of renal colic

Important for meLess important

This is a classic presentation of renal colic, with loin to groin pain and the urine dipstick findings. For rapid relief if pain is severe, intramuscular diclofenac 75 mg is most effective. For less severe pain the rectal or oral route can be used. Remember to check for contraindications to NSAIDs such as asthma or a history of gastric/duodenal ulcers.

The NICE Clinical Knowledge Summary for the acute management of renal colic is an excellent resource for further reading: http://cks.nice.org.uk/renal-or-ureteric-colic-acute#!scenario

Question:

A 67-year-old man who is a retired builder presents following the development of a number of red, scaly lesions on his forehead. These were initially small and flat but are now erythematous and rough to touch.

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What is the most likely diagnosis?

A.Pityriasis versicolor

B.Seborrhoeic keratosis

C.Polymorphous light eruption

D.Actinic keratoses

E.Malignant melanoma

Answer:Actinic keratoses

Explanation:

Question:

You are examining a patient who complains of double vision. Whilst looking forward the patient's right eye turns downwards and outwards. On attempting to look to the patient's left the patient is unable to adduct the right eye and double vision worsens. On looking right the angle of the squint is less. What is the most likely underlying problem?

A.Left 3rd nerve palsy

B.Left 6th nerve palsy

C.Right 3rd nerve palsy

D.Right 4th nerve palsy

E.Right 6th nerve palsy

Answer:Right 3rd nerve palsy

Explanation:

Question:

A 58-year-old woman presents to her GP due to heavy bleeding from the vagina. Her last menstrual period was when she was 50 and she has had no vaginal bleeding since.

She has a history of chronic obstructive pulmonary disease and gastro-oesophageal reflux disease. She takes a tiotropium/olodaterol inhaler and lansoprazole. She took the combined oral contraceptive pill for 25 years but did not use hormone replacement therapy. She has never been pregnant. She has a 40 pack-year smoking history.

Given the possible diagnosis, what would be her most significant risk factor?

A.Chronic obstructive pulmonary disease

B.Late menopause

C.Nulliparity

D.Smoking

E.Use of the combined oral contraceptive pill

Answer:Nulliparity

Explanation:

Endometrial cancer - risk factors include: nulliparity

Important for meLess important

Post-menopausal bleeding is a red flag for endometrial cancer. Nulliparity is a risk factor for endometrial cancer. This is because during pregnancy, the balance of hormones shifts towards progesterone, which is a protective factor.

Chronic obstructive pulmonary disease is not known to be associated with an increased risk of endometrial cancer. Medical conditions that are risk factors for endometrial cancer include type 2 diabetes mellitus and polycystic ovary syndrome.

Late menopause is a risk factor for endometrial cancer, but this patient went through menopause around the age of 50 which is slightly earlier than average rather than later.

Smoking is a protective factor for endometrial cancer. It is however a risk factor for cervical, vulval, breast and many other cancers.

The use of the combined oral contraceptive pill is protective against endometrial cancer. It does, however, increase the risk of breast and cervical cancer.

Question:

A 64-year-old woman presents with a one-week history of breathlessness to the acute medical unit. A chest x-ray and pleural aspiration are performed.

Chest x-ray moderate right-sided pleural effusion

Pleural fluid/serum protein ratio 0.7

Effusion LDH/serum LDH ratio 0.8

Cytological analysis of pleural aspirate ++ lymphocytes

What is the most likely underlying diagnosis?

A.Heart failure

B.Hypothyroidism

C.Meig's syndrome

D.Pulmonary infarction

E.Pulmonary malignancy

Answer:Pulmonary malignancy

Explanation:

If a pleural effusion fluid protein/serum protein ratio is >0.5, the effusion is an exudate

Important for meLess important

Pulmonary malignancy is the correct answer. As the pleural effusion fluid protein/serum ratio is 0.7 this is most likely an exudative effusion, which narrows down the options to pulmonary malignancy and pulmonary infarction. The presence of lymphocytes on cytological analysis of this patient's pleural aspirate is a sign of malignancy. Lymphocyte-predominant effusions are usually due to a chronic pleural process such as malignancy or tuberculosis. Neutrophil-predominant pleural effusions in contrast are usually due to an acute response. Malignancy is the second commonest cause of exudative pleural effusion, so is an important one to remember.

Heart failure is incorrect. If this patient's pleural effusion was secondary to heart failure it would be a transudative effusion and the associated pleural effusion aspirate would have a fluid protein/serum protein ratio of <0.5.

Hypothyroidism is incorrect as it would also present as a transudative pleural effusion.

Meig's syndrome is incorrect as it is a transudative pleural effusion that occurs with an ovarian fibroma and ascites.

Pulmonary infarction is incorrect. It is a cause of exudative pleural effusion however it would not typically cause an increased presence of lymphocytes on cytological analysis. If this patient had a pulmonary infarction there would be pleural fluid analysis findings including a haemorrhagic gross appearance and mesothelial cells.

Question:

A 19-year-old female comes to see her GP complaining of a persistent sore throat. This has lasted for 3 days now and has become progressively worse. Her appetite is reduced, she is drinking less and she complains of a persistent, non-productive cough and sweating. On examination, her chest is clear, her temperature is 36.7ºC, her throat is red but not swollen and she has mildly swollen but non tender cervical lymph nodes.

Which of the following is the most appropriate next step?

A.Prescribe a course of phenoxymethylpenicillin

B.Prescribe a course of amoxicillin

C.Advise bed rest and simple analgesia

D.Take a throat swab and send for cultures

E.Prescribe her a salbutamol inhaler for her cough

Answer:Advise bed rest and simple analgesia

Explanation:

Given the list of symptoms this patient describes one could confidently state that she may be suffering from a bacterial or viral throat infection such as tonsillitis, a chest infection or an upper respiratory tract infection (URTI). Examination findings allow us to eliminate the possibility of a chest infection due to a clear chest, which leaves an URTI and tonsillitis as an option.

The guidelines are quite clear cut that you should use the Centor criteria to assess the likelihood of a bacterial infection in adults complaining of a sore throat. Given that this patient has no history of fever, no tonsillar exudates, no tender anterior cervical adenopathy and she has a cough, she scores zero points. This precludes the use of antibiotics ruling out two answers. NICE guidelines do not routinely recommend taking throat swabs for sore throats ruling out another answer leaving a salbutamol prescription and bed rest as the remaining options.

There would be no need to prescribe her salbutamol as even if she has an URTI, this would have little long term effect on her illness, therefore in this case telling the patient to rest and take regular simple analgesia such as paracetamol and ibuprofen would be advised.

Question:

You are observing an antenatal clinic and your next patient is a 24-year-old woman who is 20 weeks pregnant with her first child. You take a brief history of this patient.

The patient has a past medical history of coeliac disease and hypothyroidism. She takes no regular medications and has no known drug allergies. Her family history is relevant for her father has type 1 diabetes. She has never smoked and since pregnancy, has stopped drinking alcohol.

Given this patient's history, what, if any, further tests should be organised?

A.No further tests required

B.Oral glucose tolerance test at 18-22 weeks

C.Oral glucose tolerance test at 24-28 weeks

D.Thyroid function tests at 18-22 weeks

E.Thyroid function tests at 24-28 weeks

Answer:Oral glucose tolerance test at 24-28 weeks

Explanation:

Pregnant women who have a first degree relative with diabetes should be screened for gestational diabetes with an oral glucose tolerance test (OGTT) at 24-28 weeks

Important for meLess important

Oral glucose tolerance test (OGTT) at 24-28 weeks is correct. This patient has a first-degree relative with diabetes. Therefore, she is at increased risk of gestational diabetes. As a result of this, it is important to screen this patient for gestational diabetes. This is done via an OGTT at 24-28 weeks.

No further tests required is incorrect. This patient has a first-degree relative with diabetes and as previously mentioned is at risk of gestational diabetes. Therefore, further testing is required to identify and consequently treat gestational diabetes.

OGTT at 18-22 weeks is incorrect. As mentioned above, this patient will need to have an OGTT to screen for gestational diabetes. However, this is done at 24-28 weeks, not 18-22 weeks.

Thyroid function tests (TFTs) at 18-22 weeks and TFTs at 24-28 weeks are both incorrect. This patient has an existing diagnosis of hypothyroidism and so will need TFT tests in each trimester. However, there are no specific recommended time frames for these to be done, making these options incorrect.

Question:

A 40-year-old man presents to their emergency department with sudden unilateral left eye pain and nausea. The patient said they were sitting at home watching tv when the eye pain came on suddenly.

The patient reports reduced vision in the affected eye. The left pupil is dilated on examination and unreactive to light.

There is no significant past medical history. The patient mentions he wears glasses to read.

Tonometry is carried out.

What other investigation is required to confirm the diagnosis?

A.B-scan ultrasound

B.Gonioscopy

C.Ishihara plates

D.Snellen chart

E.Visual Fields

Answer:Gonioscopy

Explanation:

Both tonometry and gonioscopy should be performed in patients with suspected acute angle-closure glaucoma

Important for meLess important

Gonioscopy is correct. This patient has acute angle-closure glaucoma, a condition involving a sudden rise in intraocular pressure. The patient has some risk factors for the condition including hypermetropia indicated by needing glasses to help with reading. The sudden onset of unilateral ocular pain supports the acute diagnosis. The examination findings of a reduction of vision and an unreactive dilated pupil are typical findings of acute angle glaucoma. Gonioscopy involves using a special lens on the slit lamp which allows visualisation of the anterior chamber angle. This can highlight any blockages that may have resulted in this increasing rise in pressure. Alongside tonometry, measuring the intra-ocular pressure will confirm the diagnosis of acute angle-closure glaucoma.

B-scan ultrasound is incorrect. The sudden onset of ocular pain indicates this patient has acute angle closure glaucoma. B-scan ultrasound is used to visualise the patient’s retina and is carried out when retinal detachment is suspected. This patient requires a gonioscopy to confirm the diagnosis.

Ishihara plates is incorrect. This is used to assess if the patient is colour-blind. This would not help diagnose acute angle-closure glaucoma which in this scenario is what this patient has.

Snellen chart is incorrect. This is used to assess visual acuity. Although this could be useful to assess the visual deficit in this patient, it is not a specific investigation so would not help confirm the diagnosis of acute angle-closure glaucoma.

Visual fields is incorrect. A visual field assessment is used to assess the patient's peripheral vision and is useful in acute conditions such as retinal detachment. However, for this patient, the sudden onset of ocular pain and the pupillary dilatation indicate acute angle-closure glaucoma. Understanding this patient's visual field defect will not confirm this diagnosis as tonometry (measuring intraocular pressure) and a gonioscopy (measuring anterior chamber visualisation) are required.

Question:

David is a 65-year-old Caucasian man who has had hypertension for 2 years. He is not diabetic and there is no other significant medical history. He is currently taking amlodipine at the maximum recommended dose of 10mg.

At his medication review at his GP surgery his blood pressure remains elevated - it is 158/95mmHg on average over a number of readings.

What medication is the most appropriate next step?

A.Bisoprolol

B.Doxazosin

C.Verapamil

D.Losartan

E.Spironolactone

Answer:Losartan

Explanation:

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

Important for meLess important

Losartan is an angiotensin II receptor antagonist. The patient in the scenario is on a calcium channel blocker (amlodipine) and the recommended next step according to NICE guidelines is to add either an ACE inhibitor or an angiotensin II receptor antagonist. As the options do not include an ACE inhibitor, losartan is the correct answer.

Bisoprolol is a beta-blocker. They are included in step 4 of NICE guidelines if diuretic therapy is contraindicated or ineffective, therefore are not the correct next step for this patient.

Doxazosin is an alpha-blocker and is part of step 4, alongside beta-blockers, therefore not the correct option.

Spironolactone is a potassium-sparing diuretic and is included in step 4 of the NICE hypertension guidelines, therefore it is not the most appropriate option.

Question:

Jason a 14-year-old boy with Down's syndrome who presents to the GP with tiredness. Which of the following conditions is associated with Down's syndrome?

A.Type-2-diabetes

B.ADHD

C.Hyperthyroidism

D.Male breast cancer

E.Hypothyroidism

Answer:Hypothyroidism

Explanation:

Down syndrome is associated with hypothyroidism

Important for meLess important

Patients with Down's syndrome are at an increased risk of both hyper and hypothyroidism. However, the risk of hypothyroidism is much greater

Patients with Down's syndrome are at increased risk of type-1-diabetes and not type-2

ADHD is not associated with Down's syndrome but is associated with fragile X

Male breast cancer is not associated with Down's syndrome, however, has been shown to be linked to Klinefelter's syndrome

Question:

A 64-year-old male presents to the emergency department with ongoing crushing left-sided chest pain radiating to the jaw which started four hours ago. He has a past medical history of atrial fibrillation, which is managed with rate control and warfarin. You perform an electrocardiogram and serum troponin which confirm an inferior non-ST-elevation myocardial infarction (NSTEMI). Percutaneous coronary intervention (PCI) is performed two days after presentation.

In addition to aspirin what other medication should be given to this patient?

A.Clopidogrel

B.Digoxin

C.Furosemide

D.Prasugrel

E.Ticagrelor

Answer:Clopidogrel

Explanation:

NSTEMI (managed with PCI) antiplatelet choice:

if the patient is not taking an oral anticoagulant: prasugrel or ticagrelor

if taking an oral anticoagulant: clopidogrel

Important for meLess important

This patient is presenting with NSTEMI, which was managed with PCI. In patients without aspirin sensitivity, dual-antiplatelet therapy is recommended post-acute coronary syndrome (ACS) for up to 12 months. Medication options to achieve this alongside aspirin are prasugrel, ticagrelor or clopidogrel. However, as this patient is warfarinised (due to their comorbid AF), clopidogrel is the best medication of choice.

Digoxin is incorrect, this is an anti-arrhythmic that may occasionally be used for rate control of AF. It is not indicated in this patient.

Furosemide is a loop diuretic commonly used in the management of heart failure with associated fluid overload. As this patient is not showing signs of impaired ventricular function and is not oedematous, furosemide is not indicated.

Prasugrel is incorrect as the patient is currently taking warfarin.

Ticagrelor is incorrect as the patient is currently taking warfarin.

Question:

A 13-year-old patient presents to the emergency department with a sudden worsening of shortness of breath. This is associated with no other symptoms. They have known sickle cell anaemia and their blood results are as follows:

Hb 85 g/L Male: (135 - 180)

Female: (115 - 160)

Platelets 170 \* 109/L (150 - 400)

WBC 8.7 \* 109/L (4.0 - 11.0)

MCV 87 fl (76 - 95 fl)

Reticulocytes 4.0 % (0.5 - 1.5)

Blood results from 3 months ago showed:

Hb 115 g/L Male: (135 - 180)

Female: (115 - 160)

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

WBC 5.7 \* 109/L (4.0 - 11.0)

MCV 89 fl (76 - 95 fl)

Reticulocytes 1.0 % (0.5 - 1.5)

What is the most likely diagnosis?

A.Aplastic crisis

B.Haematinic deficiency

C.Haemolytic crises

D.Iron deficiency

E.Sequestration crisis

Answer:Sequestration crisis

Explanation:

Aplastic crisis has reduced reticulocytes, whereas sequestration crisis has increased reticulocytes

Important for meLess important

This patient presents with symptomatic worsening of anaemia, on the background of sickle cell disease. Blood tests are only remarkable different for lowered haemoglobin and increased reticulocytes. The increase in reticulocytes represents an increase in the production of blood, which is most often due to some form of blood loss.

A sequestration crisis is when blood pools in organs due to sickling occurring, and this can cause worsening of anaemia due to loss of blood in the vasculature, as well as an increase in reticulocytes as the body tries to compensate for the loss in blood. There is no occlusion of any vessels, and therefore this is different from a vaso-occlusive crisis. Therefore, due to the blood results, this is the most likely diagnosis in this patient.

An aplastic crisis is when there is bone marrow suppression due to parvovirus infection. There would be a rise in white blood cells, as well as a decrease in reticulocytes as red blood cell production is lessened. Therefore, since this doesn't match with the laboratory picture, it is not the correct answer.

A deficiency of haematinics (B12 and folate) would cause macrocytic anaemia. The mean corpuscular volume (MCV) is normal in this patient and therefore this is not the correct answer.

A haemolytic crisis is a comparably rare sickle cell crisis, which would likely present with pain and jaundice, neither of which this patient has.

A deficiency of iron would cause microcytic anaemia. The MCV is normal in this patient and therefore this is not the correct answer.

Question:

A 19-year-old man presents as he is concerned he may be asthmatic. Which one of the following points in the history would make this diagnosis less likely?

A.Smoking since age of 16 years

B.Peripheral tingling during episodes of dyspnoea

C.Peripheral blood eosinophilia

D.Chest tightness whilst exercising

E.History of eczema

Answer:Peripheral tingling during episodes of dyspnoea

Explanation:

The British Thoracic Society suggest peripheral tingling is one of the factors which makes a diagnosis of asthma less likely. His smoking history does not preclude a diagnosis of asthma.

Clinical clue Possible diagnosis

Predominant cough without lung

function abnormalities Chronic cough syndromes; pertussis

Prominent dizziness, light-headedness, peripheral tingling Dysfunctional breathing

Recurrent severe asthma attacks without objective confirmatory evidence Vocal cord dysfunction

Predominant nasal symptoms without lung function abnormalities Rhinitis

Postural and food-related symptoms, predominant cough Gastro-oesophageal reflux

Orthopnoea, paroxysmal nocturnal dyspnoea, peripheral oedema, preexisting cardiac disease Cardiac failure

Crackles on auscultation Pulmonary fibrosis

Significant smoking history (ie, >30 pack-years), age of onset >35 years COPD

Chronic productive cough in the absence of wheeze or breathlessness Bronchiectasis; inhaled foreign body; obliterative bronchioitis; large airway stenosis

New onset in smoker, systemic symptoms, weight loss, haemoptysis Lung cancer; sarcoidosis

Question:

A 3-year-old child is brought to the emergency department with severe breathing difficulties. They were diagnosed with croup and given oral dexamethasone by the GP earlier in the day. On examination, their oxygen saturations are 89% on room air and there is significant intercostal recession.

Which of the following emergency treatments should be given to this child?

A.Oxygen + nebulised saline

B.Oxygen + nebulised adrenaline

C.Oxygen + nebulised salbutamol

D.Oxygen + IM benzylpenicillin

E.Oxygen + nebulised steroids

Answer:Oxygen + nebulised adrenaline

Explanation:

Question:

Charlie is a 7 month old baby boy who presents to you with poor weight gain (50th to 10th centile), on examination he has an erythematous, blanching rash over his abdomen, colicky abdominal pain and vomiting after feeds. He has been breast feeding with top ups of 'Aptamil' formula. What is the most likely diagnosis?

A.Pyloric stenosis

B.Eczema

C.Infantile colic

D.Cows' milk protein intolerance

E.Reflux

Answer:Cows' milk protein intolerance

Explanation:

The correct answer is cows' milk protein intolerance.

The following clues in the history would suggest the diagnosis of cows' milk protein intolerance:

Multi-system involvement

7 months would suggest the new introduction of top up feeds which correlates with the symptoms

Faltering growth along with the multi-system involvement would suggest cows' milk protein intolerance

Charlie is older than the classical age of presentation for pyloric stenosis (2 to 8 weeks very rare above 6 months)

The presentation is unusual for eczema, infantile colic and reflux due to the multi-system involvement in the history making cows' milk protein intolerance more likely.

References

Cows' milk protein allergy in children - NICE CKS http://cks.nice.org.uk/cows-milk-protein-allergy-in-children#!diagnosissub/-617759

Infantile Hypertrophic Pyloric Stenosis - Patient.co.uk - http://patient.info/doctor/infantile-hypertrophic-pyloric-stenosis

Question:

You are working as a junior doctor on a surgical ward when you are asked to clerk in a 60-year-old woman who has been admitted with cholecystitis. Emergency surgery to remove her gallbladder has been scheduled for the following morning. The patient is first on the list.

The patient has a background of type 2 diabetes mellitus for which she takes metformin 1g twice daily. A recent HbA1c has come back very elevated at 95 mmol/mol but the patient has not yet seen her GP to discuss this. Admission bloods show normal renal function.

The ward nurse asks how this patient's diabetes mellitus should be managed in the perioperative period.

Which is likely the most appropriate management?

A.A variable rate insulin infusion should be started

B.No changes are required to the patients diabetes regimen

C.The patient should be started on a long-term insulin regime

D.The patient should omit metformin from the evening before the operation

E.The surgery should be postponed until the patient's diabetes mellitus is better controlled

Answer:A variable rate insulin infusion should be started

Explanation:

Surgery / diabetes: patients on insulin who are either undergoing major procedures (surgery requiring a long fasting period of more than one missed meal) or whose diabetes is poorly controlled, will usually require a variable rate intravenous insulin infusion (VRIII)

Important for meLess important

The patient is on oral antidiabetic treatment and is due to miss only one meal. Many patients in this setting may be managed by manipulation of medication on the day of the surgery. However, the recent HbA1c shows very poorly controlled type 2 diabetes mellitus. In this case, therefore, variable rate intravenous insulin infusion is likely to be required, although hospital guidelines should be checked and the patient should be discussed with the surgical and anaesthetic team as appropriate.

The decision to omit metformin in the peri-operative period depends on the risk of acute kidney injury. If the patient has a low risk of acute kidney injury and is only due to miss one meal, they can continue their metformin, although they should omit the lunchtime dose if they take it three times a day. If there is a higher risk of acute kidney injury or the patient is due to miss more than one meal, they should omit metformin from the time they start fasting. It would therefore not be necessary for this patient to stop her metformin the night before her operation.

Poorly controlled diabetes peri-operatively is associated with increased risk of complications such as wound and respiratory infections and post-operative kidney injury. It is therefore inappropriate to leave the patient on her usual regimen without starting a variable rate intravenous insulin infusion. Although the patient may require long-term insulin at a later date, it would be inappropriate to start this prior to surgery when the patient is fasting. In this instance, a variable rate infusion is the safer option. It would be up to the patient's community team to assess how her longterm treatment should be escalated once the patient is medically stable.

The patient has been listed for emergency surgery and is likely to become more unwell if this surgery does not go ahead. It would therefore likely be appropriate to try to manage her diabetes mellitus peri-operatively rather than postponing the operation. If the surgery was elective, it would be more appropriate to wait until the diabetes mellitus was better managed.

Question:

A 25-year-old woman presents to the GP with a 1-year history of lethargy, tiredness, and joint pain. During this time, she has also had some easy bruising, as well as prolonged bleeding from her gums when brushing her teeth. She is generally fit and well, although admits her appetite has been poor recently, and her diet consists nearly entirely of white rice because of this. She does not smoke and drinks 12 units of alcohol weekly.

An abdominal examination is unremarkable, there are bruises on her arms and calves, and her gums are slowly bleeding.

What is the most likely cause of her presentation?

A.Acute lymphoblastic leukaemia

B.Ehlers-Danlos syndrome

C.Haemophilia A

D.Haemophilia B

E.Vitamin C deficiency

Answer:Vitamin C deficiency

Explanation:

Easy bruising can be due to a poor diet deficient in vitamin C

Important for meLess important

Vitamin C deficiency is correct. As the presence of easy bruising, prolonged gum bleeding, lethargy, tiredness, anorexia, and joint pain on a background of poor diet point towards a nutritional deficiency, more specifically a vitamin C deficiency, as easy bruising and bleeding gums are characteristic symptoms.

Acute lymphoblastic leukaemia is incorrect. Although this can present with fatigue and easy bruising, this is more commonly seen in young children aged 2-5 years old and would have additional features such as hepatomegaly and constitutional symptoms including unexplained weight loss. These features are not seen here.

Ehlers-Danlos syndrome (EDS) is incorrect. Although this can present with easy bruising and arthralgia, patients with EDS tend to have a history of recurrent joint dislocation and joint hypermobility on examination, which are not seen here. As well as this, patients often have fragile and stretchy skin. The presence of her symptoms on a background of poor diet makes vitamin C deficiency more likely.

Haemophilia A and Haemophilia B are incorrect as they are congenital deficiencies in clotting factors VIII and IX respectively. It is unlikely for this patient to have had no symptoms until now, as easy bruising and bleeding present earlier in childhood. Children often present with haemarthrosis (bleeding into joints), which is not seen here as this patient has no past medical history.

Question:

A 78-year-old man presents with a hot, red, swollen leg.

On examination, the left leg is tender and hot to touch, with evidence of a recent superficial laceration he sustained whilst gardening.

His blood tests show raised inflammatory markers and a negative D-dimer.

He is treated for cellulitis with clarithromycin due to being penicillin-allergic.

Which of his regular medications should be concurrently suspended?

A.Amitriptyline

B.Aspirin

C.Clopidogrel

D.Simvastatin

E.Tramadol

Answer:Simvastatin

Explanation:

Statins + erythromycin/clarithromycin - an important and common interaction

Important for meLess important

Simvastatin is correct. According to the BNF, clarithromycin increases systemic exposure to simvastatin, leading to an increased risk of myopathy.

Amitriptyline is incorrect. The BNF does not list any interactions between clarithromycin and amitriptyline. Important interactions include other serotonergic medications, carrying a risk of serotonin syndrome.

Aspirin is incorrect. The BNF does not list any interactions between clarithromycin and aspirin. Important interactions include anticoagulants and steroids.

Clopidogrel is incorrect. The BNF does not list any interactions between clarithromycin and clopidogrel. Important interactions include proton-pump inhibitors, particularly omeprazole, as this decreases the effectiveness of clopidogrel.

Tramadol is incorrect. The BNF does not list any interactions between clarithromycin and tramadol. Important interactions would include other opioid medications.

Question:

A 69-year-old man is investigated for anaemia by his GP. The anaemia was detected as part of routine full blood count for monitoring his chronic lymphocytic leukaemia which is not currently receiving any treatment for.

This discovery prompts the GP to send off further blood tests:

Direct Coombs' test Positive

Reticulocytes 3.2% (0.5%-2.5%)

Na+ 138 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 7 mmol/L (2.0 - 7.0)

Creatinine 118 µmol/L (55 - 120)

Bilirubin 20 µmol/L (3 - 17)

ALP 60 u/L (30 - 100)

ALT 31 u/L (3 - 40)

γGT 54 u/L (8 - 60)

LDH 350 uL (140-280)

Albumin 48 g/L (35 - 50)

What is the most likely diagnosis?

A.Aplastic crisis

B.Cold autoimmune haemolytic anaemia

C.Myelofibrosis

D.Paroxysmal nocturnal haemoglobinuria

E.Warm autoimmune haemolytic anaemia

Answer:Warm autoimmune haemolytic anaemia

Explanation:

CLL is associated with warm autoimmune haemolytic anaemia

Important for meLess important

We can narrow down the potential options by looking at the type of anaemia present - whether it is due to increased destruction or reduced production. High reticulocytes show there is increased production of red blood cells, to the extent that more of the immature cells are pushed out of the marrow before reaching full maturation. This is further suggested by the high lactate dehydrogenase, which can be a surrogate of increased cell turnover.

This means that we can exclude causes due to decreased production - aplastic crisis and myelofibrosis.

In paroxysmal nocturnal haemoglobinuria, the destruction of the red blood cells is mediated by complement. As this process doesn't involve antibodies the Coombs' test is negative.

This narrows it down to 2 options which if you hadn't learnt the answer would give you a 50/50 guess. Chronic lymphocytic leukaemia is associated with warm autoimmune haemolytic anaemia. The antibody involved is usually IgG.

Cold autoimmune haemolytic anaemia is associated with lymphoma and certain infections, such as Mycoplasma and Epstein–Barr virus.

Question:

A diabetic man is diagnosed as having painful diabetic neuropathy in his feet. He has no other medical history of note. What is the most suitable first-line treatment to relieve his pain?

A.Duloxetine

B.Sodium valproate

C.Carbamazepine

D.Referral to pain management clinic

E.Tramadol

Answer:Duloxetine

Explanation:

Question:

A 45-year-old woman attends the GP with increasing lethargy. She also states that she has gained 2kg over the past month despite not changing her diet. Three months ago, she underwent an emergency hip arthroplasty following a fractured neck of the femur from a road traffic accident.

These are the results of her most recent blood tests:

Thyroid stimulating hormone (TSH) 8 mU/L (0.5-5.5)

Free thyroxine (T4) 11 pmol/L (9.0 - 18)

Pre-operative blood tests taken 3 months ago showed:

Thyroid stimulating hormone (TSH) 6 mU/L (0.5-5.5)

Free thyroxine (T4) 13 pmol/L (9.0 - 18)

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

A.6-month trial of carbimazole

B.6-month trial of thyroxine

C.Iodine replacement

D.Observe and repeat thyroid function in 6 months

E.Radioactive iodine therapy

Answer:6-month trial of thyroxine

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

6-month trial of thyroxine is the correct answer. The patient in the vignette is 45 years old and presents with clinical and biochemical evidence of subclinical hypothyroidism (elevated TSH level and normal free thyroxine level). Repeat thyroid function tests have shown an increase in TSH levels after 3 months. Given that this patient is less than 65 years old and is symptomatic, it would be appropriate to trial a 6-month course of thyroxine because of the risk of progression to overt hypothyroidism.

Treatment is unnecessary if patients are initially found to have subclinical hypothyroidism, are asymptomatic, and are less than 65 years old. They are often observed with a repeat TFT at 3 months. There will be a return of normal thyroid function in 10-15% of patients. If repeat TFTs taken at 3 months, like in this case, show a further rise in TSH level, then it would be appropriate to treat the patient if they are less than 65 years old or become symptomatic.

6-month trial of carbimazole is incorrect. This treatment is recommended in patients with hyperthyroidism. Subclinical hyperthyroidism would show depressed TSH levels with normal free thyroxine levels. Usually, patients with subclinical hyperthyroidism will have TSH levels revert to normal after 3 months. However, if levels are persistently low, then it would be appropriate to treat patients with a 6-month trial of carbimazole to prevent complications like atrial fibrillation and osteoporosis.

Iodine replacement is incorrect. Although iodine deficiency is an important cause of hypothyroidism, particularly in developing countries, patients typically present with overt hypothyroidism instead of subclinical hypothyroidism, as seen in this case. This is because iodine is essential for thyroid hormone synthesis.

Observe and repeat thyroid function in 6 months is incorrect. This would be appropriate if the patient were over 65, presenting with no changes to TSH levels and is asymptomatic. As this patient is 45 and symptomatic, it would be appropriate to treat her because of the risk of progression to overt hypothyroidism.

Radioactive iodine therapy is incorrect. Radioactive iodine involves administering a single dose of iodine and may be considered for certain patients with hyperthyroidism. Although radioactive iodine can result in hypothyroidism, there is no mention of this in this patient's history. This patient also has subclinical hypothyroidism; therefore, radioactive iodine therapy would not be appropriate.

Question:

A 23-year-old woman attends a gynaecology clinic with ongoing pain during sexual intercourse. She has previously complained of this and her symptoms have not resolved with NSAIDs or progesterone-only hormonal treatments. She has a past medical history of migraine with aura. On questioning, the pain occurs with deep penetration and is worse during the end of her menstrual cycle, before her period. She also suffers from dysmenorrhoea. On pelvic examination, there is tender nodularity at the posterior vaginal fornix.

What is the most appropriate next step in management given the likely diagnosis?

A.Combined oral contraceptive pill

B.GnRH analogues

C.IM ceftriaxone and PO doxycycline

D.Intra-uterine device

E.NSAIDs and codeine

Answer:GnRH analogues

Explanation:

GnRH analogues may be used in endometriosis if NSAIDs/COCP have not controlled symptoms

Important for meLess important

GnRH analogues are the correct answer. This woman has endometriosis, supported by the symptoms of deep dyspareunia and dysmenorrhoea with tender nodularity on examination in the posterior vaginal fornix. Endometriosis is typically worse for women during the luteal phase of the menstrual cycle as it is caused by ectopic endometrial tissue proliferating in response to rising oestrogen levels. The first-line treatment is paracetamol and NSAIDs, which can help resolve pelvic pain. This has not been helpful in the management of her endometriosis. Since the combined oral contraceptive is contraindicated in this woman due to her migraine with aura and progesterone-only hormonal treatment has been unsuccessful, the next step is a GnRH analogue. These act to induce a menopause state, so the woman must be warned that she will experience the symptoms of menopause as a side effect. These are only started by specialists after careful consideration of the side effect profile.

Combined oral contraceptive pill (COCP) is incorrect. This treatment can be trialled if paracetamol and NSAIDs are unsuccessful at controlling pain; however, this woman has a past medical history of migraine with aura, meaning the COCP is contraindicated. This explains why previously this woman has trialled NSAIDs and progesterone-only hormonal treatments (likely intra-uterine system), rather than the combined oral contraceptive pill.

IM ceftriaxone and PO doxycycline is incorrect. Whilst pelvic inflammatory disease (PID) can present as deep dyspareunia; the examination would show cervical motion tenderness instead of posterior fornix tender nodularity. Furthermore, you would expect the woman to be unwell, and there would be no cycle to her symptoms as hormones do not influence PID.

Intra-uterine device (IUD) is incorrect. This is not recommended as a treatment for endometriosis. The IUD has no hormonal component so will not aid in symptom management for this woman. Furthermore, the IUD can cause increased bleeding and worsening pelvic pain. Therefore, it is not a management step for endometriosis.

NSAIDs and codeine is incorrect. NSAIDs are the only pain relief that is advisable in the management of endometriosis which is the likely diagnosis in this patient. If they cannot suitably treat her endometriosis, hormonal methods should be explored.

Question:

A 44-year-old lady with Addison's disease is found unconscious in the middle of the street. She is brought into the emergency department where a set of observation are there that show her to be hypotensive with a low-grade fever. A basic blood panel is sent off, all of which are normal except for the urea and electrolytes shown below:

Na+ 130 mmol/l

K+ 5.4 mmol/l

Urea 9 mmol/l

Creatinine 80 µmol/l

Which of the following is the most appropriate immediate therapy?

A.IV hydrocortisone

B.IV fludrocortisone

C.IV hydrocortisone and IV fludrocortisone

D.Start the sepsis 6

E.Insulin sliding scale

Answer:IV hydrocortisone

Explanation:

No fludrocortisone is required in Addisonian crisis

Important for meLess important

This question is asking about the acute management of a suspected Addisonian crisis. The diagnosis of an Addisonian crisis is confirmed by the urea and electrolyte levels. They show a slightly reduced sodium and a potassium level on the higher end of the reference range. Both of these are typical of an Addisonian crisis. The most appropriate first-line therapy is giving IV hydrocortisone.

While patients with Addison's disease are required to take both hydrocortisone and fludrocortisone in the long-term management of the disease, only hydrocortisone is used in the acute setting.

Starting the sepsis 6 would be incorrect, while an infection is a common precipitant of an Addisonian crisis, at this stage, you have no indication that this is the case, and therefore giving antibiotics would be wrong.

An insulin sliding scale would not be appropriate for the treatment of an Addisonian crisis, it is instead used for diabetic ketoacidosis.

Question:

A 25-year-old female presents to the GP complaining of a yellow tinge to her skin and eyes. On examination, she is jaundiced but has no other features of note. She is sexually active but does not smoke, drink or use illicit drugs. The GP orders bloods which show:

Bilirubin 100 µmol/L (3 - 17)

ALP 110 u/L (30 - 100)

ALT 232 u/L (3 - 40)

γGT 100 u/L (8 - 60)

Albumin 25 g/L (35 - 50)

Antinuclear antibody +ve

Anti-smooth muscle antibody +ve

Anti-mitochondrial antibody -ve

IgA 5 mg/dL (<10)

IgM 7 mg/dL (<10)

IgG 350 mg/dL (<200)

What is the most likely diagnosis?

A.Acute cholecystitis

B.Autoimmune hepatitis

C.Primary biliary cholangitis

D.Viral hepatitis

E.Crigler-Najjar syndrome type 1

Answer:Autoimmune hepatitis

Explanation:

Antinuclear antibodies, anti-smooth muscle antibodies and raised IgG levels are characteristic of autoimmune hepatitis

Important for meLess important

The presentation of painless jaundice combined with positive anti-nuclear antibodies, positive anti-smooth muscle antibodies (ASMA) and raised IgG in a young female makes the diagnosis of autoimmune hepatitis the most likely.

Acute cholecystitis would typically present with right upper quadrant pain that may radiate to the right shoulder with signs of systemic upset including fever. Liver function tests are typically normal.

Primary biliary cholangitis typically occurs in middle-aged females and presents with itching and cholestatic jaundice. Approximately 10% have associated right upper quadrant pain. Anti-mitochondrial antibodies are typically positive, IgM is raised and 30% may have a positive ASMA.

Viral hepatitis may present with acute liver failure causing jaundice, a raised prothrombin time and hypoalbuminaemia. It may be associated with a flu-like prodrome, abdominal pain, tender hepatomegaly and jaundice. However, the patient's young age and positive antibody tests make viral hepatitis a less likely diagnosis.

Crigler-Najjar syndrome type 1 is an autosomal recessive inherited cause of jaundice due to an absolute deficiency of UDP-glucuronosyl transferase. Patients typically do not survive to adulthood.

Question:

A 53-year-old man presents to the emergency department with a severe headache; the pain is distributed on the left side, retro-orbitally. He describes a loss in visual acuity of his left eye and says it has been excessively tearing. On inspection of the left eye, the conjunctiva are red and the cornea looks hazy. Pupillary light reflexes on the right are normal; however, the left pupil is non-reactive.

Given the most likely diagnosis, what should the initial management be?

A.Beta-blocker eye drops

B.Direct parasympathomimetic and beta-agonist eye drops

C.Direct parasympathomimetic and beta-blocker eye drops

D.Direct sympathomimetic and beta-blocker eye drops

E.15L/min oxygen through non-rebreathe mask

Answer:Direct parasympathomimetic and beta-blocker eye drops

Explanation:

A combination of eye drops is often used in the initial emergency medical management of acute angle-closure glaucoma

Important for meLess important

The most likely diagnosis in this scenario is acute angle-closure glaucoma. This is evidenced by the presence of an acute, painful, non-reactive and red left eye coupled with the loss of pupillary reaction to light and corneal oedema. This condition results from a narrowing of the iridocorneal angle (the point through which aqueous humour drains); when this angle becomes narrowed, humour builds up in the eye leading to increase intraocular pressure. Increased pressure within the eye leads to optic neuropathy and vision loss.

The management of acute angle-closure glaucoma, in the first instance, involves combination eye drops. Direct parasympathomimetic eyedrops, such as pilocarpine, cause pupillary constriction thus widening the iridocorneal angle and allowing for humour to drain. Beta-blocker eye drops, such as timolol, reduce aqueous humour production. These two actions in combination work to reduce intraocular pressure.

Beta-blocker eye drops alone are not recommended and an additional drug with an additional mechanism of action is beneficial in the management of acute glaucoma.

Beta-agonist medications would increase humour production and exacerbate acute glaucoma. A sympathomimetic agent would cause pupillary dilatation and further narrow the iridocorneal angle, also, exacerbating the condition.

High flow oxygen is used in the management of cluster headaches. The lack of pupillary reactivity, coupled with corneal oedema and visual loss lend less weight to this being the primary diagnosis.

Question:

Which one of the following is most suggestive of Wilson's disease?

A.Reduced hepatic copper concentration

B.Reduced 24hr urinary copper excretion

C.Increased skin pigmentation

D.Reduced serum caeruloplasmin

E.Increased serum copper

Answer:Reduced serum caeruloplasmin

Explanation:

Wilson's disease - serum caeruloplasmin is decreased

Important for meLess important

Question:

A 45-year-old man is brought to the GP by his wife. She reports that he has recently become more confused and that his skin has changed colour. The man reports drinking three bottles of vodka per week for the last decade.

Upon examination, jaundice with scleral icterus, hepatomegaly, ascites, asterixis, and confusion were present. The blood results taken on admission to the hospital are shown. A decision about whether or not to start glucocorticoid therapy was made.

Bilirubin 50 µmol/L (< 21)

ALT 480 IU/L (< 50)

AST 1000 IU/L (10 - 37)

ALP 200 µmol/L (30 - 130)

GGT 100 U/L (5 - 40)

What other test result is required to help make this decision?

A.Activated partial thromboplastin time

B.Albumin

C.Blood pH

D.Prothrombin time

E.Vitamin K level

Answer:Prothrombin time

Explanation:

Maddrey's discriminant function is calculated by a formula based on the prothrombin time and serum bilirubin

Important for meLess important

The correct answer is prothrombin time. This patient has alcohol hepatitis, and a decision needs to be made about whether or not glucocorticoid therapy should be started. To do so, Maddrey’s discriminant function can be used. The calculation requires both the serum bilirubin level (which is already provided) and the prothrombin time.

The other options are incorrect.

The activated partial thromboplastin time is incorrect. Although it is a useful indicator of the liver’s synthetic function, it is not a part of the formula for Maddrey’s discriminant function.

The albumin level is also incorrect, as it is also not used in calculating Maddrey's discriminant function.

Blood pH is also incorrect. Patients with chronic liver disease can present with complex acid-base disturbances, but these do not help in deciding on the use of glucocorticoid therapy.

Vitamin K level is also incorrect. Patients with liver disease, such as cirrhosis, have reduced bile production, leading to reduced absorption of fat-soluble vitamins such as vitamin K. However, the level of vitamin K does not influence the decision to start glucocorticoid therapy.

Question:

A 22-year-old man presents to the GP with a mass on his lower back. On examination, there is a 6cm mobile rubbery mass on his lower back just lateral and superior to the sacrum. The mass is not painful and there are no accompanying symptoms.

Which of the following is the next best step in the management of this patient?

A.Referral to the surgeons for removal of the mass

B.Ultrasound of the mass

C.Review the patient in 6 months to ensure the mass has not grown in size

D.Reassure the patient and do not arrange a review

E.Drain the mass with a 14G needle

Answer:Ultrasound of the mass

Explanation:

Ultrasound is not neccesary in a lipoma diagnosis unless > 5cm

Important for meLess important

This question is asking about the management of a patient presenting with a 6cm, rubbery, mobile mass. Given the age of presentation, the location of lesion and description of the mass it is most likely a lipoma. However, due to the presenting size being greater than 5cm, an ultrasound is required to rule out liposarcoma.

The management of a lipoma involves reassurance and there is no need for review. Lipomas are benign masses made up of fat that alone requires no medical input. They can be removed surgically if they are causing symptoms such as pain or affect nearby structures like nerves.

Question:

A 29-year-old male comes to the outpatient clinic with complaints of worsening pain in his right forefoot for three weeks. He is an athlete and runs every day for two to three hours but never had such a problem in the past. There is no history of direct trauma to the foot. On examination, he is afebrile and has a pulse rate of 88 beats per minute, a blood pressure of 120/80 mmHg, and a respiratory rate of 16 breaths per minute. On right foot examination, there is point tenderness but no swelling. X-ray shows periosteal thickening and the diagnosis of metatarsal stress fracture is given.

Which of the following metatarsal is likely involved?

A.First

B.Second

C.Third

D.Fourth

E.Fifth

Answer:Second

Explanation:

The most common site of metatarsal stress fractures is the 2nd metatarsal shaft

Important for meLess important

Stress fractures are fractures of bones caused by repeated stress over time. This patient has no history of trauma. Metatarsal stress fractures occur in otherwise healthy athletes (e.g. runners).

The most common site of metatarsal stress fractures is in the second metatarsal shaft. Second metatarsal is firmly fixed at the tarsal-metatarsal joint via ligaments resulting in more rigidity and hence more risk of fracture. Diagnosis is mostly based on clinical history and examination as early x-rays of metatarsal stress fractures are often unremarkable.

First metatarsal is the least commonly fractured metatarsal because it is larger than others, and greater force is required to fracture it.

The fifth metatarsal is the most commonly fractured following direct trauma or crush injuries.

Question:

A 75-year-old man finds a painless mass in his neck. He is diagnosed with lymphoma and begins inpatient chemotherapy. 4 days into chemotherapy his blood test results are found to be abnormal, these are shown below.

K+ 6.2 mmol/l

Ca+ 1.7 mmol/l

Phosphate 1.13 mmol/l

Which of the following would also need to be present to confirm a diagnosis of tumour lysis syndrome?

A.Raised serum creatinine

B.Low serum creatinine

C.Normal serum creatinine

D.Hypernatraemia

E.Hyponatraemia

Answer:Raised serum creatinine

Explanation:

To diagnose tumour lysis syndrome, you require either increased serum creatinine, a cardiac arrhythmia or a seizure to have occurred

Important for meLess important

This question is asking about a man with known lymphoma. He starts chemotherapy and then begins to deteriorate. Any deterioration in a patients state within 7 days of starting chemotherapy is indicative of tumour lysis syndrome (TLS) and in this case, this is what the patient was suffering with.

To diagnose tumour lysis syndrome you require both a positive laboratory TLS and positive clinical TLS.

Positive laboratory TLS requires 2 or more of the below within 7 days of chemotherapy or 3 days before:

uric acid > 475umol/l or 25% increase

potassium > 6 mmol/l or 25% increase

phosphate > 1.125mmol/l or 25% increase

calcium < 1.75mmol/l or 25% decrease

Positive clinical TLS requires any one of:

increased serum creatinine (1.5 times upper limit of normal)

cardiac arrhythmia or sudden death

seizure

Question:

A 65-year-old female is admitted for an elective hernia repair. You are conducting her pre-operative workup and enquire about her past medical history. She recalls being informed about damage to her lungs which occurred when she was in her twenties. Unfortunately, she does not remember what this was. She does note, however, that this has never troubled her and she has never experienced any symptoms.

A set of routine bloods are sent and a chest x-ray is performed based on her history.

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Given the likely diagnosis, what further investigation is required in this patient?

A.CT pulmonary angiogram (CTPA)

B.CT thorax, abdomen and pelvis

C.Diagnostic pleural tap

D.No further investigation required

E.PET scan

Answer:No further investigation required

Explanation:

The routine chest x-ray performed is clearly abnormal. You can observe irregular lesions bilaterally which are termed pleural plaques. Pleural plaques typically arise from the parietal pleura, most frequently from the lower portions of the chest, sparing the apices and costophrenic angles. The plaques may be calcified, however, most of these are not (as seen in this x-ray). Pleural plaques are a consequence of asbestos inhalation and develop over 2 to 4 decades from exposure. Pleural plaques themselves are benign and are asymptomatic. No further investigation of these is needed since they do not undergo malignant transformation.

A CT of the thorax, abdomen and pelvis would be conducted if there was suspicion of underlying malignancy in order to identify any primary lesions and potential metastases. However, given that pleural plaques are benign and do not undergo malignant change, a CT scan is not needed to further quantify these. This is particularly emphasised since the patient is asymptomatic.

Following a CT scan, PET scans can be used to further identify primary malignant lesions and potential nodal or other organ involvement. However, for the same reasons as a CT, a PET scan is not needed given the benign nature of pleural plaques.

Diagnostic pleural taps are used when there is evidence of a pleural effusion or other collection within the pleura. This may be utilised if you were suspecting mesothelioma, however, the x-ray in this patient is not suggestive of this. In those with mesothelioma, you would commonly see a reduction in the volume of the affected hemithorax, resulting in an ipsilateral shift of the mediastinum.

A CTPA scan is used to diagnose a pulmonary embolism (PE), and therefore this would not be appropriate in this setting given that the patient is asymptomatic and has no clinical evidence to suggest a PE. Moreover, a chest x-ray in someone with a PE is usually normal and would not account for the lesions seen in this case.

Question:

A 71-year-old male with a background of stage 5 chronic kidney disease presents to hospital with increasing fatigue and breathlessness. He undergoes haemodialysis regularly, 3 times a week.

Lab results are as follows:

Hb 102g/L Male: (135-180)

Female: (115 - 160)

MCV 83 fl (82 - 100)

eGFR 14 ml/min/1.73m (>90)

Ferritin 11 ng/mL (20 - 230)

Transferrin saturation 12% (20 - 50)

Which of the following is the most appropriate initial management option?

A.Erythropoietin stimulating agent

B.Folate supplements

C.IM cyanocobalamin

D.IV iron infusion

E.Venesection

Answer:IV iron infusion

Explanation:

Anaemia in CKD: correct iron deficiency before starting erythropoiesis-stimulating agents

Important for meLess important

Anaemia is a common complication of chronic kidney disease. It can be due to impaired erythropoietin (EPO) production from the kidneys. EPO stimulates erythropoiesis in the bone marrow. Erythropoietin stimulating agents (ESA) could be given if the patient had a normal iron level, but because iron is required to create new red blood cells, the haemoglobin concentration will not increase by much if the patient is iron deficient. Therefore, correcting the iron deficiency before giving an ESA would be more appropriate in this scenario. IV iron infusion is used instead of oral iron as it has better bioavailability and rapid efficacy.

Folate supplements would treat folate deficiency, which causes a macrocytic anaemia. Folate deficiency is commonly caused by malnutrition, inflammatory bowel disease, coeliac disease and can also be caused by medication such as methotrexate.

Cyanocobalamin supplementation would be the treatment for B12 deficiency, but this patient has a normocytic anaemia, so we would not suspect B12 (or folate) deficiency. B12 deficiency is commonly caused by atrophic gastritis, Crohn's disease or malnutrition.

Venesection is incorrect as this is the treatment for iron overload disorders such as haemochromatosis.

Question:

A woman who gave birth 5 days ago presents for review as she is concerned about her mood. She is having difficulty sleeping and feels generally anxious and tearful. Since giving birth she has also found herself snapping at her husband. This is her first pregnancy, she is not breast feeding and there is no history of mental health disorders in the past. What is the most appropriate management?

A.Explanation and reassurance

B.Cognitive behavioural therapy

C.Trial of fluoxetine

D.Trial of citalopram

E.Discuss with psychiatric team to consider admission to mother and baby unit

Answer:Explanation and reassurance

Explanation:

This woman has the baby-blues which is seen in around two-thirds of women. Whilst poor sleeping can be a sign of depression it is to be expected with a new baby!

Question:

A 74-year-old man presents with confusion and is found to have evidence of right lower lobe pneumonia on chest x-ray. On examination the respiratory rate is 36 breaths per minute, pulse rate is 90 per minute and the blood pressure is 106/48 mmHg. Initial bloods show a urea of 12 mmol/l.

His CURB 65 score is:

A.1

B.2

C.3

D.4

E.5

Answer:5

Explanation:

CURB 65 is an evidence based tool used to risk stratify patients presenting with pneumonia. This question assesses your ability to calculate a score quickly.

This patient scores 5: (Confusion = 1, Urea > 7 mmol/L = 1, Respiratory rate > 30 = 1, Diastolic BP < 60 mmHg = 1, Age > 65 = 1).

A score of 5 necessitates admission to hospital for treatment with IV antibiotics and depending on clinical assessment either intermediate or intensive care admission may be warranted.

Question:

A 70-year-old woman presented with difficulty swallowing, chronic cough associated with occasional swellings in the neck. She had a recent admission where she was treated with intravenous antibiotics for aspiration pneumonia. She was reviewed on this occasion by the gastroenterology team who were concerned about her symptoms and feel she is at risk of further aspiration. They decided to perform an urgent barium swallow investigation.

What is the barium swallow most likely to show?

A.Achalasia

B.Barrett's oesophagus

C.Diffuse oesophageal spasm

D.Oesophageal stricture

E.Pharyngeal pouch

Answer:Pharyngeal pouch

Explanation:

Dysphagia, aspiration pneumonia, halitosis → ?pharyngeal pouch

Important for meLess important

Pharyngeal pouch (also known as Zenker's diverticulum) is a small bulge, like a hernia, that occurs in the pharynx. This is most commonly in elderly patients (over 70 years) with symptoms such as dysphagia, regurgitation, chronic cough, aspiration and weight loss. It occurs through a weakness in the muscle layer called the Killian dehiscence. The diagnostic investigation of choice is a barium swallow.

Barrett's oesophagus is a where cells that line your oesophagus change and begin to look like the cells that make up your intestines. This occurs when cells are damaged by prolonged exposure to stomach acid. This often arises after years of experiencing gastroesophageal reflux (GORD). This commonly produces symptoms of heartburn and reflux which are not present in this case. The diagnostic investigation of choice is endoscopy with biopsy to enable histological analysis and not barium swallow.

Diffuse oesophageal spasm is where a patient experiences uncoordinated contractions of the oesophagus, which may result in difficulty swallowing or regurgitation. An endoscopy would typically demonstrate a corkscrew oesophagus.

Achalasia is primarily a neurogenic oesophageal motility disorder with impaired oesophageal peristalsis and a lack of lower oesophageal sphincter relaxation. It can cause symptoms of dysphagia and regurgitation of undigested food. A barium swallow investigation typically shows a 'bird beak' appearance.

An oesophageal stricture is an abnormal tightening or narrowing of the oesophagus making it difficult for food to travel down. This is usually investigated and managed endoscopically and not with barium swallow.

Question:

A 32-year-old man presents to the GP with a painful knee and ankle joint. He describes malaise, fatigue, and fever following his holiday to Thailand 3 weeks ago where he developed profuse diarrhoea. A diagnosis of reactive arthritis is suspected.

What other sign on examination may help point towards the suspected diagnosis?

A.Z-thumb deformity

B.Leukonychia

C.Clubbing

D.Dactylitis

E.Bouchard's nodes

Answer:Dactylitis

Explanation:

Reactive arthritis is a cause of dactylitis

Important for meLess important

This question is about a man presenting with lower limb joint pain following a gastrointestinal infection. This the typical pattern of reactive arthritis. The question is asking for the clinical sign associated with the condition and thus the correct answer is dactylitis which is most commonly caused by spondyloarthropathies such as psoriatic and reactive arthritis.

A Z-thumb deformity is associated with rheumatoid arthritis

Leukonychia is caused by hypoalbuminemia

Clubbing has many different causes including congenital heart defects and many cancers

Bouchard's nodes are associated with osteoarthritis

Question:

A 68-year-old man presents to the GP following a fall from standing.

He did not knock his head or suffer any injuries during the fall. He has not vomited and did not lose consciousness at any point. He did not trip over anything, and explains that he fell quickly after standing, after lying in bed.

He is otherwise well aside from Parkinson's disease, which was only diagnosed two weeks ago. The GP takes some routine observations which are all stable and Glasgow Coma Scale is 15/15. A lying-standing blood pressure is taken, which shows a postural drop of 5mmHg. A urine dip is negative for nitrites and leucocytes.

What is the most appropriate initial action?

A.CT head

B.Assessment of CN III, IV, VI

C.DEXA scan

D.Mid-stream urine sample

E.Chest radiograph

Answer:Assessment of CN III, IV, VI

Explanation:

If falls occur soon after the diagnosis of Parkinson's disease, an alternative diagnosis should be considered, most likely a Parkinsons-plus syndrome such as PSP

Important for meLess important

He did not knock his head during the fall, and there is no indication of reduced consciousness, GCS, or focal neurology that would indicate a CT head.

A DEXA scan is used to diagnose osteoporosis, which would only be indicated if a fracture was detected.

There is no indication of a urinary infection, and the negative nitrites and leucocytes on urine dip mean a midstream urine would not be a useful next investigation.

A chest radiograph would offer little benefit as there are no indications of pulmonary disease.

Patients who present with falls soon after a diagnosis of Parkinson's disease should be investigated for alternative diagnoses. The GP has assessed for postural hypotension, which has been excluded by a minimal postural drop in blood pressure.

Assessment of CN III, IV and VI, those that control the extraocular muscles, would be a routine test to perform in this scenario, while the other options are not indicated. It would also be the best initial investigation for alternative diagnoses. This is because a common sign of progressive supranuclear palsy, the most likely alternative diagnosis (and a 'Parkinson's plus' syndrome), commonly manifests with a vertical supranuclear gaze palsy. Even if the diagnosis is not PSP, assessment of cranial nerves should be performed in anyone who presents with a fall.

Question:

A 70-year-old man has a left hemicolectomy for colon cancer. The pathology report states that the tumour has breached the mucosal wall and involves the muscle surrounding the colon. There is not any lymph node involvement or distant metastasis on the CT abdomen and pelvis scan. What is the Dukes staging for this mans tumour?

A.A

B.B

C.C

D.D

E.X

Answer:B

Explanation:

This patient has a Duke Stage B tumour as the tumour is outside the mucosa and is invading the local tissue. There is not any lymph node involvement which would make this a Duke Stage C. Duke Stage D involves distant metastases. Staging is important as it determines prognosis and further management.

TNM classification is slowly replacing Dukes staging of colorectal tumours although it is still widely used. T1 and T2 is when the tumour is still within the mucosal wall. T3 and T4 the tumour has spread outside the mucosal wall. N0 is when there is no lymph node involvement. N1 involves up to 3 regional lymph nodes. N2 involves 4 or more regional lymph nodes. M determines metastasis and is either M0 or M1.

Duke stage B can be a T3N0M0 or T4N0M0.

Question:

A rise in alkaline phosphatase can be caused by each one of the following except:

A.Pregnancy

B.Paget's disease

C.Healing bone fractures

D.Osteomalacia

E.Hypoparathyroidism

Answer:Hypoparathyroidism

Explanation:

Question:

You are working on a gastroenterology ward. Your next patient is 74-year-old woman who is on long term antibiotics for a liver abscess.

She has developed very loose stools with crampy abdominal pain and has been moved into a side room with barrier nursing. A stool culture shows the Clostridium difficile toxin is present in the stool. She is commenced on a 14 day course of oral metronidazole.

Which of her medications should you consider holding?

A.Oramorph PRN

B.Rivaroxaban

C.Paracetamol

D.Metronidazole

E.Salbutamol

Answer:Oramorph PRN

Explanation:

Opioids should be stopped in C. difficile infections

Important for meLess important

During a Clostridium difficile infection, medications which are anti-motility and anti-peristaltic should be held. Anti-peristaltic drugs such as opioids can predispose to toxic megacolon by slowing the clearance of the Clostridium difficile toxin. If possible, antibiotics should also be held to allow normal intestine flora to be re-established, though the antibiotics used to treat the Clostridium difficile should be continued.

NICE guidance for diarrhoea- antibiotic associated: https://cks.nice.org.uk/diarrhoea-antibiotic-associated#!scenario

Public Health England guidance of the management and treatment of Clostridium difficile (2013): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachmentdata/file/321891/Clostridiumdifficilemanagementandtreatment.pdf

Question:

You are the junior doctor on the labour ward, and are called by a midwife to a delivery in which the baby's head has been delivered, but the shoulders will not deliver with normal downward traction.

Which of these is your first step in management of this condition?

A.Caesarean section

B.Symphisiotomy

C.Episiotomy

D.Ask the mother to hyperflex their legs and apply suprapubic pressure

E.Wood's screw manouvere

Answer:Ask the mother to hyperflex their legs and apply suprapubic pressure

Explanation:

A sequence of actions is recommended in shoulder dystocia.

Initially, request senior help and ask the mother to hyperflex their legs (also called McRobert's manouvere) and apply suprapubic pressure. This method works in 90% of cases.

If this method fails, episiotomy is required to allow internal manouveres. A number of potential options, including Wood's screw manouvere and grasping and manipulation of the posterior arm are then possible.

Last resorts include symphisiotomy and the Zavanelli manouvere (which includes Caesarean section, however by this point fetal damage is often irreversible).

Question:

A 26-year-old woman presents to her GP practice with a painful lump on the edge of her left eyelid. She is otherwise well and has no past medical history. On examination it appears that she has a small pus-filled abscess in the area. Her visual field is not affected. Given the likely diagnosis, which of the following treatments should be advised?

A.Admit for intravenous antibiotics

B.Regular warm steaming or soaking with a warm flannel

C.Urgent referral to ophthalmology

D.Oral antibiotics and review again in three days

E.CT head

Answer:Regular warm steaming or soaking with a warm flannel

Explanation:

Advise regular warm steaming as first line treatment for stye

Important for meLess important

The most likely diagnosis from this short vignette is a stye. There are treated with regular steaming or warm compress. The other treatments suggested here are not indicated in this situation. Most styes are caused by staphylococcus bacteria.

Question:

A concerned mother brings her 4-year-old son to the paediatric emergency department. She is concerned that he is lethargic and off his food. He currently attends a daycare where some of the other children have been ill with a rash, but she is unsure of their specific illness. He has a background of sickle cell disease. Blood work is taken, which shows the following:

Hb 85 g/l

Platelets 86 \* 109/l

WBC 7.5 \* 109/l

Reticulocytes 0.3%

Which of the following is the most likely diagnosis?

A.Haemolytic crisis

B.Aplastic crisis

C.Sequestration crisis

D.Vaso-occlusive crisis

E.Splenic rupture

Answer:Aplastic crisis

Explanation:

Aplastic crisis has reduced reticulocytes, whereas sequestration crisis has increased reticulocytes

Important for meLess important

Aplastic crisis is is often precipitated by exposure to parvovirus B19.

Parvovirus is the virus that is also responsible for fifth disease or Erythema infectiosum, a common self-limiting mild rash illness of childhood.

Most patients who have been infected with parvovirus have reduced red blood cell production but this is particularly concerning in patients with sickle cell disease given the preexisting bone marrow stress.

Treatment of aplastic crisis is by managing the symptoms of anaemia, usually with a blood transfusion.

Question:

You are a a junior doctor in the emergency department. A 68-year-old gentleman with no past medical history presents with shortness of breath and a cough. On chest X-Ray there is evidence of a right lower lobe pneumonia. The patient looks unwell to you and seems to be becoming confused despite no previous history of cognitive impairment. Temperature 39.2ºC; respiratory rate is 35 breaths per minute; his pulse rate is 101 beats per minute, and blood pressure is 105/58 mmHg.

Some baseline bloods are performed:

Na+ 138 mmol/l

K+ 4.1 mmol/l

Creatinine 72 umol/l

Urea 13.1 mmol/l

WCC 18.2 \* 109/l

Hb 12.1 g/dl

CRP 92 g/dl

What is the immediate management?

A.Discharge with oral antibiotics

B.Perform the sepsis 6

C.Refer to the medics

D.Refer to the medics and speak to the ITU team

E.Give one dose of IV antibiotics and then review and consider for discharge.

Answer:Perform the sepsis 6

Explanation:

This question requires you to act appropriately in an emergency setting. In this case we have a septic patient, with a clear focus of infection and so the most appropriate answer is to initially perform the sepsis 6. Once this is done it will be appropriate to risk stratify this patient presenting with pneumonia. The most common way to do this is using the CURB-65 score.

This gentleman would score 5:

Confusion = 1

Urea > 7 = 1

Respiratory rate > 30 breaths per minute= 1

Systolic blood pressure < 90 mmHg / Diastolic < 60 mmHg = 1

Age > 65 = 1

The recommendation for a score of > 4 is to admit and depending on clinical examination consider Intensive care unit admission. However, these actions should be taken after initial resuscitation is performed.

Question:

A 56-year-old woman with Rheumatoid arthritis presents with a 3-day history of dysuria, frequency and foul smelling urine. Urinalysis is positive for blood, nitrites, leukocytes and protein. You look at her repeat prescription and note that she is taking methotrexate for her Rheumatoid disease. She has no allergies. Which antibiotic is not appropriate to prescribe due to the risk of severe bone marrow suppression?

A.Nitrofurantoin

B.Trimethoprim

C.Amoxicillin

D.Cefalexin

E.Co-amoxiclav

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

The answer here is trimethoprim. Trimethoprim and co-trimoxazole, anti-folate antibiotics, should be avoided concurrently with methotrexate due to the risk of bone marrow aplasia. This reaction is due to the additive folate depletion when the medications are combined. Fatal pancytopenia and megaloblastic anaemia have occurred. Penicillins may reduce the excretion of methotrexate, and there are no interactions reported in the BNF with nitrofurantoin or cefalexin.

Question:

A 69-year-old man presents to the clinic with complaints of bone pains and fatigue for the last one year. He has also gradually become hard of hearing. Examination reveals bossing of the skull. X-ray skull shows marked thickening of the vault with mixed lytic and sclerotic lesions.

What is the most likely laboratory finding in this patient?

A.Low calcium

B.Low phosphate

C.Low procollagen type I N-terminal propeptide (PINP)

D.Low vitamin D

E.Raised alkaline phosphatase (ALP)

Answer:Raised alkaline phosphatase (ALP)

Explanation:

Paget's disease of the bone generally affects the skull, spine/pelvis, and long bones of the lower extremities

Important for meLess important

Raised alkaline phosphatase (ALP) is the correct response as the scenario describes a patient with Paget's disease. History of bone pains, hearing loss, and skull bossing in an older male point towards this diagnosis. X-ray skull also shows vault thickening and mixed lytic and sclerotic lesions, an important radiological feature of Paget's disease. An isolated rise in ALP with normal calcium, phosphorus, and vitamin D is the most commonly seen picture in Paget's disease.

Paget's disease is not characterised by low calcium. Calcium is usually normal. Hypercalcemia may occur in Paget's disease due to prolonged immobilisation.

Laboratory findings are unlikely to show low phosphate as hypophosphatemia does not occur in Paget's disease. The most important cause of low phosphate is hyperparathyroidism which leads to hypercalcemia and hypophosphatemia.

Low procollagen type I N-terminal propeptide (PINP) is incorrect because PINP is elevated in Paget's disease. PINP has a limited role in diagnosing Paget's disease. PINP levels are mainly used to monitor treatment response.

Vitamin D levels are usually normal in Paget's disease; therefore, low vitamin D is an incorrect response. Deafness and x-ray findings in this scenario do not typically occur with vitamin D deficiency. Tiredness and body aches are the most common presenting features of vitamin D deficiency. Vitamin D maintains the calcium and phosphorus balance; therefore, low serum calcium and phosphate may also occur with vitamin D deficiency.

Question:

A 28-year-old woman is referred to hepatology with deranged liver function tests. She describes a twelve month history of fatigue. She has a past medical history of asthma and anxiety. Her regular medications include symbicort and sertraline. She smokes approximately 8 cigarettes per day and drinks 1-2 bottles of wine per week.

On examination, there is mild right upper quadrant tenderness and her sclerae are mildly icteric. There is no clinical evidence of ascites, asterixis or encephalopathy.

Blood tests:

Hb 133 g/L Male: (135-180)

Female: (115 - 160)

Platelets 174 \* 109/L (150 - 400)

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

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.4 mmol/L (2.0 - 7.0)

Creatinine 51 µmol/L (55 - 120)

CRP 8 mg/L (< 5)

Bilirubin 54 µmol/L (3 - 17)

ALP 133 u/L (30 - 100)

ALT 343 u/L (3 - 40)

γGT 226 u/L (8 - 60)

Albumin 31 g/L (35 - 50)

Prothrombin time 14.2 seconds (9.5 - 13.5 seconds)

Anti nuclear antibody positive

Anti smooth muscle antibody positive

Anti mitochondrial antibody negative

HIV negative

Hepatitis C antibody negative

Hepatitis B core antibody negative

Hepatitis surface antigen negative

Hepatitis B surface antibody positive

IgG 19.4 g/L (6.0 - 16.0)

IgA 1.1 g/L (0.8 - 2.8)

IgM 1.2 g/L (0.5-1.9)

Epstein Barr virus negative

Cytomegalovirus negative

Serum ferritin 650 µg/L (41-400)

An ultrasound abdomen demonstrates evidence of cirrhosis.

What is the most likely diagnosis?

A.Alcoholic liver disease

B.Haemochromatosis

C.Hepatitis B

D.Type 1 autoimmune hepatitis

E.Type 2 autoimmune hepatitis

Answer:Type 1 autoimmune hepatitis

Explanation:

Antinuclear antibodies, anti-smooth muscle antibodies and raised IgG levels are characteristic of autoimmune hepatitis

Important for meLess important

Alcoholic liver disease is the wrong answer. We are told that she drinks approximately 1.5 bottles of wine per week. This is approximately 15 units of alcohol per week. While this is slightly above the recommended allowance of alcohol, it is not the most likely cause of cirrhosis given the clinical context.

Haemochromatosis is incorrect. Her ferritin is mildly elevated but this is a non-specific marker of inflammation and is not the most likely diagnosis based on the information provided.

Hepatitis B is incorrect. Her hepatitis B serology indicates previous vaccination rather than infection.

Type 1 autoimmune hepatitis is the correct answer. Antinuclear antibodies, anti-smooth muscle antibodies and raised IgG levels are characteristic of autoimmune hepatitis. Additionally, it is more common in young females.

Type 2 autoimmune hepatitis is incorrect. This is characterized by anti-liver/kidney microsomal type 1 antibodies (LKM1) and affects children only.

Question:

A 61-year-old woman presents with bilateral tinnitus. She reports no change in her hearing or other ear-related symptoms. Ear and cranial nerve examination is unremarkable. Which medication is she most likely to have recently started?

A.Ciprofloxacin

B.Nifedipine

C.Repaglinide

D.Quinine

E.Bendroflumethiazide

Answer:Quinine

Explanation:

Question:

Which one of the following drugs is not contra-indicated whilst breast feeding?

A.Tetracycline

B.Ciprofloxacin

C.Chloramphenicol

D.Doxycycline

E.Ceftriaxone

Answer:Ceftriaxone

Explanation:

Cephalosporins in breastfeeding is considered safe to use

Important for meLess important

Question:

You are asked to review a 30-year-old man in the emergency department. He has come in with a twelve-hour history of shortness of breath, fever, and strange noises with his breathing. He had a sore throat for the past few days but it has worsened rapidly. He has no past medical history otherwise.

His observations are respiratory rate 30/min, pulse 120bpm, oxygen saturation 96%, temperature 39.0ºC, blood pressure 110/60mmHg. On inspection from the end of the bed, he is obviously short of breath, has a muffled voice, and is drooling into a bowl. You can hear a high pitched whistle on inspiration.

What is the most appropriate next step?

A.Call the on-call anaesthetist to assess the patient for intubation

B.Give an immediate dose of IV dexamethasone

C.Give him nebulised salbutamol

D.Organise an X ray of his neck

E.Perform flexible nasendoscopy to assess the larynx

Answer:Call the on-call anaesthetist to assess the patient for intubation

Explanation:

Endotracheal intubation may be necessary to protect the airway in acute epiglottitis

Important for meLess important

This is acute epiglottitis until proven otherwise. The combination of high fever, sore throat, dyspnoea, change in voice and inspiratory stridor (high pitched whistle) suggests an impending airway disaster. Though some of the other options may play a part in his management, securing the airway should be the priority, and often this is done via endotracheal intubation. Don't forget your ABCDE management steps.

IV dexamethasone is an important part of reducing laryngeal oedema in epiglottitis, but it may take an hour or more to have an effect. Organising an anaesthetic assessment should come before giving any medications.

Nebulised salbutamol will have no effect in this case. Salbutamol works as an agonist to β₂ receptors in the bronchioles, causing dilation of the smaller airways of the lungs. It will have no effect on the laryngeal narrowing secondary to epiglottitis.

X-rays of the neck are sometimes used for epiglottitis but may take some time to organise which would delay the more urgent need to secure his airway.

In acute epiglottitis, one must never try to visualise the larynx without appropriate senior support who can intubate if needed. Examination with a flexible nasendoscope risks airway closure and there need to be appropriate people nearby to secure the airway if this happens.

Question:

A 34-year-old man is referred to the emergency department by his GP with weakness, bone pain, and splenomegaly. Over the last few weeks he has been gradually feeling more tired and weak when trying to carry out his daily activities. On examination, he appears very pale and there are petechiae present on his lower limbs. Following bone marrow sampling he is diagnosed with acute promyelocytic leukaemia (APML).

Which of the following would most likely be seen on his blood film?

A.'Tear-drop' poikilocytes

B.Auer rods

C.Smear cells

D.Spherocytes

E.Target cells

Answer:Auer rods

Explanation:

Auer rods on blood film strongly suggests acute promyelocytic leukaemia

Important for meLess important

The correct answer is 'Auer rods'.

This patient has been diagnosed with APML. The most common finding on a blood film associated with this is Auer rods. They are large, pink or red stained needle-like formations that may be seen within the cytoplasm of myeloid blast cells.

'Tear-drop' poikilocytes are generally found in myelofibrosis. They are flat, elongated red blood cells that look like a tear-drop in appearance. This occurs because they are 'squeezed' through the fibrotic tissue in bone marrow in myelofibrotic disorders.

Smear cells are typically seen in chronic lymphocytic leukaemia (CLL). They are remnants of cells that have no identifiable plasma membrane or nuclear structure.

Spherocytes are generally found in hereditary spherocytosis or autoimmune haemolytic anaemia. They are red blood cells that are sphere-shaped rather than the usual doughnut shape and are more fragile than normal red blood cells. They occur due to abnormalities in the red cell membrane.

Target cells are generally seen within iron-deficiency anaemia or hyposplenism. They are red blood cells that have the appearance of a target with a bullseye (a dark centre, surrounded by a pale ring and a darker peripheral ring). They are caused either by an increase in red cell surface area or a decrease in intracellular haemoglobin.

Question:

A 56-year-old woman attends the rheumatology outpatients clinic. For the past four months, she has experienced her fingers intermittently turning from white to blue and then to red. She also noticed that the skin on her fingers, hands and face feels tighter. There is no involvement of the skin on her upper arm or chest. She also describes troubling reflux symptoms. Examination reveals tight, fibrotic skin overlying the hands and face with telangiectasia.

Given the likely diagnosis, which of the following autoantibodies is most likely to be positive in this patient?

A.Anti-RNA polymerase III antibodies

B.Anti-Ro antibodies

C.Anti-centromere antibodies

D.Anti-dsDNA antibodies

E.Anti-Scl-70 antibodies

Answer:Anti-centromere antibodies

Explanation:

Limited (central) systemic sclerosis = anti-centromere antibodies

Important for meLess important

A history of tightening of the skin, as well as Raynaud's phenomenon and telangiectasia, is suggestive of systemic sclerosis. Additionally, oesophageal dysmotility resulting in reflux-like symptoms is also suggestive of this diagnosis. As this patient has no involvement of the upper arm and chest, this is most likely the limited subtype. This condition is most associated with anti-centromere antibodies.

Anti-RNA polymerase III and anti-Scl-70 antibodies are most associated with diffuse systemic sclerosis, which would include involvement of the chest and upper arms, as well as more severe internal organ involvement. This patient has no involvement in the aforementioned regions.

Anti-Ro antibodies are most associated with Sjögren's syndrome. Sjögren's syndrome is unlikely in this patient, with a more typical history including dryness of the eyes and mouth.

Anti-dsDNA antibodies are most associated with systemic lupus erythematosus (SLE). While this is a differential for secondary Raynaud's phenomenon, systemic sclerosis is more likely given the other aspects of the history including tightening of the skin and absence of a butterfly rash.

Question:

A 16-year-old boy is brought into the emergency department complaining of abdominal pain which started in the centre of his abdomen and has since migrated to the right lower abdomen. He has vomited once and is feeling continuously nauseous.

Observations reveal a temperature of 38.0ºC, blood pressure of 127/89mmHg and a heart rate of 98 bpm. Examination reveals guarding in the right iliac fossa.

A set of blood tests reveal the following:

Hb 142 g/L Male: (135-180)

Platelets 156 \* 109/L (150 - 400)

WBC 20.0 \* 109/L (4.0 - 11.0)

Neuts 16.0 \* 109/L (2.0 - 7.0)

Lymphs 3.1 \* 109/L (1.0 - 3.5)

Mono 0.8 \* 109/L (0.2 - 0.8)

Eosin 0.1 \* 109/L (0.0 - 0.4)

Given the likely diagnosis, which of the following options is required prior to surgery?

A.Abdominal CT

B.Abdominal X-ray

C.Anti-coagulation

D.Blood ketone test

E.Intravenous antibiotics

Answer:Intravenous antibiotics

Explanation:

Prophylactic IV antibiotics are given prior to appendicectomy

Important for meLess important

The correct answer is intravenous antibiotics.

This patient has a number of features suggestive of acute appendicitis. Key features of appendicitis are included in the Alvarado score, which includes symptoms (pain which migrates to the right iliac fossa, anorexia, nausea/vomiting), signs (elevated temperature, right iliac fossa tenderness, rebound tenderness) and a leucocytosis >10 × 109/L with >75% neutrophils. Additional investigations may be performed to satisfy clinical uncertainty, including urinalysis and pregnancy testing. While the management is surgical (appendicectomy), intravenous broad-spectrum antibiotics are recommended in uncomplicated and complicated appendicitis pre- and post-operatively.

Abdominal CT is the most sensitive imaging technique to diagnose acute appendicitis and CT is being increasingly used. However, due to concerns about excess radiation and potential delay to management while awaiting CT, this is not currently the standard of care in the UK.

Abdominal X-rays are not sensitive in diagnosing acute appendicitis. They may be able to visualise an appendicolith, calcification within the appendix which complicates only 10% of appendicitis cases.

Prophylactic anticoagulation is not required prior to appendectomy. This would increase the operative risk of severe haemorrhage.

Although diabetic ketoacidosis can present as abdominal pain, vomiting and nausea in children, the nature of the pain in this scenario and examination findings suggest a diagnosis of acute appendicitis. Ketone levels are not routinely required prior to appendicectomy.

Question:

An 18-year-old boy presents to the emergency department with his parents with severe difficulty in breathing after being stung by a bee. ABCDE assessment shows the following:

A: unable to speak, evident laryngeal angioedema.

B: respiratory rate is 25/min, saturation is 86%, widespread wheeze, and reduced air entry.

C: heart rate is 138/min, blood pressure is 80/50mmHg.

D: the patient is drifting in and out of consciousness.

E: erythematous rash on both arms.

Two doses of IM adrenaline are given but this doesn't alleviate the patient's respiratory symptoms.

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

A.IV adrenaline (under expert guidance)

B.IV adrenaline (under expert guidance) + IV fluid bolus

C.IV hydrocortisone

D.IV hydrocortisone + IV fluid bolus

E.Third dose of IM adrenaline

Answer:IV adrenaline (under expert guidance) + IV fluid bolus

Explanation:

IV adrenaline (under expert guidance) + IV fluid bolus are used for the management of refractory anaphylaxis

Important for meLess important

IV adrenaline (under expert guidance) + IV fluid bolus is correct. This patient has refractory anaphylaxis which is defined as respiratory and/or cardiovascular problems persisting despite 2 doses of IM adrenaline. The incidence of refractory anaphylaxis is estimated to range between 3-5% of anaphylaxis cases. IV fluid bolus is given to prevent shock and resulting hypotension. IV adrenaline is the treatment of choice for patients not responding to IM anaphylaxis.

IV adrenaline is not correct. This is insufficient in a patient with anaphylaxis as it does not address the hypotension that the patient will be concurrently suffering. To account for this, an IV fluid bolus should be given.

IV hydrocortisone is incorrect. Previously IV hydrocortisone was recommended for the treatment of anaphylaxis but this was removed in the 2021 resuscitation council UK guidelines.

IV hydrocortisone and IV fluid bolus are incorrect. Whilst this patient does require an IV fluid bolus to correct the hypotension, IV hydrocortisone has no role here and was recently omitted from the 2021 resuscitation council UK guidelines.

A third dose of IM adrenaline is not the correct answer. If a patient has not responded to two doses of IM adrenaline then they have refractory anaphylaxis and need to be given IV adrenaline. Prolonging the treatment process attempting another dose of IM adrenaline is futile and could lead to adverse outcomes for the patient as the treatment has been delayed.

Question:

A 21-year-old woman brings her 6-week-old baby to an emergency GP appointment. She describes her baby as being very unsettled in the evenings, crying constantly and pulling up her legs. She was born via spontaneous vaginal delivery at term. She is exclusively breastfed. There are no concerns with her weight and she is otherwise well. The examination is normal.

What would you recommend?

A.Breastfeeding support

B.Commence formula milk top-ups in the evenings

C.Paediatric review

D.Reassurance and support

E.Simeticone drops (Infacol®)

Answer:Reassurance and support

Explanation:

Simeticone (such as Infacol®) or lactase (such as Colief®) drops should not be recommended for the treatment of infantile colic

Important for meLess important

This child has infantile colic.

Reassurance and support is correct. Infantile colic is benign. The cause is unknown and no specific treatment is recommended. A careful history and examination are important. Infantile colic is challenging for parents; it is helpful to signpost to appropriate resources for support.

Breastfeeding support is incorrect. Though support with breastfeeding is important for new mothers, there is no indication in the question stem that this mother is struggling with feeding.

Commence formula milk top-ups in the evenings is incorrect. Advising a mother who wants to exclusively breastfeed with a thriving baby to stop is rarely appropriate. There is no indication that the baby being breastfed is causing any problems. If there were concerns about the baby's feeding, breastfeeding support and consideration of altering the mother's diet would be a more appropriate first step.

Paediatric review is incorrect. There are no concerning features in the history or examination.

Simeticone drops (Infacol®) is incorrect. Simeticone or lactase drops are often used by parents for infantile colic but should not be recommended.

Question:

A 65-year-old man presents to the emergency department with shortness of breath. He has a past medical history of chronic obstructive pulmonary disease (COPD).

On examination, he is tachypnoeic and wheezy but alert.

Arterial blood gas (ABG):

pH 7.27 (7.35-7.45)

pCO2 8.2 kPa (4.5-6)

pO2 6.6 kPa (11-13)

HCO3- 31 mmol/L (22-26)

He is treated with nebulized salbutamol, ipratropium bromide and intravenous hydrocortisone.

Repeat ABG:

pH 7.28 (7.35-7.45)

pCO2 7.9 kPa (4.5-6)

pO2 6.9 kPa (11-13)

What is the appropriate management?

A.Bilevel positive airway pressure (BiPAP)

B.Continuous positive airway pressure (CPAP)

C.Doxapram

D.Intubation

E.Magnesium

Answer:Bilevel positive airway pressure (BiPAP)

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

BiPAP is the correct answer. The patient is having an exacerbation of COPD as evidenced by worsening breathlessness, wheeze, tachypnoea and type 2 respiratory failure. Despite immediate maximum standard medical treatment, he remains acidotic with hypercapnia. The most appropriate management is to commence the patient on BiPAP.

Continuous positive airway pressure (CPAP) is incorrect. This is a type of non-invasive ventilation but principally it helps with oxygenation by delivering positive pressure, which helps maintain open airways. It is used in conditions where the principal pathophysiology is type 1 respiratory failure i.e. pulmonary oedema/covid pneumonitis. It will not be effective in this scenario as the patient needs support with ventilation as well as oxygenation and therefore needs bilevel (i.e. oxygenation and ventilation) support.

Doxapram is incorrect. This is a respiratory stimulant that was historically used in the management of COPD. Since the advent of NIV, its use has declined and it would not be the most suitable option at this point.

Intubation is incorrect. It is standard practice to attempt a trial of NIV prior to intubation unless the patient is severely acidotic (pH < 7.25). Even then, a trial of NIV in the first instance may be warranted.

Magnesium is incorrect. There is better evidence for the use of IV magnesium in asthma rather than COPD exacerbations.

Question:

A 40-year-old man is found unresponsive outside the emergency department. He is confirmed to be in status epilepticus. No medical history is available and the care team begin to treat him.

What is the most important cause of status epilepticus to rule out first?

A.Subdural haematoma

B.Hypoxia

C.Alcohol withdrawal

D.Meningitis

E.Uncontrolled epilepsy

Answer:Hypoxia

Explanation:

Status epilepticus: rule out hypoxia and hypoglycaemia before thinking of other causes

Important for meLess important

Rapid assessment of hypoxia and hypoglycaemia can rule out two easily treatable causes of status epilepticus. Using an A-E approach to assess patients is recommended:

• Airway

• Breathing

• Circulation

• Disability

• Environment

Question:

A 66-year-old man has reported that he has to go to the toilet more often than usual and that he can not control the desire to urinate. He also has to go to the bathroom 4 times in the night to urinate. He is otherwise fit and well, with no medical co-morbidities.

Physical examination is normal, with a normal sized prostate on digital rectal examination.

Which investigation would be most appropriate to demonstrate the aetiology of this gentlemen's problem?

A.Renal ultrasound

B.Bladder ultrasound

C.Flexible cystoscopy

D.Urodynamic studies

E.Transrectal prostate biopsy

Answer:Urodynamic studies

Explanation:

Bladder voiding is measured by urodynamic studies

Important for meLess important

Given this patient cannot control the desire to urinate, one should suspect overactive bladder (OAB). The symptoms described by this patient are those lower urinary tract symptoms of urgency. OAB is a clinical syndrome and does not necessitate investigating, however, the question asked which investigation would be of greatest use in demonstrating this. The correct answer is therefore urodynamic studies.

The other modalities would not be beneficial in demonstrating this dysfunction. A bladder ultrasound may help demonstrate large post-voiding volumes, but this would not demonstrate the underlying pathology.

For more information: Rovner, E.S. & Goudelocke, C.M. Curr Urol Rep (2010) 11: 343. https://doi.org/10.1007/s11934-010-0130-8

Question:

A 65-year-old man is found to have hypocalcaemia. The finding was incidental on some routine blood tests taken for monitoring of his chronic kidney disease. He has a past medical history significant for polycystic kidney disease, and the calcium result is expected to be a complication of this.

What would you expect to see on his other lab values?

A.Normal serum phosphate, normal ALP and normal PTH

B.↑ serum phosphate, normal ALP and ↓ PTH

C.↑ serum phosphate, ↑ ALP and ↑ PTH

D.↓ serum phosphate, normal ALP and normal PTH

E.↓ serum phosphate, ↑ ALP and ↑ PTH

Answer:↑ serum phosphate, ↑ ALP and ↑ PTH

Explanation:

Low serum calcium, raised serum phosphate, raised ALP and raised PTH - chronic kidney disease leading to secondary hyperparathyroidism

Important for meLess important

Hypocalcaemia is a relatively common complication of chronic kidney disease. It is caused by the kidneys being unable to activate vitamin D and excrete phosphate, meaning calcium is 'used up' in calcium phosphate. This low level of calcium causes secondary hyperparathyroidism, where there is an increase in parathyroid hormone (PTH) in order to try and raise calcium levels. It does this by stimulating osteoclast activity to release more calcium, and this activity causes a rise in ALP found in bone. Therefore, the overall blood results expected are raised phosphate (due to an inability to excrete it), raised PTH (due to a reaction to hypocalcaemia) and raised ALP (due to the action of PTH).

Normal serum phosphate, normal ALP and normal PTH are found in osteoporosis or osteopetrosis and may be associated with normal or decreased calcium. But in this case, we already know that the patient has hypocalcemia and chronic kidney disease, making us suspect that he might have other abnormal results.

↑ serum phosphate, normal ALP and ↓ PTH are found in hypoparathyroidism. PTH normally inhibits the resorption of phosphate in the kidneys, and so lowered PTH causes a rise in serum phosphate. This would not fit with chronic kidney disease, and is, therefore, an incorrect answer.

↓ serum phosphate, normal ALP and normal PTH would suggest an isolated phosphate deficiency. However, this does not fit with the clinical picture of hypocalcaemia or chronic kidney disease, and is, therefore, an incorrect answer.

↓ serum phosphate, ↑ ALP and ↑ PTH with low calcium is found in osteomalacia, which is the result of low serum vitamin D. Vitamin D is essential for the absorption of both calcium and phosphate, and therefore a lack of this will cause low serum concentrations. The low calcium level causes increased PTH activity causing bone resorption to try and compensate. ALP is increased due to this increase in bone resorption. However, a result of chronic kidney disease is more likely here and therefore this is an incorrect answer.

Question:

A 33-year-old woman presents with tiredness and loose stools for the last 12 months.

Her GP has arranged blood tests which show the following:

Hb 100 g/L (115 - 160)

Platelets 301 \* 109/L (150 - 400)

WBC 8.4 \* 109/L (4.0 - 11.0)

Ferritin 10.4 ng/mL (20 - 230)

Tissue transglutaminase IgA antibody 48 u/ml (0-10)

On review of her blood film, target cells are seen.

Which other abnormal finding is most likely to be seen on her blood film?

A.Heinz bodies

B.Howell-Jolly bodies

C.Reed Sternberg cells

D.Schistocytes

E.Teardrop cells

Answer:Howell-Jolly bodies

Explanation:

Target cells and Howell-Jolly bodies may be seen in coeliac disease → hyposplenism

Important for meLess important

The gastrointestinal symptoms, combined with iron deficiency anaemia and highly positive anti-tissue transglutaminase (anti-TTG) antibodies, is strongly suggestive of a diagnosis of coeliac disease.

Acquired hyposplenism occurs in about one-third of patients with coeliac disease. Hyposplenism can manifest in a number of blood film abnormalities, including target cells (red blood cells (RBC) that have a bullseye appearance) and Howell-Jolly bodies (small round remnants of nuclear DNA inside the RBC). Note that both these findings are not specific to hyposplenism.

Heinz bodies are large inclusion bodies within the RBCs composed of denatured haemoglobin, and are associated with glucose-6-phosphate dehydrogenase (G6PD) deficiency.

Reed Sternberg cells are distinctive giant multinucleated cells derived from B lymphocytes that are seen in Hodgkin's lymphoma.

Schistocytes are fragmented or broken RBCs which are seen in haemolysis.

Teardrop-shaped RBCs are seen in myelofibrosis.

Question:

Which one of the following conditions may be worsened by the use of bendroflumethiazide?

A.Acne rosacea

B.Psoriasis

C.Gout

D.Migraine

E.Heart failure

Answer:Gout

Explanation:

Thiazides may cause gout

Important for meLess important

Question:

A 55-year-old man comes to see you with his wife. His wife has noticed that he often wakes up in the middle of the night and struggles to breathe. He describes feeling very tired during the day and often falls asleep while reading the newspaper. You suspect a diagnosis of moderate sleep apnoea and refer him for further assessment. He would like to know more about the treatment of sleep apnoea

Which one of the following is the first line treatment for moderate sleep apnoea?

A.Bilevel Positive Airway Pressure (BiPAP)

B.Home oxygen therapy

C.Salbutamol inhaler

D.Steroid inhaler

E.Continuous positive airway pressure (CPAP)

Answer:Continuous positive airway pressure (CPAP)

Explanation:

Following weight loss, CPAP is the first-line treatment for moderate/severe obstructive sleep apnoea

Important for meLess important

Obstructive sleep apnoea (OSA) occurs when the walls of the throat relax and narrow during sleep thus interrupting normal breathing. The condition is screened for using the Epworth scale and definitively diagnosed following sleep studies.

Treatment includes reducing weight, reducing alcohol intake and sleeping on one's side. CPAP devices can also be used -these work by preventing the closure of the airway during sleep by delivering a continuous supply of compressed air through a mask. Mandibular advancement device may also be used -this is a gum shield-like device, which works by holding the jaw and tongue forward to increase the space at the back of the throat.

Question:

A 50-year-old man presents to the GP for a review of his hypertension after being prescribed a new antihypertensive drug. Ambulatory blood pressure monitoring was performed before the appointment and showed an average reading of 130/78 mmHg.

He has been compliant with his treatment; however, since starting the new drug, he has been experiencing intermittent palpitations and dizziness and would like to discuss alternative treatments. An ECG is performed during an episode which demonstrates sinus tachycardia only, and no other changes.

What is the most likely cause?

A.Indapamide

B.Nifedipine

C.Propranolol

D.Ramipril

E.Spironolactone

Answer:Nifedipine

Explanation:

Nifedipine causes peripheral vasodilation which may result in reflex tachycardia

Important for meLess important

Nifedipine is the correct answer. Nifedipine rapidly lowers blood pressure through peripheral vasodilation. The autonomic nervous system perceives this vasodilation as an excessive blood pressure decrease, leading to an increased heart rate to compensate. This phenomenon is known as reflex tachycardia. Many patients experience palpitations and feel dizzy. Reflex tachycardia is less commonly seen in sustained-release preparations of nifedipine. According to the BNF, palpitations are listed as 'common or very common.

Indapamide is incorrect. Indapamide is a thiazide-like diuretic that promotes sodium diuresis and reduces blood volume and blood pressure. It is not associated with an increased heart rate as its effects are much slower than nifedipine's action and do not cause peripheral vasodilation. Palpitations and tachycardia are not listed under indapamide's side effects on the BNF. Arrhythmias are listed under 'rare or very rare, but these are more likely due to electrolyte imbalances associated with indapamide (hypokalaemia and hypercalcaemia), which would show signs on the ECG. Common side effects of indapamide are dehydration, postural hypotension, and dizziness.

Ramipril is incorrect. Ramipril is an angiotensin-converting enzyme (ACE) inhibitor which prevents the conversion of angiotensin I to angiotensin II. The reduced availability of Angiotensin II inhibits blood vessel constriction and reduces blood pressure but does not actively dilate them, unlike nifedipine which does. Palpitations and tachycardia are not listed under ramipril's side effects on the BNF. Although some patients may experience palpitations due to hyperkalaemia, which is associated with ACE inhibitors, these would show signs on an ECG (such as tall tented T-waves). Common side effects of ACE inhibitors are a dry cough and angioedema.

Spironolactone is incorrect. Spironolactone is a potassium-sparing diuretic that encourages diuresis and reduces blood volume and blood pressure. It works through aldosterone antagonism, which normally retains water and sodium and encourages potassium excretion. Its effects are much more gradual and do not result in peripheral vasodilation, unlike nifedipine and therefore, is not associated with tachycardia. However, if hyperkalaemia develops palpitations and its associated ECG changes may occur, which are not seen here as this patient's ECG only shows sinus tachycardia and no signs of hyperkalaemia (such as tall, tented T-waves).

Propranolol is incorrect. Propranolol is a beta-blocker that actively reduces the heart rate and blood pressure. Since its effects directly reduce heart rate, it is not associated with tachycardia. Palpitations and tachycardia are not listed under propranolol's side effects on the BNF. Common side effects of beta-blockers are cold peripheries, fatigue, and bronchospasm.

Question:

A 35-year-old lady presented with gradual onset weakness and loss of sensation in her right arm. She has felt fatigued for several months following a severe sore throat.

A large lesion is found in the right axilla and excised. Low power microscopy shows a 'starry sky' appearance of densely packed basophilic cells interspersed with white areas containing cellular debris.

What is the most likely diagnosis?

A.Sarcoidosis

B.Hodgkin's lymphoma

C.Burkitt lymphoma

D.Metastatic adenocarcinoma of the breast

E.Marginal zone lymphoma

Answer:Burkitt lymphoma

Explanation:

Burkitt Lymphoma shows a 'starry sky' appearance on lymph node biopsy

Important for meLess important

Burkitt lymphoma is a rapidly proliferating B cell tumour. On microscopy, it typically shows a 'starry sky' appearance. The 'sky' is formed by densely packed malignant B cells, which appear blue on H&E stain due to their minimal cytoplasm, whilst the 'stars' are a fixation artefact derived from debris-filled macrophages.

Burkitt lymphoma is associated with Epstein-Barr virus which, when contracted in adulthood, can present with severe throat pain followed by persistent fatigue.

Due to its rapid proliferation, Burkitt lymphoma may present in unusual ways, for example with nerve root compression due to the mass effect of a lesion.

Question:

A 23-year-old man is seen in the emergency department with syncope. He reports having worsening palpitations since starting a new medication. His ECG shows a prolonged QT interval of 500msec.

What medication is he likely to be taking?

A.Levetiracetam

B.Lymecycline

C.Citalopram

D.Chlorpheniramine

E.Sodium valproate

Answer:Citalopram

Explanation:

Citalopram is associated with dose-dependent QT interval prolongation

Important for meLess important

Tricyclics antidepressants and selective serotonin reuptake inhibitors are known to cause prolonged QT syndrome in some patients. This effect is seen particularly with citalopram and led to an MHRA warning on its use. The maximum recommended daily dose was subsequently reduced from 80mg to 40mg as QT prolongation was found to be dose-dependent.

Whilst not compulsory some GPs now request a baseline ECG when staring citalopram.

Further information can be found here- https://www.gov.uk/drug-safety-update/citalopram-and-escitalopram-qt-interval-prolongation

Question:

A 35-year-old teacher presents having started to struggle to hear his students speaking to him in class. This has been getting gradually worse over the past year or so, and he has started to notice it in other settings now. He plays drums in a local rock band, but says he always uses ear protection. He has had no previous health problems, although mentions his father always had two hearing aids, and is now 'almost completely deaf'.

Rinne's and Weber's test are both normal. Otoscopy is normal.

Right Left

Pure-Tone audiometry Conductive pattern hearing loss, more evident at low frequencies Conductive pattern hearing loss, more evident at low frequencies

What is the most likely cause of this patients symptoms?

A.Presbyacusis

B.Noise damage

C.Acoustic neuroma

D.Otosclerosis

E.Otitis media with effusion

Answer:Otosclerosis

Explanation:

Otosclerosis causes bilateral, conductive pattern hearing loss, sometimes with associated tinnitus

Important for meLess important

Otosclerosis is a genetic condition which is inherited in an autosomal dominant fashion. It causes irregular bony formation in the middle ear, causing dysfunction of the ossicular chain. This leads to a progressive conductive deafness, which typically presents in middle age. Tinnitus and vertigo may also be present, but are less common.

Presbyacusis is unlikely in a patient of this age, and gives a sensorineural, high frequency hearing loss picture.

Noise damage gives a sensorineural hearing loss, worst in the range of 3000-6000Hz.

Acoustic neuromas are usually unilateral, and cause sensorineural hearing loss.

Otitis media with effusion is unlikely given the normal otoscopy.

Question:

A 24-year-old man is being discharged from the hospital after a flare-up of ulcerative proctosigmoiditis. His symptoms improved after a 5-day course of intravenous corticosteroids, which had since been tapered down to oral prednisolone before discharge.

He calls you saying he was not told by the discharging team whether he should continue to take prednisolone to prevent a relapse or not. He is running out soon and is worried about what he should do. You contact the on-call gastroenterologist for advice.

What would they likely recommend as first-line treatment for remission maintenance?

A.Daily azathioprine

B.Daily low-dose oral prednisolone for 3 months

C.Daily rectal +/- oral mesalazaine

D.Twice-weekly corticosteroid enemas

E.Weekly methotrexate/folic acid

Answer:Daily rectal +/- oral mesalazaine

Explanation:

A topical (rectal) aminosalicylate +/- an oral aminosalicylate is used first-line in maintain remission in ulcerative colitis patients with proctitis and proctosigmoiditis

Important for meLess important

The correct answer is daily rectal +/- oral mesalazaine. As a general rule, the first-line management of all mild-moderate ulcerative colitis, regardless of intestinal segments involved, is with topical and/or oral aminosalicylates (like mesalazine) for both remission induction and maintenance. The segments involved guide the most effective route as topical formulations are more effective than oral ones in treating distal disease (proctitis, sigmoiditis, and left-sided colitis). Suppositories are used for rectal delivery whereas enemas allow further up coverage extending to the left (or descending) colon. They can be used once or twice daily, or even intermittently several times per week provided remission is maintained.

A combination of oral and topical aminosalicylates is used to further maximise drug delivery or if topical treatment alone fails in inducing remission. This is also the first line in inducing remission of pancolitis as enemas do not reach the proximal (ascending and transverse) colon.

Failure of a combination of topical and oral aminosalicylates in inducing remission indicates the addition of a second-line agent like a short-term course of an oral or topical corticosteroid (4-8 weeks). Aminosalicylates may also be contraindicated or not tolerated in some patients where topical and/or oral corticosteroids are recommended as 1st line by NICE in inducing remission.

An exception to the above is severe colitis where hospital admission and treatment with IV corticosteroids are indicated. IV ciclosporin, if corticosteroids are contraindicated or not effective after 72 hours may be substituted/added to induce remission. Surgery is the last option in case all of the above fail.

Twice-weekly corticosteroid enemas is not correct. This regime is hypothetical and is not used in the management of either ulcerative colitis or Crohn's disease. Topical corticosteroids are indicated as second-line agents in the induction of remission of mild-moderate ulcerative proctitis/proctosigmoiditis/left-sided colitis in combination with an oral aminosalicylate and are given either as rectal foam or suppositories, both of which are to be used twice daily rather than twice weekly.

Daily azathioprine is not correct. This is used as a second-line agent for maintenance of mild-moderate disease where aminosalicylates have failed. It can also be used for maintenance following a severe relapse or 2+ disease flares in the past year (NICE guidance). Patients are tested for thiopurine S-methyltransferase (TPMT), which metabolises thiopurines, before initiation and the class is contraindicated in those with confirmed deficiency to prevent severe myelosuppression. Allopurinol also inhibits this enzyme and should be avoided with azathioprine, or azathioprine dose adjusted to prevent myelosuppression (BNF). Thiopurines also increase the risk of non-melanoma skin cancer, and patients should be monitored for skin cancer and given appropriate sun protection advice.

Daily low-dose oral prednisolone for 3 months is not correct. While oral corticosteroids are used as second-line in remission induction of mild-moderate ulcerative colitis, they are not used for remission maintenance. Long-term use of corticosteroids carries many risks and should be kept to a minimum. These include increased cardiovascular risk, bone resorption and immunosuppression, amongst many others.

Weekly methotrexate/folic acid is not correct. Methotrexate may often be used for remission maintenance in Crohn's disease but it is not used in ulcerative colitis for either induction or maintenance.

Question:

A 65-year-old man presents with worsening psoriasis. He has been more stressed recently and feels like this may be contributing to his exacerbation. He has also started a new medication.

On examination, he has scaly plaques on the extensor surfaces and his trunk which are erythematous.

Which one of the following medications may trigger exacerbations in his condition?

A.Amiodarone

B.Furosemide

C.Lithium

D.Oxycodone

E.Sertraline

Answer:Lithium

Explanation:

Psoriasis: lithium may trigger an exacerbation

Important for meLess important

Lithium can trigger an exacerbation of psoriasis in up to 50% of patients. It can also induce de novo psoriasis and these effects occur at a normal therapeutic lithium level. Therefore, it would be wise to inform this patient and the psychiatrist of this effect.

Furosemide does not typically exacerbate or cause drug-induced psoriasis. It can lead to electrolyte abnormalities such as hyponatraemia and hypokalaemia.

Amiodarone also does not exacerbate or cause drug-induced psoriasis. An interesting cutaneous effect of amiodarone is a bluish discolouration of the skin.

Sertraline and oxycodone do not typically exacerbate or cause drug-induced psoriasis.

Question:

A 32-year-old man undergoes an appendicectomy. A large carcinoid tumour is identified and a completion right hemicolectomy is performed. He is well for several months and then develops symptoms of palpitations and facial flushing. Which of the following diagnostic markers should be requested?

A.Alpha feto protein

B.Urinary 5-Hydroxyindoleacetic acid measurements

C.Urinary catecholamines

D.Urinary VMA measurements

E.None of the above

Answer:Urinary 5-Hydroxyindoleacetic acid measurements

Explanation:

5 HIAA is the most commonly used diagnostic marker for carcinoid syndrome, it is measured in a 24 hour urine collection.

Question:

A 14-year-old girl is referred to the neurology clinic by her GP due to a number of episodes that she has had over the past 3 months. During these episodes, the girl is witnessed to stop what she is doing and stare into space unresponsive. These episodes last for seconds but occur in clusters.

The girl has no other medical history, no allergies and takes no medications. She had her first menstrual period 2 years ago.

A full neurological examination is normal.

What is the most appropriate management?

A.Ethosuximide

B.Lamotrigine

C.Levetiracetam

D.Phenytoin

E.Sodium valproate

Answer:Ethosuximide

Explanation:

Absence seizures: ethosuximide is first-line

Important for meLess important

Ethosuximide is the first-line anti-epileptic for typical absence seizures. Childhood-onset of episodes of abrupt cessation of activity and responsiveness is a typical history of absence seizures.

Lamotrigine is not the most effective anti-epileptic for absence seizures. It may be used as a second-line treatment for absence seizures in females of childbearing age, such as this patient. In males, sodium valproate is the second line of choice.

Levetiracetam is not the most effective anti-epileptic for absence seizures. Like lamotrigine, it may be used as a second-line treatment for absence seizures in females of childbearing age, such as this patient.

Phenytoin is not used in the management of absence seizures and can actually worsen absence seizures.

Sodium valproate is not the first-line anti-epileptic for absence seizures. Whilst it may be used second-line in males, it would not be used in this patient as she is a female of childbearing age and sodium valproate is highly teratogenic.

Question:

A 36-year-old multiparous patient has an uncomplicated delivery at 39 weeks gestation. One hour following delivery, the patient develops severe post partum haemorrhage which is acutely managed in the labour ward. Seven weeks later, the patient presents with difficulty breastfeeding due to a lack of milk production. Which of the following conditions is most likely to explain this history?

A.Hyperprolactinaemia

B.D2 receptor antagonistic medication

C.Pituitary adenoma

D.Sheehan's syndrome

E.Asherman's syndrome

Answer:Sheehan's syndrome

Explanation:

This clinical history suggests Sheehan's syndrome. Sheehan's syndrome is a complication of severe postpartum haemorrhage (PPH) in which the pituitary gland undergoes ischaemic necrosis which can manifest as hypopituitarism. The most common physical sign of Sheehan's syndrome is a lack of postpartum milk production and amenorrhoea following delivery. Diagnosis of Sheehan's is by inadequate prolactin and gonadotropin stimulation tests in patients with a history of severe PPH.

The other options of hyperprolactinaemia, D2 receptor antagonistic medication, and pituitary adenoma are causes of galactorrhoea and not of a lack of milk production. Asherman's syndrome is seen as adhesions and fibrosis of the endometrial cavity most commonly associated with dilation and curettage procedures.

[Source: Dökmeta, HS., Kilicli, F., Korkmaz, S., et al. (2006) Characteristic

features of 20 patients with sheehan's syndrome. Gynecol Endocrinol 2006;22:27983. Retrieved from: RCOG Greentop Guideline No. 52, Prevention and Management of Postpartum Haemorrhage ]

Question:

A 39 hour old neonate is brought to their GP by their parents. The child has not passed stool since being birthed at home and has started vomiting yellow/green liquid after feeding. On examination the childs stomach is grossly distended but with no palpable masses.

Given the likely diagnosis what is the gold standard diagnostic test?

A.Barium enema

B.Colonoscopy

C.Duodenal biopsy

D.High resolution abdominal CT

E.Rectal biopsy

Answer:Rectal biopsy

Explanation:

Rectal biopsy is the gold standard for diagnosis of Hirschsprung's disease

Important for meLess important

Failure to pass meconium (stool) 24 hours after birth can be due to obstruction or motility issues. In this case the underlying motility issue is Hirchsprung's disease.

A barium enema may show dilation of the proximal sigmoid colon but it would not be diagnostic of Hirchsprung's. Barium enema can be considered gold standard in the diagnosis of intussusception however it is not always required and normally it occurs in older children (around 3 months).

A colonoscopy would be difficult given that the patients bowels are full. It would also provide little clinical information. It may be useful for finding masses and diverticula in older patients.

Duodenal biopsy can be used in coeliac but that is not how this patient presented and it is not considered a gold standard investigation.

HRCT of the abdomen would not aid diagnosis.

A rectal biopsy is the gold standard investigation it would show an absence of ganglion cells.

Question:

A 67-year-old male with a history of atrial fibrillation presents with sudden abdominal pain. It started at lunchtime when he ate fried chicken.

On examination, his temperature is 38.7ºC, pulse 120/min, respiratory rate 30/min, blood pressure 87/72 mmHg. His abdomen is tender with generalised guarding.

Blood tests reveal the following:

Na+ 139 mmol/L 135-145 mmol/L

K+ 4.5 mmol/L 3.5 - 5.0 mmol/L

Urea 7.1 mmol/L 2.0-7 mmol/L

Creatinine 145 µmol/L 55-120 umol/L

Bicarbonate 26 mmol/L 22-28 mmol/L

Lactate 5 mmol/L 0.5-1 mmol/L

Given the most likely diagnosis, which one of the following would be the most appropriate definitive treatment?

A.Intravenous 0.9% sodium chloride

B.Intravenous antibiotics and endoscopic retrograde cholangiopancreatography (ERCP)

C.Intravenous antibiotics and supportive care

D.Laparotomy

E.Whipple's resection

Answer:Laparotomy

Explanation:

Acute mesenteric ischaemia usually requires an immediate laparotomy, particularly if signs of advanced ischemia e.g. peritonitis or sepsis

Important for meLess important

The correct answer is laparotomy. The patient is suffering from mesenteric ischemia and has features of sepsis.

Mesenteric ischemia is typically caused by an embolus occluding an artery which supplies the small bowel, usually the superior mesenteric artery. Atrial fibrillation is a major risk factor for it. Big meals can exacerbate an acute episode.

Intravenous 0.9% sodium chloride would be given to increase his blood pressure, but would not be the definitive treatment for his condition.

Intravenous antibiotics and endoscopic retrograde cholangiopancreatography (ERCP) are the treatment of choice in ascending cholangitis. The patient would present with jaundice, fever and right upper quadrant pain.

Intravenous antibiotics and supportive care are the first-line treatment for acute cholecystitis. The patient would present with fever and right upper quadrant pain. They would be offered an elective laparoscopic cholecystectomy, within 1 week of diagnosis to prevent a recurrence.

Whipple's resection (pancreaticoduodenectomy) is performed for resectable cancers of the head of the pancreas. It would present with painless jaundice, anorexia, weight loss and epigastric pain.

Question:

A 2-year-old boy is brought to the surgery by his mother with earache and pyrexia. On examination of the precordium a murmur is heard. Which one of the following characteristics is not consistent with an innocent murmur?

A.Short buzzing murmur in the aortic area

B.Soft-blowing murmur in the pulmonary area

C.Varies with posture

D.Diastolic murmur

E.Continuous blowing noise heard just below the clavicles

Answer:Diastolic murmur

Explanation:

Question:

A 7-week-old baby boy is brought to his GP surgery as his mum is concerned that his feeding has been poor over the last 24hours. She has noticed he feels warm but hasn't noticed any cough or coryzal symptoms. He is due to have his immunisations next week. He has had a wet and dirty nappy today and she noticed his urine smelt very strongly.

On examination, he has a raised temperature at 38.9ºC. He is irritable but examination of his chest and abdomen is otherwise normal.

What is the most appropriate management for this child?

A.Reassure mum that he may have a virus and should be cared for at home with regular paracetamol

B.Admit same day to the paediatrics ward for assessment

C.Treat with antibiotics for a suspected infection and review in 1 week

D.Refer mum to the health visitor for help with feeding and settling her baby

E.Treat with antibiotics for a suspected infection and refer to paediatrics for routine review in clinic

Answer:Admit same day to the paediatrics ward for assessment

Explanation:

Children under 3 months with a suspected UTI should be referred to specialist paediatrics services

Important for meLess important

This baby has a persistent temperature with no clear source of infection. In this case, it is important to consider a urinary tract infection and to collect a urine sample. In this child, it is important to recognise that his raised temperature alone is considered a 'red' sign according to the NICE guidance for the assessment of fever in children and he should be referred for same-day paediatric assessment.

Reassuring the mum that this is a virus and should be managed at home is inappropriate in this child, although paracetamol could be used in a baby who is pyrexial due to vaccinations it would not be acceptable management in this baby.

Although giving antibiotics may treat the child's infection a 1-week review period is a long time in an unwell child who could deteriorate rapidly.

Referring the child to paediatrics for a routine review would not be appropriate for this case as the child has red flags requiring urgent attention.

The health visitor may be useful in helping mum with feeding issues the short history of poor feeding along with temperature suggests that this baby is struggling to feed as he is unwell. Therefore this would not appropriately manage his current presentation.

Question:

A 32-year-old G1P0 woman in her 10th week of pregnancy has presented to the emergency department with intractable nausea and vomiting. This has been worsening over the past week, and she states she has hardly been able to keep any food down over the past 24 hours. She denies having any abdominal pain or change in bowel habit, however, she noticed a very small amount of fresh blood in her most recent vomit. She has been using cyclizine tablets in the last few days with minimal improvement in her symptoms.

She has no past medical history of note.

Various blood tests are taken, and her results are shown below:

Parameter Level Reference Range

Na+ 140 mmol/l 135-145 mmol/l

K+ 3.3 mmol/l 3.5-5.0 mmol/l

Cl- 100 mmol/l 95-105 mmol/l

HCO3- 23 mmol/l 22-28 mmol/l

Urea 13 mmol/l 2.0-7.0 mmol/l

Creatinine 80 mmol/l 55-120 umol/l

Blood Glucose 6.0 mmol/l 4.0-7.8 mmol/l

In addition, a urine dipstick reveals 4+ ketonuria, but no white or red cells.

Given the above information, which is the most appropriate course of action for this patient?

A.Discharge with pyridoxine tablets and advise follow up with GP

B.Discharge with ondansetron tablets as required, and advise follow up with GP

C.Urgently refer to upper gastrointestinal team for gastroscopy, prescribe IV fluids and metoclopramide

D.Discharge with KCl (potassium chloride) and metoclopramide tablets as required and arrange follow up with GP

E.Admit for IV fluid and electrolyte replacement, anti-emetics and trial of bland diet

Answer:Admit for IV fluid and electrolyte replacement, anti-emetics and trial of bland diet

Explanation:

Nausea and vomiting in pregnancy: admission should be considered in cases of ketonuria and/or weight loss despite use of oral anitemetics

Important for meLess important

This woman presents with severe nausea and vomiting that has lead to ketonuria and dehydration. She likely meets the criteria for hyperemesis gravidarum. This is seen on her urine dipstick and increased blood urea. As she has already trialled anti-emetics at home with no response, inpatient treatment is likely now required (as per the Royal College of Obstetricians and Gynaecologists' (RCOG) green-top guideline #69). Pyridoxine is not recommended by RCOG in any case.

Ondansetron is effective and is used as a second-line option, however, inpatient treatment is necessary.

Gastroscopy is unlikely to be of any benefit and need not be performed at this stage. While she did have a small amount of blood in her vomit, this is likely from a Mallory-Weiss tear due to constant retching.

Her K+ levels are low due to vomiting and need replacement. Anti-emetics are also clearly required. However, as mentioned before, these should be done as an inpatient.

Admission for IV fluids, anti-emetics and trial of a bland diet would be the correct course of action in this case as discussed above.

Question:

A 16-year-old girl presents to the clinic with increased thirst and hunger over the past 3 weeks. She undergoes a finger-prick blood glucose test. She has no family history of T1DM.

Capillary blood glucose 12.8 mmol/L (<11.0 mmol/L)

She is subsequently diagnosed with type one diabetes mellitus.

What blood test result is most supportive of her diagnosis?

A.2 hour post-prandial blood glucose level of 9 mmol/L

B.Fasting blood glucose level of 6.8 mmol/L

C.HbA1c of 40 mmol/mol

D.High serum insulin levels

E.Low serum C-peptide levels

Answer:Low serum C-peptide levels

Explanation:

C-peptide levels are typically low in patients with T1DM

Important for meLess important

This patient has type 1 diabetes mellitus (T1DM) and therefore low C-peptide levels are expected. C-peptide is made in the pancreas along with insulin; therefore, in patients with deficient insulin production (T1DM), it is low. In contrast, patients with increased insulin resistance (T2DM) have C-peptide levels that are either normal or high due to increased production of insulin.

This patient has T1DM and therefore would expect a 2-hour post-prandial blood glucose level above 9 mmol/L. Below 9 mmol/L would be expected in a patient that does not have diabetes mellitus.

Similarly, this patient's fasting blood glucose would be expected to be above 7mmol/L to support a diagnosis of type 1 diabetes.

HbA1c would be considered to be elevated above 47 mmol/mol in a diabetic patient and also is not as useful as a diagnostic tool for type 1 diabetes due to the rapid rise in serum glucose.

Type 1 diabetic patients would be expected to have low insulin levels, not high insulin levels.

Question:

A 62-year-old man presents to the emergency department with chest pain that is diagnosed as an inferior STEMI on ECG. His past medical history is unremarkable and he has no allergies.

On examination, he is conscious but in a lot of pain. His blood pressure is 82/60mmHg, respiratory rate 31/min, heart rate 152bpm, temperature 37.5ºC. His oxygen saturations are 93%.

Morphine, oxygen, GTN spray, aspirin and clopidogrel are prescribed. The patient starts to deteriorate clinically and goes into shock.

What drug could have caused the deterioration?

A.Aspirin

B.Clopidogrel

C.GTN spray

D.Morphine

E.Oxygen

Answer:GTN spray

Explanation:

ACS: Nitrates are contraindicated in patients with hypotension (< 90 mmHg)

Important for meLess important

The correct answer is GTN spray. The patient has profound hypotension, and so the use of nitrates would be contra-indicated as this would further lower blood pressure. In this scenario, this has led to cardiovascular collapse and syncope. GTN spray is contraindicated in conditions where there may be hypotension and low cardiac output states such as aortic stenosis.

Aspirin is incorrect in this case. Aspirin is a key part of the initial management of acute coronary syndromes. Aspirin is contraindicated if there is an active GI bleed, however, there is no evidence of this in this patient. Prescribing aspirin would not lead to a drop in blood pressure as it has no effect on blood pressure.

Clopidogrel is incorrect. Clopidogrel is sometimes used in the initial treatment of ACS depending on local practice. As an antiplatelet agent, it has similar contraindications to aspirin. Clopidogrel would not lead to shock as this patient has no known allergies and clopidogrel has no effect on blood pressure.

Morphine is incorrect. It should be noted that basic analgesia is often enough and so morphine is not always needed. Morphine is contraindicated in patients with respiratory depression and those at risk of paralytic ileus. Morphine would make the patient drowsy and could lead to respiratory arrest in an overdose. However, the patient is experiencing a drop in blood pressure, which morphine would not cause if prescribed correctly.

Oxygen is incorrect. Oxygen may not always be needed in acute coronary syndromes, and you should administer depending upon oxygen saturation (i.e. <94%). In this case, oxygen through a device such as a nasal cannula would be appropriate. Oxygen should be used cautiously in patients who are chronically hypercapnic such as those with COPD. Oxygen would not lead to systemic shock as it has no effect on blood pressure.

Question:

A 40-year-old man presents to the emergency department with a 30-minute history of crushing central chest pain radiating to his left jaw. He has a past medical history of type 2 diabetes and takes metformin and hypercholesterolaemia.

On examination, his temperature is 37.1ºC, his heart rate is 75 bpm, and his blood pressure is 130/75 mmHg. No additional heart sounds are heard during auscultation.

An ECG is performed which shows the following:

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Further investigations show ST elevation in leads V7-V9.

What regions of the myocardium are most likely to be affected?

A.Anterior and lateral myocardium

B.Anterior and septal myocardium

C.Inferior and posterolateral myocardium

D.Lateral myocardium

E.Posterior myocardium

Answer:Inferior and posterolateral myocardium

Explanation:

Inferior and posterolateral myocardium is correct. This patient has signs and symptoms consistent with acute coronary syndrome and so, an immediate ECG is indicated. His ECG shows concave ST elevation in the inferior leads (II, III, and aVF) along with hyperacute T waves and reciprocal ST depression and T wave inversion in aVL (one of the lateral leads). There is also ST depression and T-wave inversion in V1 and 2 from a posterior MI (this can be thought of as an upside-down ST-elevation) and hyperacute T waves in V5-V6 from a lateral MI, making this diagnosis the most likely. The presence of ST elevation in V7-V9 confirms that these findings are consistent with the posterior myocardium being involved and not reciprocal changes.

Anterior and lateral myocardium is incorrect. This would have ECG changes present in V1-V4 (affecting the anterior regions) as well as V5-6, I and aVL (the lateral region of the heart). Therefore this option would not explain the changes seen in the inferior leads (II, III, and aVF).

Anterior and septal myocardium is incorrect. This would have ECG changes present in leads V1-V4 alone and this would not explain the changes seen in aVL, V5 and V6, and the inferior leads (II, III, and aVF).

Lateral myocardium is incorrect. This would have ECG changes in leads I and aVL with or without changes in V5 and V6 alone and would not explain the changes seen in the inferior leads (II, III, and aVF).

Posterior myocardium is incorrect. This would explain the reciprocal ST depression and T wave inversion in V1-V2 seen, but would not explain the ECG changes in aVL, V5, and V6.

Question:

A 70-year-old man presents to the emergency department after falling out onto his left arm. He is in intense pain which is worsened with movement.

On examination, there is impaired left wrist extension and sensory loss over the dorsal aspect of the 1st and 2nd metacarpal bones.

Where is the most likely injury?

A.Fracture of olecranon

B.Fracture of the humeral neck

C.Fracture of the humeral shaft

D.Fracture of the proximal humerus

E.Supracondylar fracture

Answer:Fracture of the humeral shaft

Explanation:

The radial nerve is at risk in a shaft fracture of the humerus

Important for meLess important

Fracture of the humeral shaft is correct. This patient has impaired wrist extension (a wrist drop) and impaired sensation over the dorsal aspect of the 1st and 2nd metacarpal bones following a fracture, suggesting the presence of a radial nerve injury. The radial nerve runs in the radial groove of the mid-shaft of the humerus, making it vulnerable to damage in cases of a humeral shaft fracture.

Fracture of olecranon is incorrect. A fracture of the olecranon is associated more with an injury to the ulnar nerve due to its superficial position. An injury here would lead to a 'claw hand' (hyperextension of the metacarpophalangeal joints and flexion at the distal and proximal interphalangeal joints of the 4th and 5th digits), radial deviation of the wrist, and sensory loss to the medial 1.5 fingers (palmar and dorsal aspects). These features do not apply to this patient.

Fracture of the humeral neck is incorrect. This fracture is associated with an axillary nerve injury due to their close proximity, characterised by a flattened deltoid muscle and impaired shoulder abduction. These features do not apply to this patient.

Fracture of the proximal humerus is incorrect. This fracture is associated with an axillary nerve injury due to their close proximity, characterised by a flattened deltoid muscle and impaired shoulder abduction. These features do not apply to this patient.

Supracondylar fracture is incorrect. This is most commonly associated with damage to the ulnar nerve which would lead to a 'claw hand' (hyperextension of the metacarpophalangeal joints and flexion at the distal and proximal interphalangeal joints of the 4th and 5th digits), radial deviation of the wrist, and sensory loss to the medial 1.5 fingers (palmar and dorsal aspects). These features do not apply to this patient.

Question:

Electroconvulsive Therapy (ECT) is clinically indicated in which of the following conditions as recommended by NICE?

A.In the general management of schizophrenia

B.First episode of mild depression with difficulty in daily functioning

C.In a catatonic patient

D.As long term management to prevent recurrence of depressive illness

E.In a patient with bipolar affective disorder, currently in a hypomanic episode

Answer:In a catatonic patient

Explanation:

ECT is indicated in life-threatening major depressive disorder, where catatonia in present

Important for meLess important

From NICE guidelines;

It is recommended that electroconvulsive therapy (ECT) is used only to achieve rapid and short-term improvement of severe symptoms after an adequate trial of other treatment options has proven ineffective and/or when the condition is considered to be potentially life-threatening, in individuals with:

catatonia

a prolonged or severe manic episode

severe depression that is life-threatening

Question:

Which of the following would be most consistent with a histologically aggressive form of prostate cancer?

A.FIGO stage 1 disease

B.FIGO stage IV disease

C.EuroQOL score of 5

D.Gleason score of 2

E.Gleason score of 10

Answer:Gleason score of 10

Explanation:

Prostate cancer is histologically graded using the Gleason score (see below). A score of 10 is consistent with a histologically aggressive form of the disease. The FIGO staging system is used to stage gynaecological malignancy. The EuroQOL score is a quality of life measurement tool.

Question:

A 26-year-old woman presents to the emergency department with sudden onset, pleuritic chest pain, worse on inspiration. She has some associated shortness of breath. She has no significant past medical history, nor family history.

On examination, she appears dyspnoeic and a D-dimer test is positive. A subsequent CT pulmonary angiogram confirms a diagnosis of pulmonary embolism. There is no clear cause that could have provoked this. Accordingly, she is commenced on anticoagulation.

For how long should this treatment continue?

A.3 months

B.4 months

C.6 months

D.12 months

E.Lifelong

Answer:6 months

Explanation:

'Unprovoked' pulmonary embolisms are typically treated for 6 months

Important for meLess important

The correct answer is 6 months. As of 2020, first-line treatment is now with direct oral anticoagulants. Patients are usually reviewed after 3 months, and for those in whom no cause was found (unprovoked), it is usually continued for a further 3 months, to a total of 6 months.

3 months would be appropriate if the embolism was provoked - for instance, recent major surgery with associated extended bed rest and immobility. However, as there was no clear cause here, 6 months is more appropriate.

4 months is not a standard length of time that anticoagulation is given for.

12 months is not a standard length of time to continue anticoagulation. After review, the doctor may well decide to extend it for this period of time, but 6 months is the usual duration.

In some cases, anticoagulation may be recommended lifelong, for example, if an underlying prothrombotic condition is found. For this patient, however, 6 months is appropriate.

Question:

A 34-year-old woman presents with a rash on her face. She has been feeling generally unwell for around three months with lethargy and has a variety of joint pains

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What is the most likely diagnosis?

A.Impetigo

B.Acne rosacea

C.Systemic lupus erythematosus

D.Sarcoidosis

E.Perioral dermatitis

Answer:Systemic lupus erythematosus

Explanation:

Question:

A 25-year-old male presents to his GP after being asked by his friends to come. During the appointment, he reveals that that he believes that everyone is able to hear his thoughts, like he is a radio station and that he can hear voices commenting on his behaviour. On observation, he has a blunted affect, alogia and avolition. The GP also notices that the patient repeats the last word of any question that he is asked.

What is this phenomena called?

A.Copropraxia

B.Echolalia

C.Echopraxia

D.Neologism

E.Palilalia

Answer:Echolalia

Explanation:

Echolalia is the repetition of someone else's speech including the questions being asked

Important for meLess important

Echolalia is the repetition of someone else's speech including the questions being asked. It is a feature of schizophrenia, typically catatonic schizophrenia which is characterised by negative symptoms including blunting of affect, alogia (poverty of speech) and avolition (poor motivation). This patient expresses two of Schneider's first-rank symptoms: thought broadcasting and third-person auditory hallucinations and is diagnosable with schizophrenia.

Copropraxia is the involuntary performing of obscene or forbidden gestures or inappropriate touching.

Echopraxia is the meaningless repetition or imitation of the movements of others.

A neologism is a made up word.

Palilalia is the automatic repetition of one's own words, phrases or sentences.

Question:

A 76-year-old female presents with sudden onset hemiparesis affecting the left face, arm and leg. On examination you note left sided hemiparesis, and a left homonymous hemianopia.

Which is the best assessment tool for differentiating between stroke and stroke mimics?

A.ABCD2

B.FAST

C.NIHSS

D.CHA2DS2-VASc

E.ROSIER

Answer:ROSIER

Explanation:

The Recognition of Stroke in the Emergency Room (ROSIER) scale is effective in the initial differentiation of acute stroke from stroke mimics.

The ABCD2 score is used for predicting the occurrence of a stroke in the short term period following a transient ischaemic attack.

The National Institutes of Health Stroke Scale (NIHSS) is a tool used to objectively measure the impairment caused by a stroke.

The CHA2DS2-VASc score is a tool used to predict the likelihood of stroke occurring secondary to atrial fibrillation.

Question:

A 27-year-old female of Afro-Caribbean origin presents to the oncology clinic following a referral by her general practitioner. She has been noticing some lumps on her neck that have been classified as painless, non-tender, asymmetrical lymphadenopathy. She complains of increasing night sweats and she noticed some pain when she drinks alcohol.

Given the most likely diagnosis, which one of the following features is associated with a poor prognosis?

A.Afro-Caribbean origin

B.Alcohol-induced pain

C.Asymmetrical lymphadenopathy

D.Female sex

E.Night sweats

Answer:Night sweats

Explanation:

'B' symptoms in Hodgkin's lymphoma are associated with a poor prognosis

weight loss > 10% in last 6 months

fever > 38ºC

night sweats

Important for meLess important

The correct answer is night sweats. The patient is presenting with painless, non-tender, asymmetrical lymphadenopathy. These features are indicative of a diagnosis of Hodgkin's lymphoma. This malignancy can be associated or not with 'B' symptoms such as weight loss > 10% in the last 6 months, fever > 38ºC, and night sweats. The presence of at least one of these 'B' symptoms is associated with a poor prognosis.

People of Afro-Caribbean origin have a worse prognosis in acute lymphoblastic leukaemia, but not in Hodgkin's lymphoma. That condition would present with bone marrow failure and it is typical of a paediatric population.

Alcohol-induced pain is a characteristic that can help differentiate between Hodgkin's lymphoma and non-Hodgkin's lymphoma, being present only in some cases of the first type. But it has not been associated with a poor prognosis.

Female sex has not been associated with poor prognosis. Some studies suggest that the male sex could be connected with a poorer outcome.

Asymmetrical lymphadenopathy is a characteristic feature of of Hodgkin's lymphoma and it has not been associated with a worse prognosis.

Question:

A 35-year-old mountain climber presents to the emergency department after concerns were raised during private performance testing. His ECG shows a progressively prolonged PR interval, the longest before a non-conducted p-wave. He is asymptomatic and has no notable past medical history.

What is the appropriate management?

A.24hr ECG

B.IV prednisolone

C.Implantable cardioverter-defibrillator (ICD)

D.Monitoring

E.IV propranolol

Answer:Monitoring

Explanation:

Mobitz type 1 (Wenckebach phenomenon) is a normal variant in an athlete

Important for meLess important

The pattern described above is a 2nd degree AV node block Mobitz type 1 pattern, sometimes called Wenckebach phenomenon. This can be identified by the prolonged PR interval suggesting AV node block, and the increasing PR intervals leading to a non-conducted p-wave (a dropped beat) before the cycle starts again with slowly increasing PR intervals. A type 2 pattern would show prolonged PR interval and non-conducted p-waves in a regular ratio (e.g. 2:3).

Monitoring is the correct answer. Mobitz type 1 heart block is a normal variant in athletes due to increased vagal tone. Thus in this patient, you can discharge him and monitor him with ECG in primary care.

24hr cardiac monitoring is incorrect. This would be a good work up test for a symptomatic patient, especially if these symptoms are paroxysmal. This patient is asymptomatic and the ECG abnormality is visible so there is no indication for this test.

IV prednisolone is incorrect in this case. IV prednisolone can be used to treat autoimmune myocarditis, which can cause 2nd-degree Mobitz type 1 AV node block. However, there is no indication that this is the cause of the cardiac abnormality here and so this wouldn't be indicated.

An ICD would not be appropriate in this situation. This can be considered in haemodynamically unstable patients who have a reduced left ventricular ejection fraction.

IV propranolol would not be appropriate in this situation. This can be used for rhythm control in supraventricular tachycardias such as AF. Beta-blockers can actually cause AV node block and so would not be indicated.

Question:

A 40-year-old man is admitted to the acute medical unit with an 8-day history of dizziness. There is no past medical history of note and he takes no regular medications.

On examination, he appears dehydrated. His heart rate is 130bpm with a blood pressure of 100/50mmHg. Auscultation is unremarkable and he has a soft abdomen.

Venous blood gas:

pH 7.36 (7.35 - 7.45)

Bicarbonate 23 mmol/L (22 - 29)

Chloride 96 mmol/L (95 - 108)

Lactate 2.9 mmol/L (0.5 -2.2)

Glucose 32 mmol/L (4 - 7)

Laboratory tests:

Hb 177 g/L (135-180)

Platelets 259 \* 109/L (150 - 400)

WBC 6 \* 109/L (4.0 - 11.0)

Na+ 148 mmol/L (135 - 145)

K+ 4 mmol/L (3.5 - 5.0)

Urea 8 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Given the likely diagnosis, what is the most important parameter to monitor for clinical improvement?

A.Blood pressure

B.Ketones

C.Lactate

D.PH

E.Serum osmolality

Answer:Serum osmolality

Explanation:

Serum osmolality is the key parameter to monitor in patients with hyperosmolar hyperglycaemic state

Important for meLess important

This patient has a hyperosmolar hyperglycaemic state (HHS). The diagnostic criteria for HHS include hypovolaemia, hyperglycaemia (blood sugar > 30mmol/L) and a serum osmolality > 320mosmol/kg. This patient's estimated serum osmolality is (2x148) + 32 + 8 = 336mosmol/kg, with a blood sugar of 31mmol/L and therefore meeting the criteria. Clinical features are commonly secondary to hypovolaemia and include fatigue, lethargy, altered consciousness, hypotension and tachycardia. HHS has a high risk of morbidity and mortality secondary to complications associated with a raised serum osmolality (e.g. thrombosis) or from rapid correction of serum osmolality (cerebral oedema). Therefore, it is vitally important that during a patient's treatment of HHS, that serum osmolality is monitored.

Vital signs including heart rate and blood pressure are important to be monitored in all patients presenting to the hospital acutely unwell. It would be important to observe this patient's blood pressure given his hypotension. However, blood pressure alone is not a key parameter to monitor that is specific to HHS, unlike serum osmolality.

Ketones are important to measure in a patient with diabetic ketoacidosis. Diabetic ketoacidosis presents acutely with fatigue, lethargy and signs of hypovolaemia such as this patient's tachycardia and hypotension. Although ketone levels are not given in this question, the normal pH and bicarbonate levels allow us to know that this patient is not acidotic and, instead, point to the diagnosis of HHS.

It is important to measure lactate levels as they are raised in patients with dehydration, sepsis and ischaemia, with higher levels suggesting more severe illness. Looking at this scenario, this patient's lactate is likely to be raised secondary to hypovolaemia. However, lactate measurements are not a key parameter to measure in HHS. Rather, serum osmolality is a preferred way of assessing improvement in hydration.

Similarly to ketone levels, it is important to monitor pH in diabetic ketoacidosis. However, the absence of acidosis in this scenario makes a diagnosis of HHS more likely for which pH is not a key parameter to monitor.

Question:

A 65-year-old female is admitted for an elective total hip replacement of the right hip. On admission she is given thigh-length anti-embolism stockings to wear before surgery and until she regains mobility. It is hospital policy to also use a low molecular weight heparin for postoperative thromboprophylaxis. According to NICE guidelines, when should this be initiated?

A.6-12 hours before surgery

B.1-4 hours after surgery

C.Immediately after surgery

D.6-12 hours after surgery

E.30 minutes - 1 hour after surgery

Answer:6-12 hours after surgery

Explanation:

For elective total hip replacement surgery NICE recommend commencing a low molecular weight heparin 6-12 hours after surgery.

Question:

This diabetic man complained of worsening of his vision.

What is seen on fundoscopy?

A.Normal retina

B.Central retinal vein occlusion

C.Papilloedema

D.Proliferative retinopathy

E.Macular oedema

Answer:Proliferative retinopathy

Explanation:

Question:

A 72-year-old man presents to the surgery with a cut to his arm. He was working in the garden yesterday and fell over cutting himself on some soiled-glass. His history includes hypertension and gout, for which he takes amlodipine and allopurinol. He is unsure of his immunisation history and there are no immunisations documented on his records.

On examination, he is well, temperature 36.7 ºC, and his heart rate is 88bpm. He has a small, clean 2cm by 1cm laceration to his arm.

What is the single most appropriate management step?

A.Metronidazole antibiotics

B.Tetanus booster

C.Tetanus booster and immunoglobulin

D.Tetanus immunoglobulins

E.Wound cleaning only

Answer:Tetanus booster and immunoglobulin

Explanation:

Patients with an uncertain tetanus vaccination history should be given a booster vaccine + immunoglobulin, unless the wound is very minor and < 6 hours old

Important for meLess important

In this case, the most appropriate course of action is to give a tetanus booster and tetanus immunoglobulin. This man has an unknown vaccination, a tetanus prone wound (occurred whilst gardening) and it is more than 6 hours old.

Metronidazole antibiotic is the treatment for tetanus rather than being used as a prophylactic agent.

A tetanus booster alone is sufficient if a patient has a tetanus prone wound with a full vaccination history but the last dose being more than 10 years ago.

Tetanus immunoglobulin can be used to treat proven cases of tetanus. In this case, as the vaccination history is not known a tetanus booster and immunoglobulin should be given.

Simple wound cleaning can be used if a patient has had a full course of tetanus vaccines, with the last dose less than 10 years ago, irrespective of the severity of the wound. The vaccination history is not known in this case so wound cleaning only would not be appropriate.

Question:

A 32-year-old woman presents to her GP with a swollen right shin. She is currently 35 weeks pregnant. She believes she has been bitten by an insect on a forest walk yesterday, and has become infected. The bite started off as a small red patch, but has now grown to a size larger than her hand.

On inspection, her right shin appears to be red, hot and swollen. You agree with the patient that it is a spreading infection from the bite, and diagnose her with cellulitis.

Her past medical history includes asthma and an allergy to penicillin. Regarding her pregnancy, she has developed placenta praevia but otherwise, her baby and herself are well.

Which antibiotic is the most appropriate for this patient?

A.Cefuroxime

B.Clarithromycin

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

Flucloxacillin is usually the first line antibiotic for cellulitis in all patients, including pregnant women.

If flucloxacillin is contraindicated due to allergy, erythromycin is the antibiotic of choice for women who are pregnant. This patient would be managed in the community.

If the patient displayed symptoms of systemic infection, such as a fever, tachycardia or tachypnoea, admission into hospital with IV antibiotics becomes necessary.

Question:

A 75-year-old right handed female with a background of breast cancer treated with chemotherapy five months ago presents with a two day history of difficulty finding her words. There is no history of seizure or headache. On examination she has a Glasgow coma scale 15/15, she is a pyrexial, there is no dysarthria, although there is an apparent expressive dysphasia with no other focal neurology. Her blood tests are unremarkable.

Her CT head is reported as follows:

Left inferior frontal lesion with surrounding oedema consistent with a metastasis

What is the next most appropriate step?

A.Intravenous dexamethasone

B.Lamotrigine

C.Mannitol

D.Intravenous aciclovir

E.Loading dose of phenytoin

Answer:Intravenous dexamethasone

Explanation:

Peritumoural vasogenic oedema can disrupt synaptic transmission leading to seizures, focal neurological deficits and even potentially fatal brain herniation. Therefore, the most appropriate therapy is glucocorticoids in these patients.

Generally, for patients with brain metastases who have not had any seizures or any neurosurgical procedures anti-epileptic drugs are not used for prophylaxis. However, they may be indicated on a case by case basis depending on certain risk factors. There is no suggestion of raised intracranial pressure therefore mannitol is not appropriate. Moreover, there is no suggestion of a viral encephalitis so aciclovir is not appropriate.

Question:

You are the foundation year one doctor covering the medical wards. You hear a nurse shout for assistance from B bay. As you enter the bay you see a young male in status epilepticus. The nurse has positioned him onto his side in an attempt to maintain his airway, however it is difficult to assess whether it is patent. High flow oxygen has been placed but no saturations can be recorded at this time. A blue venflon is positioned in the back of his right hand.

What medication should be prescribed and administered to terminate the seizure?

A.IV Phenobarbital 1 g

B.IV Lorazepam 4 mg

C.Propofol Infusion

D.PO Diazepam 10 mg

E.IV Phenytoin 1.5 g

Answer:IV Lorazepam 4 mg

Explanation:

This patient is in status. He appears to have a patent airway and is breathing. High flow oxygen is running. This patient has a cannula in situ therefore the correct answer is 2. IV Lorazepam 4 mg. This can be given by slow injection and should be repeated if status is unresolved at 10 minutes.

Escalation of treatment is the prescription of phenytoin. Phenytoin requires cardiac monitoring and should be discussed with senior colleagues before prescribing.

Diazepam may be used as a rectal preparation.

Propofol and Phenobarbital are not appropriate at this stage.

Question:

A 35-year-old woman presents to the emergency department with sudden abdominal pain and vaginal bleeding. She has a past medical history of complicated pelvic inflammatory disease resulting in scarring of the right fallopian tube. Her last period was 6 weeks ago.

Her heart rate is 93 bpm, and her blood pressure is 136/76 mmHg. Palpation of the left iliac fossa elicits pain. A urinary pregnancy test is positive and further investigations are performed:

Serum b-hCG 5200 IU/L

Ultrasound 45 mm left adnexal mass present, no heartbeat seen

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 salpingotomy and monitoring

Explanation:

Ectopic pregnancy requiring surgical management: Salpingotomy (rather than salpingectomy) should be considered for women with risk factors for infertility such as contralateral tube damage

Important for meLess important

Laparoscopic salpingotomy 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 she has pelvic inflammatory disease (PID) requiring hospitalisation that has led to scarring of the contralateral tube, the ideal method of choice would be a salpingotomy. This preserves the affected tube and means that her fertility is preserved.

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 salpingectomy and monitoring is incorrect. Although this is another option for surgery in the management of ectopic pregnancy, it would be less appropriate to remove the affected tube in its entirety as this patient has a history of PID requiring hospitalisation and subsequent contralateral fallopian tube scarring. A salpingotomy means that the affected tube is preserved, and means that her fertility is preserved.

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 72-year-old man attends for his annual heart failure review.

He reports feeling physically well with no chest symptoms and can perform all activities of daily living quite comfortably.

His observations are all normal, with a heart rate 78 beats per minute and blood pressure 133/78 mmHg. His weight is stable when compared with previous measurements.

On examination, his pulse his regular, and his heart sounds are normal. The JVP is not raised. The chest is clear, and there is very minimal pitting oedema around both ankles.

You review his heart failure medications. He currently takes:

Ramipril 10mg OD

Bisoprolol 10mg OD

Furosemide 40mg OM

Assuming patient consent and no contra-indications, which of the following would be the most useful 'next step' to take, as part of his review?

A.Ensure patient is listed for annual influenza vaccination

B.Ensure patients is listed for annual influenza vaccination and annual pneumococcal vaccination

C.Increase bisoprolol dose

D.Increase furosemide dose

E.Increase ramipril dose

Answer:Ensure patient is listed for annual influenza vaccination

Explanation:

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

Important for meLess important

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

Pneumococcal vaccination should also be offered to patients with heart failure, but there is no need to give it annually.

This patient is already taking the maximum doses of both ramipril and bisoprolol that are licensed for use in heart failure. Also, his blood pressure is well-controlled with his current medications.

Clinically, this patient's heart failure is well-controlled. There is nothing to suggest he would benefit from increasing the dose of furosemide at present, and it may cause more harm than good (e.g. electrolyte imbalance).

Question:

A 78-year-old female is admitted from the nursing home with breathlessness and a longstanding harsh dry cough. The staff state that her breathlessness has been occurring over the last six weeks but has reached a level that warranted hospital admission. She has no history of respiratory disease but has multiple comorbidities and is on an extensive polypharmacy.

On examination, she is afebrile and tachypnoeic. Auscultation reveals bilateral lower zone inspiratory coarse crackles with reduced air entry.

Chest X-ray and high-resolution CT are performed and show fibrotic changes with patchy ground-glass opacities in the lower zones.

Which of the following medications is the likely culprit of the findings?

A.Trimethoprim

B.Ciclosporin

C.Atorvastatin

D.Amiodarone

E.Hydroxychloroquine

Answer:Amiodarone

Explanation:

Lower zones lung fibrosis: amiodarone

Important for meLess important

This patient has developed pulmonary fibrosis secondary to long term amiodarone use. It typically occurs with doses that exceed 400mg daily after two or more months of therapy. Estimates range from 1 to 5% in the patients who are on long term amiodarone. The mechanism is not entirely understood however, current hypotheses include direct toxic injury to the lung or an indirect immunological reaction.

Drugs that can cause pulmonary fibrosis include bleomycin, cyclophosphamide, nitrofurantoin, methotrexate and penicillamine. The other answers are not linked with lung fibrosis.

Atorvastatin is an HMG-CoA reductase inhibitor which works by reducing LDL cholesterol. Adverse effects include myopathy and liver impairment.

Trimethoprim is an antibiotic which works by inhibiting dihydrofolate reductase. Adverse effects include myelosuppression and neural tube defects.

Hydroxychloroquine is used to treat systemic erythematous lupus and rheumatoid arthritis. Adverse effects include visual disturbances.

Ciclosporin is an immunosuppressant which works through inhibiting calcineurin. There are many adverse effects associated with this drug including gum hypertrophy, nephrotoxicity and hepatotoxicity.

Question:

A 65-year-old patient with a known history of stable angina is presented to his GP with poor control of his symptoms. He is taking atenolol for the angina. The patient's allergy notes indicate that he had developed ankle oedema when tried on nifedipine in the past for hypertension. According to NICE guidelines, which of the following drugs can be added to help control his symptoms?

A.Ivabradine

B.Amlodipine

C.Simvastatin

D.Verapamil

E.Diltiazem

Answer:Ivabradine

Explanation:

The combination of a non-dihydropyridine (E.g verapamil and diltiazem) and a beta blocker is contraindicated due to the risk of marked bradycardia. NICE guidelines recommend the addition of a long-acting nitrate, ivabradine, nicorandil or ranolazine if a dihydropyridine calcium channel blocker is not tolerated.

http://www.nice.org.uk/guidance/cg126/chapter/1-Guidance#anti-anginal-drug-treatment

Question:

A 78-year-old lady presents with colicky abdominal pain and a tender mass in her groin. On examination there is a small firm mass below and lateral to the pubic tubercle. Which of the following is the most likely underlying diagnosis?

A.Incarcerated inguinal hernia

B.Thrombophlebitis of a saphena varix

C.Incarcerated femoral hernia

D.Incarcerated obturator hernia

E.Deep vein thrombosis

Answer:Incarcerated femoral hernia

Explanation:

Femoral hernia = High risk of strangulation (repair urgently)

Important for meLess important

Femoral herniae account for <10% of all groin hernias. In the scenario the combination of symptoms of intestinal compromise with a mass in the region of the femoral canal points to femoral hernia as the most likely cause.

Question:

A 65-year-old man presents with severe epigastric pain radiating to his back. He states that the pain is 9/10 severity. He has associated nausea and vomiting. Serum amylase is raised. You suspect a diagnosis of acute pancreatitis.

How would you initially manage his acute pain?

A.IV morphine in 1-2mg boluses until comfortable

B.IM pethidine

C.IV morphine 10mg STAT

D.Regular paracetamol

E.Regular paracetamol and ibuprofen

Answer:IV morphine in 1-2mg boluses until comfortable

Explanation:

This patient has severe pain which will likely need an opiate to settle. IV morphine titrated in 1-2mg boluses until comfortable would be a sensible first choice. Regular paracetamol would also be sensible as this would be opioid sparing, however this would not be the first choice for initially managing severe acute pain.

Question:

A 13-year-old girl presents with severe nausea, prolonged vomiting and abdominal pain. In the preceding few months she has been suffering from fatigue, weight loss, polydipsia and polyuria. Urinalysis reveals 3+ glucose and 2+ ketones. An arterial blood gas (ABG) sample demonstrates:

pO2 13.2 kPa

pCO2 5.1 kPa

pH 7.28

HCO3- 19 mmol/l

How would you describe the acid-base balance?

A.Normal acid-base balance

B.Metabolic acidosis

C.Metabolic alkalosis

D.Respiratory acidosis

E.Mixed metabolic acidosis and metabolic alkalosis

Answer:Metabolic acidosis

Explanation:

The pH is low which confirms acidosis. The low bicarbonate confirms a metabolic acidosis. In this case it is likely that the ketoacidosis has caused a metabolic acidosis. However it is also important to remember that persistent vomiting can result in a concurrent metabolic alkalosis.

Question:

A 55-year-old man is revealed to have hypercalcemia on his routine blood test. A subsequent urine calcium level shows hypocalciuria. He has a past medical history of hypertension and diabetes.

Which of the following drugs is likely to result in this electrolyte derangement?

A.Amlodipine

B.Bendroflumethiazide

C.Metformin

D.Ramipril

E.Spironolactone

Answer:Bendroflumethiazide

Explanation:

Thiazide diuretics can cause hypercalcaemia and hypocalciuria

Important for meLess important

All thiazide-related diuretics commonly result in hyponatraemia, hypokalaemia, hypercalcaemia, and hypocalciuria.

Amlodipine is a calcium channel blocker. While it acts on calcium channels, the drug is not known to cause hypercalcaemia or hypocalciuria.

Metformin is not known to cause hypercalcaemia or hypocalciuria.

Ramipril is an ACE inhibitor and it is not known to cause hypercalcaemia or hypocalciuria. ACE inhibitors are known to cause hyperkalaemia.

Spironolactone is a potassium-sparing diuretic. It is not known to cause hypercalcaemia or hypocalciuria, but it is known to cause hyperkalaemia.

Question:

A 72-year-old female is brought into the general practice by her worried husband.

She has been more forgetful over the past few months, on some days more than others, and seems to struggle to keep her focus on simple daily activities and conversations. Her husband is also worried as she occasionally states she is talking to their dog whilst apparently talking alone, although they have never had any pets.

She is otherwise well, eating and drinking as usual. Examination and routine blood tests are all unremarkable, and there is no reason to suspect delirium.

What is the most likely diagnosis?

A.Alzheimer's disease

B.Depression

C.Fronto-temporal dementia

D.Lewy body dementia

E.Vascular dementia

Answer:Lewy body dementia

Explanation:

Visual hallucinations with dementia = Lewy body dementia

Important for meLess important

Lewy body dementia (LBD) is the most likely diagnosis in a patient with early, fluctuating cognitive impairment and visual hallucinations, particularly if the hallucinations are not unpleasant. Indeed, hallucinations of friendly children and animals are often described, such as in this case. LBD accounts for around 20% of dementia cases. Parkinsonism typically develops later and therefore may not be mentioned on initial presentation. Treatment of LBD is similar to Alzheimer's treatment; both acetylcholinesterase inhibitors and memantine can be used depending on the stages. Antipsychotics should be avoided in LBD as they can precipitate parkinsonism.

Alzheimer's disease is a good differential but is less likely to fluctuate and cause visual hallucinations (in this patient's case, talking to a dog). Early impairment in attention and executive function (such as daily tasks and conversations in this case), rather than just memory loss, are characteristic of LBD and can help differentiate it from Alzheimer's.

Depression can cause patients to become more forgetful and even hallucinate their loved ones if part of a grief reaction. However, this patient never had a dog, and no other symptoms of depression (such as lack of appetite or poor sleep) are mentioned.

Fronto-temporal dementia, also known as Pick's disease, typically causes personality change and impaired social conduct. Other common features include hyperorality, disinhibition, increased appetite, and perseveration behaviours.

Vascular dementia typically causes a stepwise deterioration, rather than having a fluctuating course, and is less likely to cause hallucinations.

Question:

A 5-year-old girl is seen in the emergency department following her first seizure. This lasted 5 minutes. Her parents describe her falling to the floor suddenly and jerking her arms. She now feels well in herself and does not remember the incident. She is otherwise well.

Neurological examination is normal. General examination reveals four de-pigmented patches of skin over her torso and areas of thickened leathery skin over her lumbar region.

What is the most likely diagnosis?

A.Epilepsy

B.Neurofibromatosis type 2

C.Tuberous sclerosis

D.McCune- Albright syndrome

E.Neurofibromatosis type 1

Answer:Tuberous sclerosis

Explanation:

Ash leaf spots and shagreen patches, although not pathognomonic, are often seen in cases of tuberous sclerosis. Most of the manifestations of this disease are neurocutaneous, similarly in the neurofibromatous diseases.

All of the options above may have a seizure component but do not features the skin manifestations described in this case.

Question:

A 24-year-old woman attends her GP surgery worried about her risk of pregnancy. She usually takes the combined contraceptive pill. It is currently day 7 of the first week of her pill packet. She missed her pills on days 2 and 3 and then proceeded to have unprotected sexual intercourse (UPSI) on day 4 of the packet.

You decide to prescribe ulipristal acetate as a form of emergency contraception.

When can she restart her normal hormonal contraception?

A.After she had had a negative pregnancy test

B.Hormonal contraception is contraindicated

C.Immediately

D.Wait 5 days

E.Wait 7 days

Answer:Wait 5 days

Explanation:

After taking ulipristal acetate women should wait 5 days before starting regular hormonal contraception

Important for meLess important

You must advise patients to wait 5 days before they restart regular hormonal contraception. This is because ulipristal acetate may reduce the effectiveness of hormonal contraception. This is a risk as progestogen may compromise ulipristal acetate's ability to inhibit ovulation.

There is one exception to this according to the FSRH. The exception must meet the following conditions:

A patient must already be established on the combined oral contraceptive pill (COCP),

The COCP must be restarted after a pill-free interval,

Pills must be missed later than the first week of pill taking.

If all of the above conditions are met, then if a patient takes ulipristal acetate, they can resume the COCP immediately. This does not apply in this situation and so the patient should wait 5 days before restarting.

Contraception with the pill, patch, or ring should be started, or restarted, 5 days after having ulipristal. Barrier methods should be used during this period.

After she has had a negative pregnancy test is incorrect. A pregnancy test is not routinely recommended for patients taking ulipristal acetate. NICE recommends that a pregnancy test is only taken if the patient's next period is more than 7 days late or lighter than usual.

Hormonal contraception is contraindicated is incorrect. Using ulipristal acetate is not a contraindication for hormonal contraception. NICE only recommend that a patient waits 5 days before starting/restarting their regular hormonal contraception.

Immediately is incorrect. Due to the theorised risk of ulipristal acetate reducing the effectiveness of hormonal contraception, it is advised that a patient waits 5 days before starting/restarting regular hormonal contraception.

Wait 7 days is incorrect. NICE recommend that a patient wait 5 days before starting/restarting their regular hormonal contraception. Therefore this answer is incorrect, as 5 days is the required wait time.

Question:

What is the mechanism of action of Rivaroxaban?

A.Protein C inhibitor

B.Inhibits factor II, VII, IX and X

C.Direct factor Xa inhibitor

D.Antithrombin III activator

E.Direct thrombin inhibitor

Answer:Direct factor Xa inhibitor

Explanation:

Rivaroxaban is a direct factor Xa inhibitor

Important for meLess important

Rivaroxaban is a direct factor Xa inhibitor. Apixaban is also a direct factor Xa inhibitor.

Dabigatran is a direct thrombin inhibitor.

Heparin activates antithrombin III.

Warfarin inhibits clotting factors II, VII, IX and X.

Question:

A middle-aged male presents to the endocrinology clinic after needing to buy larger shoes and noticing that his hands are enlarging. An MRI brain shows a brain tumour accounting for his symptoms. He is sent for visual field testing.

What is the classical visual field deficit seen in these patients?

A.Homonymous hemianopia

B.Homonymous superior quadrantanopia

C.Homonymous inferior quadrantanopia

D.Binasal hemianopia

E.Bitemporal hemianopia

Answer:Bitemporal hemianopia

Explanation:

A pituitary adenoma may cause the classical visual field defect of a bitemporal hemianopia due to compression of the optic chiasm

Important for meLess important

Compression of the optic chiasm affects the crossing nasal fibres that convey information from the temporal visual fields, resulting in a bitemporal hemianopia. Pre-chiasmal (anterior pathway) lesions cause monocular field loss and post-chiasmal (posterior pathway) lesions cause homonymous visual field deficits.

Question:

A 56-year-old woman presents to her GP with left-sided hand pain. She points to the site of the pain, which is at the base of her left thumb and describes the pain as a constant ache that is worse on movement. She says the pain has been getting worse over the last 12 months. The patient has a past medical history of gout in her big toe, for which she takes regular allopurinol.

Her mother was diagnosed with rheumatoid arthritis five years ago, and she is worried that she may also have this.

On examination, there is unilateral squaring of the left thumb and tenderness on palpation of the left thumb base.

Based on this history and clinical examination, what is the most likely diagnosis?

A.De Quervain's tendinosis

B.Gout

C.Osteoarthritis

D.Psoriatic arthritis

E.Rheumatoid arthritis

Answer:Osteoarthritis

Explanation:

Squaring of the thumbs is a characteristic feature of hand osteoarthritis

Important for meLess important

Osteoarthritis is the correct answer as squaring of the thumb is characteristic of this disease. The squaring of the thumb is a result of bony outgrowths at the basilar joint of the thumb. Moreover, the unilateral and pain that is worse on movement is typical of osteoarthritis.

De Quervain's tendinosis is a cause of pain at the base of the thumb but would not typically present with squaring of the thumb.

Although this patient has a history of gout, this would not typically present with thumb squaring. Also, gout is also more likely to affect joints in the lower limb such as the hallux, ankle or knee.

Psoriatic arthritis does not typically present with squaring of the thumb. It typically affects the distal joints rather than the proximal thumb base. It is also likely that some skin and nail signs would have been noted on examination.

Although rheumatoid arthritis may present with a similar pain history and there is a positive family history, this would not explain the squaring of the thumb.

Question:

A patient is investigated for leukocytosis. Cytogenetic analysis shows the presence of the following translocation: t(9;22)(q34;q11). Which haematological malignancy is most strongly associated with this translocation?

A.Chronic myeloid leukaemia

B.Acute promyelocytic leukaemia

C.Acute lymphoblastic leukaemia

D.Burkitt's lymphoma

E.Mantle cell lymphoma

Answer:Chronic myeloid leukaemia

Explanation:

CML - Philadelphia chromosome - t(9:22)

Important for meLess important

The Philadelphia translocation is seen in around 95% of patients with chronic myeloid leukaemia. Around 25% of adult acute lymphoblastic leukaemia cases also have this translocation.

Question:

You are working on a cardiology ward. A nurse asks you to review the ECG of a patient who has recently been started on IV furosemide. You noticed the QT interval is 480ms.

Which one of the following electrolyte disturbances could lead to long QT syndrome?

A.Hyperkalaemia

B.Hypokalaemia

C.Hypercalcaemia

D.Hypernatraemia

E.Hyponatraemia

Answer:Hypokalaemia

Explanation:

Hypokalaemia can lead to long QT syndrome

Important for meLess important

Long QT syndrome occurs when the QT interval is >450ms. This can predispose an individual to developing Torsade de Pointes which is a life-threatening polymorphic ventricular tachycardia. There are many causes of long QT syndrome (see links below for more details).

Electrolyte abnormalities which can cause long QT syndrome are hypokalaemia, hypomagnesemia and hypocalcaemia. Potassium efflux is one of the main regulators of myocardial repolarisation. During phase 2 of the cardiac action potential, there is a delicate balance between potassium outflow and calcium inflow which creates a plateau. If there is hypokalaemia, there is a decreased drive for potassium to leave the cell, thus leading to a longer plateau stage which can predispose to Torsade de Pointes. See link below for more details.

Cardiac action potential: http://www.pathophys.org/physiology-of-cardiac-conduction-and-contractility/

Long QT syndrome: https://lifeinthefastlane.com/ccc/long-qt-syndrome/

Question:

A 30-year-old woman at 32 weeks gestation presents to the Emergency Department with a small amount of painless vaginal bleeding that came on spontaneously. Obstetric examination finds a cephalic presentation with high presenting part. The uterus is non-tender. The cervical os is closed and the cervix appears normal. Which of the following diagnoses is most likely?

A.Cervical trauma

B.Inevitable miscarriage

C.Placenta praevia

D.Cervical neoplasia

E.Placental abruption

Answer:Placenta praevia

Explanation:

Placenta praevia refers to a pathological positioning of the placenta in the lower segment of the uterus, either wholly or partly. If the placenta overlies the internal cervical os then this is classed as 'major praevia', whereas in 'minor' or 'partial' praevia it does not. Bleeding from the placenta can occur spontaneously, as a result of trauma, or at the onset of labour as the cervix opens.

Guidelines issued by the Royal College of Obstetricians and Gynaecologists state that placenta praevia should be considered in all cases of vaginal bleeding occurring after 20 weeks gestation. Features that increase suspicion of this condition include painless bleeding, high presenting part and abnormal fetal lie. Definitive diagnosis generally requires ultrasound examination to identify the position of the placenta.

(RCOG Green-top Guideline No. 27)

With respect to the above case, the absence of pain makes placental abruption very unlikely, and the normal appearance of the cervix indicates that cervical trauma, cervical neoplasm and inevitable miscarriage are not the cause.

Question:

A 17-year-old female who is 23 weeks pregnant (G1PO) presents to the emergency department after severe lower abdominal pain. She has multiple sexual partners and has recently been treated for gonorrhoea with ceftriaxone. She takes no regular medications, but admits to illicit drug use which includes marijuana and cocaine use. You palpate her abdomen to find her uterus is hard and tender.

Given her likely diagnosis, which of these is a risk factor in her history?

A.Ceftriaxone

B.Cocaine use

C.Gonorrhoea

D.Primiparity

E.Young maternal age

Answer:Cocaine use

Explanation:

Cocaine abuse increases risk of placental abruption

Important for meLess important

The correct answer is cocaine use. This is because it causes vasospasm in the placental blood vessels, increasing the risk of placental abruption.

Ceftriaxone use is the treatment of choice for gonorrhoea and is a distractor as it isn’t a known risk factor for placental abruption.

Gonorrhoea is a sexually transmitted infection (STI). Although it may ascend and cause chorioamnionitis, which is a known risk factor for placental abruption, there is no indication that this is the case and it is less likely than cocaine use.

Primiparity is incorrect as it is multiparity that is a risk factor for placental abruption.

Young maternal age is incorrect as it is advanced maternal age that is a risk factor for placental abruption.

Question:

Which one of the following is a cause of cyanotic congenital heart disease?

A.Atrial septal defect

B.Ventricular septal defect

C.Transposition of the great arteries

D.Coarctation of the aorta

E.Patent ductus arteriosus

Answer:Transposition of the great arteries

Explanation:

Transposition of the great arteries is cyanotic

Important for meLess important

Question:

A 25-year-old woman presents to the Emergency Department with a two-day history of jaundice. She is 12 weeks pregnant and has no other past medical history. She denies diarrhoea or vomiting but did admit to attending a barbecue two weeks before, where she had concerns about how thoroughly the meat had been cooked.

Her blood test results are shown below:

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

Female: (115 - 160)

Platelets 70 \* 109/L (150 - 400)

WBC 12.0 \* 109/L (4.0 - 11.0)

Bilirubin 87 µmol/L (3 - 17)

ALP 150 u/L (30 - 100)

ALT 581 u/L (3 - 40)

γGT 62 u/L (8 - 60)

Albumin 37 g/L (35 - 50)

What is the most likely diagnosis?

A.Acute fatty liver of pregnancy

B.Haemolysis with elevated liver enzymes and low platelets (HELLP) syndrome

C.Hepatitis A infection

D.Hepatitis E infection

E.Pregnancy induced cholestasis

Answer:Hepatitis E infection

Explanation:

Severe hepatitis in a pregnant woman - think hepatitis E

Important for meLess important

The correct answer is hepatitis E infection. This patient has severe transaminitis in the first trimester of pregnancy. This should make candidates consider hepatitis E infection, as pregnant patients tend to experience a more severe course of infection than other patient groups. Additional factors supporting the diagnosis of hepatitis E infection include thrombocytopenia, which is a recognised extra-hepatic manifestation of this infection, and the history of recent attendance at a barbecue (hepatitis E is often contracted from undercooked pork).

Acute fatty liver of pregnancy is incorrect. This is very unlikely to present at 12 weeks gestation. It tends to present towards the end of the third trimester, with an average onset of around 36 weeks gestation.

Haemolysis with elevated liver enzymes and low platelets (HELLP) syndrome is incorrect. This is a complication of pre-eclampsia which almost universally presents in the third trimester or immediately after delivery, rather than at 12 weeks gestation. Questions referring to HELLP syndrome will normally include other indicators of pre-eclampsia, such as proteinuria or hypertension.

Hepatitis A infection is incorrect. This tends to be transmitted by shellfish rather than undercooked pork. It is also much less likely to cause severe disease in pregnant patients than hepatitis E and is not typically associated with thrombocytopenia.

Pregnancy induced cholestasis is incorrect. It is more likely to present towards the end of pregnancy and classically manifests as pruritus (itching), which is not present in this case.

Question:

You review the results of a DEXA scan for a 75-year-old woman who was referred due to a family history of femoral fracture. Her past medical history includes hypertension, for which she takes amlodipine. She is a non-smoker, drinks 10 units of alcohol per week and eats a healthy balanced diet. Her T-score is -2.8. Blood results are shown below.

Hb 132g/L 115-166g/L

WCC 6.2x109/l 3.6-11x109/l

Na+ 135mmol/L 133-146mmol/L)

K+ 3.8mmol/L 3.5-5.3mmol/L

Ca2+ 2.4mmol/L 2.2-2.6mmol/L (adjusted)

Vitamin D 70nmol/L >50nmol/L

What is the most appropriate action?

A.Alendronate

B.Alendronate + calcium + vitamin D

C.Calcium + vitamin D

D.Continuous combined hormone replacement therapy

E.Zoledronate

Answer:Alendronate

Explanation:

When starting bisphosphonate treatment for osteoporosis, calcium should only be prescribed if dietary intake is inadequate

Important for meLess important

Alendronate is the most appropriate prescription here. This patient has osteoporosis as defined by her DEXA scan T-score (<-2.5). Bisphosphonate therapy is therefore recommended and this should be started immediately, ensuring both calcium and vitamin D are replete before commencing treatment. In this case, vitamin D and calcium are both replete and therefore do not need replacing. Calcium treatment is not recommended in those able to take sufficient dietary calcium (defined as >1000mg/day for individuals with osteoporosis). If exposure to sunlight is inadequate (ie. housebound patients) then vitamin D should be prescribed, however, it may be argued that all individuals in the UK should take over-the-counter vitamin D in the winter months. Alendronate or risedronate are the first-line bisphosphonate treatments. If these are poorly tolerated then IV zoledronate may be trialled, however, this must be prescribed following specialist referral.

Alendronate + calcium + vitamin D is not the most appropriate prescription option here. Whilst this patient does have osteoporosis and therefore should commence bisphosphonate therapy, calcium and vitamin D treatments are not required. This patient has a balanced diet that should provide her recommended calcium intake and has no risk factors for vitamin D deficiency. Additionally, both levels are replete on the blood tests. Further supplementation of calcium may lead to hypercalcemia and have additional cost implications for the GP practice. The patient may wish to consider over-the-counter vitamin D in the winter months.

Calcium + vitamin D is not the most appropriate prescription option. This patient has osteoporosis and should therefore be started on bisphosphonate therapy. Calcium and vitamin D levels are replete and given that she has a balanced diet and no risk factors for vitamin D deficiency, supplementation is not required.

Continuous combined hormone replacement therapy (HRT) is not the most appropriate prescription in this case. Hormone replacement therapy is beneficial in preventing fragility fractures in younger postmenopausal women, however, the risk vs benefit ratio is unfavourable in older post-menopausal women. Therefore, HRT is recommended only for women at high risk of fragility fracture under 60 years of age who are also experiencing menopausal symptoms.

Zoledronate is not the most appropriate prescription in this case. This patient has osteoporosis and whilst she should therefore be started on bisphosphonate therapy, alendronate or risedronate are first-line treatments. If these are poorly tolerated then IV zoledronate may be trialled, however, this must be prescribed following specialist referral.

Question:

An 84-year-old man is admitted from his nursing home as he has 'gone off his legs'. A chest x-ray is taken:

© Image used on license from Radiopaedia

What is the single most important finding on the x-ray?

A.Left-sided pneumothorax

B.Free air in the abdomen

C.Raised right hemidiaphragm

D.Right middle lobe pneumonia

E.Right scapula fracture

Answer:Free air in the abdomen

Explanation:

The patient has a gross pneumoperitoneum (huge air bubbles under both hemidiaphragms) and requires urgent surgical review to establish the cause.

Question:

A 26-year-old woman presents to the GP with an itchy rash over her lower limbs and abdomen that appeared this morning. She has no past medical history. On examination, the rash is widespread with multiple raised red lesions with surrounding erythema, which are variable in size and shape.

The woman explains this is the second time she has noticed this. The only precipitating factor she can think of is almond milk on both occasions. On examination, her respiratory rate is 18 /min and her blood pressure is 126/78 mmHg. Her chest is clear on auscultation.

What is the most appropriate management?

A.Adrenaline

B.Cetirizine

C.Chlorphenamine

D.Hydrocortisone

E.Prednisone

Answer:Cetirizine

Explanation:

Non-sedating antihistamines are first-line for acute urticaria

Important for meLess important

Cetirizine is the correct answer. This woman has presented with urticaria, likely due to an IgE-mediated food allergy. Urticaria has distinctive wheals, which appear as red, raised lesions with surrounding redness, it is typically rather itchy. It is likely due to an IgE-mediated food allergy because the symptoms are reproducible within an hour after eating the food that causes it, in this case, almond milk. Avoiding this precipitating factor is a necessary step in management. The first-line treatment is a non-sedating antihistamine, such as cetirizine. Non-sedating antihistamines are associated with a lower incidence of drowsiness and sedation because they penetrate the blood-brain barrier to a lesser extent than sedating antihistamines.

Adrenaline is incorrect. This is the treatment for anaphylaxis. Intra-muscular administration of adrenaline should be given in cases of suspected anaphylactic shock, which presents with features of airway obstruction, including shortness of breath, wheezing, stridor, associated urticaria, angioedema and quickly progresses to a requirement for intubation if not addressed quickly. This woman has no signs of anaphylaxis given her lack of shortness of breath and haemodynamic stability (normal blood pressure).

Chlorphenamine is incorrect. Whilst this is an antihistamine, it is a sedating one. This means that it results in daytime sleepiness and drowsiness which is undesirable and leads to poor compliance, therefore, non-sedating antihistamines, such as cetirizine are preferred.

Hydrocortisone is incorrect. This is no longer part of the treatment of anaphylaxis and has no role in treating urticaria.

Prednisone is incorrect. Oral prednisone can be trialled if symptoms were not controlled adequately with a non-sedating antihistamine. This woman’s symptoms are not severe as she has only presented after a second episode implying the first episode did not cause enough concern. Equally, she has no systemic symptoms and is complaining only about an itch. It would be inappropriate to start steroid treatment without first exploring a non-sedating antihistamine.

Question:

A 76-year-old man with a past history of hypertension and ischaemic heart disease is seen in the transient ischaemic attack (TIA) clinic. He was referred by the emergency-department following an episode of left facial droop and left-sided arm weakness that lasted approximately 30 minutes. A CT head performed in the emergency department was unremarkable. An MRI, 72 hour ECG, echocardiogram and carotid dopplers are arranged as part of the TIA work-up.

Which of these would be the best indication for carotid endarterectomy in this patient?

A.A second TIA

B.Symptoms persisting for over 24 hours

C.Bilateral carotid stenosis 45%

D.Right carotid stenosis 75%

E.Left carotid stenosis 75%

Answer:Right carotid stenosis 75%

Explanation:

Carotid endarterectomy is considered in a patient who has had a TIA with carotid artery stenosis exceeding 70%

Important for meLess important

The correct answer is right carotid stenosis 75%. The criteria for carotid endarterectomy usually requires symptomatic (a stroke or TIA in the territory of that carotid artery) stenosis. As the patient has left-sided symptoms, right-sided stenosis would be symptomatic.

A second TIA or duration of symptoms would not affect the decision for carotid endarterectomy if significant stenosis was not present.

Stenosis of 40% is not sufficiently severe for carotid intervention.

Left carotid stenosis of 75% in this case is asymptomatic as the patient's symptoms were left sided. It is not routine to stent for asymptomatic stenosis and therefore right carotid stenosis of 75% is the better answer.

Question:

A 22-year-old man presents with a history of painful hands. He advises you that when exposed to cold his fingers become white and numb, and on rewarming, they turn blue. A systematic enquiry was otherwise unremarkable. He has no significant past medical history. He works on a construction site. On examination, you cannot identify any evidence of digital ulcers, calcinosis, chilblains, rash or arthralgia.

Blood results are as follows:

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

Female: (115 - 160)

Platelets 260 \* 109/L (150 - 400)

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

ESR 10 mm/hr (0-15)

What is the most likely cause of this presentation?

A.Cervical rib

B.Cryoglobulinaemia

C.Leukaemia

D.Scleroderma

E.Use of vibrating tools

Answer:Use of vibrating tools

Explanation:

Use of vibrating tools may result in Raynaud's phenomenon

Important for meLess important

This is a classic presentation of Raynaud's phenomenon which is characterised by an exaggerated vasoconstrictive response of the digital arteries and cutaneous arteriole to cold or emotional stress. It may be primary (Raynaud's disease) or secondary (Raynaud's phenomenon).

Use of vibrating tools is the correct answer. The patient works on a construction site so is likely exposed to vibrating tools which are a well-recognised cause of secondary Raynaud's phenomenon. This highlights the importance of an occupational history.

Cervical rib is incorrect. While cervical ribs are a well-recognised cause of Raynaud's there are no other features (e.g. thoracic outlet syndrome, brachial neuropathy, or Horner's syndrome) to support this diagnosis.

Cryoglobulinaemia is incorrect. Whilst this condition is also a recognised cause of Raynaud's, there are no other clinical features (e.g. purpura, neuropathy, and arthralgia) to support this diagnosis.

Leukaemia is incorrect. Leukaemia is an extremely rare cause of Raynaud's and together with the normal FBC makes this an exceptionally unlikely diagnosis.

Scleroderma is incorrect. Whilst scleroderma is the most common cause of secondary Raynaud's, there are no other clinical features (e.g. calcinosis, scleroderma) to support this diagnosis. The normal ESR also makes an inflammatory condition less likely.

Question:

A 29-year-old man presents to the emergency department after being hit in the face by a ball whilst playing rugby. The patient reports some nasal pain but feels otherwise well. On examination, the left nasal septum is swollen and soft to the touch. Externally, the nose appears aligned and there is no epistaxis.

What is the best management step?

A.Anterior nasal packing

B.Leave for 7-14 days and then attempt reduction

C.Posterior nasal packing

D.Routine ENT referral

E.Urgent ENT referral

Answer:Urgent ENT referral

Explanation:

Nasal septal haematomas should be urgently referred to ENT for drainage

Important for meLess important

This scenario describes a 29-year-old man who has presented with a septal haematoma following a rugby injury. A septal haematoma is indicated by a boggy swelling of the nasal septum. It is a serious complication and the haematoma can interrupt blood supply to the septum. As a result, the single best answer is an urgent ENT referral for drainage. This should be an urgent, same-day service.

Anterior nasal packing is an incorrect answer. This is one of the management steps for anterior nose bleeds. This would not be suitable for this patient.

Leave for 7-14 days and then attempt reduction is incorrect. This may be indicated in a nasal fracture, where management can include allowing inflammation to settle before external reduction. This is not suitable for septal haematoma.

Posterior nasal packing is not suitable. Posterior nasal packing may be indicated in a posterior nose bleed, which is not described in this scenario.

Routine ENT referral is not the single best answer. Urgent referral for drainage is required in septal haematoma.

Question:

A 33-year-old man who is HIV positive is admitted to the Emergency Department with confusion and drowsiness. He has been complaining of headaches for a number of days. On examination heart rate is 90/min, blood pressure 104/78 mmHg and temperature is 37.2ºC. He is confused giving a Glasgow Coma Scale (GCS) score of 14. There is no photophobia or neck stiffness.

His infectious diseases consultant reports that he is prescribed highly active antiretroviral treatment (HAART) but his compliance is poor and he often misses clinic appointments.

A CT brain is requested:

CT brain (with contrast): Multiple hypodense regions predominantly in the basal ganglia which show ring enhancement. Minimal surrounding oedema. No mass effect.

What is the most likely diagnosis?

A.Progressive multifocal leukoencephalopathy

B.Cryptococcal infection

C.Cerebral toxoplasmosis

D.CMV encephalitis

E.Tuberculosis

Answer:Cerebral toxoplasmosis

Explanation:

HIV, neuro symptoms, multiple brain lesions with ring enhancement - toxoplasmosis

Important for meLess important

Cerebral toxoplasmosis is the most common neurological infection seen in HIV, occurring in up to 10% of patients

Question:

A 33-year-old woman presents with back pain which radiates down her right leg. This came on suddenly when she was bending down to pick up her child. On examination straight leg raising is limited to 30 degrees on the right hand side due to shooting pains down her leg. Sensation is reduced on the dorsum of the right foot, particularly around the big toe and foot dorsiflexion is also weak. The ankle and knee reflexes appear intact. A diagnosis of disc prolapse is suspected. Which nerve root is most likely to be affected?

A.L2

B.L3

C.L4

D.L5

E.S1

Answer:L5

Explanation:

L5 lesion features = loss of foot dorsiflexion + sensory loss dorsum of the foot

Important for meLess important

Question:

A 35-year-old female patient presents to you in the cardiology department with a sharp, stabbing chest pain behind the breastbone. The pain does not radiate to any other region of the body and on questioning she refutes feeling sweaty and has not experienced any nausea and vomiting. She explains the pain is worse at night when she is lying flat in bed and improves somewhat once she sits up. She discloses that she has been diagnosed with systemic lupus and is taking regular medication for this. On auscultation you note scratchy, rubbing sounds loudest during systole. You decide to arrange an ECG to confirm a diagnosis. Which of the following ECG findings are you most likely to observe?

A.Saddle-shaped ST elevation

B.Right bundle branch block

C.Left axis deviation

D.Narrow peaking T waves

E.Progressively longer PR intervals

Answer:Saddle-shaped ST elevation

Explanation:

The symptoms described in the vignette a classic of pericarditis. A sharp central chest pain which eases on sitting up and leaning forward and is exacerbated when lying flat or inhaling deep breaths. It is made even more likely once you are informed that she has a past medical history of systemic lupus as the two are associated. On auscultation you will hear scratchy, rubbing S1 and S2 sounds. The diagnosis is definitely pericarditis but the question asks which of the ECG findings are you most likely to observe. Saddle shaped ST elevation is a hallmark of pericarditis. Other possible causes of ST elevation could be a STEMI and left bundle branch block. The other options describe findings of conduction pathologies. The symptoms and examination findings to not reflect a conduction pathology and so these can be ruled out. Narrow peaking T waves are commonly found in hyperkalaemia.

Question:

A 74-year-old woman presents to the emergency department with a sudden loss of vision in her left eye, which occurred three hours ago and lasted for approximately 3 minutes. She describes the episode as a 'black-out' of her vision in that eye, with no associated pain or nausea, and denies any other symptoms.

The patient’s past medical history includes hypertension, hypercholesterolaemia, and depression. She is currently taking amlodipine, ramipril, simvastatin, and citalopram.

Which of the following describes this patient’s symptoms best?

A.Amaurosis fugax

B.Acute closed-angle glaucoma

C.Giant cell arteritis

D.Amlodipine-induced vasospasm

E.Transient ischaemia of the posterior circulation

Answer:Amaurosis fugax

Explanation:

Painless, transient monocular blindness together with the description of a 'black curtain coming down' is characteristic of amaurosis fugax

Important for meLess important

While advanced age and sudden loss of vision are consistent with giant cell arteritis, it is usually painful and occurs together with other symptoms such as scalp tenderness, headache, and jaw claudication. Similarly, acute closed-angle glaucoma is very painful and often causes redness and increased lacrimation of the eye. None of the drugs the patient is taking are associated with transient visual loss, making this an unlikely cause of the patient's symptoms. A TIA of the posterior circulation is unlikely due to the fact that the visual loss occurred in both visual fields.

This leaves amaurosis fugax as the only correct option. Amaurosis fugax simply refers to painless transient loss of vision in one or both eye. Common causes include retinal ischaemia due to an embolic or thrombotic event - which in this case is supported by the patient's past medical history.

Reference: Wilkinson & Longmore, Oxford Handbook of Clinical Medicine (10th Ed.), p. 476.

Question:

A 55-year-old inpatient with decompensated liver cirrhosis experiences high fever and reduced urine output. Investigations are performed including paracentesis of the peritoneal fluid which revealed a neutrophil count of 310 cells/µL indicating spontaneous bacterial peritonitis (SBP).

Culture of the peritoneal fluid would most likely isolate which of the following organisms?

A.Klebsiella pneumoniae

B.Escherichia coli

C.Streptococcus pneumoniae

D.Streptococcus viridans

E.Staphylococcus aureus

Answer:Escherichia coli

Explanation:

Spontaneous bacterial peritonitis: most common organism found on ascitic fluid culture is E. coli

Important for meLess important

The most common causative organisms of SBP are gram-negative enteric bacteria. E coli is by far the most common followed by Klebsiella. The most common gram-positive organism causing SBP is Streptococcus pneumoniae followed by Streptococcus viridans and Staphylococcus.

Typically only one single organism is involved in the development of SBP. Prophylactic antibiotics (cephalosporins and quinolones) should be given to patients who have ascites and meet certain criteria.

Question:

A 45-year-old female presents to the outpatient clinic with pain and swelling in her right leg for two days. She has a past medical history of type 2 diabetes. Her diabetes is well controlled. She is allergic to penicillin. On examination, there is warmth, erythema, tenderness, and swelling visible on her right shin. The margin of erythema in not clearly defined. Cellulitis is diagnosed.

Which of the following is the best treatment option for this patient?

A.Ceftriaxone

B.Clarithromycin

C.Flucloxacillin

D.Surgery

E.Vancomycin

Answer:Clarithromycin

Explanation:

Patients with cellulitis who are penicillin allergic can be given clarithromycin, erythromycin (in pregnancy) or doxycyline

Important for meLess important

Cellulitis is a skin infection involving the lower dermis and subcutaneous tissue that can develop if bacteria enter the skin through cuts or sores. The most common causes are: beta-hemolytic streptococci and Staphylococcus aureus. Presentation is with erythema, oedema, warmth, and often has a poorly defined margin.

First line management for mild/moderate cellulitis is oral flucloxacillin (penicillin: β-lactam antibiotics). In penicillin allergic patients (as in the vignette), management is with oral clarithromycin or erythromycin (macrolides: inhibit protein synthesis by binding to 50S), or oral doxycycline (tetracycline: inhibits protein synthesis by binding to 30S).

Intravenous ceftriaxone (cephalosporin: β-lactam antibiotics) is recommended for patients with severe cellulitis.

Surgery and vancomycin are not used for treatment of cellulitis.

Question:

A 42-year-old woman is being investigated for widespread, symmetrical polyarthritis. On further questioning, she reveals her fingers also sometimes have a blue tinge in cold weather. On examination, she has a prominent rash over her cheeks and nose, which spares her nasolabial folds.

Blood tests are positive for anti-dsDNA.

She is to be started on a drug, which has been described to her as a 'disease-modifying' drug.

Given the likely drug, what regular monitoring will she require whilst being treated?

A.Calcium levels

B.Hearing tests

C.Liver function tests

D.Neurological examination of the limbs

E.Visual acuity testing

Answer:Visual acuity testing

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

This woman presents with the classical symptoms of systemic lupus erythematosus (SLE). She has the textbook malar (butterfly) rash on her face, as well as polyarthritis and Raynaud's syndrome. A blood test positive for anti-dsDNA confirms this diagnosis. The mainstay of treatment for SLE is hydroxychloroquine, alongside NSAIDs and steroids. Hydroxychloroquine is traditionally an anti-malarial/anti-viral drug, which has found uses in autoimmune conditions such as SLE, rheumatoid arthritis, and porphyria cutanea tarda as a disease-modifying drug.

There is a high level of evidence suggesting that hydroxychloroquine may cause severe and permanent retinopathy. The Royal College of Ophthalmologists suggests that monitoring should happen at baseline, and then every 6-12 months whilst on treatment. An example of a reasonable way to monitor for retinopathy is visual acuity testing, and therefore this is the correct answer.

Calcium levels are not known to be affected by hydroxychloroquine, therefore there is no indication to routinely monitor these.

Hearing loss, or other disturbances, are not associated with hydroxychloroquine and therefore this is not needed.

The liver does metabolise hydroxychloroquine, however there is no evidence of increased risk of liver injury in healthy individuals. Therefore, liver function tests are not indicated in routine monitoring.

There is no evidence that hydroxychloroquine use leads to any neurological deficit of the limbs, and therefore this is not needed.

Question:

A 24-year-old female is brought into the emergency department with a 3-day history of abdominal pain, vomiting, polyuria and reduced eating and drinking.

She has no past medical history nor is she on any regular medications.

The patient appears unwell with evidence of significant dehydration, a raised respiratory rate and signs of shock. Her observations and venous blood gas (VBG) are shown below.

Obs:

Heart rate 108 beats per minute

BP 102/60 mmHg

Respiratory rate 30/min

Oxygen saturations 98%

Temperature 36.7 oC

Blood glucose 20 mmol/L

Blood ketones 5 mmol/L

VBG:

pH 7.30 7.35–7.45 nmol/L

pC02 4.3 4.4–5.9 kPa

pO2 6.0 10.0–14.0 kPa

HCO3 14 22–28 mmol/L

Along with an appropriate fluid regime what other management should be started?

A.IV insulin sliding scale

B.IV insulin 0.05 unit/kg/hour

C.IV insulin 0.1 unit/kg/hour

D.IV insulin bolus of 0.15 unit/kg followed by 0.1 unit/kg/hour

E.Subcutaneous (s/c) insulin bolus of 0.15 unit/kg followed by 0.05 unit/kg/hour

Answer:IV insulin 0.1 unit/kg/hour

Explanation:

Diabetic ketoacidosis: the IV insulin infusion should be started at 0.1 unit/kg/hour

Important for meLess important

This patient has presented with signs and symptoms in keeping with a new diabetic ketone acidosis (DKA). DKA can be the initial presentation of previously unknown diabetes in patients, often triggered by an acute illness. A diagnosis of DKA is based on the following criteria:

Glucose >11 mmol/L or known diabetes mellitus

pH <7.3 nmol/L

Bicarbonate <15 mmol/L

Blood ketones >3 mmol/L or urine ketones 2+ on dipstick

Patients presenting in DKA are normally significantly fluid deplete and should be started on a fluid regime of 1L 0.9% sodium chloride over an hour, followed but 2x 1L 0.9% sodium chloride over 2 hours etc. An IV infusion of insulin should also be started at a rate of 0.1 units/kg/hour. If blood glucose falls below 15mmol/L but the patient is still acidotic with ketones then an infusion of 5% dextrose should be started, along with the 0.9% sodium chloride, and insulin continued.

IV insulin sliding scales are no longer recommended for the management of diabetic emergencies. These treatment regimes used to involve adjusting the amount of insulin provided based on the patient’s blood glucose level. Fixed-rate insulin infusions are now recommended instead to ensure continued ketone clearance. If a patient’s ketone level does not fall by at least 0.5mmol/L/hour or their blood glucose level does not fall by 3mmol/hour then the insulin infusion rate should be increased by 1 unit/hour.

An IV insulin infusion of 0.05 units/kg/hour is the regime recommend in the management of hyperglycaemic hyperosmolar state (HHS). HHS, as the name suggests, is due to hyperglycaemia and high plasma osmolality, however, unlike DKA most HHS patients have enough circulating insulin to prevent ketogenesis and therefore ketonaemia is absent and acidosis is normal mild if present. HHS normally develops over a longer period of time than DKA (several days) and generally affects patients with type 2 diabetes. The main aspect of HHS treatment is fluids with a similar regime as used in DKA. Insulin is generally only started once a patient’s blood glucose no longer falls with IV fluids or if there is significant ketonaemia (>1mmol/L or urine ketones>2+). In these cases, an IV insulin infusion of 0.05 units/kg/hour should be started.

IV insulin boluses are no longer recommended regardless of a patient’s initial glucose or acidosis level. Insulin boluses have been associated with an increased rate of complications in diabetic emergencies (e.g. cerebral oedema) and therefore should be avoided.

As with IV boluses, s/c insulin boluses should be avoided due to complications. If a patient has an established diagnosis of diabetes and is on an s/c insulin treatment regime then this should be continued along with the management plans discussed above.

Question:

A 3-year-old, originally presented with persistent haematuria, undergoes a renal biopsy showing splitting on the lamina densa resulting in an abnormal glomerular-basement membrane.

Whilst under investigation, the child develops swallowing issues and a recurrent cough. CT chest showed the presence of oesophagus and tracheobronchial leiomyomatosis.

A potential genetic cause is suspect and testing identifies an X-linked dominant inherited protein defect, confirming the syndrome responsible for the child issues.

What other feature is most associated with this child’s likely syndrome?

A.Cardiac defect

B.High-arched palate

C.Learning difficulties

D.Lens dislocation

E.Sensorineural hearing loss

Answer:Sensorineural hearing loss

Explanation:

Alport's syndrome - sensorineural hearing loss

Important for meLess important

This child has presented with features in keeping with Alport syndrome. Alport syndrome is caused by an inherited defect in type IV collagen, normally in an X-linked dominant pattern. The condition typically results in progressive renal failure secondary to glomerular-basement membrane abnormality and sensorineural hearing loss. Other features of the syndrome include ocular issues, smooth muscle tumours (leiomyomas) and rarely aortic dissection.

As Alport syndrome affects the type IV collagen cardiac defects, which typically result from defects of the myocardium, are not associated with the condition. In very rare cases of early-onset disease, aortic dissection may occur due to vessel wall defects.

A high-arched palate is associated with a number of congenital conditions, particularly those affecting the connective tissues such as Marfan and Ehlers-Danlos syndrome, however, it is not a feature of Alport syndrome.

Again as Alport syndrome is due to a collagen defect neurological and cognitive issues such as learning difficulties are not associated with the condition.

Lenticonus, which is a conical-like protrusion on the lens capsule and underlying cortex, is a well-recognised feature of Alport syndrome and although this can lead to light refractory issues and reduced visual acuity, lens dislocation is not associated with the defect.

Question:

You are asked to review a 76-year-old woman on the ward who was admitted for community-acquired pneumonia. She is on palliative care for metastatic lung carcinoma. The patient complains of severe dull pain in her shoulder and back. The patient is not responding to antibiotic treatment and is progressively unwell. Her latest blood test results are as follows:

Hb 95 g/L Male: (135-180)

Female: (115 - 160)

WBC 17.4 \* 109/L (4.0 - 11.0)

CRP 206 mg/L (< 5)

Na+ 139 mmol/L (135 - 145)

K+ 5.1 mmol/L (3.5 - 5.0)

Urea 12.4 mmol/L (2.0 - 7.0)

Creatinine 188 µmol/L (55 - 120)

In addition to paracetamol, what is the initial analgesia of choice in this patient?

A.Dexamethasone

B.Gabapentin

C.Morphine sulfate

D.Naproxen

E.Oxycodone

Answer:Oxycodone

Explanation:

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

Important for meLess important

This patient is clinically unwell and appears to be approaching the terminal phase of life. The pain here is secondary to a combination of chest infection and carcinoma, and she requires adequate analgesia to maintain her comfort. Her blood results show impaired renal function, in which case oxycodone is the most appropriate analgesia. It is mainly metabolised in the liver, reducing the risk of opioid toxicity.

Dexamethasone may be useful as adjuvant analgesia in bony and liver capsular pain. However, it is not appropriate as the next choice of analgesia without first trying opioids.

Gabapentin is effective in neuropathic pain, where patients present with burning or shooting pain with sensory disturbance.

Morphine sulfate is inappropriate as the patient has impaired renal function. The active metabolites accumulate in renal failure and patients are at risk of opioid toxicity such as respiratory depression.

Naproxen is inappropriate as it is nephrotoxic and can exacerbate the patient's renal impairment.

Question:

A pregnant woman is found to have tested positive syphilis during her routine booking visit bloods. She is currently 12 weeks pregnant. What is the most appropriate management?

A.Oral doxycycline

B.Recommend termination of pregnancy and administer antibiotic therapy

C.Repeat test in 4 weeks and treat if still positive

D.IM benzathine penicillin G

E.IM human normal immunoglobulin (HNIG)

Answer:IM benzathine penicillin G

Explanation:

The 2008 British Association for Sexual Health and HIV (BASHH) guidelines recommend IM benzathine penicillin G in this scenario.

Doxycycline should not be used in pregnancy. Immunoglobulins are used to provide protection against viral illnesses such as rubella.

Question:

A 45-year-old man presents to the emergency department with acute joint swelling.

He has a history of type 2 diabetes and hypercholesterolemia and takes metformin and atorvastatin. He smokes 25 cigarettes daily and drinks 20 units of alcohol per week.

His right first metatarsophalangeal (MTP) joint is erythematous, warm, and tender. His temperature is 37.1ºC, his heart rate is 106 bpm, his respiratory rate is 17 /min, and his blood pressure is 145/75 mmHg. Joint aspiration shows needle-shaped negatively birefringent crystals.

What is the most appropriate investigation to confirm the likely diagnosis?

A.Measure serum urate 2 weeks after inflammation settles

B.Measure serum urate immediately

C.Measure synovial fluid urate level 2 weeks after inflammation settles

D.Measure synovial fluid urate level immediately

E.Measure urine urate level 2 weeks after inflammation settles

Answer:Measure serum urate 2 weeks after inflammation settles

Explanation:

In suspected gout, serum urate should be checked once the inflammation has settled down as it may be high, normal or low during the acute attack

Important for meLess important

Measure serum urate 2 weeks after inflammation settles is the correct answer. The patient in the vignette has features of gout (acute joint swelling affecting the first MTP joint). Type II diabetes mellitus, hypercholesterolaemia, and being male are risk factors for gout. In suspected cases of gout, a joint fluid aspiration should be performed initially to identify the presence of crystals and rule out diagnoses such as septic arthritis, and serum urate should be measured two weeks after the inflammation settles. Serum urate may be high, normal, or low during an attack of gout, resulting in false positives or negatives. The serum urate is expected to be high when measured once the inflammation has settled, aiding the diagnosis of gout and guiding post-flare urate-lowering therapy.

Measure serum urate immediately is incorrect. During an acute gout attack, serum urate can be high, normal, or low and may be falsely positive or negative. It is more appropriate to measure serum urate once the inflammation has settled. NICE recommends that this is two weeks post-flare.

Measure synovial fluid urate level 2 weeks after inflammation settles is incorrect. Synovial fluid samples are not used in the measurement of urate levels. Serum urate levels are used instead.

Measure synovial fluid urate level immediately is incorrect. Synovial fluid samples are not used in the measurement of urate levels. Serum urate levels are used instead.

Measure urine urate level 2 weeks after inflammation settles is incorrect. Although urate is mainly excreted by the kidneys, urinary urate is not used to measure urate levels. Serum urate levels are used instead.

Question:

A 56-year-old man presents to the emergency department with haematemesis. He has been vomiting bright red blood for the past hour. He has never experienced anything like this before. On questioning about alcohol consumption, he reveals that he previously had an alcohol addiction, and has now been diagnosed with liver cirrhosis.

He does not currently take any medication, prescribed or over the counter.

You assess the patient using the ABCDE method and order an urgent oesophago-gastro-duodenoscopy (OGD). You give him terlipressin, but he is still bleeding and his platelet count is 47 x 109/L (150 - 400). Therefore, a platelet transfusion is performed. Despite this, he continues to vomit blood. The OGD is still being prepared and will be another 30 minutes.

His observations are:

Heart rate: 110 beats per minute.

Respiratory rate: 22 breaths per minute.

Blood pressure: 90/65 mmHg.

Temperature: 36.4ºC.

What is the best next step in managing this patient?

A.Take him to surgery to control the bleeding

B.Give IV propranolol

C.Give IV vitamin K

D.Give IV omeprazole

E.Insert a Sengstaken-Blakemore tube

Answer:Insert a Sengstaken-Blakemore tube

Explanation:

A Sengstaken-Blakemore tube may be used to stop an uncontrolled variceal haemorrhage

Important for meLess important

This man is most likely to have a variceal bleed given the nature of fresh red blood and history of alcoholic liver disease (portal hypertension). To stop the bleeding, you should give vasopressors (terlipressin) and correct any clotting abnormalities. A platelet transfusion is performed when the platelet count is less than 50 x 109/L and the patient is actively bleeding. The definitive management of variceal bleeds is endoscopic banding during OGD.

A Sengstaken-Blakemore tube has oesophageal and gastric balloons which can be inflated to tamponade the variceal bleeding. It is inserted through the nose. This is is the best management step in this situation whilst waiting for the OGD.

Surgery is unnecessary at this stage as the most effective management is banding during endoscopy.

IV propranolol is used to prevent further variceal bleeds in the long term, after initial management during OGD.

There is no mention of taking warfarin in the patient's medical history, and therefore vitamin K would be of no use in controlling the bleeding.

Omeprazole is used in peptic ulcer disease, another cause of upper GI bleeding. The diagnosis of peptic ulcer disease is less likely given the history of alcoholic liver disease.

Question:

A 4-year-old boy develops multiple tear-drop papules on his trunk and limbs. He is otherwise well. A diagnosis of guttate psoriasis is suspected. What is the most appropriate management?

A.Oral penicillin for 14 days

B.Reassurance + topical treatment if lesions are symptomatic

C.Oral penicillin for 14 days + topical treatment if lesions are symptomatic

D.Referral to secondary care

E.Oral corticosteroids

Answer:Reassurance + topical treatment if lesions are symptomatic

Explanation:

The British Association of Dermatologists state in their psoriasis guidelines that 'evidence does not support a therapeutic benefit from antibiotic therapy'.

Question:

A 40-year-old man is investigated for increasing shortness of breath. He has smoked for the past 25 years. Pulmonary function tests are performed and are reported as follows:

FEV1 1.4 L (predicted 3.8 L)

FVC 1.7 L (predicted 4.5 L)

FEV1/FVC 82% (normal > 75%)

Which one of the following disorders is most consistent with these results?

A.Asthma

B.Bronchiectasis

C.Neuromuscular disorder

D.Chronic obstructive pulmonary disease

E.Laryngeal malignancy

Answer:Neuromuscular disorder

Explanation:

Neuromuscular disorders result in a restrictive pattern on pulmonary function tests

Important for meLess important

These results show a restrictive picture, which may result from a number of conditions including a neuromuscular disorder. The other answers cause an obstructive picture.

Question:

A 24-year-old woman attends her booking scan and finds out that she is pregnant with monochorionic twins. Her general practitioner asks her specifically to report any sudden increases in the size of her abdomen and/or any breathlessness. What complication of monochorionic multiple pregnancy is the GP describing the symptoms of?

A.Fetal growth restriction

B.Umbilical cord compression

C.Umbilical cord entanglement

D.Gestational diabetes

E.Twin-to-twin transfusion syndrome

Answer:Twin-to-twin transfusion syndrome

Explanation:

Twin-to-twin transfusion syndrome (TTTS) is a relatively common complication of monochorionic pregnancy. In a monochorionic twin pregnancy the two fetuses share a single placenta, meaning that blood can flow between the twins. In TTTS, one fetus, the 'donor' receives a lesser share of the placenta's blood flow than the other twin, the 'recipient'. This is due to abnormalities in the network of placental blood vessels. The recipient may become fluid-overloaded whilst the donor can become anaemic. One fetus may have oligohydramnios and the other may have polyhydramnios as a result of differences in urine production, causing additional problems.

The consequences of TTTS range from mild to life-threatening for either or both fetuses. TTTS may be asymptomatic from the maternal point of view or the mother may experience a range of symptoms. The Royal College of Obstetricians and Gynaecologists advises that mothers should be specifically asked to report any sudden increases in the size of their abdomen and/or any breathlessness, which may be the result of polyhydramnios affecting the recipient twin.

(RCOG Green-top Guideline No. 51)

Question:

An 18-year-old female presents to the local sexual health clinic following unprotected sexual intercourse. The intercourse happened four days ago. She is not on any form of contraception. The patient would rather have an oral form of contraception as opposed to an invasive form.

Which one of the following is the most appropriate management plan?

A.Insert an intrauterine device

B.Insert an intrauterine system

C.Prescribe levonorgestrel

D.Prescribe mifepristone

E.Prescribe ulipristal

Answer:Prescribe ulipristal

Explanation:

Levonorgestrel must be taken within 72 hours of UPSI

Important for meLess important

The correct answer is to prescribe ulipristal. This patient is inquiring about emergency contraception for unprotected sexual intercourse that happened 96 hours ago. Ulipristal (a selective progesterone receptor modulator) can be prescribed up to 120 hours following the intercourse. It is thought to work by inhibiting ovulation. This is the only option between the proposed one that can be administered in the current timeframe and does not involve the administration of invasive contraception.

Insertion of an intrauterine device is inappropriate as the patient declined an offer of invasive contraception. A copper device can be inserted to prevent pregnancy up to five days following unprotected intercourse, but it has to be left in situ at least until the next period. Since she has no contraindication for taking ulipristal, this option is inappropriate as it goes against the wish of the patient.

Insert of an intrauterine system is inappropriate as this option is not used for emergency contraception. Even if the medication contained in this option is levonorgestrel, it cannot be used as emergency contraception in this form.

Prescription of levonorgestrel is inappropriate as this medication is effective for emergency contraception only up to 72 hours following the unprotected intercourse. This patient reports the intercourse happening 96 hours ago making the option incorrect.

Prescription of mifepristone is inappropriate as this drug is not licensed for emergency contraception. This drug is a prostaglandin analogue that causes uterine contractions. It is used in combination with misoprostol to terminate pregnancies.

Question:

A 72-year-old man presents with lethargy and palpitations for the past four or five days. On examination his pulse is 123 bpm irregularly irregular, blood pressure is 128/78 mmHg and his chest is clear. An ECG confirms atrial fibrillation. What is the appropriate drug to control his heart rate?

A.Amiodarone

B.Bisoprolol

C.Digoxin

D.Amlodipine

E.Flecainide

Answer:Bisoprolol

Explanation:

Atrial fibrillation: rate control - beta blockers preferable to digoxin

Important for meLess important

A number of factors including age and symptoms would favour a rate control strategy. The NICE guidelines suggest either a beta-blocker or a rate limiting calcium channel blocker (i.e. Not amlodipine) in this situation.

Question:

A 27-year-old female comes to see her GP in order to discuss her fertility and the prospect of getting pregnant. She is particularly concerned about spina bifida as a friend of hers recently gave birth to a child with the condition. She is otherwise well with no significant medical history and no family history of any birth defects.

What dose of the supplement used to prevent neural tube defects should be given in the first 12 weeks of pregnancy?

A.200 micrograms

B.400 micrograms

C.800 micrograms

D.1 milligram

E.5 milligrams

Answer:400 micrograms

Explanation:

Folic acid is important to prevent neural tube defects in the foetus. Currently it is recommended that all women who are planning to become pregnant should take a supplement of 400 micrograms of folic acid per day whilst trying to conceive and once pregnancy, they should continue taking this dose until the 12th week of pregnancy.

In cases where there has been a previous pregnancy affected by neural tube defects or if there is a family history, this dose should be increased to 5 milligrams, however in the case of this patient there is no history and therefore 400 micrograms is recommended.

Question:

A 27-year-old woman presents to her GP with a 7-month history of amenorrhea. 8 months ago she stopped taking the pill to try for a baby. She tells you that she has always had problems with her period, which are usually quite strong and irregular, which is why she had been taking the pill since the age of 15. On questioning, she admits to recent weight gain of approximately 4 kg. A pregnancy test that she took yesterday was negative.

There is no other significant medical or family history of note.

What is the most likely explanation for this patient’s symptoms?

A.Turner syndrome

B.Congenital adrenal hyperplasia

C.Oral contraceptive discontinuation syndrome

D.Ectopic pregnancy

E.Polycystic ovary syndrome

Answer:Polycystic ovary syndrome

Explanation:

Use of the combined oral contraceptive pill can mask an underlying polycystic ovarian syndrome in women who would otherwise experience symptoms

Important for meLess important

Polycystic ovary syndrome is classically characterised by menstrual disorders, infertility, acne, hirsutism, and metabolic syndrome. In this case, use of the combined oral contraceptive pill clearly decreased hirsutism and allowed for normal menstrual periods. This makes polycystic ovarian syndrome the best answer.

Reference: Wilkinson & Longmore, Oxford Handbook of Clinical Medicine (10th Ed.), p. 230.

Question:

A 34-year-old man presents to the emergency department with a 4-day history of central abdominal pain and nausea. In the last 2-days, he has been vomiting after eating and complains of being unable to open his bowels. There is no past medical history of note and he takes no regular medications.

On examination, his temperature is 36.2ºC with a heart rate of 109 beats/min and a blood pressure of 133/73mmHg. His abdomen is distended and tender on palpation with tinkling bowel sounds. There are multiple small dark brown and blue macules in his buccal mucosa.

What is the likely underlying diagnosis?

A.Familial adenomatous polyposis

B.Lynch syndrome

C.Meckel's diverticulum

D.Peutz-Jegher's syndrome

E.Whipple's disease

Answer:Peutz-Jegher's syndrome

Explanation:

Small bowel obstruction (often due to intussusception) is a common presenting complaint in Peutz-Jegher's syndrome

Important for meLess important

This patient has a diagnosis of Peutz-Jegher's syndrome, an autosomal dominant inherited condition associated with the growth of multiple benign polyps (hamartomas) within the gastrointestinal system. Furthermore, the condition is associated with spots of dark blue to dark brown macules around the face, hands, feet, oral mucosa and anus, as seen in this patient. Commonly, the presenting complaint of a patient with Peutz-Jegher's syndrome can be a small bowel obstruction secondary to a gastrointestinal hamartoma. This is likely to be the cause of this patient's presentation given the features of abdominal pain, vomiting, constipation and abdominal distention with tinkling bowel sounds.

Familial adenomatous polyposis (FAP) is incorrect. FAP is an autosomal dominant condition associated with hundreds to thousands of colorectal adenomas and up to 100% risk for colorectal cancer by the age of 40 years. Whilst small bowel obstruction is a possible presentation in patients with this underlying condition, it does not explain the melanocytic macules given in the above presentation.

Lynch syndrome (otherwise known as hereditary non-polyposis colorectal cancer) is incorrect. Lynch syndrome is a rare type of cancer syndrome that is associated with an increased risk of colorectal cancer, endometrial cancer and ovarian cancer. It does not quite fit this patient's presentation and does not explain his melanocytic macules.

Meckel's diverticulum is incorrect. Meckel's diverticulum is the commonest congenital abnormality of the small bowel and most commonly presents by the age of 2 years. However, many patients may remain asymptomatic. The condition commonly presents as gastrointestinal bleeding. Other presentations include obstruction secondary to intussusception. A Meckel's diverticulum does not fit with this patient's presentation.

Whipple's disease is incorrect. Whipple's disease is a multisystemic, chronic infectious disease caused by Tropheryma whipplei. Symptoms include abdominal pain, diarrhoea, weight loss and arthralgia. Less commonly, there may be central nervous system involvement that gives rise to headache, confusion, ataxia and seizures. This is not in keeping with this patient's presentation, making it incorrect.

Question:

A 26-year-old male has attended the pre-operative assessment clinic before undergoing a tonsillectomy for recurrent tonsillitis.

The anaesthetist elicits a family history from the patient, which reveals that his father and paternal grandfather both experienced malignant hyperthermia following the administration of a general anaesthetic.

His mother and his paternal grandmother have never had an adverse reaction following a general anaesthetic.

What is the chance of this patient having the same reaction after a general anaesthetic?

A.0%

B.25%

C.50%

D.75%

E.Incalculable

Answer:50%

Explanation:

Susceptibility to malignant hyperthermia is inherited in an autosomal dominant fashion

Important for meLess important

Malignant hyperthermia is a relatively rare but serious condition that is brought about following the administration of volatile general anaesthetics. Family history of reactions to general anaesthetic is an important question to ask anyone undergoing surgery for this reason.

Most cases are genetic (mutations in the RYR1 gene, causing calcium ion release and therefore muscle rigidity and accompanying hyperthermia), and autosomal dominant.

In this case, his father is either heterozygous (RR) or homozygous (Rr) for the faulty gene, since he had the condition. However, since his grandfather but not his grandmother also had the condition, the patient's father must only be heterozygous for the condition. This is because he could only be homozygous (RR) if both the grandmother and grandfather had the condition.

Where R is faulty, and r is normal, and the row in paternal and the column is maternal:

R r

r Rr rr

r Rr rr

= 50% chance of inheriting the condition.

Question:

A 45-year-old female presents with fluctuating loin to groin pain and visible haematuria. She is unable to get comfortable. Examination is normal, with no signs of peritonitis. Which of the following investigations is most likely to be diagnostic?

A.Pregnancy test

B.Abdominal x-ray

C.Ultrasound abdomen

D.Cystography

E.CT KUB

Answer:CT KUB

Explanation:

Non-contrast computerised tomography of the kidneys, ureters and bladder (CT KUB) is the gold standard investigation for suspected urolithiasis.

While a very important investigation to perform in all acute abdominal presentations in females, a pregnancy test would not be the most likely be diagnostic test in this case.

Abdominal x-rays and ultrasound scans are less effective than CT for the detection of renal stones. Cystography is not useful in this scenario.

Question:

A 43-year-old woman is being seen for changes in her hands. She reports that her skin feels leathery, her wedding ring no longer fits, and she has some occasional tingling over the area surrounding her thumb. She is otherwise healthy and has no past medical history of note.

A recent blood test performed by her general practitioner shows the following:

IGF-1 270 ng/mL Age 41-45: (60-220)

What are the next most appropriate investigations to confirm the diagnosis?

A.No extra tests needed for confirmation

B.Early morning plasma growth hormone and cortisol

C.Gadolinium-enhanced magnetic resonance imaging

D.Oral glucose tolerance test with serial growth hormone measurements

E.Thyroid function tests and free T4 levels

Answer:Oral glucose tolerance test with serial growth hormone 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 woman has features that are suggestive of acromegaly. Acromegaly is an excess of growth hormone, which has a very wide clinical spectrum. This patient presents with enlargement of her hands, thickening of her skin and symptoms of carpal tunnel syndrome. The raised serum IGF-1 level is helpful in pointing towards acromegaly. Serum IGF-1 is a screening test used, since it is produced due to the effects of growth hormone (GH) and levels don't have circadian variation due to its long half-life. Definitive diagnosis of acromegaly is recommended to be an oral glucose tolerance test (OGTT) with serial GH measurements. GH should ordinarily be suppressed during an OGTT, and so a higher level of GH after an OGTT will be diagnostic for acromegaly. Serial measurements are needed due to significant variations in GH levels.

It is not true that other tests are not needed for diagnosis. IGF-1 alone is not sufficient for diagnosis, and therefore other tests are required. It is sensitive, and can be used as a screening test, but is not specific enough to confirm the diagnosis.

Early morning plasma GH and cortisol may demonstrate findings that point towards acromegaly. Plasma cortisol may be low, as the secretion of other pituitary hormones may be lowered in acromegaly - however, this finding is not specific for acromegaly. GH may be raised, however, a single GH measurement is not useful due to significant diurnal variation.

Gadolinium-enhanced magnetic resonance imaging may show a pituitary adenoma, which may be causing the acromegaly. However, it is not specific for acromegaly, as pituitary adenomas may be incidental and non-functioning. Additionally, this is not recommended without confirmatory blood tests first, and so this is not the correct answer.

Thyroid function tests and free T4 levels may be deranged in acromegaly, due to the possibility of a pituitary adenoma causing dysfunction in the release of other pituitary hormones. However, this finding if not specific for acromegaly and therefore is not the correct answer.

Question:

A 54-year-old man is brought to the emergency department by ambulance, after being found confused by members of the public for the fifth time in the past month. Upon review, he tells you that he came here by bicycle after spending the afternoon with his friends doing shopping, and then later tells you he spent today in the pub with his new dog. He smells strongly of alcohol and you notice a near-empty bottle of unlabelled spirit with him.

On examination, he has an ataxic gait, dysdiadochokinesia and horizontal nystagmus.

When you go back later to see him, he has forgotten your previous interaction.

Which of the following explains his signs and symptoms?

A.Cerebellar ataxia

B.Ethanol intoxication

C.Korsakoff's syndrome

D.Methanol toxicity

E.Wernicke's encephalopathy

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 man has presented to the emergency department with cerebellar signs, eye signs, amnesia and is changing his story about recent events. He is also carrying around a tell-tale bottle of alcohol. Wernicke's encephalopathy alone would account for most, though not all of his symptoms. The classic triad for this is ophthalmoplegia (often a lateral rectus palsy and/or horizontal nystagmus), confusion and ataxia (though any cerebellar signs can be present). However, this man also has features that make Korsakoff's syndrome the unifying diagnosis: anterograde amnesia (he forgets your interaction) and confabulation (he makes up two different stories about his day).

Whilst cerebellar ataxia, caused by alcohol use, haemorrhage, tumour, infection or other cause, accounts for some of this man's symptoms, it does not account for the specific symptoms that point to Korsakoff's disease.

Alcohol intoxication might produce unsteadiness and confusion or changing stories, but the specific neurological signs point away from this.

Methanol toxicity is a possible cause of ataxia, poor coordination and confusion. It may even contaminate unregulated alcohol products. However, it would likely also cause vomiting, abdominal pain, decreased consciousness and can progress to respiratory failure.

Question:

A 90-year-old man presents with worsening confusion. He is a nursing home resident and is dependent on carers for most activities of daily living. He is usually able to have short interactions with members of staff, though often struggles remembering names and naming objects.

Carers are concerned as he appears less alert than usual. He needs significant prompting at mealtimes and remains incontinent of urine.

On examination, he scores 12/15 on the Glasgow coma scale.

Which factor would suggest a diagnosis of delirium rather than dementia?

A.Difficulty with day-to-day tasks

B.Impairment of conscious level

C.Short term memory loss

D.Urinary incontinence

E.Word-finding difficulties

Answer:Impairment of conscious level

Explanation:

Delirium involves an impairment of conscious level and often involves psychotic symptoms

Important for meLess important

The differentiation between delirium and dementia can be difficult in the context of known cognitive impairment. One of the main factors favouring delirium is impairment of consciousness, demonstrated here by the reduced score on the Glasgow coma scale. Other factors which might suggest delirium include a fluctuation in symptoms and hallucinations.

An acute confusional state can be caused by a number of physical health problems, such as dehydration, constipation or a urinary tract infection. It can also be precipitated by medication changes or being in an unfamiliar environment. Delirium is more common among elderly patients, especially those with poor hearing/eyesight or pre-existing memory problems.

The other options listed, including difficulty with day-to-day tasks, short term memory loss, word-finding difficulties, and urinary incontinence are more typical of dementia and, in this scenario, they are premorbid signs.

Question:

A 29-year-old man with asthma presents with a 3-day history of increasing wheeze, dry cough and chest tightness. He has been needing to use his salbutamol up to 4 times a day to relieve his symptoms.

He is alert and able to complete full sentences at rest. His vital signs are as follows: temperature 37.1ºC, pulse rate 116/min, blood pressure 118/70 mmHg, respiratory rate 24/min, oxygen saturation 95% in room air. On auscultation, he has polyphonic wheeze throughout. His peak expiratory flow reading is 420 L/min (best 600 L/min).

How many features of acute severe asthma does he have?

A.Zero

B.1

C.2

D.3

E.4

Answer:1

Explanation:

The features of acute severe asthma are: PEFR 33-50% best or predicted, inability to complete full sentences, RR >25/min and pulse >110 bpm

Important for meLess important

This man has one feature of acute severe asthma based on his pulse rate being ≥110/min. None of his other parameters meets the criteria for acute severe asthma. His peak expiratory flow measurement is 70% of his best.

The other criteria for acute severe asthma are:

Peak expiratory flow 33-50% best or predicted

Respiratory rate ≥ 25/min

Inability to complete sentences in one breath

Note that only one criterion needs to be met for his exacerbation to be categorised as acute severe.

Consciousness level, oxygen saturation and auscultation findings are included in the assessment of life-threatening asthma and would be defined as altered conscious level, oxygen saturation >92% and silent chest, respectively.

Question:

A 70-year-old male presents to the Emergency Department with increased swelling of his right leg. He has a past medical history of right-sided heart failure. On examination, his right calf is 3cm larger than his left and he has bilateral pitting oedema to the knee. A D-dimer is sent which returns positive and he is started on apixaban. An ultrasound scan of his leg then returns negative.

What is the most appropriate management?

A.Stop anticoagulation and discharge with worsening advice

B.Continue anticoagulation and repeat scan in 1 week

C.Stop anticoagulation and repeat scan in 1 week

D.Continue anticoagulation for 3 months

E.Continue anticoagulation for 6 months

Answer:Stop anticoagulation and repeat scan in 1 week

Explanation:

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

Important for meLess important

In a situation where a D-dimer is positive but a US scan is negative in the investigation of possible deep vein thrombosis (DVT), anticoagulation should be stopped and the scan repeated in 1 week.

It would not be appropriate to stop the anticoagulation and discharge with worsening advice only, as this patient will require a scan in 1 week to ensure that a clot hasn't been missed.

Continuing the anticoagulation would be only appropriate if the scan was positive. Therefore, it would be inappropriate to continue anticoagulation whilst waiting for a second scan in 1 weeks time.

It would be inappropriate to continue anticoagulation for 3 months. This is the management for a provoked DVT which has been proven with a positive US scan.

It would be inappropriate to continue anticoagulation for 6 months. This is the management for a provoked DVT which has been proven with a positive US scan.

Question:

You see a 42 year-old gentleman who presents feeling tired all the time. You ask if he has been on holiday because he appears tanned, but he says he has not been in the sun. On examination the palmar creases and buccal mucosa show pigmentation. What underlying condition might cause this presentation?

A.Hyperparathyroidism

B.Renal failure

C.Addison's disease

D.Type 2 diabetes

E.Wilson's disease

Answer:Addison's disease

Explanation:

Addison's disease is primary adrenocorticoid deficiency. It often presents insidiously with vague symptoms such as tiredness. Hyperpigmentation, characteristically involving the skin creases, buccal mucosa and scars is a common feature. This occurs because adrenocorticotropic hormone (ACTH), the hormone produced by the pituitary to stimulate the adrenals to produce steroid hormones, has the same precursor molecule as melanocyte-stimulating hormone (MSH), so increased production of ACTH has the side effect of raising MSH levels.

Renal failure may produce a lemon-yellow appearance of the skin (or pallor due to anaemia).

Question:

A 67-year-old male presents to the Emergency Department after waking in the morning with lower back pain and an inability to stand unassisted. He has a past medical history of metastatic lung cancer and is currently receiving palliative care for this. Examination of the lower limbs reveals severe neurological deficits of both legs.

Given the likely diagnosis, which of the following would be a late sign in this patient?

A.Reduced peri-anal tone

B.Saddle anaesthesia

C.Symptom relief upon leaning forwards

D.Symptom relief upon lying down

E.Urinary incontinence

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

The correct answer is urinary incontinence.

This patient's presenting symptoms and examination findings, along with their past medical history suggest compression of the lumbosacral nerve roots and resultant cauda equina syndrome. This may have occurred due to either metastatic spinal cord compression (MSCC) or spinal fractures (vertebral metastases compromise spinal stability). It is important to recognise that CES may present in a variety of ways and there is no one symptom/sign that can diagnose nor exclude CES. Possible features include lower back pain, bilateral sciatica, reduced perianal sensation, decreased anal tone, faecal incontinence and urinary dysfunction (e.g. incontinence, reduced awareness of bladder filling, loss of urge to void). Urinary incontinence is a late sign and may indicate irreversible damage has occurred. Patients presenting with suspected cauda equina syndrome require an urgent MRI and neurosurgical referral.

Reduced perianal tone is incorrect, while this is commonly associated with cauda equina syndrome, it is rarely a late sign.

Saddle anaesthesia is incorrect, while this is commonly associated with cauda equina syndrome, it is rarely a late sign.

Symptom relief upon leaning forwards is incorrect as this is a symptom of lumbar/spinal stenosis. A condition in which the central spinal canal is narrowed by either degenerative changes, tumour or disc prolapse. Patients typically present with a combination of back pain, neuropathic pain and claudication.

Symptom relief upon lying down is incorrect as this is more commonly associated with spinal fractures.

Question:

A 39-year-old man is referred to orthopaedics with a 24-hour history of knee pain. He undergoes aspiration and urgent gram stain shows no organisms or crystals but many white blood cells.

You are asked for a medical opinion. When you review the patient you note chemosis and watery discharge of both eyes and he reports dysuria for several days. He reports he is sexually active with one partner and they always use condoms. On further questioning, he reveals he had an episode of diarrhoea 3 weeks previously which resolved after 4 days.

What is the most appropriate course of action?

A.Administer IM benzathine penicillin and refer to sexual health services

B.Organise joint washout

C.Start IV ceftriaxone

D.Start non-steroidal anti-inflammatory drugs and refer to rheumatology

E.Take blood cultures and start IV flucloxacillin

Answer:Start non-steroidal anti-inflammatory drugs and refer to rheumatology

Explanation:

Reactive arthritis: develops after an infection where the organism cannot be recovered from the joint

Important for meLess important

The correct answer is start non-steroidal anti-inflammatory drugs and refer to rheumatology. This patient has the classic triad of reactive arthritis (formerly known as Reiter's syndrome) - arthritis, conjunctivitis, and urethritis. The recent episode of diarrhoea may have represented Campylobacter or Salmonella infection, which are common triggers for this condition.

Administer IM benzathine penicillin and refer to sexual health services is incorrect. This would be a treatment option for syphilis, which can present with synovitis. However, it usually presents with migratory polyarthritis rather than the monoarthritis described here. It would also not explain urethritis or recent diarrhoeal illness.

Organise joint washout is incorrect. This would be recommended in cases of septic arthritis in conjunction with appropriate IV antibiotics. However, the negative gram stain in the absence of recent antibiotic exposure makes septic arthritis unlikely here and invasive management would be inappropriate without good evidence of the diagnosis.

Start IV ceftriaxone is incorrect. This would be the treatment of choice for gonococcal arthritis. This can present with monoarthritis and a negative gram stain, but more commonly is seen in the context of disseminated gonococcal infection - this presents with dermatitis, polyarthritis and tenosynovitis. His sexual history also does not imply a high risk of this. It would also be unlikely to explain the recent diarrhoeal illness.

Take blood cultures and start IV flucloxacillin is incorrect. This would be appropriate for septic arthritis, with the most common organisms being Staphylococcus aureus and beta-haemolytic streptococci. However, it is unusual to have a negative gram stain in such cases in the absence of recent antibiotic therapy. This would also not explain the ocular or urethral symptoms or the recent diarrhoeal illness.

Question:

A 32-year-old woman at 10 weeks gestation presents to out-of-hours care with a 3-week history of nausea and vomiting. She can drink water but has vomited 4 times in the past 24 hours. There is no abdominal pain, bowel habit changes, dizziness, dysuria, or vaginal bleeding.

Her temperature is 37.1ºC, her heart rate is 85 bpm, her blood pressure is 118/75 mmHg, and her abdomen is non-tender. Her pre-pregnancy weight was 65 kg and she now weighs 60 kg. Urine b-hCG is positive and a dipstick shows no blood, nitrates, or ketones. Oral cyclizine has been tried with no success.

What is the best immediate next step in her management?

A.Arrange hospital admission

B.Arrange routine referral to obstetrics

C.Prescribe oral domperidone

D.Prescribe oral prochlorperazine

E.Prescribe oral promethazine

Answer:Arrange hospital admission

Explanation:

Nausea and vomiting in pregnancy: admission should be considered in cases of ketonuria and/or weight loss despite use of oral anitemetics

Important for meLess important

Arrange hospital admission is correct. This patient has had nausea and vomiting in pregnancy and has already trialled oral cyclizine without success. Despite using oral antiemetics, she has had more than 5% weight loss compared to her pre-pregnancy weight. Despite having no ketonuria NICE and the Royal College of Obstetricians recommend arranging hospital admission for any pregnant patient with nausea and vomiting with >5% weight loss compared to pre-pregnancy and/or ketonuria despite oral antiemetics. This is due to the risk of complications emerging such as complications to the mother (e.g. malnutrition, Mallory-Weiss tears, oesophageal ruptures etc.) and to the foetus (e.g. growth restriction).

Arrange routine referral to obstetrics is incorrect. Although obstetric input is required, a routine referral would be inappropriate as this patient is still experiencing severe nausea and vomiting, and her weight loss suggests admission is needed, or at least an urgent assessment. Keeping this patient waiting would unnecessarily increase the risk of potential complications occurring and would prolong their discomfort.

Prescribe oral domperidone is incorrect. Although this is a second-line anti-emetic that could be considered, her weight loss suggests admission is needed, or at least an urgent assessment. Once an obstetric assessment has occurred, they may consider the use of an IV anti-emetic as it may be difficult for a patient to take oral medication when experiencing severe nausea and vomiting.

Prescribe oral prochlorperazine is incorrect. This is a first-line option for nausea and vomiting in pregnancy alongside oral cyclizine. Given that she has tried cyclizine (another first-line option) without success, it is unlikely that prescribing oral prochlorperazine would be sufficient. Her weight loss suggests admission is needed, or at least an urgent assessment, as soon as possible.

Prescribe oral promethazine is incorrect. This is a second-line anti-emetic that could be considered, however, her weight loss suggests admission is needed, or at least an urgent assessment. An intravenous preparation of the aforementioned anti-emetics may be considered as it may be difficult for the patient to take medication orally.

Question:

A 32-year-old lady presents with episodes of vertigo that come on at random. These 'dizzy spells' last for a few minutes to hours, and during this time she also experiences difficulty hearing and ringing in her ear. What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Vestibular neuronitis

C.Meniere’s disease

D.Migraine

E.Vertebrobasilar insufficiency

Answer:Meniere’s disease

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

In Meniere’s disease, vertigo occurs spontaneously. Episodes last for minutes to hours, and are accompanied by unilateral hearing loss and tinnitus. This is a very rare condition, and is often overdiagnosed.

The other differentials for recurrent vertigo listed do not fit the history given.

Benign paroxysmal positional vertigo - vertigo is provoked by a change in position and lasts for seconds, there is no change in hearing

Vestibular neuronitis - incapacitating non-positional vertigo that commonly occurs on awakening, there may be unilateral horizontal nystagmus

Migraine - vertigo is variable in duration, and often precedes or is accompanied by a headache

Vertebrobasilar insufficiency - there is often a triggering event e.g. standing up too quickly or exercising. It is associated with brain-stem symptoms such as diplopia and dysarthria

Question:

A 35-year-old man presents with fatigue and shortness of breath on exertion that has developed over the last two years. He has had several month-long periods of a cough productive of yellow sputum. He has a 20 pack-year smoking history and nothing of note in his past medical history. However, he has never received any vaccinations due to parental objection.

His observations are heart rate 70/min, blood pressure 127/82 mmHg, respiratory rate 24, saturation 94%, temperature 37.6ºC.

Blood samples were taken and the results were normal, except for an ALT of 96iu/l and AST of 88iu/l

A chest CT revealed hyperinflated lungs with emphysematous changes that were very prominent in the lung bases.

What is the most likely diagnosis?

A.Chronic obstructive pulmonary disease (COPD)

B.Caplan syndrome

C.Alpha-1 antitrypsin deficiency

D.Pertussis

E.Pneumoconiosis

Answer:Alpha-1 antitrypsin deficiency

Explanation:

Emphysema is most prominent in the lower lobes in A1AT deficiency and the upper lobes in COPD

Important for meLess important

This patient has symptoms suggesting lung dysfunction and bronchitis, LFTs suggestive of hepatocellular damage, and a basal emphysema on imaging.

Caplan syndrome is used when there are lung nodules in the context of rheumatoid arthritis (RA). There is no suggestion of RA or nodules in this case.

Pertussis, also called whooping cough, is a bacterial infection that is normally vaccinated against. However, this man did not receive these. Even so, the time course of his symptoms and the lack of fever and characteristic whoop rules out this diagnosis.

Finally, the remaining choices are COPD or alpha-1 antitrypsin deficiency (A1AD). Both are viable options. However, A1AD is the correct answer as there is a degree of liver damage and the imaging changes are basal. In COPD, the emphysema is characteristically at the apices.

Question:

A 28-year-old male is referred to the medical assessment unit by his GP following a 2-day history of visible haematuria and a productive cough. He has had no dysuria, abdominal pain, or urinary frequency. He admits to coughing up blood and experiencing nosebleeds for the past 5 days.

A urine dip shows protein ++, red blood cells ++ and is negative for nitrites and leukocytes.

Blood tests are carried out and the results are shown below:

Hb 136 g/L Male: (135-180)

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

WBC 6.0 \*109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 10.8 mmol/L (2.0 - 7.0)

Creatinine 299µmol/L (55 - 120)

The doctor assessing the patient suspects acute glomerulonephritis.

What is the most likely underlying cause of the patient’s glomerulonephritis?

A.Anti-glomerular basement membrane (GBM) disease

B.Focal segmental glomerulosclerosis (FSGS)

C.Henoch-Schönlein purpura

D.IgA-nephropathy

E.Membranoproliferative 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 (previously known as Goodpasture’s syndrome). The patient is presenting with haemoptysis and haematuria, typical of anti-GBM disease. They additionally have an acute kidney injury, haematuria and proteinuria, suggestive of a rapidly progressive glomerulonephritis secondary to anti-GBM disease. It is caused by serum antibodies that react with glomerular and alveolar basement membranes. Patients with anti-GBM disease may also experience other symptoms like a cough, bleeding from the nose and dyspnoea.

Focal segmental glomerulosclerosis (FSGS) is incorrect. This is a common cause of nephrotic syndrome (proteinuria, hypoalbuminemia and peripheral oedema) in adults which would not account for the patient's symptoms of haematuria or haemoptysis.

Henoch-Schönlein purpura is incorrect. This is a small-vessel vasculitis most commonly seen in children, not adult males. This typically presents with a purpuric rash, normally on the buttocks or backs of the legs, joint pain and abdominal pain in conjunction with either nephrotic syndrome or acute glomerulonephritis.

IgA-nephropathy is incorrect. This is a cause of glomerulonephritis caused by IgA immune complexes depositing in the kidney, this would not account for the haemoptysis experienced by the patient. This would typically occur 2-6 days following a respiratory tract or gastrointestinal infection which this patient has no history of.

Membranoproliferative glomerulonephritis is incorrect. Whilst this is an immune-mediated glomerulonephritis caused by immune-mediated damage to the glomerulus, this would not account for the patient’s haemoptysis or epistaxis.

Question:

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

A.Delusional perceptions

B.Thought echo

C.Catatonia

D.Thought withdrawal

E.Thought insertion

Answer:Catatonia

Explanation:

Question:

A 62-year-old woman presents with sudden loss of vision in her left eye. Fundoscopy reveals the following:

What is the diagnosis?

A.Retinal detachment

B.Ischaemic optic neuropathy

C.Vitreous haemorrhage

D.Central retinal vein occlusion

E.Central retinal artery 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

This appearance is sometimes compared to a cheese and tomato pizza.

Question:

You are working in a busy emergency department. A 52-year-old male is brought in to resus with extensive burns covering around 40% of his body surface area. Which of the following is used to calculate the volume of fluid required for resuscitation over the first 24 hours after the burn?

A.APACHE II

B.Light's Criteria

C.Parkland formula

D.Cockcroft-Gault Formula

E.Wells score

Answer:Parkland formula

Explanation:

Parkland formula is used to calculate the volume of IV fluid required for resuscitation over the first 24 hours after the burn

Important for meLess important

Parkland formula is used to calculate the volume of IV fluid required for resuscitation over the first 24 hours after the burn

APACHE II is used to estimate mortality in ICU.

Light's criteria is used to determine whether a pleural effusion is an exudate or a transudate

Cockcroft-Gault Formula is a method of estimating glomerular filtration rate (GFR).

Wells score can refer to either Wells score for DVT or Wells score for PE, which are used to assess the risk of a patient having a DVT or PE respectively.

Question:

A 45-year-old man with a history of alcohol excess is diagnosed as having grade 3 oesophageal varices during an outpatient endoscopy. Of the following options, what is the most appropriate management to prevent variceal bleeding?

A.Propranolol

B.Isosorbide mononitrate

C.Endoscopic sclerotherapy

D.Terlipressin

E.Lansoprazole

Answer:Propranolol

Explanation:

A non-cardioselective B-blocker (NSBB) is used for the prophylaxis of oesophageal bleeding

Important for meLess important

Endoscopic sclerotherapy now has little role in the prophylaxis of variceal haemorrhage.

Question:

A doctor is working in the Emergency Department when they are asked to review the ECG of a 70-year-old man who has come in 'generally unwell.' The triage nurse has taken his observations, which are all within normal limits, taken the ECG and sent some blood tests for analysis, which are not yet back.

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

What could have caused the abnormalities seen in this ECG?

A.Acute kidney injury

B.Digoxin toxicity

C.Furosemide use

D.Primary hyperaldosteronism

E.Severe diarrhoea

Answer:Acute kidney injury

Explanation:

This ECG shows findings suggestive of hyperkalaemia; there are tall tented T waves, a lack of P waves and broad QRS complexes, leading to an almost sinusoidal wave pattern. Whilst, in practice, an ECG would be taken as part of the overall assessment of the patient (including history, examination and other investigations), this question focuses on identifying ECG changes suggestive of severe hyperkalaemia. Of the options listed, only acute kidney injury is a cause of hyperkalaemia, due to loss of the ability of the kidneys to filter out potassium.

Digoxin toxicity can produce multiple ECG changes but is not associated with tall tented T waves or a widened QRS. Instead, T waves may flatten or invert and the QT interval may decrease (due to increased automaticity). Both tachyarrhythmias (due to increased automaticity) and bradyarrhythmias (due to reduced conduction) may be seen. Classically, there is ST depression that is 'scooped' in appearance.

Furosemide use can lead to hypokalaemia, rather than hyperkalaemia, due to increased urinary loss of potassium. Although uncommon, furosemide can precipitate severe hypokalaemia, to the point of causing characteristic ECG changes of hypokalaemia. The earliest ECG change in hypokalaemia is decreased T wave amplitude (in contrast to the tall tented T waves in hyperkalaemia). Other changes are increased P wave amplitude (as opposed to the flattening and subsequent loss of P waves in hyperkalaemia), prolonged PR interval, widespread ST depression and the development of U waves. As with hyperkalaemia, if untreated, the ECG can degenerate into life-threatening arrhythmias.

Like furosemide use, primary hyperaldosteronism is associated with hypokalaemia, as aldosterone results in sodium retention and potassium excretion.

Severe diarrhoea again results in hypokalaemia, rather than hyperkalaemia, due to gastrointestinal loss of potassium ions. The ECG appearances of hypokalaemia are discussed above.

Question:

A two-year-old child is brought to the hospital. His parents are concerned as he has had a temperature of 39ºC for the last five days. They have also noted that his eyes are red, his neck is swollen and he has a new rash.

On examination, there is a generalised maculopapular rash and the child has bilateral conjunctivitis. There is unilateral cervical lymphadenopathy. The lips are cracked and erythematous and a strawberry tongue is present.

What treatment should this child receive initially?

A.Aspirin

B.Benzylpenicillin

C.Conservative management with fluids and rest

D.Corticosteroids

E.Phenoxymethylpenicillin

Answer:Aspirin

Explanation:

High dose aspirin is indicated in Kawasaki disease, despite it usually being contraindicated in children

Important for meLess important

This child has Kawasaki disease. Kawasaki disease is a systemic vasculitis that generally presents in the under 5s. Typical findings, as seen in this case, include an acute febrile illness lasting over 5 days, bilateral non-purulent conjunctivitis, unilateral cervical lymphadenopathy, a polymorphic rash, and mucosal erythema with a strawberry tongue. Swelling of the hands and feet can occur in the acute stage with desquamation in the second week. Coronary aneurysms can develop in up to one-quarter of untreated patients. The main goal of treatment is to reduce the risk of cardiac complications. The standard treatment in the UK is intravenous immunoglobulin and high dose aspirin (despite the fact that it is usually contraindicated in children) due to the additional anti-inflammatory effects this provides. S

Benzylpenicillin is an antibiotic whose indications include as a pre-hospital medication in suspected meningococcal disease. As above, the cause of Kawasaki disease is unknown. There is some evidence linking it to bacterial infections but it is not linked to any particular bacterial agent and there is no role for antibiotics in the treatment of Kawasaki disease.

Conservative management is incorrect. Whilst fluids and rest are important in the management of any acute illness, patients with Kawasaki disease require treatment to reduce inflammation and prevent the risk of coronary complications. Not providing any specific treatment is therefore an incorrect option.

Corticosteroids may be used second-line in Kawasaki disease if the patient's symptoms do not respond to intravenous immunoglobulins. However, they are not used first-line due to conflicting results about their efficacy in current literature.

Phenoxymethylpenicillin is incorrect; as above, antibiotics have no role in the management of Kawasaki disease. Phenoxymethylpenicillin is a treatment for one of the differentials for Kawasaki disease, scarlet fever. Scarlet fever is caused by group A streptococcus infection that also causes an acute febrile illness with an erythematous rash and desquamation. However, the lips are spared in the rash of scarlet fever and it would not cause conjunctivitis. There would also be evidence of upper respiratory tract infection, such as purulent tonsils.

Question:

A 35-year-old male presents to the GP with a month long history of a painless lump in his testicle. The GP performs an ultrasound and refers him to hospital for a suspected testicular cancer. He subsequently undergoes an orchidectomy for a stage 1 seminoma.

Which of the following tumour markers was most likely to be raised in the patient?

A.CEA

B.HCG

C.PSA

D.S-100

E.Ca-125

Answer:HCG

Explanation:

hCG is associated with testicular seminomas

Important for meLess important

The correct answer is hCG. This is most likely to be associated with seminomas and is raised in approximately 20% of seminomas.

PSA is commonly raised in prostatic carcinoma.

CEA is most likely to be associated with colorectal cancer.

S-100 is commonly raised in melanomas and schwannomas.

Ca-125 is the tumour marker for ovarian cancer.

Question:

A 72-year-old man attends a neurovascular clinic for follow-up. He suffered an ischaemic stroke 4 weeks ago but has made a good recovery. Unfortunately, the patient experienced significant diarrhoea and abdominal discomfort when switching from aspirin 300mg daily to clopidogrel 75mg. As a result, he stopped taking his clopidogrel and since then these symptoms have resolved.

Given the above, what is the most appropriate medication(s) to prescribe for secondary stroke prevention?

A.No additional treatment needed

B.Prasugrel

C.Ticagrelor

D.Warfarin

E.Aspirin 75mg plus modified release dipyridamole

Answer:Aspirin 75mg plus modified release dipyridamole

Explanation:

If clopidogrel is contraindicated or not tolerated, given aspirin and modified release dipyramidole for secondary prevention following stroke

Important for meLess important

Aspirin 75mg plus modified-release dipyridamole is given for secondary stroke prevention when clopidogrel cannot be tolerated. Studies have found this combination of antiplatelets superior to when aspirin or modified-release dipyridamole are taken in isolation.

Ticagrelor is currently not recommended by NICE as an antiplatelet to use in secondary stroke prevention.

Prasugrel is associated with unacceptable bleeding risks in patients with a history of stroke or transient ischaemic attack (TIA). It is therefore contraindicated.

Warfarin and other oral anticoagulants are generally not used for secondary stroke prevention. Antiplatelets are preferred.

Question:

A 71-year-old female is brought to the emergency department by her husband. Her husband states that 2 days ago, she tripped on a rug and hit her head. Initially, she felt well and therefore did not seek medical help. However, her husband is now worried as she seems to be intermittently confused which is unusual for her.

She has a past medical history of longstanding atrial fibrillation, for which she takes warfarin. She also has well-controlled hypertension and hypothyroidism. She does not drink alcohol.

You are unable to obtain a history from her, as she is mumbling and will only open her eyes to pain. On neurological examination, she has no weakness of the face or limbs.

Based on this history, what is the most likely diagnosis?

A.Diffuse axonal injury

B.Extradural haematoma

C.Intracerebral haematoma

D.Subarachnoid haemorrhage

E.Subdural haematoma

Answer:Subdural haematoma

Explanation:

Fluctuating confusion/consciousness? - subdural haematoma

Important for meLess important

Her age, history of trauma, fluctuating confusion and decreased consciousness all point to a diagnosis of a subdural haematoma. She is also taking warfarin, an anticoagulant which increases the risk of intracranial bleeds.

Diffuse axonal injury is a type of brain injury typically caused by shearing forces from rapid acceleration-deceleration. They most commonly occur in road traffic accidents and may result in coma.

Whilst extradural haematomas can cause a lucid interval, they typically occur in younger people as a result of acceleration-deceleration trauma or a blow to the side of the head.

Intracerebral haemorrhage is a possibility in this case, as she has risk factors including atrial fibrillation, anticoagulant use, hypertension and older age. However, intracerebral haemorrhages typically present with stroke symptoms such as facial weakness, arm/leg weakness and slurred speech. This patient does not have any weakness, making a subdural haematoma more likely.

Subarachnoid haemorrhages typically present with a sudden-onset 'thunderclap' headache in the occipital area.

Question:

A 56-year-old male presents to the emergency department with diarrhoea and fever. He has a past medical history of systemic lupus erythematosus, for which he received a renal transplant 3 years previously, gout and dyspepsia. His current medications include azathioprine, allopurinol and omeprazole. He drinks 20 units of alcohol a week and has done so for the past decade. His observations show:

Respiratory rate of 32 /min

Pulse of 133 bpm

Temperature of 39.1ºC

Blood pressure of 88/56 mmHg

Oxygen saturation of 94% on room air

Blood results show:

Hb 90 g/L Male: (135-180)

Female: (115 - 160)

Platelets 85 \* 109/L (150 - 400)

WBC 1.3 \* 109/L (4.0 - 11.0)

Neuts 0.7 \* 109/L (2.0 - 7.0)

Which of the following drug interactions resulted in this patient's presentation?

A.Allopurinol and chronic alcohol use

B.Azathioprine and allopurinol use

C.Azathioprine and chronic alcohol use

D.Azathioprine and omeprazole use

E.Omeprazole and allopurinol use

Answer:Azathioprine and allopurinol use

Explanation:

Allopurinol increases risk of azathioprine toxicity

Important for meLess important

The correct answer is azathioprine and allopurinol use.

This patient has presented with neutropenic sepsis, evidenced by the clinical history, observations and blood results. Azathioprine is a prodrug, meaning it is metabolised to its active form, 6-mercaptopurine, which causes immunosuppression (prevents kidney rejection in this patient). The active 6-mercaptopurine is subsequently metabolised by xanthine oxidase to inactive this uric acid which is excreted. As allopurinol inhibits xanthine oxidase, the combination of the two drugs can lead to excessive myelosuppression and therefore increase the risk of neutropenic sepsis.

Allopurinol and chronic alcohol use is incorrect; while chronic alcohol use may induce CYP enzymes, the two do not interact and will not affect a patient's immune system.

Azathioprine and chronic alcohol use is incorrect as 6-mercaptopurine is not metabolised by the CYP family of enzymes. A combination of the two will, therefore, not significantly increase a patient's risk of myelosuppression.

Azathioprine and omeprazole use is incorrect; while omeprazole use may inhibit the CYP of enzymes, 6-mercaptopurine is not metabolised via this route, so the combination will not significantly increase a patient's risk of myelosuppression.

Omeprazole and allopurinol use is incorrect as neither medication causes myelosuppression, and the two do not interact.

Question:

Precocious puberty in females may be defined as the development of secondary sexual characteristics before:

A.8 years of age

B.9 years of age

C.10 years of age

D.11 years of age

E.12 years of age

Answer:8 years of age

Explanation:

Question:

An 82-year-old lady is brought into the emergency department by the paramedics. She has been off her feet for the last week in her care home and is now unresponsive. When she arrives her temperature is recorded and found to be 28ºC.

Given her presentation what changes would you expect to see on an ECG?

A.Q-waves

B.Delta waves

C.Saddle ST-elevation

D.Sinus tachycardia

E.J-waves

Answer:J-waves

Explanation:

J-waves are associated with hypothermia

Important for meLess important

This question is asking about an 82-year-old lady presenting with hypothermia and asking for ECG changes you would expect to see. Therefore the correct answer is J-waves. These are small bumps at the end of the QRS complex.

Q-waves are associated with a previous myocardial infarction

Delta waves are associated with Wolff-Parkinson-White Syndrome

Saddle ST elevation is associated with pericarditis

Sinus tachycardia would not be expected as patients with hypothermia are often bradycardic

Question:

A 8-year-old boy attends the GP surgery with his mother. He recently injured his shin playing football and his mother is concerned it may be infected. The initial injury was 2 weeks previously and described as a graze. On examination you see a well healed superficial abrasion on the skin, with multiple small, raised pink papules with a central dimple around the graze. The skin is otherwise not flushed and cool to touch around the wound. You also notice a crop of similar lesions on his stomach. His mother says these lesions have been present for about 6 months.

What is the likely diagnosis?

A.Molluscum contagiosum

B.Chickenpox

C.Roseola Infantum

D.Pompholyx eczema

E.Staph. aureus infection

Answer:Molluscum contagiosum

Explanation:

Koebner phenomenon can cause molluscum contagiosum lesions to appear at areas of injury

Important for meLess important

Molluscum contagiosum is a common viral lesion seen in childhood. It exhibits Koebner's phenomenon, where lesions are seen at the site of injuries.

Chickenpox presents with a much shorter time frame and a blistering macular rash which scabs over. There is no history of contact with chemicals suggestive of contact dermatitis. Pompholyx eczema is seen on the hands and soles of the feet. The cool surrounding skin suggest a bacterial infection is unlikely.

Question:

A 52-year-old woman is seen in the endocrinology clinic after being referred from her GP. She has a 3-month history of palpitations, heat intolerance, and tremor. On examination, she is noted to have proptosis and lagophthalmos. She has a diffuse, palpable goitre with an audible bruit on auscultation. Due to these findings, she has a radioactive iodine uptake test organised.

Considering her likely diagnosis, what will this test show?

A.Areas of intense uptake interspersed with some reduced activity

B.Faint diffuse uptake

C.Increased homogenous uptake

D.No uptake at all

E.Single hot nodule with the rest of the gland suppressed

Answer:Increased homogenous uptake

Explanation:

Increased, homogenous uptake on a radioactive iodine uptake test suggests Grave's disease

Important for meLess important

This patient is presenting with hyperthyroid symptoms (palpitations, heat intolerance, and a tremor). Considering the examination findings of proptosis (bulging eyes) and lagophthalmos (incomplete eyelid closure) which are strongly associated with Grave's ophthalmopathy, she is expected to have investigation findings consistent with Grave's disease. Increased homogenous uptake is seen on the radioactive iodine uptake test in Grave's disease due to generalised overactivity of the whole thyroid gland.

Areas of intense uptake interspersed with some reduced activity is seen in toxic nodular goitre. While toxic nodular goitre is associated with hyperthyroid symptoms (such as palpitations, sweatiness, and a tremor), it is not associated with the thyroid eye disease seen in the vignette. Furthermore, on examination, there would be a nodular goitre felt rather than a homogenous swelling.

Faint diffuse uptake would be found in subacute thyroiditis (De Quervain's thyroiditis). This condition is associated with a painful goitre, myalgia, and arthralgia. This patient has had a longstanding progressive history of systemic symptoms and there is no report of fever in the vignette - these features should indicate the low likelihood of this condition affecting the patient. The low uptake of iodine in this condition is due to the tissue, not over-producing thyroid hormone (as in Grave's disease).

No uptake at all would be seen in inflammatory conditions such as subacute thyroiditis.

A single hot nodule with the rest of the gland suppressed would be consistent with a toxic adenoma (a single hyperfunctioning area of thyroid tissue). Patients will usually have symptoms of hyperthyroidism as seen in the vignette, however, they will not have eye signs and will have a single palpable nodule on thyroid examination.

Question:

A 26-year-old woman presents to her GP with a 5 week history of worsening dull pelvic pain and smelly discharge. She has had a hormonal intrauterine device in situ for one year and does not menstruate with this. She has had the human papilloma virus vaccine but has not yet had any smear tests. What is the most likely diagnosis?

A.Ectopic pregnancy

B.Pelvic inflammatory disease

C.Endometriosis

D.Inflammatory bowel disease

E.Cervical cancer

Answer:Pelvic inflammatory disease

Explanation:

Pelvic inflammatory disease is the most likely diagnosis in this patient. Her pain has developed over a long duration, and she has presented to her GP suggesting that the pain is not severe. She also complains of smelly discharge that may be a sign of a sexually transmitted infection. This patient has an intrauterine device suggesting that there may be no barrier method in use to prevent sexually transmitted infections. Abnormal bleeding (post-coital, inter-menstrual, menorrhagia) may be also present. High vaginal swabs should be taken, and antibiotics prescribed if appropriate. A smear test can be taken opportunistically in this patient.

Ectopic pregnancy is an important differential, but the pain associated with this is likely to develop more acutely. Furthermore, an intrauterine device is in situ so this greatly reduces the likelihood of ectopic pregnancy. Nevertheless is it still a possibility and a pregnancy test should still be carried out in these patients. Vaginal bleeding may also be present in ectopic pregnancy.

Endometriosis can present with a long history of pelvic pain, though this usually increases in severity with menstruation. Pain generally reduces with the absence of menstruation, so endometriosis is an unlikely diagnosis in this patient who does not menstruate but her pain is getting worse.

Despite this patient having missed her first cervical smear, cervical cancer is epidemiologically more unlikely than pelvic inflammatory disease. This patient has had the human papilloma virus vaccine that also reduces her likelihood of developing cervical cancer. Early cervical cancer can have no symptoms, so it is important for this patient to have smear tests that can detect this. Nevertheless, there are no signs of advanced cervical cancer in this patient that can include abnormal uterine bleeding, loss of appetite, weight loss and fatigue.

Inflammatory bowel disease can present with dull pelvic pain, though this is most commonly associated with other symptoms such as weight loss, rectal bleeding and diarrhoea.

Question:

A 35-year-old man attends an outpatient gastroenterology clinic for review of his ulcerative colitis. At his last appointment, he reported that he felt his symptoms were well controlled as he was opening his bowels only once or twice per day, and there was no associated mucous or blood. However, he reported a new symptom of intense itch and felt his eyes had taken a yellow tinge. Today he reports noticing his urine being darker and stools paler.

He has no other medical problems apart from ulcerative colitis which is currently managed with mesalazine and azathioprine.

You arranged for some blood tests and a magnetic resonance cholangiopancreatography (MRCP) to be done after his last appointment. The results of which are shown below:

Hb 116 g/L (115 - 160)

Platelets 352 \* 109/L (150 - 400)

WBC 5.5 \* 109/L (4.0 - 11.0)

CRP 10 mg/L (< 5)

Bilirubin 75 µmol/L (3 - 17)

ALP 250 u/L (30 - 100)

ALT 45 u/L (3 - 40)

γGT 79 u/L (8 - 60)

Albumin 32 g/L (35 - 50)

The MRCP showed 3 small gallstones in the gall bladder but no common bile duct dilation. It also did show multiple segmental strictures of the biliary tree.

From the information provided, what is the likely diagnosis?

A.Autoimmune hepatitis

B.Primary biliary cholangitis

C.Primary sclerosing cholangitis

D.Biliary colic

E.Mesalazine induced transaminitis

Answer:Primary sclerosing cholangitis

Explanation:

Ulcerative colitis + cholestatis (e.g. jaundice, raised ALP) → ? primary sclerosing cholangitis

Important for meLess important

Primary sclerosis cholangitis is associated with ulcerative colitis. It is a condition which causes inflammation and scarring of the intra- and extra-hepatic bile ducts. It classically presents with jaundice and pruritis and ALP/γGT are raised.

Autoimmune hepatitis commonly presents in young women. It would most likely present with a greater increase in ALT and AST compared to ALP.

Primary biliary cholangitis is a good differential as it also gives a cholestatic picture; however, is associated with other autoimmune diseases such as Sjogren's and does not result in progressive obstructive jaundice.

Biliary colic would also lead to a cholestatic picture on the blood tests. However, the MRCP showed no evidence of gallstones.

Mesalazine induced transaminitis is unlikely as the blood tests show a cholestatic picture. In addition, there is no mention that this is a new drug or the dose has been altered.

Question:

A patient who is awaiting an inguinal hernia repair is found to be positive for MRSA after screening at the pre-admission clinic. What treatment should he be offered, if any?

A.Nasal fusidic acid + chlorhexidine for the skin

B.Nasal mupirocin + triclosan for the skin

C.Nasal mupirocin + chlorhexidine for the skin

D.Nasal chlorhexidine + chlorhexidine for the skin

E.No treatment but admit to side-room for isolation

Answer:Nasal mupirocin + chlorhexidine for the skin

Explanation:

Question:

A 50-year-old with a history of breast cancer presents to her local GP surgery with a two-day history of left-sided calf swelling. What is the most appropriate scoring system to use to assess her risk of having a deep vein thrombosis (DVT)?

A.Wells score

B.Rockall score

C.DVT-A2 score

D.Marlow score

E.Stockholm score

Answer:Wells score

Explanation:

Question:

A 30-year-old woman presents to the gynaecology clinic after having been diagnosed with endometriosis 2 years ago following laparoscopic surgery. She experiences chronic pelvic pain, which worsens during her menstrual cycle, as well as deep dyspareunia.

The patient has had unsuccessful trials of ibuprofen, the progestogen-only pill and the combined oral contraceptive pill. She takes no other medication, has no allergies and has no other medical history. The patient is not currently wishing to become pregnant.

What would be an appropriate next step in treatment?

A.Insert a copper intrauterine device

B.Prescribe a regular weak opioid

C.Prescribe amitriptyline

D.Trial a gonadotrophin-releasing hormone agonist

E.Trial an androgen

Answer:Trial a gonadotrophin-releasing hormone agonist

Explanation:

GnRH analogues may be used in endometriosis if NSAIDs/COCP have not controlled symptoms

Important for meLess important

Gonadotrophin-releasing hormone agonists (GnRH agonists) may be used as second-line medical management in patients with endometriosis if a combination of non-steroidal anti-inflammatories and the combined oral contraceptive pill have not controlled their symptoms. In this first stage of treatment, patients may also be offered progestogen-only contraception (such as the pill, implant or levonorgestrel intrauterine system), as this patient has. GnRH agonists lead to the down-regulation of GnRH receptors, thus reducing oestrogen (and androgen) production. This reduces the symptoms of endometriosis as oestrogen thickens the uterine lining.

The copper intrauterine device is incorrect. This is because the copper intrauterine device does not contain hormones, so will not prevent the build-up of the uterine lining which is what causes symptoms in endometriosis. Instead, the copper intrauterine device can actually make periods heavier and more painful.

Prescribe a regular weak opioid is incorrect. NICE does not recommend opioids in the management of endometriosis, as endometriosis is a chronic condition and hence there is a high risk of adverse effects and addiction.

Prescribe amitriptyline is incorrect. Whilst this is a medication used in the management of chronic pain, currently, the patient has not explored many of the treatment options for endometriosis. It would be appropriate to work through the pathway of medical (and possibly surgical) endometriosis treatments before prescribing amitriptyline, which comes with side effects and is risky in overdose.

Trial an androgen is incorrect as androgens are third-line treatments, that may be tried for medical management if a GnRH agonist has not been successful. Androgens work by suppressing the hypothalamic-pituitary-androgen axis, leading to a low-oestrogen state. Their use is limited by the side effects of androgen excess.

Question:

A 65-year-old woman with chronic kidney disease is reviewed in a renal outpatient clinic.

On review, she remains asymptomatic and feels well in herself.

The results of her recent blood tests are shown below:

Calcium 2.05 mmol/L (2.1-2.6)

Phosphate 1.89 mmol/L (0.8-1.4)

The previous calcium and phosphate results were normal.

What is the most appropriate management of these results?

A.Admit for IV calcium replacement

B.Admit for IV fluids

C.Prescribe bisphosphonates

D.Prescribe phosphate binders

E.Recommend low phosphate diet

Answer:Recommend low phosphate diet

Explanation:

Initial management of CKD-mineral bone disease: Correct hyperphosphataemia first; start with dietary changes before starting a phosphate binder

Important for meLess important

This patient has chronic kidney disease and the biochemistry results suggest the patient has developed mineral bone disease as a result.

'Recommend low phosphate diet' is correct, this would be used first-line in an attempt to reduce the serum phosphate level to prevent further complications of CKD-mineral bone disease.

'Admit for IV calcium replacement' is incorrect. Although the patient is hypocalcaemic, the generally agreed cut off for IV replacement is a calcium level below 1.9 mmol/L. The low calcium is likely contributed to by the high phosphate, so reducing the phosphate level should in turn improve the calcium.

'Admit for IV fluids' is incorrect. IV fluids are not indicated in the treatment of hyperphosphataemia or mild hypocalcaemia. They would be used if the patient was severely hypercalcemia.

'Prescribe bisphosphonates' is incorrect - these may also be needed if the patient was severely hypercalcaemic.

'Prescribe phosphate binders' is incorrect. These would be used second-line if dietary modifications were unable to reduce the phosphate level.

Question:

A 72-year-old man with a background of diabetes and a previous myocardial infarction presents with abnormal vision.

Examination reveals an inferior homonymous quadrantanopia.

What is the most likely site of the lesion?

A.Inferior optic radiation in the parietal lobe

B.Inferior optic radiation in the temporal lobe

C.Inferior to the optic chiasm

D.Superior optic radiation in the parietal lobe

E.Superior to the optic chiasm

Answer:Superior optic radiation in the parietal lobe

Explanation:

Inferior homonymous quadrantanopias are caused by lesions of the superior optic radiations in the parietal lobe

Important for meLess important

For the purpose of exams, inferior homonymous quadrantanopias are caused by lesions of the superior optic radiations in the parietal lobe. In reality, however, occipital lobe lesions may also present with this pattern of visual field loss.

PITS refers to which part of the visual field is affected: parietal-inferior visual field / temporal-superior visual field. However, the optic radiations are 'opposite' to the visual fields!

A lesion of the inferior optic radiation in the temporal lobe would cause a superior homonymous quadrantanopia.

There is no inferior optic radiation in the parietal lobe. The parietal lobe carries fibres from the superior optic radiation, which transports information from the inferior visual field.

Lesions to the superior to the optic chiasm (for example a craniopharyngioma, most commonly found in children although it can also occur in adults) would cause bitemporal hemianopia rather than a quadrantanopia.

Lesions inferior to the optic chiasm (for example a pituitary tumour) would cause bitemporal hemianopia rather than a quadrantanopia.

Question:

Which one of the following statements regarding trigeminal neuralgia is correct?

A.Duloxetine is the first-line treatment

B.All patients with suspected trigeminal neuralgia should be referred to secondary care

C.The pain is commonly triggered by touching the skin

D.The pain is usually constant

E.It is bilateral in 30% of cases

Answer:The pain is commonly triggered by touching the skin

Explanation:

The pain is often triggered by light touch, shaving, eating etc. Only around 10% of cases are bilateral.

Question:

A 55-year-old woman is investigated following an osteoporotic hip fracture. The following results are obtained:

TSH < 0.05 mu/l

Free T4 29 pmol/l

Which one of the following autoantibodies is most likely to be present?

A.TSH receptor stimulating autoantibodies

B.Anti-nuclear antibodies

C.Anti-thyroglobulin autoantibodies

D.Anti-microsomal antibodies

E.Anti-thyroid peroxidase autoantibodies

Answer:TSH receptor stimulating autoantibodies

Explanation:

TSH receptor stimulating autoantibodies (often referred to as Thyroid Stimulating Immunoglobulins) are almost diagnostic of Graves' disease, the most common cause of thyrotoxicosis in the UK

Question:

A 34-year-old woman who presents with heavy menstrual bleeding is found to have a haemoglobin of 102 g/L. Iron studies are organised.

Which of the following results would support a diagnosis of iron-deficiency anaemia?

(TIBC = total iron-binding capacity)

A.↓ Ferritin, ↑ total iron-binding capacity, ↓ serum iron, ↓ transferrin saturation

B.↓ Ferritin, ↑ total iron-binding capacity, ↓ serum iron, ↑ transferrin saturation

C.↓ Ferritin, ↓ total iron-binding capacity, ↓ serum iron, ↑ transferrin saturation

D.↓ Ferritin, ↑ total iron-binding capacity, ↑ serum iron, ↓ transferrin saturation

E.↓ Ferritin, ↓ total iron-binding capacity, ↓ serum iron, ↓ transferrin saturation

Answer:↓ Ferritin, ↑ total iron-binding capacity, ↓ serum iron, ↓ transferrin saturation

Explanation:

Total iron-binding capacity (TIBC) + transferrin levels are typically raised in iron-deficiency anaemia

Important for meLess important

Please note that whilst the transferrin level is typically raised in iron-deficiency anaemia, the transferrin saturation level is reduced.

Question:

You are a salaried GP working in a GP surgery.

A month ago you had a consultation with a 73-year-old woman, usually fit and well, who had unsightly left hallux toenail. The entire nail was thickened and had a tinge of yellow discolouration.

Suspecting a fungal toenail infection, you arranged nail scrapings and sent the samples off to the laboratory for further analysis.

The results of the nail scrapings have returned today, showing a growth of Trichophyton rubrum.

You call the patient to discuss the result. She is keen to know what treatment options are available.

What would be the most appropriate treatment in this case?

A.Referral to podiatrist for urgent removal of affected toenail

B.Clotrimazole cream, applied to nail twice daily for 3-6 months

C.Oral itraconazole, taken once daily for 3-6 months

D.Oral terbinafine, taken once daily for 3-6 months

E.Terbinafine cream, applied to nail twice daily for 3-6 months

Answer:Oral terbinafine, taken once daily for 3-6 months

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Fungal toenails are notoriously difficult to treat and require prolonged courses of oral antifungal to clear.

Terbinafine is the preferred oral antifungal option for Trichophyton rubrum infections, and 3-6 months of treatment is usually necessary. Terbinafine can have hepatotoxic side-effects and liver function tests should be monitored regularly throughout treatment.

Oral itraconazole can be used to treat fungal nail infections, but usually those caused by yeasts. It is usually given as 'pulsed therapy' (i.e. an initial course of 200mg twice daily for 1 week, followed by a 3-week interlude, and then another course of 200mg twice daily for 1 week).

Topical creams have no role in the management of fungal toenail infections.

This woman is asymptomatic with her fungal toenail, and there is certainly no indication for its urgent surgical removal. A podiatrist referral could be considered if she had a high-risk foot (e.g. if she were diabetic or had peripheral neuropathy), or if she had difficulty caring for her nails; however, an urgent referral would not be appropriate here.

Question:

A 55-year-old woman is referred to the dermatology clinic by her GP due to a facial rash that has developed over the last 4 months. The rash consists of a raised purple plaque of indurated skin that affects the tip of her nose and the skin around the right nostril. It is neither itchy or painful however the patient is distressed by its appearance.

From which chronic condition is this patient most likely suffering?

A.Wegener's granulomatosis

B.Discoid lupus

C.Systemic lupus erythematosus

D.Sarcoidosis

E.Psoriasis

Answer:Sarcoidosis

Explanation:

Despite its name, lupus pernio pertains to sarcoidosis and not SLE

Important for meLess important

This is a typical description of lupus pernio, a cutaneous manifestation of sarcoidosis. It most frequently affects the nose, cheeks, lips, ears, and digits. It is not normally itchy or painful but can be disfiguring.

Despite its name, lupus pernio has nothing to do with either SLE or discoid lupus, which would both have a different appearance. The description would not match psoriasis (where you would expect scale or itch to be mentioned) and although Wegener's granulomatosis affects the nose, it typically causes epistaxis and crusting.

Question:

An 18-year-old student, who has just moved to the UK from Nigeria, registers at a GP practice. He has a past medical history of Addison's disease and has adequate amounts of his daily hydrocortisone and fludrocortisone as prescribed by his endocrinologist. He has no symptoms of over or under replacement.

What else should his GP ensure he has a supply of?

A.Analgesia

B.Fludrocortisone injection kit

C.Hydrocortisone injection kit

D.Rescue pack of a broad spectrum antibiotic

E.Rescue pack of steroids and a tetracycline antibiotic

Answer:Hydrocortisone injection kit

Explanation:

Patients with Addison's should be given a hydrocortisone injection kit for adrenal crises

Important for meLess important

The correct answer is hydrocortisone injection kit. All patients with Addison's should be provided with hydrocortisone for injection, and the doctor should ensure that the patient and their family are capable of administering an intramuscular injection. Patients should use the intramuscular injection if they are too unwell to take oral medications, for example, if they are vomiting.

There is no indication for a fludrocortisone injection kit as high-dose hydrocortisone has a mineralocorticoid effect.

There is no indication for all patients with Addison's to receive analgesia or antibiotics unless otherwise indicated.

A rescue pack of steroids and a tetracycline antibiotic are given to patients with COPD, not Addison's.

Question:

A 83-year-old man is brought to the emergency department by his daughter. He is complaining of a 2-hour history of a severe headache around his left eye, significant nausea and a few episodes of vomiting. He also reports that his vision is blurred and that he is seeing halos with bright lights.

Examination reveals his left pupil is semi-dilated and non reactive. There is no evidence of papilloedema.

Based on the most likely diagnosis, what is the most definitive treatment once this patient's condition is stable?

A.Atropine eye drops

B.Intravenous (IV) mannitol

C.Intravenous acetazolamide

D.Laser iridotomy

E.Timolol eye drops

Answer:Laser iridotomy

Explanation:

Laser peripheral iridotomy is the definitive treatment for acute angle-closure glaucoma

Important for meLess important

This clinical scenario is that of a patient suffering from acute angle-closure glaucoma. Glaucoma refers to any pathology involving optic neuropathy due to raised intraocular pressure (IOP). In angle-closure glaucoma, the angle of the anterior chamber narrows and closes, causing obstruction to aqueous flow, and so allowing pressure to build up. The older age of the patient may predispose him to this condition. Other risk factors include hypertrophic eyes and traumatic injury. The treatment of this condition consists of two main aims. Firstly, administration of drugs to lower IOP and prevent rapid deterioration to visual loss. These drugs include beta-blockers (e.g. timolol) and IV acetazolamide to reduce aqueous production and parasympathomimetics (e.g. pilocarpine) to induce miosis and reduce closure of the angle. The second aim of treatment is to definitively treat the closed angle once the patient is stable. This involves laser surgery to the iris to create a hole to allow aqueous flow.

Atropine eye drops work to induce mydriasis (pupil dilation). This works to exacerbate the angle closure. In some cases, administration of these eye drops can be the triggering factor to an episode of acute angle-closure glaucoma.

IV mannitol can be used in the acute treatment of raised intracranial pressure. Although this can also present with a headache and nausea, it is less likely to cause the specific eye signs found in this case. Furthermore, the headache is likely to be described as worse on lying down, and there may be signs of papilledema on examination.

IV acetazolamide can be used in the treatment of this condition, as stated above. However, it will only slow the progression of the condition, and will not give definitive treatment.

As with acetazolamide, beta-blockers definitely have their use in the treatment of this condition. However, it will only slow progression and not offer definitive treatment.

Question:

A 32-year-old woman, who is 32-weeks into her first pregnancy, presents to her general practitioner with a 2-week history of nausea.

She reports the nausea is present most days, coming and going throughout the day. She feels more tired than usual but reports no associated vomiting or other symptoms.

This is her first pregnancy, which has been uneventful until this point. She reports no past-medical history of note.

Blood tests are taken, including full blood count (FBC) , urea and electrolytes (U+Es) and liver function tests (LFTs), which are reported below. All other blood results are within normal ranges.

Bilirubin 5 µmol/L (3 - 17)

Alkaline phosphatase (ALP) 140 u/L (30 - 100)

Alanine transferase (ALT) 17 u/L (3 - 40)

Aspartate transaminase (AST) 19 u/L (3 - 30)

Gamma glutamyl transferase (yGT) 19 u/L (8 - 60)

Albumin 45 g/L (35 - 50)

Based on the above information, what is the most likely explanation for this patient's presentation?

A.Acute fatty liver of pregnancy

B.Benign third-trimester nausea

C.HELLP syndrome

D.Hyperemesis gravidarum

E.Intra-hepatic cholestasis of pregnancy

Answer:Benign third-trimester nausea

Explanation:

Normal pregnancy can cause a raised ALP - it doesn't necessarily imply liver problems

Important for meLess important

A raised ALP in the third trimester of pregnancy can be physiological, due to placental production of ALP. Furthermore, nausea is a common symptom in the third trimester of pregnancy, thought to be due to pressure on the stomach from the expanding uterus. It can be particularly troublesome for the patient, but without and underlying pathology.

Acute fatty liver of pregnancy is a rare condition caused by rapid accumulation of fat in the hepatocytes. It can occur in the third trimester, or immediately after delivery. It can cause nausea and fatigue. However, liver enzymes would be more deranged than is the case here, particularly ALT. This is a serious condition, with high foetal and maternal mortality.

HELLP syndrome is an acronym for haemolysis, elevated liver enzymes and low platelets. Therefore, the normal liver enzymes (excluding ALP) and normal platelets and haemoglobin exclude this diagnosis. HELLP syndrome can be caused by hypertensive liver damage in severe pre-eclampsia. It can be another very serious condition, requiring delivery as soon as is safe for the mother and baby, with some cases requiring liver transplants.

Hyperemesis gravidarum can only occur in the first trimester. Therefore, this cannot be the diagnosis. Furthermore, it refers to severe nausea and vomiting, leading to dehydration, electrolyte imbalance and loss of at least 5% of the pre-pregnancy weight.

Intra-hepatic cholestasis of pregnancy (also known as obstetric cholestasis) affects 1% of pregnancies. It can also present with nausea in the third trimester. However, it is also likely to present with intense pruritus and LFTs would show raised bilirubin.

Question:

An 81-year-old lady presents to her GP complaining of increasing thirst. On questioning, she says she is also urinating more frequently, her mood has been down, and she has had some bony pain recently. Her GP sends off a series of investigations, all of which come back unremarkable except for a raised calcium level, and a normal parathyroid hormone level.

What is the most likely cause of her symptoms?

A.Multiple parathyroid adenomas

B.Parathyroid carcinoma

C.Parathyroid hyperplasia

D.Parathyroid failure

E.Solitary parathyroid adenoma

Answer:Solitary parathyroid adenoma

Explanation:

Primary hyperparathyroidism is most commonly due to a solitary adenoma

Important for meLess important

This is a typical presentation of primary hyperparathyroidism- elderly woman with increased thirst, and polyuria. The investigations show hypercalcaemia and an inappropriately normal parathyroid level. The most common cause of this is a solitary adenoma. Multiple adenomas, hyperplasia, and carcinoma are all causes, but much rarer. Parathyroid failure would not cause hyperparathyroidism.

Question:

A 28-year-old woman who is at 18 weeks gestation presents to the antenatal clinic and is offered the quadruple test for chromosomal disorders, which is explained to her, and she consents and undergoes a blood test.

The patient is informed that the results of her quadruple test suggest an increased risk of Down's syndrome in the baby and is invited to discuss the next steps.

What is the most likely result seen?

A.Decreased AFP, decreased oestriol, decreased hCG, normal inhibin A

B.Decreased AFP, decreased oestriol, increased hCG, increased inhibin A

C.Decreased AFP, increased oestriol, decreased hCG, increased inhibin A

D.Increased AFP, increased oestriol, decreased hCG, decreased inhibin A

E.Increased AFP, increased oestriol, increased hCG, increased inhibin A

Answer:Decreased AFP, decreased oestriol, increased hCG, increased inhibin A

Explanation:

Down's syndrome: quadruple test result

↓ AFP

↓ oestriol

↑ hCG

↑ inhibin A

Important for meLess important

Decreased AFP, decreased oestriol, increased hCG, increased inhibin A is correct. The NICE guidelines state that the quadruple test should be performed in pregnant patients between 15-20 weeks and the combined test at 11-13+6 weeks. Given that this patient is at 18 weeks gestation, she should be offered the quadruple test. This test measures four markers: AFP (alpha-fetoprotein), oestriol, hCG, and inhibin A. Findings that are consistent with an increased risk of Down's syndrome are decreased AFP, decreased oestriol, increased hCG, and increased inhibin A. People who receive an increased risk result from their screening test are offered non-invasive prenatal testing (NIPT), amniocentesis, or chorionic villous sampling to confirm the diagnosis.

Decreased AFP, decreased oestriol, decreased hCG, normal inhibin A is incorrect. This pattern of findings is suggestive of an increased risk of Edward's syndrome.

Decreased AFP, increased oestriol, decreased hCG, increased inhibin A, Increased AFP, increased oestriol, decreased hCG, decreased inhibin A, and Increased AFP, increased oestriol, increased hCG, increased inhibin A are incorrect. They are not associated with an increased risk of Down's syndrome.

Question:

A newborn is found to have a number of congenital abnormalities including an extra finger on each hand, a cleft palate and lip, microphthalmia and microcephaly.

Which of the following chromosomes is most likely to be affected in this child?

A.9

B.12

C.13

D.18

E.21

Answer:13

Explanation:

A baby is born with microcephaly, small eyes, low-set ears, cleft lip and polydactyly - Patau syndrome

Important for meLess important

Patau syndrome is a chromosomal abnormality resulting in an extra full copy of chromosome 13 (trisomy 13). Like many of the chromosomal defects, physical and mental disability is common, in this case key distinguishing features to separate Patau's from other trisomy disorders include polydactyly, cleft lips and palates, microcephaly and microphthalmia. Many children die before within a year of birth but those who survive will often go on to show intellectual and motor disability.

Question:

You are asked to see a 69-year-old woman with a background history of Alzheimer's dementia and chronic kidney disease who was admitted to the ward with pneumonia and worsening confusion two days ago. The nurses report that her urine output has been falling steadily over the last 12 hours. She has been treated with intravenous co-amoxiclav and gentamicin and regularly takes paracetamol, amlodipine, furosemide and metoprolol. Her observations show a pulse rate of 91 bpm, a respiratory rate of 19 breaths per minute, oxygen saturations of 99% on air and a blood pressure of 143/81 mmHg.

Her bloods taken one hour ago show the following:

Hb 123 g/l Na+ 139 mmol/l

Platelets 451 \* 109/l K+ 4.9 mmol/l

WBC 11.9 \* 109/l Urea 9.4 mmol/l

Neuts 9.7 \* 109/l Creatinine 163 µmol/l

Lymphs 1.4 \* 109/l CRP 179 mg/l

The last blood test from her GP was taken 3 weeks ago and showed the following urea and electrolytes:

Na+ 137 mmol/l

K+ 4.6 mmol/l

Urea 6.1 mmol/l

Creatinine 110 µmol/l

A urine dip is performed which shows the following:

Protein ++

Blood Trace

Leucocytes +++

Nitrites Negative

Given the urine dip result, which of the following is the most likely cause of her acute kidney injury?

A.Acute tubular necrosis due to rhabdomyolysis

B.Acute interstitial nephritis due to co-amoxiclav

C.Renal hypo-perfusion due to sepsis

D.Bladder outlet obstruction due to infection

E.Glomerulonephritis due to IgA nephropathy

Answer:Acute interstitial nephritis due to co-amoxiclav

Explanation:

Urine dip can be used to differentiate acute tubular necrosis from acute interstitial nephritis in AKI

Important for meLess important

The key to answering this question is using the urine dip results. The presence of protein effectively rules out a pre-renal or post-renal cause and the lack of nitrites rules out infection. When trying to differentiate between the two intrinsic renal causes, it helps to understand how each of them affect the kidney. Acute interstitial nephritis is an inflammatory process so there is a higher white cell content in the urine, while acute tubular necrosis is not so the urine has no cellular component. A glomerulonephritis would induce a nephritic syndrome with blood present in the urine.

Given that in this case her urine contains a high white cell count and only a trace of blood, you can safely rule out a nephritic syndrome. In acute tubular necrosis you would not expect there to be far more leucocytes than red cells so this is also unlikely. The dip would however fit with a diagnosis of acute interstitial nephritis which is known to be caused by administration of penicillin-based antibiotics. Treatment would involve stopping the causative drug and supportive management with fluids.

Question:

A 59-year-old woman presents to the emergency department complaining of a three-day history of new-onset palpitations. She has no structural or ischaemic heart disease. Her heart rate is 120bpm, and she shows no signs haemodynamic compromise. Her ECG shows an irregularly irregular rhythm with the absence of p waves. The consultant recommends elective cardioversion for this patient. Which one of these management plans is the most appropriate for this patient?

A.Bisoprolol and oral anticoagulant therapy for 3 weeks and then electrical cardioversion

B.Bisoprolol for 10 days and then pharmacological cardioversion

C.Oral anticoagulant for 10 days and then pharmacological cardioversion

D.Bisoprolol and oral anticoagulant therapy for 3 weeks and then pharmacological cardioversion

E.Bisoprolol and oral anticoagulant therapy for 10 days and then electrical cardioversion

Answer:Bisoprolol and oral anticoagulant therapy for 3 weeks and then electrical cardioversion

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

This patient has presented with new-onset AF with a duration of greater than 48 hours. As this is new-onset AF, rhythm control (cardioversion) is appropriate, however, as the patient is haemodynamically stable this is not immediately required. Because the AF has persisted for more than 48hrs, cardioversion should be delayed until the patient has been anticoagulated for at least 3 weeks. During this period rate-control (Bisoprolol) should be offered as appropriate. Since the atrial fibrillation has persisted for longer than 48 hours, electrical (rather than pharmacological) cardioversion should be performed.

NICE Clinical guideline [CG180] (1.7)

Question:

A 23-year-old male victim of an acid attack attends the resus department, he has burns on an estimated 25% of his body surface area and weighs 60kg.

The Parkland formula is used to calculate the amount of fluid resuscitation necessary over the next 24 hours for this patient according to his weight and surface area affected by burns.

What volume of fluid resuscitation should he be given over the next 24 hours?

A.6000mls

B.1500mls

C.2000mls

D.7500mls

E.3000mls

Answer:6000mls

Explanation:

The Parkland formula for fluid resuscitation in burns is:

Volume of fluid = total body surface area of the burn % x weight (Kg) x 4ml

Important for meLess important

Volume = SA% x weight x 4ml = 25 x 60 x 4ml = 6000ml/24hrs

Question:

Sophie, an 18-year-old girl, attends for her annual asthma review. She has generally well-controlled asthma, with only one exacerbation requiring steroids this year. She takes 2 puffs of her beclomethasone inhaler twice daily, and salbutamol as required, both via a metered-dose inhaler (MDI).

You decide to check her inhaler technique. She demonstrates removing the cap, shaking the inhaler and breathing out before placing her lips over the mouthpiece, pressing down on the canister while taking a slow breath in and then holding her breath for 10 seconds. She then immediately repeats this process for the second dose.

How could she improve her technique?

A.She should not shake the inhaler before use

B.She should take 3 deep breaths before using the inhaler

C.She should hold her breath for 30 seconds after delivering the dose

D.She should wait 30 seconds before repeating the dose

E.She should wait 15 seconds before repeating the dose

Answer:She should wait 30 seconds before repeating the dose

Explanation:

When using an inhaler, for a second dose you should wait for approximately 30 seconds before repeating

Important for meLess important

Inhaler technique is important to ensure adequate drug delivery. Guidance suggests that the cap should be removed and the inhaler shaken before delivering the dose while taking a slow breath in. Breath should be held for 10 seconds, there should be a gap of 30 seconds between doses. As she repeated the dose immediately, this is the correct answer as she should have waited for 30 seconds.

Question:

A 76-year-old woman presents with a painful erythematous rash across the right side of her chest. It started this morning and she describes a sharp burning pain on her chest wall 24 hours previously. On closer examination, there are vesicles present and the rash does not cross the midline. She is prescribed antivirals and follow-up is arranged.

What is the main advantage of antiviral treatment in this patient?

A.It reduces the contagious nature of the infection

B.It reduces the incidence of post-herpetic neuralgia

C.It reduces the pain

D.It treats the infection and prevents recurrence

E.Prevention of secondary infection

Answer:It reduces 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 is an older woman who presents with shingles. The main advantage of using antiviral in her case is the reduction of post-herpetic neuralgia. This is a common complication of shingles that leads to significant pain and reduced quality of life after the shingles have improved.

The use of antivirals does not prevent the spread of this condition and the patient should be advised to stay away from pregnant and immunocompromised people.

Antivirals do not reduce the acute pain associated with herpes and analgesia should be prescribed in addition to them. First-line options include paracetamol and NSAIDs followed by neuropathic analgesics such as amitriptyline. Where no response to these options is seen, oral corticosteroids can be considered in immunocompetent adults.

Although antivirals do treat the infection, they have no role in preventing recurrence when used in the acute setting.

The use of antivirals does not prevent secondary infection of these lesions and bacterial superinfection is still possible.

Question:

Sarah is a 21-year-old woman who comes to see you after testing positive for gonorrhoea from a vulvovaginal swab taken last week. Despite information and advice, she is not willing to attend a sexual health clinic and would like you to prescribe her treatment.

She has a phobia of needles and refuses intramuscular ceftriaxone.

Which of the following options is the most appropriate alternative oral regimen?

A.Azithromycin

B.Cefixime and azithromycin

C.Ofloxacin

D.Doxycycline

E.Erythromycin

Answer:Cefixime and 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 advises to treat gonorrhoea in primary care only if specialist services cannot be accessed within a reasonable time, or if the person is unwilling to attend despite receiving appropriate information and advice.

In the unusual event that confirmed or suspected uncomplicated anogenital gonorrhoea needs to be treated in primary care, ceftriaxone 1g intramuscular (IM) injection should be prescribed as a single dose.

Alternative regimens may be given because of allergy, needle phobia or other absolute or relative contraindications. Cefixime orally as a single dose plus azithromycin orally is advisable if an intramuscular injection is contraindicated or refused by the patient.

The clinical efficacy of azithromycin does not always correlate with in vitro susceptibility testing and azithromycin resistance is high, therefore azithromycin as a single oral dose would not be the most appropriate option.

Doxycycline, erythromycin and ofloxacin are all possible choices of antibiotic treatment in chlamydia. They are not effective in treating gonorrhoea.

Question:

A 28-year-old woman is booked for elective surgery to remove her gallbladder. She is normally fit and well. She takes the combined oral contraceptive pill.

What should be done with regards to her contraception?

A.Advise her to continue taking the combined oral contraceptive pill as she is young and less likely to have a deep vein thrombosis

B.Advise her to continue the combined oral contraceptive pill but also prescribe apixaban

C.Advise her to stop taking the combined oral contraceptive pill 1 week before the surgery provide advice on alternative contraceptive methods

D.Advise her to stop taking the combined oral contraceptive pill 2 weeks before the surgery provide advice on alternative contraceptive methods

E.Advise her to stop taking the combined oral contraceptive pill 4 weeks before the surgery and provide advice on alternative contraceptive methods

Answer:Advise her to stop taking the combined oral contraceptive pill 4 weeks before the surgery and provide advice on alternative contraceptive methods

Explanation:

Use of the contraceptive pill should be ceased before an operation to prevent a pulmonary embolism

Important for meLess important

She should not be advised to continue the combined oral contraceptive pill as this will increase the risk of deep vein thrombosis.

Prescribing apixaban is not a substitute for stopping the combined oral contraceptive pill to reduce risk of venous thromboembolism.

The combined oral contraceptive pill should be stopped 4 weeks before the surgery, rather than one or two weeks.

NICE states that 'advise patients to consider stopping oestrogen-containing oral contraceptives or hormone replacement therapy 4 weeks before elective surgery. If stopped, provide advice on alternative contraceptive methods'.

Question:

A 72-year-old man presents with central chest pain of 3 hours duration. It radiates to his left arm. He has a past medical history of hypercholesterolemia and hypertension.

On examination, he appears clammy and in significant discomfort due to the pain. His observations are as follows:

Heart rate 92 bpm

Respiratory rate 22 breaths/min

Peripheral oxygen saturation 96% on air

Blood pressure 134/72 mmHg

Temperature 37.2ºC

An ECG taken by the paramedics demonstrates ST depression in leads II, III and aVF, as well as T-wave inversion.

What should be given immediately?

A.Aspirin, nitrate, morphine

B.Aspirin, nitrate, morphine, oxygen

C.Aspirin, nitrate, morphine, oxygen, ramipril

D.Aspirin, nitrate, morphine, oxygen, ramipril, bisoprolol

E.Aspirin, nitrate, oxygen

Answer:Aspirin, nitrate, morphine

Explanation:

ACS management: oxygen should only be given if the patient has oxygen saturations < 94%

Important for meLess important

Immediate management of acute coronary syndrome (ACS), including both STEMI and NSTEMI, involves the use of 300mg aspirin. In addition, nitrates should be given sublingually or intravenously and are useful if the patient has ongoing chest pain or hypertension, but should be used with caution if the patient is hypotensive. Morphine should be given intravenously for those with significant pain. Current guidance advises that oxygen should only be given if the patient's saturations are <94%. As this patient has saturations of 96%, oxygen should not be given. As such, the correct combination here is aspirin, nitrate and morphine.

Aspirin, nitrate, morphine and oxygen is inappropriate. As explained above, oxygen should not be given here.

Aspirin, nitrate, morphine, oxygen and ramipril is incorrect. Ramipril, an ACE inhibitor, should be given for long-term management - however, it should not be commenced in the acute setting.

Similarly, bisoprolol should not be given acutely. It is, however, part of the long-term management following ACS.

Aspirin, nitrate and oxygen is therefore incorrect. Morphine should also be given, given the patient's significant pain. Oxygen should not be given, as the patient's saturations are adequate.

Question:

A 40-year-old female presents with progressively increasing headaches associated with tinnitus and occasional visual issues. The patient reports the headaches are exacerbated by leaning forward and can take several hours lying in bed to resolve. She has a past medical history of type 2 diabetes and obesity.

Funduscopy reveals swelling of the optic nerves and a raised opening pressure is measured on lumbar puncture.

Which of the following eye defects is most commonly associated with the patient’s condition?

A.Eye deviation 'down and out'

B.Loss of red reflex

C.Miosis

D.Proptosis

E.Relative afferent pupillary defect

Answer:Eye deviation 'down and out'

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

This patient is most likely suffering from raised intracranial pressure (ICP) secondary to idiopathic intracranial hypertension (previously known as benign intracranial hypertension). Common symptoms of raised ICP including headaches, nausea, tinnitus and eye issues. Ocular nerve palsies, such as a third nerve/oculomotor palsy as described by a ‘down and out’ deviation, can occur as ICP increases. This is due to brain herniation and can result in significant diplopia if left untreated.

The red flex is observed when using an ophthalmoscope as light reflects off the fundus. It is therefore lost when there is a loss of optical media transparency. This can occur in several conditions including cataracts, corneal scars, or vitreous haemorrhage however it is not associated with raised ICP.

Miosis is constriction of the pupils and is commonly associated with specific drug use including opioid and cholinergic agents or in Horner’s syndrome where there is a loss of sympathetic chain activity. Raised ICP can cause a third nerve palsy which is associated with mydriasis and not miosis can be seen.

Proptosis is protruding and displacement of the eye orbit anteriorly and can be bilateral in conditions such as Grave’s disease or unilateral secondary to orbital tumours or cellulitis. Proptosis is not commonly caused by raised ICP and would be an extremely late sign if present.

Relative afferent pupillary defect (RAPD) is noted as a patient’s pupil dilated on the swinging light test when the light is swung from the unaffected eye to the affected eye. It is caused by a lesion of the optic nerve such as in glaucoma, retinal disease, or multiple sclerosis. Although papilloedema can occur in raised ICP, RAPD is very uncommon and would require significant pressure for a prolonged period of time.

Question:

Which one of the following statements regarding the management of conjunctivitis is incorrect?

A.Advice should be given not to share towels

B.Topical fusidic acid is used in preference to chloramphenicol in pregnant women

C.Chloramphenicol eye drops are given 2-3 hourly initially

D.Contact lens may be worn once topical antibiotic treatment has been started

E.School exclusion is not necessary

Answer:Contact lens may be worn once topical antibiotic treatment has been started

Explanation:

Contact lens should not be worn at any point during an episode of conjunctivitis

Question:

A 39-year-old man presents with shortness of breath following one week of flu-like symptoms. He also has a non-productive cough but no chest pain. A chest x-ray shows bilateral consolidation and examination reveals erythematous lesions on his limbs and trunk. Which one of the following investigations is most likely to be diagnostic?

A.Cold agglutins

B.Sputum culture

C.Urinary antigen for Legionella

D.Serology for Mycoplasma

E.Blood culture

Answer:Serology for Mycoplasma

Explanation:

Mycoplasma? - serology is diagnostic

Important for meLess important

The flu-like symptoms, bilateral consolidation and erythema multiforme point to a diagnosis of Mycoplasma. The most appropriate diagnostic test is Mycoplasma serology

Question:

A 55-year-old woman has had headaches and double vision over the last week. She has no associated numbness, tingling, or weakness.

On examination, the right eye is abducted and depressed, with ptosis of the eyelid. The right pupil is dilated and unreactive to light. The left eye is unaffected. Her upper and lower limb strength is 5/5 on both sides and her sensation is intact.

There is a history of type 2 diabetes and relapsing-remitting multiple sclerosis. She takes metformin and sitagliptin, and her last flare-up was 20 years ago. She denies any head trauma.

What is the most appropriate next step in her management?

A.Immediately administer IM methylprednisolone

B.Immediately administer low molecular weight heparin

C.Urgent CT brain

D.Urgent referral to neurology

E.Urgent referral to ophthalmology

Answer:Urgent CT brain

Explanation:

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

Important for meLess important

Urgent CT brain is correct. This patient has presented with signs and symptoms of oculomotor nerve palsy, characterised by her right eye being abducted and depressed ('down and out).

Since her right pupil is dilated and unreactive to light, the oculomotor nerve's parasympathetic innervation to the iris sphincter muscles that constrict the pupils is affected, suggesting a 'surgical' cause i.e. there is something pressing against the oculomotor nerve (e.g. space-occupying lesions such as a bleed or tumour). This is because the parasympathetic fibres are located on the surface of the nerve, whereas the main constituents of the oculomotor nerve are within its core. Therefore structures compressing the surface lead to features of oculomotor nerve palsy and pupillary dilation, and medical causes such as multiple sclerosis affect the core, leading to oculomotor nerve palsy alone. This patient requires immediate brain imaging and a referral to neurosurgery.

Immediately administer IM methylprednisolone is incorrect. This is the first-line management step in an acute flare of multiple sclerosis (MS). Although she has MS, this would lead to a medical third nerve palsy, which would have all the features mentioned except for a dilated pupil. The presence of a dilated pupil suggests that something is compressing the oculomotor nerve, meaning urgent imaging is essential and a referral to neurosurgery. As well as this, her last flare-up was 20 years ago, suggesting that her MS may not be difficult to control and is likely to be in remission.

Immediately administer low molecular weight heparin is incorrect. Although this is the management step for intracranial venous thrombosis, and can also cause a surgical third nerve palsy, this would present with an associated headache that is often sudden-onset in nature, with associated nausea and vomiting, and reduced consciousness. These features do not apply to this patient.

Urgent referral to neurology is incorrect. Although this patient has a past medical history of MS, the oculomotor nerve palsy seen here is surgical, not medical due to the presence of a dilated and unreactive pupil. Referral to neurology would consume time and risk leading to complications arising. This patient should have an urgent CT brain to identify any space-occupying lesions followed by a referral to neurosurgery.

Urgent referral to ophthalmology is incorrect. It would be inappropriate to refer to ophthalmology as this patient's problem is a neurosurgical one. Since they have an oculomotor nerve palsy with a dilated, unreactive pupil, this patient may have a space-occupying lesion which must be identified and treated as soon as possible, therefore necessitating a CT head followed by a referral to neurosurgery.

Question:

A 25-year-old female is found to have an unruptured ectopic pregnancy. The decision is made to progress with medical management of the ectopic pregnancy.

What drug is used for this?

A.Erythromycin

B.Methotrexate

C.Misoprostol

D.Levonorgestrel

E.Hydroxychloroquine

Answer:Methotrexate

Explanation:

Methotrexate is the drug of choice for medical management of ectopic pregnancy

Important for meLess important

The only correct answer is methotrexate, as it is the drug used for medical management of an ectopic pregnancy. This method of management is only suitable if the patient is willing to attend follow up.

Question:

A 50-year-old man presents with shiny, flat-topped papules on the palmar aspect of the wrists. He is mainly bothered by the troublesome and persistent itching. A diagnosis of lichen planus is suspected. What is the most appropriate treatment?

A.Refer for punch biopsy

B.Emollients + oral antihistamine

C.Topical dapsone

D.Topical clotrimazole

E.Topical clobetasone butyrate

Answer:Topical clobetasone butyrate

Explanation:

Question:

Which one of the following is least likely to cause snoring in children?

A.Hypertrophic nasal turbinates

B.Tonsillitis

C.Obesity

D.Kallman's syndrome

E.Down's syndrome

Answer:Kallman's syndrome

Explanation:

Kallman's syndrome is a cause of delayed puberty secondary to hypogonadotrophic hypogonadism. It is not associated with snoring

Question:

A 64-year-old female with a history of rheumatoid arthritis presents with increased difficulty in walking. On examination there is weakness of ankle dorsiflexion and of the extensor hallucis longus associated with loss of sensation on the lateral aspect of the lower leg. What is the most likely diagnosis?

A.Tibial nerve palsy

B.Obturator nerve palsy

C.Common peroneal nerve palsy

D.Lateral cutaneous nerve palsy

E.Pudendal nerve palsy

Answer:Common peroneal nerve palsy

Explanation:

Common peroneal nerve lesion can cause weakness of foot dorsiflexion and foot eversion

Important for meLess important

Question:

A 33-year-old woman is seen by her GP complaining of weight loss and other non-specific symptoms. On examination there is a suspicious lump on the woman's neck, so she is sent for a red flag referral to ENT. The GP performs a series of investigations in order to speed up the process, and notices that the calcitonin is markedly raised. Which of the following cancers is calcitonin a tumour marker for?

A.Anaplastic thyroid cancer

B.Follicular thyroid cancer

C.Lymphoma

D.Medullary thyroid cancer

E.Papillary thyroid cancer

Answer:Medullary thyroid cancer

Explanation:

Calcitonin is a tumour marker in medullary thyroid cancer

Important for meLess important

Medullary thyroid cancer will cause a rise in calcitonin levels. Medullary thyroid cancer is the only thyroid cancer that will cause a rise in calcitonin, as it originates from the parafollicular cells, which produce calcitonin.

Question:

A patient attends the acute oncology unit. They are having chemotherapy for breast cancer, and have started feeling generally unwell with a fever, rash and flu-like symptoms. On further investigation, their temperature is 38.5ºC.

What antibiotic is most appropriate given the likely diagnosis?

A.Co-amoxiclav

B.Co-trimoxazole

C.Gentamicin and vancomycin

D.Meropenem

E.Tazocin

Answer:Tazocin

Explanation:

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

Important for meLess important

This patient likely has neutropenic sepsis, given their high temperature, flu-like symptoms, and rash on a background of chemotherapy treatment for cancer. This is an oncological emergency, treated with piperacillin with tazobactam, also known as tazocin. However, as with all antibiotic prescribing, it is important to check local guidance before prescribing.

Amoxicillin with clavulanic acid, also called co-amoxiclav is commonly used for bacterial infections such as those within soft tissues, skin, the respiratory tract, and the urinary tract.

Sulfamethoxazole and trimethoprim, also known as co-trimoxazole, may be used to treat diabetic foot or leg ulcer infections as well as treatment of Pneumocystis jirovecii pneumonitis.

Vancomycin may be used in combination with gentamicin when treating an infection by Staphylococcus aureus . This is used if the strain of bacteria has become methicillin-resistant. However, this combination is not used frequently due to the narrow therapeutic index and potential for toxicity.

Meropenem is used to treat various infections including hospital-acquired sepsis, meningitis and endocarditis.

Question:

A 25-year-old male presents to the emergency department with a 1-day history of fever, neck stiffness and photophobia. Bloods are taken and a lumbar puncture with lidocaine is requested.

Which most accurately describes the anaesthetic's mechanism of action?

A.Blockage of calcium channels disrupting the action potential

B.Inhibiting the sodium/potassium pump leading to increased calcium

C.Blockage of potassium channels slowing repolarisation

D.Inhibition of cAMP-dependent phosphodiesterase leading to increased calcium

E.Blockage of sodium channels disrupting the action potential

Answer:Blockage of sodium channels disrupting the action potential

Explanation:

Lidocaine works through blockage of sodium channels

Important for meLess important

Lidocaine is used as a local anaesthetic and as an anti-arrhythmic drug. Intramuscular administration of lidocaine leads to blockage of sodium channels, in turn, this leads to the presynaptic neuron not depolarising and thus no action potential is sent. Side effects of this drug include nausea, dizziness, tinnitus and tremor.

The other answers are mechanisms of other drugs. Inhibition of sodium/potassium pump is the mechanism of digoxin. Phosphodiesterase inhibition is the mechanism of sildenafil. Verapamil is an example of an antiarrhythmic drug that blocks calcium channels. Amiodarone is an example of an antiarrhythmic drug that works by blocking potassium channels.

Question:

A 75-year-old patient on the oncology ward is being discussed for nutritional concerns at a multidisciplinary meeting.

The patient is receiving chemotherapy and radiotherapy for pancreatic cancer. She has become increasingly malnourished and anorexic, with her body mass index falling dramatically in the past few weeks, and now sitting at 17 kg/m². Nurses report that she has not been eating meals, and states she has no appetite for food. The dietician team recommends discussing parenteral nutrition, weighing up the risks and benefits, before talking about this with the patient's family. This is likely to continue for at least the next few weeks.

Which blood vessel would be appropriate for receiving this form of nutrition?

A.External jugular vein

B.Hepatic portal vein

C.Superior mesenteric artery

D.Subclavian vein

E.Pulmonary artery

Answer:Subclavian vein

Explanation:

Total parenteral nutrition should be administered via a central vein as it is strongly phlebitic

Important for meLess important

Parenteral nutrition which is given as full nutrition is called total parenteral nutrition. Since the plan is to give this for over 10 days, a central vein should be used. If it was used short term, or only used to supplement enteral feeding, peripheral parenteral nutrition may be considered.

Total parenteral nutrition (TPN) requires a central venous catheter as it is strongly phlebItic. TPN is hypertonic to blood, with a high osmolality, which can increase the incidence of phlebitis. A central venous catheter is inserted into one of the central veins, which are larger, have higher flow rates and fewer valves than peripheral veins. They have direct communication with the right atrium, through the vena cavae. Examples include the internal jugular, subclavian, and femoral veins.

The only blood vessel mentioned that is a central vein is the subclavian vein, and therefore this is the correct answer.

The external jugular veins are not part of the central venous system and are therefore not appropriate for this nutrition.

The hepatic portal vein is not part of the central venous system and is therefore not appropriate for this nutrition.

The superior mesenteric artery would not be appropriate as total parenteral nutrition requires a vein for administration.

The pulmonary arteries would not be appropriate as total parenteral nutrition requires a vein for administration.

Question:

A 67-year-old woman presents to the GP with a 4-week history of a non-tender mouth ulcer that is unresponsive to over-the-counter medication. She has a past medical history of a herpes simplex virus infection treated 5 years ago and has smoked 30 cigarettes daily for the past 30 years and drinks 30 units of alcohol a week.

What is the most appropriate next step in her management?

A.Perform blood tests for ANA and anti-dsDNA

B.Prescribe chlorhexidine mouthwash

C.Prescribe oral aciclovir

D.Refer to emergency department

E.Refer to secondary care under 2-week wait

Answer:Refer to secondary care under 2-week wait

Explanation:

Persistent mouth ulcer → ?squamous cell carcinoma

Important for meLess important

Refer to secondary care under 2-week wait is correct. This patient has had a persistent and unexplained mouth ulcer for 4 weeks, which should raise suspicion of oral cancer, more specifically, squamous cell carcinoma. The level of suspicion should be higher in patients over 40, those who smoke, and those who drink excessive amounts of alcohol, which are all features seen in this case. The NICE guidelines state that any patient with an unexplained oral ulcer persisting for greater than 3 weeks should be referred via a 2-week wait referral to secondary care.

Prescribe chlorhexidine mouthwash is incorrect. Although this patient has a history of herpes simplex virus (HSV) infection, and chlorhexidine may be used in the management of sores affecting the gums and mouth, given that this is a solitary and non-tender, persistent ulcer, and given her age, smoking history, and alcohol history, this current sore is unlikely to be due to HSV and should raise suspicion of oral cancer.

Prescribe oral aciclovir is incorrect. As mentioned above, although this patient has a history of herpes simplex virus (HSV) infection, and oral aciclovir may be used as treatment, given that this is a solitary and non-tender, persistent ulcer, and given her age, smoking history, and alcohol history, this current sore is unlikely to be due to HSV and should raise suspicion of oral cancer.

Refer to emergency department is incorrect. Although this patient requires an urgent assessment due to the potential presence of oral cancer, it would be inappropriate to send the patient to the emergency department as there is nothing in the history to suggest they need emergency and immediate care. The patient would most likely be referred to the appropriate department under a 2-week wait referral if they did attend the emergency department, which would be the same outcome if the GP were to take action instead.

Perform blood tests for ANA and anti-dsDNA is incorrect. Although mouth ulcers can be an initial manifestation of systemic lupus erythematosus (SLE), which is tested for via ANA and anti-dsDNA, this patient has no other features associated with SLE, such as a malar 'butterfly' photosensitive rash on the face, joint paints, or fatigue. The more likely diagnosis given her age, smoking history, and alcohol history is oral cancer.

Question:

While placing an IV cannula in a patient during an evening shift, a junior doctor accidentally pricks his finger with the needle that was used for the cannula. Blood is taken from the patient and with their consent, is tested for blood-borne viruses. Unfortunately, the result comes back positive for HIV.

Which of these scenarios would place the doctor at the highest risk of HIV infection?

A.The patient has been HIV positive and undetected for one year

B.The patient has not yet started antiretroviral medication

C.The patient is also positive for Hepatitis B

D.The patient's viral load is 1.2 million copies per mL

E.The patient's viral load is 1000 copies per mL

Answer:The patient's viral load is 1.2 million copies per mL

Explanation:

The viral load determines the risk of HIV transmission following a needle stick injury

Important for meLess important

The correct answer is that the patient’s viral load is 1.2 million copies/mL. Various factors impact the risk of HIV transmission after needlestick injury, including viral load, depth of needlestick injury, and volume of blood or body fluid exposure. However, the most important factor that determines the risk that an exposed person will become infected with HIV is viral load, where a greater number of copies per mL leads to a higher risk. As this particular incident was a shallow injury with a small amount of blood involved, the risk is low but cannot be ruled out and post-exposure prophylaxis may be required for the doctor.

The patient has been HIV positive (and undetected) for one year is incorrect. Peak viraemia occurs in the order of weeks after the viral load initially becomes detectable (10-15 days after infection), and can be many thousands to millions of copies per mL. If the patient has passed the acute phase of HIV infection, the viral load is likely to be lower but the important factor to note is that the determining factor in transmission risk is the viral load rather than the time since infection.

The patient has not yet started antiretroviral medication is incorrect. Antiretrovirals are the cornerstone of treatment for HIV, where the aim is to suppress the virus so that the risk of transmission and progression to AIDS can be almost zero with adequate treatment. The onset of antiretrovirals is rapid, with the achievement of an undetectable viral load within 1-6 months of treatment. While antiretrovirals influence viral load, they are not the direct determinant of infectivity.

The patient’s viral load is 1000 copies/mL is incorrect. A baseline viral load of fewer than 500 copies per mL has a very low risk of progression to AIDS, compared to a baseline viral load of >10 000 copies per mL. 1000 copies is a relatively low viral load compared to what it can reach during its peak.

The patient is also positive for hepatitis B is incorrect. Although concurrent chronic hepatitis B infection with a needlestick injury is a risk factor for the exposed person being infected with hepatitis B, it does not impact the risk of HIV transmission.

Question:

A 54-year-old man attends for his diabetes review. He has type 2 diabetes and is currently taking gliclazide. He previously tried metformin but did not tolerate it. His HbA1c remains out of range after 5 months of this treatment and lifestyle changes. Therefore you discuss starting a third treatment, sitagliptin.

What is the action of the aforementioned drug?

A.Act as glucagon-like peptide 1 agonists

B.Increasing the peripheral breakdown of incretins

C.Acting as incretin analogues

D.Decreasing insulin sensitivity

E.Reducing the peripheral breakdown of incretins

Answer:Reducing the peripheral breakdown of incretins

Explanation:

Gliptins (DPP-4 inhibitors) reduce the peripheral breakdown of incretins such as GLP-1

Important for meLess important

Reducing the peripheral breakdown of incretins such as glucagon-like peptide 1 is the correct answer. Sitagliptin belongs to dipeptidyl peptidase-4 inhibitors (DDP-4 inhibitors). They act by reducing the peripheral breakdown of incretins such as glucagon-like peptide 1. Incretins inhibit glucagon secretion, therefore increasing insulin secretion, subsequently reducing gastric emptying and reducing blood glucose levels.

Act as glucagon-like peptide 1 agonists is an incorrect answer, this describes the mechanism of action of glucagon-like peptide-1 mimetics. The medication named, sitagliptin, is a DDP-4 inhibitor. which reduces the breakdown of GLP-1 and other incretins, rather than mimicking them. Therefore both GLP-1 mimetics and DDP-4 inhibitors have the same overall effect of inhibiting glucagon secretion and increasing insulin secretion.

Act on ATP-sensitive K+ channels is incorrect. This describes the action of sulfonylureas, whereas the sitagliptin is a DDP-4 inhibitor. Sulfonylureas work by closing the ATP-sensitive K+ channel on pancreatic beta cells, depolarising the cell as potassium is unable to exit. This opens voltage-gated Ca2+ channels. The increase in intracellular calcium leads to insulin secretion. They can cause hypoglycemia and are associated with modest weight gain.

Increasing insulin sensitivity is incorrect, as this describes the mechanism of action of biguanides. However, the medication named, sitagliptin is a DDP-4 inhibitor.

Inhibiting sodium-glucose co-transport is incorrect, this describes the action of sodium-glucose co-transporter 2 inhibitors, whereas sitagliptin is a DDP-4 inhibitor.

Question:

A 72-year-old man presented to the emergency department with crushing central chest pain. The episode started 30 minutes ago whilst he was sitting in front of the television.

On examination, he appears diaphoretic and feels terrible.

He is later taken for an urgent coronary angiogram that confirmed a posterior myocardial infarction (MI).

Which findings were likely present when his ECG was performed in the emergency department?

A.Widespread J waves

B.Widespread ST elevation

C.Inverted T waves in lead V1-V3

D.PR depression in lead V1-V3

E.Tall R-waves in lead V1-V3

Answer:Tall R-waves in lead V1-V3

Explanation:

Posterior MI typically present on ECG with tall R waves V1-2

Important for meLess important

Posterior MI presents with inverted findings of a typical MI. Q waves become tall R waves, ST-elevation becomes ST-depression and inverted T-waves become upright T-waves. Posterior MI can be further confirmed by a posterior ECG, demonstrating ST-elevation and Q waves in the posterior leads (V7-9).

Widespread J waves is incorrect. J waves denote a positive deflection at the J point (negative in aVR and V1) with the J point being the junction between the termination of the QRS complex and the beginning of the ST segment. It is usually most prominent in the precordial leads. J waves are pathognomonic for hypothermia.

Widespread ST elevation is incorrect because, in posterior MI, you will see horizontal ST depression in leads V1-3, as described above. Widespread ST elevation is usually indicative of pericarditis rather than ST-elevation myocardial infarction (STEMI); STEMI will usually show ST-elevation in contiguous leads based on the anatomic location of the infarct but is seldom wide-spread.

Inverted T waves in lead V1-V3 are often a normal variant but also have wide differentials, including raised intracranial pressure, hypertrophic cardiomyopathy, pulmonary embolism and ischaemia or infarction. In posterior MI, T waves in V1-V3 would typically be upright.

PR depression in lead V1-V3 is incorrect. Global PR segment depression is most commonly seen in viral pericarditis. It can also be seen in MI with concomitant atrial ischaemia or infarction; it is not a common finding in posterior MI.

Question:

Which one of the following interventions is most likely to be beneficial in a patient with schizophrenia?

A.Counselling

B.Supportive psychotherapy

C.Social skills training

D.Adherence therapy

E.Cognitive behavioural therapy

Answer:Cognitive behavioural therapy

Explanation:

Question:

A 58-year-old woman presents to her GP for a review of her angina. Although her symptoms have improved, she reports that she is still experiencing chest pain on exertion and needing to use her glyceryl trinitrate (GTN) spray despite taking the maximum dose of her medications. Her current medications include GTN spray, metformin, ramipril, and atenolol.

What is the most appropriate management?

A.Add ivabradine

B.Add amlodipine

C.Add verapamil

D.Stop atenolol and start ivabradine

E.Stop atenolol and start verapamil

Answer:Add amlodipine

Explanation:

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

Important for meLess important

The correct answer is 'add amlodipine'.

This patient is still experiencing angina symptoms despite the initiation of a beta-blocker which has been titrated to the maximum dose. As such, the next step is to add on a calcium channel blocker. When combining a calcium channel blocker with a beta-blocker, a long-acting calcium channel blocker, such as amlodipine, is recommended.

'Add ivabradine' is incorrect, as a long-acting nitrate should only be considered as an add-on if the patient cannot tolerate the combination of a beta-blocker and calcium channel blocker.

'Add verapamil' is incorrect. While verapamil is a calcium channel blocker it should not be prescribed alongside a beta-blocker due to the risk of complete heart block.

'Stop atenolol and start ivabradine' is incorrect. Long-acting nitrates should not generally be used as monotherapy and should only be considered as an add-on if the patient cannot tolerate the combination of a beta-blocker and calcium channel blocker.

'Stop atenolol and start verapamil' is incorrect. This may have been appropriate if the patient could not tolerate a beta-blocker. However, she is tolerating her atenolol and still experiencing symptoms, so needs an additional medication prescribing.

Question:

A 54-year-old man with stage 4 chronic kidney disease presents for review. Which one of the following drugs is it most important to avoid?

A.Erythromycin

B.Diazepam

C.Rifampicin

D.Tetracycline

E.Warfarin

Answer:Tetracycline

Explanation:

Question:

A 31-year-old woman presents to the GP for advice after her son was diagnosed with chickenpox 8 days ago after he developed a widespread vesicular rash. The woman feels well in herself. However, she is 19 weeks pregnant and does not recall ever having had chickenpox. This is confirmed with am immunoglobulin test.

What is the most appropriate management?

A.Give oral aciclovir

B.Give oral aciclovir and varicella-zoster immunoglobulin

C.Give oral aciclovir only if the patient develops symptoms of chickenpox

D.Give varicella-zoster immunoglobulin

E.Give varicella-zoster immunoglobulin only if the patient develops symptoms of chickenpox

Answer:Give varicella-zoster immunoglobulin

Explanation:

Following chickenpox exposure in a non-immune pregnant woman, varicella-zoster immunoglobulin (VZIG) is only effective up to 10 days post-exposure

Important for meLess important

If a pregnant woman has significant exposure to chickenpox, is under 20 weeks and is not immune, she should be offered varicella zoster immunoglobulin (VZIG) as soon as possible within 10 days of the exposure. This is important both to reduce the risk of foetal varicella-zoster syndrome and because pregnant women are at greater risk of complications from chickenpox.

Oral aciclovir is offered for pregnant women with significant exposure to chickenpox and no existing antibodies if they are over 20 weeks pregnant. This is not the case in this patient, who is only 19 weeks pregnant. In patients under 20 weeks pregnant, there is limited evidence for the efficacy of aciclovir following chickenpox exposure, hence the recommendation that this is only offered after 20 weeks.

Give oral aciclovir and varicella-zoster immunoglobulin is incorrect is inappropriate not only because it is likely to be very impractical but also because the woman has already been exposed to chickenpox, given that patients are infectious from 2 days before the spots appear.

If a woman who is under 20 weeks gestation develops chickenpox, aciclovir should be considered. However, in this case, varicella-zoster immunoglobulin can be given to reduce the chance of severe infection. It is not necessary to wait and only give aciclovir if the patient develops symptoms of chickenpox.

Varicella-zoster immunoglobulin is given after contact to reduce the risk of the patient developing severe chickenpox. It is not given once symptoms have developed and is only effective up to 10 days post-exposure. For this reason, give varicella-zoster immunoglobulin only if the patient develops symptoms of chickenpox is incorrect.

Question:

An 11-year-old boy is recovering in the surgical ward following a tonsillectomy 6 hours ago. Over the last few hours, he has been distressed due to pain.

On examination of his throat, there is a small amount of active bleeding from the tonsils. His vital signs are a pulse rate of 94 beats per minute, respiratory rate of 18 breaths per minute, blood pressure of 110/68 mmHg, oxygen saturation of 98% on room air and a temperature of 37.8ºC.

What is the definitive step in his management?

A.Apply adrenaline-soaked gauze to bleed

B.Consider intubation

C.Provide pain relief to ease their distress

D.Return to theatre for surgical management

E.Start IV fluids for resuscitation

Answer:Return to theatre for surgical management

Explanation:

Primary haemorrhage within hours after tonsillectomy requires immediate return to theatre

Important for meLess important

Return to theatre for surgical management is correct. Bleeding post tonsillectomy is a surgical emergency which requires an immediate return to theatre as it can be life-threatening. Primary haemorrhages typically occur in the first 6 to 8 hours following tonsillectomy, therefore this patient has a primary haemorrhage as their bleeding occurred 6 hours ago.

Apply adrenaline-soaked gauze to bleed is incorrect. Although this may be done initially to help control the bleeding by causing vasoconstriction of the affected blood vessels, this measure is only temporary and is not a definitive management step. The definitive step would be an immediate return to theatre.

Start IV fluids for resuscitation is incorrect. Although this may be considered in initial management to maintain haemodynamic stability, it is not the definitive treatment to address the bleed.

Provide pain relief to ease their distress is incorrect. Although it is an important element of the initial management steps, this does not address the main concern. Since primary haemorrhages following a tonsillectomy is a medical emergency, the definitive management step would be an immediate return to theatre.

Consider intubation is incorrect. There are no signs that the airway in this patient is compromised (such as stridor, cyanosis etc.). Since primary haemorrhages following a tonsillectomy is a medical emergency, the definitive management step would be an immediate return to theatre.

Question:

A 70-year-old man presents to the emergency department complaining of persistent shortness of breath, swelling of face and neck, headache, and difficulty with his vision. He appears to be very red, and you can clearly see the veins in his face. What is the most likely cause of this presentation?

A.Aortic aneurysm

B.Leukaemia

C.Lung cancer

D.Spinal cord compression

E.Vertebral artery rupture

Answer:Lung cancer

Explanation:

Small cell lung cancer is the most common cause of SVCO

Important for meLess important

The presentation above is superior vena cava obstruction (SVCO). The most common cause of that is lung cancer (most commonly small cell lung cancer, especially in the right upper lobe). It is caused by compression of the SVC, mainly from exterior pressure from a tumour. Aortic aneurysm is a rare cause, and not the most likely. The other three options are not caused of SVCO and are incorrect.

Question:

A 47-year-old lady is referred by her GP with a two day history of fever and headache. She is normally fit and well and has no past medical history of note. On examination you note nuchal rigidity. Investigations show the following:

Serum glucose 4.9 mmol/l

Lumbar puncture reveals:

Opening pressure 14 cmCSF

Appearance Cloudy

Glucose 1.7 mmol/l

Protein 1.9 g/l

White cells 900 / mm³ (90% polymorphs)

What is the most likely infective agent?

A.Streptococcus pneumoniae

B.E. coli

C.Listeria monocytogenes

D.Enterovirus

E.Streptococcus pyogenes

Answer:Streptococcus pneumoniae

Explanation:

6 years - 60 years age group are at risk from meninigitis caused by Streptococcus pneumoniae

Important for meLess important

The CSF results are consistent with bacterial meningitis (low glucose, high protein, high polymorphs). In this age group Streptococcus pneumoniae and Neisseria meningitidis are the most common causes of bacterial meningitis.

Question:

A 27-year-old woman is admitted after developing dyspnoea associated with pleuritic chest pain. A D-dimer taken on admission is elevated and subsequent CTPA shows a pulmonary embolism. Her past medical history includes a giving birth to her son 12 months ago (full term, vaginal delivery) and anxiety. She reports that her 47-year-old mother has had two deep vein thromboses in the past 10 years. Which one of the following is the most likely underlying cause?

A.Factor V Leiden

B.Antithrombin III deficiency

C.Antiphospholipid syndrome

D.Protein C deficiency

E.Prothrombin gene mutation

Answer:Factor V Leiden

Explanation:

Activated protein C resistance (Factor V Leiden) is the most common inherited thrombophilia

Important for meLess important

NICE would recommend testing for thrombophilia given the unprovoked venous thromboembolism and family history.

Question:

A 75-year-old woman is brought to the emergency department after falling. Before this, her husband states she complained of dizziness, nausea and sweating. She is currently conscious and talking but doesn't know where she is or how she got to the hospital. These symptoms came on after she had taken her morning medications.

Her past medical history includes mitral stenosis, hypothyroidism and type 2 diabetes. Her blood glucose is shown below:

Glucose 1.0 mmol/L (4.0-7.8)

What is the most appropriate treatment?

A.IM glucagon

B.IV 10% glucose

C.Long-acting carbohydrates such as bread

D.Oral dextrose tablets

E.Wait and recheck glucose in 15 minutes

Answer:Oral dextrose tablets

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

Oral dextrose tablets would be correct in this case. In this question, the patient is experiencing hypoglycaemia, likely caused by one of her medications for her T2DM (such as gliclazide). If a patient presenting with hypoglycaemia is conscious and able to swallow, then they should be treated with oral glucose preparations. These can include glucose gels, tablets and liquids.

IM glucagon wouldn't be correct in this case. Glucagon is recommended in cases where hypoglycaemia has led to a decreased level of consciousness, preventing safe swallowing and so oral treatment is not possible. In this case, the patient can swallow and so should be treated with oral glucose.

IV glucose would be incorrect here, for a similar reason to glucagon. In this question the patient is conscious and talking, therefore she should be able to swallow an oral glucose preparation. IV glucose can be used if there is an inadequate response to glucagon in cases of hypoglycaemic loss of consciousness, or if there is a poor response to oral medications.

Treatment with long-acting carbohydrates is not correct. Long-acting carbohydrate foods should be given after a hypoglycaemic episode to build up glycogen stores. However, this would not be suitable for acute management of this patient as the glucose would take too long to be digested and move into the blood, risking further harm to the patient.

Waiting and rechecking glucose in 15 minutes would be inappropriate in this case. Despite being conscious, this patient shows symptoms of severe hypoglycaemia and has a blood glucose level of 1.0. If left untreated this could lead to further clinical deterioration and complications. In this case, it is important to treat the patient as soon as possible.

Question:

A 16-year-old boy was out roller skating when he sustained a fall on an outstretched hand. He felt severe pain immediately following the fall and has noticed significant degrees of swelling and bruising in his wrist. On examination, you notice that he has lost the ability to abduct his thumb.

Which of these nerves is most likely to have been injured?

A.Median

B.Radial

C.Ulnar

D.Musculocutaneous

E.Axillary

Answer:Median

Explanation:

The median nerve may be injured in a Colle's fracture

Important for meLess important

The boy has sustained a Colle's fracture, which is a fracture of the distal radius that sometimes involves the ulna. The median nerve is most commonly affected. As the median nerve supplies the motor supply for the radial half of the fingers in the hand, it explains why he has lost the ability to abduct his thumb.

Damage to the radial nerve normally results in an inability to extend the wrist.

Damage to the ulnar nerve results in weakness of the ring and little fingers.

The musculocutaneous and axillary nerves do not supply any motor fibres to the muscles of the hand.

Question:

An 83-year-old woman with background of dementia has been on the ward awaiting discharge after an admission with diversion colitis. A nurse asks you to review her as she has become acutely confused. On examination, you notice widespread peripheral pitting oedema, an irregularly irregular pulse and widespread crackles on auscultating her chest. You send of an urgent set of bloods and you notice the following results:

Hb 112 g/L Male: (135-180)

Female: (115 - 160)

WBC 10 \* 109/L (4.0 - 11.0)

Na+ 162 mmol/L (135 - 145)

K+ 2.9 mmol/L (3.5 - 5.0)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 111 µmol/L (55 - 120)

Phosphate 0.42 mmol/L (0.8-1.4)

Magnesium 0.61 mmol/L (0.7-1.0)

What is the most likely underlying diagnosis?

A.Acute kidney injury

B.Atrial fibrillation

C.Congestive cardiac failure

D.Hospital acquired pneumonia

E.Refeeding syndrome

Answer:Refeeding syndrome

Explanation:

Re-feeding syndrome can result in abnormal fluid balance and arrhythmias

Important for meLess important

Elderly people post critical illness or major surgery can be at risk of refeeding syndrome. It is important to recognise that the deranged electrolytes (low potassium, low magnesium and low phosphate) and fluid shifts are the hallmarks of refeeding syndrome. Deranged electrolytes can subsequently lead to arrhythmias. Therefore, refeeding syndrome is the most likely diagnosis.

Congestive cardiac failure can result in pulmonary oedema and peripheral oedema, however, it does not explain new onset arrhythmia and deranged electrolytes - therefore this is less likely to be the correct answer as it does not explain all of the clinical findings.

The patient is likely in atrial fibrillation given her irregularly irregular pulse. Deranged electrolytes can lead to such an arrhythmia - however, this question is asking for the underlying cause of the electrolyte derangement.

A hospital acquired pneumonia should be considered in patients who have had long hospital admissions. It would cause lung crackles, and could precipitate atrial fibrillation. However, it is unlikely to be the underlying diagnosis as her white cell count is not raised.

Acute kidney injury (AKI) can lead to fluid shifts, deranged electrolytes, and arrhythmias. However, hyperkalemia is more common as a result of AKI than hypokalemia. Furthermore, her urea and creatinine levels are not deranged, making a diagnosis of AKI unlikely.

Question:

A 55-year-old woman was called by an out of hours GP and told to attend the emergency department due to abnormalities found on her blood tests which were taken at her annual well woman's check-up.

Her past medical history includes systemic sclerosis. She uses topical emollients on her hands and has no allergies. She works as a receptionist, is an ex-smoker and denies alcohol consumption. Her blood results are shown below:

Hb 110 g/L (115 - 160)

Platelets 151 \* 109/L (150 - 400)

WBC 4.5 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 11.5 mmol/L (2.0 - 7.0)

Creatinine 164 µmol/L (55 - 120)

eGFR 30 ml/min (>90)

The nurse does her observations and informs you her blood pressure is high. In the right arm, it is 187/95mmHg and in the left arm is 191/94mmHg.

What would be the most appropriate treatment to initiate in this patient?

A.Lisinopril

B.Amlodipine

C.Bendroflumethiazide

D.Doxazosin

E.Labetalol

Answer:Lisinopril

Explanation:

Renal complications of systemic sclerosis - ACE-inhibitors

Important for meLess important

Renal complications of system sclerosis often present with hypertension and AKI. ACE inhibitors are used 1st line in this instance, therefore lisinopril is the correct choice. A severe sclerodermic renal crisis may also present with microangiopathic haemolytic anaemia.

Amlodipine is a calcium channel blocker that is used in the management of hypertension.

Bendroflumethiazide is a thiazide diuretic that can also be used to manage hypertension.

Doxazosin is an α blocker used to treat hypertension.

Labetalol is a β blocker. It is commonly used to acutely lower blood pressure in haemorrhagic strokes.

Question:

A 63-year-old man is reviewed by his GP regarding his blood pressure. He has been on amlodipine for several years, but over the past month, he has noticed that his home blood pressure readings are consistently higher than previously - an average of 157/86 mmHg. Today, blood pressure is recorded as 155/88 mmHg.

Recent blood tests revealed a potassium level of 4.8 mmol/L.

What is an appropriate next step in management, according to national guidelines?

A.Add bisoprolol

B.Add diltiazem

C.Add doxazosin

D.Add indapamide

E.Add spironolactone

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 add indapamide. This patient's hypertension has not been sufficiently controlled, as confirmed by home readings taken over a month. As such, a second drug needs adding to the amlodipine - either an ACE-inhibitor, an angiotensin receptor blocker or a thiazide-like diuretic. Indapamide is a commonly used thiazide-like diuretic. Note the potassium level is immaterial in this question when adding a second-line medication.

Adding bisoprolol would be inappropriate. This is a beta-blocker, which are used fourth-line if the initial three medications are insufficient. It would be used if the potassium level is greater than 4.5 mmol/L.

Adding diltiazem would not be appropriate. This is a non-dihydropyridine calcium channel blocker - the patient is already on a calcium channel blocker, amlodipine, and so a second would not be added.

Doxazosin is an alpha-blocker and a fourth-line medication if the initial three are insufficient. Similarly to bisoprolol, it would be used if potassium is over 4.5 mmol/L, as the alternative, spironolactone, would raise potassium further.

Spironolactone would not be appropriate at this stage either - this is an aldosterone antagonist and may be used as a fourth drug if the initial three are not sufficient. As it can cause potassium levels to increase, it is only used if potassium is less than 4.5 mmol/L - otherwise, an alpha- or beta-blocker is used.

Question:

Which of the following is a live attenuated vaccine?

A.Rabies

B.Mumps

C.Hepatitis B

D.Meningococcus

E.Diphtheria

Answer:Mumps

Explanation:

Live attenuated vaccines

BCG

MMR

oral polio

yellow fever

oral typhoid

Important for meLess important

Question:

A 67-year-old woman with no past medical history presents to her GP complaining of a several-month history of pain in her long bones with no obvious trigger. Systems review is positive for low mood and constipation. The patient was previously well and has no past medical history.

The GP orders some blood tests with results as follows:

Na+ 136 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Calcium 3.0 mmol/L (2.1-2.6)

Phosphate 0.4 mmol/L (0.8-1.4)

ALP 145 u/L (30 - 100)

Parathyroid hormone 7.5 pmol/L (1.6-6.9)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

Given the likely diagnosis, what is the definitive management of this patient's condition?

A.Excision of solitary parathyroid adenoma

B.Intravenous fluids and bisphosphonate treatment

C.Parathyroidectomy

D.Ultraviolet radiation exposure

E.Vitamin D replacement

Answer:Parathyroidectomy

Explanation:

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

Important for meLess important

Parathyroidectomy is correct as this is the definitive management for symptomatic hyperparathyroidism. This blood panel is typical of a patient with primary hyperparathyroidism. Parathyroid hormone (PTH) is raised as it is being over-produced by the parathyroid glands. Subsequently, calcium is high as PTH works to increase free calcium by increasing renal reabsorption, reducing phosphate reabsorption (hence phosphate is low) and increasing calcium reabsorption from the bones (hence ALP is raised). The bone pain, low mood and constipation in the brief are typical symptoms of hypercalcaemia.

Excision of solitary parathyroid adenoma is incorrect as the surgical management of primary hyperparathyroidism is parathyroidectomy. This involves removing a whole diseased parathyroid gland. Excision of a solitary parathyroid adenoma alone may not be sufficient.

Intravenous fluid and bisphosphonate treatment may be required to normalise calcium in patients with severe hypercalcaemia (3.4mmol/L or over) or severe symptoms. However, this is not the definitive management of primary hyperparathyroidism. It leads to a temporary reduction in serum calcium due to dilution (from fluids) and increased uptake into bones (from the bisphosphonate).

Ultraviolet radiation exposure is a treatment for vitamin D deficiency secondary to lack of sunlight. This patient's investigations are not in keeping with vitamin D deficiency. Vitamin D deficiency results in low calcium, rather than the raised value seen here, as vitamin D is required for the absorption and retention of calcium. PTH may be raised to try and increase calcium (secondary hyperparathyroidism). ALP will be raised as calcium is reabsorbed from bones. Phosphate will be low as vitamin D is also required for phosphate absorption.

Vitamin D replacement is not required. Again, this is a treatment for vitamin D deficiency, which is not in keeping with this patient's biochemistry or clinical presentation.

Question:

A 42-year-old patient attends the emergency department complaining of feeling generally unwell. He states that he is aching all over and has been waking up at night in a cold sweat.

On examination, you note evidence of various injection marks on the antecubital fossa. His observations show a temperature of 38.1ºC, a heart rate of 122bpm, a blood pressure of 110/90mmHg, respiratory rate of 18/min and oxygen saturation of 98%.

You request urgent blood cultures and an echocardiogram.

What site is most likely affected given the diagnosis?

A.Aortic valve

B.Mitral valve

C.No vegetations visible

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 is presenting with signs and symptoms that could indicate infective endocarditis. Moreover, the needle track marks in his antecubital fossa indicate that he is an intravenous drug user (IVDU). Patients with infective endocarditis will show vegetation on the valve affected. In IVDU the valve most commonly affected is the tricuspid valve.

Aortic valve, mitral valve and pulmonary valve are all incorrect. This is because, as mentioned above, the tricuspid valve is the valve most commonly affected in infective endocarditis in IVDUs.

No vegetations visible is incorrect. As mentioned above, the tricuspid valve is likely to show vegetation indicating infection.

Question:

A 74-year-old man presents to the emergency department with a fall after tripping over a step outside his house. There were no preceding presyncopal symptoms. He sustained a head injury but did not lose consciousness. His past medical history includes atrial fibrillation, hypertension and type 2 diabetes. He takes dabigatran, amlodipine and metformin.

His observations on arrival were heart rate 84 beats per minute, blood pressure 132/77 mmHg, respiratory rate 18/minute, oxygen saturations 96% on air and temperature 36.4ºC. He was alert with a Glasgow coma scale of 15/15. A neurological examination was normal. There was evidence of an external head injury with some bruising.

A CT head demonstrates a small subdural haematoma. There is no midline shift or mass effect.

What is the most appropriate medication to administer at this point?

A.Tranexamic acid

B.Idarucizumab

C.Protamine sulphate

D.Prothrombin complex

E.Phytomenadione

Answer:Idarucizumab

Explanation:

Bleeding on dabigatran? Can use idarucizumab to reverse

Important for meLess important

Tranexamic acid is incorrect. Given that the patient has sustained a subdural haematoma as a consequence of trauma and anticoagulant treatment with dabigatran, we need to reverse the effect of dabigatran. While tranexamic acid is an anti-fibrinolytic medication that reduces bleeding in a variety of situations, it is not the specific reversal agent in this circumstance.

Idarucizumab is the correct answer. This is a monoclonal antibody used as a reversal agent for dabigatran. As this patient has suffered a potentially life-threatening complication of anticoagulant treatment, the anticoagulant effect of the medication should be reversed.

Protamine sulphate is incorrect. This medication is used to reverse the effects of heparin.

Prothrombin complex is incorrect. This is used to treat major bleeding on warfarin despite treatment with phytomenadione.

Phytomenadione (vitamin K) is incorrect. This is used to reverse the effects of warfarin.

Question:

You are an FY2 in General Practice reviewing a 72-year-old woman with a background of Parkinson's disease. She has come in today with a 4-week history of sore, gritty eyes. She reports that both eyes are affected and that the symptoms are worst in the morning. On examination, she has inflamed skin with fine scaling around the nasolabial folds and eyelashes, and her ear canal is erythematous and obscured by debris.

What is the most likely unifying diagnosis?

A.Otitis externa

B.Blepharitis

C.Seborrhoeic dermatitis

D.Adverse reaction to levodopa

E.Allergic dermatitis

Answer:Seborrhoeic dermatitis

Explanation:

Otitis externa and blepharitis are common complications of seborrhoeic dermatitis

Important for meLess important

This patient has features of both otitis externa and blepharitis, which are both common complications of seborrhoeic dermatitis. Seborrhoeic dermatitis is more common in individuals with Parkinson's disease.

Adverse reactions to levodopa most commonly include dyskinesias (choreiform, dystonic) and nausea.

Allergic dermatitis can present with areas of redness and scaling, but in this case, is less likely to cause both blepharitis- and otitis externa-like symptoms in a patient with Parkinson's disease and no history of eczema or exposure to irritants.

Question:

A 28-year-old woman who is 34 weeks pregnant is diagnosed with a urinary tract infection after routine dipstick testing. Laboratory analysis shows group B streptococcus to be the cause and this is treated with a short course of oral antibiotics. How should this woman be managed with respect to delivering her baby in a few weeks time?

A.Neonatal antibiotics within 1 hour of birth

B.Caesarean section at 38 weeks

C.No additional measures needed

D.Intrapartum antibiotics

E.Vaginal swabs in early labour with treatment based on this result

Answer:Intrapartum antibiotics

Explanation:

Group B streptococcus (GBS) bacteriuria is associated with an increased risk of chorioamnionitis and neonatal sepsis. The Royal College of Obstetricians and Gynaecologists states that women with GBS bacteriuria should therefore be offered intrapartum antibiotics in addition to appropriate treatment at the time of diagnosis. For non-penicillin-allergic patients intrapartum antibiotics will consist of intravenous benzylpenicillin given as soon as possible after the start of labour, then at 4-hourly intervals until delivery.

Postnatal antibiotic treatment is not indicated unless there are signs of neonatal infection. Caesarean section is not indicated.

[RCOG Green-top Guideline No. 36]

Question:

A 51-year-old woman who is known to have poorly controlled type 1 diabetes mellitus is reviewed. Her main presenting complaint is bloating and vomiting after eating. She also notes that her blood glucose readings have become more erratic recently. Which one of the following medications is most likely to be beneficial?

A.Helicobacter pylori eradication therapy

B.Lansoprazole

C.Amitriptyline

D.Metoclopramide

E.Cyclizine

Answer:Metoclopramide

Explanation:

The true prevalence of gastroparesis in patients with type 1 diabetes mellitus is not known but most modern studies estimate around 5% are affected. This leads to both upper gastrointestinal symptoms and erratic glucose control due to gastric emptying dysfunction. Metoclopramide is a pro-kinetic drug that can improve gastric emptying.

Question:

You are completing the warfarin dose of a patient admitted under your care on the respiratory ward. The patient is an 86-year-old male who is awaiting a package of care following the resolution of a lobar pneumonia. The patient normally takes 2mg Warfarin daily and has been stable on this dose, in target INR range, for 2 years.

You are reviewing this patients blood tests and note an abnormality of their clotting screen.

PT: Prothrombin time

APTT: activated partial thromboplastin time

Which of the below results is most likely in a patient taking Warfarin?

A.Normal PT, prolonged APTT

B.Prolonged PT, normal APTT

C.Normal PT, normal APTT

D.Prolonged PT, prolonged APTT

E.Normal PT, shortened APTT

Answer:Prolonged PT, normal APTT

Explanation:

Warfarin causes a prolonged prothrombin-time

Important for meLess important

Warfarin affects factor X, IX, VII and II. The extrinsic pathway, affecting the PT, involves factor VII. The intrinsic pathway, affecting the APTT, involves factors XII, XI, IX, VIII. Because Warfarin reduces the levels of factor VII, the PT is prolonged with therapeutic doses of Warfarin. In theory, as Wafarin affects the levels of factor IX, you would expect the APTT to be prolonged also. This is not the case as Warfarin affects factor IX less prominently than factor VII. As such, the APTT will usually be normal in patients taking Warfarin with a prolonged PT. The exception to this would be in an overdose of Warfarin, where you would expect both the PT and APTT to be prolonged.

Option 1 in incorrect as the PT will be prolonged and therefore not normal.

Option 2 is correct as the PT will be prolonged with a normal APTT in therapeutic warfarin treatment.

Option 3 is incorrect as the PT will be prolonged.

Option 4 is incorrect as the APTT will be normal in therapeutic warfarin doses.

Option 5 is incorrect as the PT would be normal rather than shortened.

Question:

A 27-year-old man presents to the emergency department with an asthma attack. He is a known asthmatic, but it is usually well controlled with a salbutamol inhaler. He has a peak expiratory flow rate of 52%, a respiratory rate of 24/min, a heart rate of 110/min, blood pressure of 130/65 mmHg, and a temperature of 36.6 ºC. On examination, he looks distressed and cannot complete sentences. A chest examination shows widespread wheeze and respiratory efforts.

Which of the following is the most likely diagnosis?

A.Life-threatening asthma attack

B.Mild asthma attack

C.Moderate asthma attack

D.Near-fatal asthma attack

E.Severe asthma attack

Answer:Severe asthma attack

Explanation:

If a patient cannot complete sentences, they have severe asthma

Important for meLess important

The correct answer is a severe asthma attack. If a patient cannot complete sentences, the attack is categorised as severe. Other characteristics of severe asthma attacks are peak expiratory flow rate 33 - 50% best or predicted respiratory rate > 25/min, and pulse > 110 bpm.

Life-threatening asthma attacks are characterized by peak expiratory flow rate < 33% best or predicted, oxygen saturation < 92%, silent chest, cyanosis or feeble respiratory effort, bradycardia, dysrhythmia, or hypotension, exhaustion, confusion, or coma.

Mild and moderate asthma attacks are characterized by mild symptoms such, peak expiratory flow 50-75% best or predicted, respiratory rate < 25/min, and pulse < 110 bpm.

Near-fatal attacks are characterized by the need for immediate intensive care unit admission because of respiratory failure. This patient is suffering from a very intense attack, but luckily he does not need immediate intubation or mechanical ventilation, as his vital signs show that he can still be managed medically.

Question:

A 58-year-old gentlemen presents to your clinic complaining of 4 weeks of altered bowel habit, with some per rectal bleeding which is mixed in with his stool, he also complains of tenesmus following defecation and has lost 6 kilos of weight in the last 8 weeks. You decide to do a PR examination. You feel a mass on the posterior wall of the rectum around 10 cm from the anal verge, it is 9cm in diameter and feels irregular.

You are highly concerned that this may be a rectal cancer and order an urgent suspected cancer review and urgent colonoscopy. If your suspicions are correct what is the most likely diagnosis?

A.Squamous cell carcinoma

B.Gastrointestinal stromal tumour

C.Secondary lymphoma

D.Adenocarcinoma

E.Carcinoid tumour

Answer:Adenocarcinoma

Explanation:

More than 90% of colorectal cancers are adenocarcinomas

1. D M. Colorectal cancer. - PubMed - NCBI [Internet]. Ncbi.nlm.nih.gov. 2016 [cited 12 May 2016]. Available from: http://www.ncbi.nlm.nih.gov/pubmed?term=9950460

Question:

A 31-year-old man from Russia who is known to be HIV positive presents with purple plaques on his skin. Which of the following viruses is thought to be the cause of Kaposi's sarcoma?

A.HTLV-1

B.HIV-2

C.HHV-8

D.CMV

E.HPV-8

Answer:HHV-8

Explanation:

Kaposi's sarcoma - caused by HHV-8 (human herpes virus 8)

Important for meLess important

Question:

Due to her age, a 42-year-old pregnant woman is screened for chromosomal abnormalities. If her baby has trisomy 21 (Down's syndrome), which of the following results would be expected?

A.High alpha fetoprotein (AFP)

B.High oestriol

C.Low human chorionic gonadotrophin beta-subunit (-HCG)

D.Low pregnancy-associated plasma protein A (PAPP-A)

E.Reduced nuchal translucency

Answer:Low pregnancy-associated plasma protein A (PAPP-A)

Explanation:

The following results would be expected in a trisomy 21 (Down's syndrome) pregnancy:

Low alpha fetoprotein (AFP)

Low oestriol

High human chorionic gonadotrophin beta-subunit (-HCG)

Low pregnancy-associated plasma protein A (PAPP-A)

Thickened nuchal translucency

In the UK, all pregnant women are offered the 'combined test' at 11-13+6 weeks to screen for autosomal trisomies. This involves PAPP-A and -HCG blood tests along with nuchal translucency measurement by ultrasound. It has a 75% sensitivity and 3% false positive rate.

The 'triple test' may be used at 16 weeks but is less accurate than the 'combined test' and so should only be used when trisomy screening is performed after 14 weeks. It consists of AFP, -HCG and oestriol blood tests.

Question:

A 58-year-old woman attends the clinic with a 6-month history of rectal bleeding and pain. Her consultant decides to arrange a proctoscopy.

Proctoscopy results are as follows:

Macroscopic Erythematous ulcerated plaque in close proximity to the pectinate line

Biopsy Results suggestive of squamous cell carcinoma

Given the diagnosis, which of the following is the strongest risk factor?

A.HIV infection

B.HPV infection

C.Immunosuppressant drugs

D.Past medical history of cervical cancer

E.Smoking

Answer:HPV infection

Explanation:

HPV infection is the strongest risk factor for anal cancer

Important for meLess important

The patient has a diagnosis of anal cancer based on the pathology results.

HPV infection is the correct answer. HPV infection is the strongest risk factor for anal cancer. HPV infection causes 80-85% of SSCs of the anus (usually HPV16 or HPV18 subtypes).

HIV infection is incorrect. Although this is a risk factor for anal cancer, HPV infection is the strongest risk factor making this the better answer.

Immunosuppressant drugs is incorrect. Although this is a risk factor for anal cancer, HPV infection is the strongest risk factor making this the better answer.

Past medical history of cervical cancer is incorrect. Although this is a risk factor for anal cancer, HPV infection is the strongest risk factor making this the better answer.

Smoking is incorrect. Although this is a risk factor for anal cancer, HPV infection is the strongest risk factor making this the better answer.

Question:

A 15-year-old male returns to the dermatology clinic for review. He has a past history of acne and is currently treated with oral lymecycline. There has been no response to treatment and examination reveals evidence of scarring on his face. What is the most suitable treatment?

A.Oral doxycycline

B.Oral cyproterone acetate

C.Oral isotretinoin

D.IV retinoin

E.Topical retinoids

Answer:Oral isotretinoin

Explanation:

Patients with scarring should be referred for oral retinoin

Question:

A 36-year-old man with a history of asthma and schizophrenia presents to his local GP surgery. He complains of 'tonsillitis' and requests an antibiotic. On examination he has bilateral inflammed tonsils, temperature is 37.8ºC and the pulse is 90/min. His current medications include salbutamol inhaler prn, Clenil inhaler 2 puffs bd, co-codamol 30/500 2 tabs qds and clozapine 100mg bd. You decide to prescribe penicillin. What is the most appropriate further action?

A.Asking him to stop taking the clozapine for the duration of the antibiotic therapy

B.Check his PEFR

C.Arrange a full blood count

D.Prescribe a course of prednisolone as well

E.Prescribe a stat dose of oral fluconazole

Answer:Arrange a full blood count

Explanation:

Agranulocytosis/neutropenia is a life-threatening side effect of clozapine - monitor FBC

Important for meLess important

It is extremely important in patients who take clozapine to exclude neutropaenia if they develop infections.

Question:

A 75-year-old woman presents to surgery complaining of 'blurry' vision in her right eye for the past few months. She also notes that straight lines appear crooked or wavy. This only seem to affect the centre of her right visual field and no problems are noted with the left eye. She has never worn glasses or contact lens. On examination a central scotoma is noted in the right eye.

Which is the SINGLE most likely diagnosis?

A.Primary open-angle glaucoma

B.Cerebrovascular disease

C.Age related macular degeneration

D.Central retinal artery occlusion

E.Anterior uveitis

Answer:Age related macular degeneration

Explanation:

Common eye disorders affecting vision:

Macular degeneration is associated with central field loss

Primary open-angle glaucoma is associated with peripheral field loss

Important for meLess important

Question:

A 34-year-old woman presents to her GP. She is 14 weeks pregnant and, although her pregnancy has been uncomplicated so far, she has noted left-sided pelvic pain and deep dyspareunia over the last week. She denies vaginal bleeding, discharge or dysuria.

Her abdomen is soft and non-tender with a gravid uterus that is large for her dates. Her temperature is 37.1ºC, with a blood pressure of 110/70mmHg, a heart rate of 70 beats/min and a respiratory rate of 18 breaths/minute.

Prior to conception, she had an intrauterine system due to menorrhagia. She has no other medical history.

What is the most likely cause of her symptoms?

A.Ectopic pregnancy

B.Growth of pre-existing fibroids due to decreased progesterone

C.Growth of pre-existing fibroids due to increased oestrogen

D.Pelvic inflammatory disease

E.Pyelonephritis

Answer:Growth of pre-existing fibroids due to increased oestrogen

Explanation:

Uterine fibroids may grow during pregnancy

Important for meLess important

Uterine fibroids are common and often asymptomatic. In non-pregnant women, they are a common cause of menorrhagia. In early pregnancy, they grow primarily in response to oestrogen and can cause pelvic pain and pressure symptoms. They may undergo 'red degeneration' if they grow rapidly and outstrip their blood supply. The presence of pelvic pain, the history of menorrhagia (a clue that there may have been pre-existing fibroids) and the lack of other symptoms suggest that growth of pre-existing fibroids due to oestrogen may be the cause of this patient's symptoms. In reality, further investigation with ultrasound would be warranted before this diagnosis was made.

Second-trimester ectopic pregnancies are very rarely encountered, partly because the progression of an ectopic pregnancy is limited by space (ectopic pregnancies are typically tubal and will lead to rupture as they grow) and partly due to routine ultrasound scanning. This patient is likely to have had her first ultrasound scan (performed at 10-13+6 weeks), which would confirm an intrauterine pregnancy. Ectopic pregnancies are associated with abdominal tenderness on examination and there may be haemodynamic instability in the case of rupture. A late, missed ectopic pregnancy is therefore not a likely cause of this patient's symptoms.

Growth of pre-existing fibroids due to decreased progesterone is incorrect for two reasons. Firstly, although oestrogen is typically thought of as the main driver of uterine fibroids, there is evidence that progesterone also leads to increased size of fibroids. Secondly, like oestrogen, progesterone is increased (not decreased) in pregnancy.

Whilst pelvic inflammatory disease is a cause of pelvic pain and dyspareunia, it is also associated with symptoms such as vaginal discharge and dysuria and the patient would likely be febrile. It is not the most likely cause of this patient's symptoms.

This patient does not have dysuria, renal angle tenderness or pyrexia. Pyelonephritis is, therefore, an unlikely cause of her symptoms.

Question:

A 27-year-old man presents to the emergency department with severe hip pain which started two hours ago and has been progressive. He reports having experienced this before. His hip X-ray is unremarkable.

Observations show: heart rate=111bpm, respiratory rate=22/min, BP=131/78mmHg, O2 sats=93% on room air, temp=36.7ºC.

Hb 87 g/L (135-180)

Plts 331 \* 109/L (150 - 400)

WBC 8.1 \* 109/L (4.0 - 11.0)

Na+ 144 mmol/L (135 - 145)

K+ 4.6 mmol/L (3.5 - 5.0)

Urea 6.9 mmol/L (2.0 - 7.0)

Creatinine 111 µmol/L (55 - 120)

Reticulocytes 2.9 % (0.5 - 1.5)

Blood film Sickle cells, target cells and Howell-Jolly bodies.

Given the most likely diagnosis, what initial management is most appropriate?

A.Oxygen alone

B.Oxygen with IV analgesia and IV antibiotics

C.Oxygen with IV analgesia and IV fluids

D.Oxygen with IV analgesia and blood transfusion

E.Oxygen with IV analgesia and oral hydroxycarbamide

Answer:Oxygen with IV analgesia and IV fluids

Explanation:

The main components for managing sickle cell crisis should be analgesia, oxygen, and IV fluids. You can also consider antibiotics if you suspect an infection, and transfusion if the Hb is low

Important for meLess important

This is most likely a vaso-occlusive (or thrombotic) crisis secondary to sickle cell disease. Therefore, the correct answer is oxygen with IV analgesia and IV fluids. The key first step for patients experiencing a sickle cell crisis of any form is reducing further sickling; this is done by oxygenating the patient and hydrating them to prevent any further increase in serum viscosity at the focus of the crisis. Sickle cell crises (in particular vaso-occlusive crises) are incredibly painful, and these patients must receive good supportive care with strong IV analgesia, typically morphine.

Oxygen alone is not appropriate as the patient will also benefit from fluids and analgesia.

Oxygen with IV analgesia and blood transfusion is not appropriate at this stage. Transfusions can be very helpful in sickle crises where anaemia and bleeding are an issue (acute chest syndrome, splenic sequestration crisis) and in patients with significant anaemia. However, this is a vaso-occlusive crisis and the patient is clear of an ordinary transfusion threshold of 70g/L, so a transfusion is not appropriate here (and could worsen the situation by increasing blood viscosity).

Oxygen with IV analgesia and IV antibiotics is not appropriate at this stage, as there is no evidence that this particular crisis has been brought on by infection. Crises can be brought on by multiple forms of acute stress such as infection or dehydration. Note that whilst antibiotics are generally not used in vaso-occlusive crises without evidence of infection, they are generally given to all patients with acute chest syndrome due to the significant overlap in clinical features between this syndrome and lower respiratory tract infections. In this case, IV fluids would be indicated over antibiotics.

Oxygen with IV analgesia and oral hydroxycarbamide would be inappropriate here, as hydroxycarbamide is a drug used for prophylaxis of sickle cell crises. It works by increasing the relative expression of foetal haemoglobins (HbD/HbE) compared to HbS. Fluids are the key part of acute sickle cell crisis management that's missing from this list.

Question:

A 52-year-old male with bipolar disorder has been stable on lithium therapy for over 10 years. He presents to the emergency department with new onset of diarrhoea, vomiting, muscle twitching and ataxia.

The following blood result has been obtained:

Lithium level 1.6 mmol/l

Which of these medications is most likely to have precipitated this presentation?

A.Sertraline

B.Omeprazole

C.Salbutamol inhaler

D.Bendroflumethiazide

E.Amoxicillin

Answer:Bendroflumethiazide

Explanation:

Lithium toxicity can be precipitated by thiazides

Important for meLess important

This question describes lithium toxicity, through the clinical features and blood result. Bendroflumethiazide increases the serum concentration of lithium through its effects on renal sodium reabsorption.

Salbutamol may interact to cause torsades de pointes and should be avoided, but would not cause lithium toxicity. Sertraline may interact to cause serotonin syndrome, the presentation of which may be similar to lithium toxicity. However, this is not the correct answer due to the blood result. Omeprazole and amoxicillin do not interact with lithium.

Question:

Jodie is a 62-year-old female who presents to her general practitioner for a 1-day history of dysuria and increased urinary frequency. She has a past medical history of hypertension, for which she is taking candesartan and spironolactone. She also has had two simple urinary tract infections in her teenage years. A urinary dipstick reveals leukocytes ++, nitrites ++ and microscopic haematuria. The general practitioner diagnoses a urinary tract infection and prescribes trimethoprim 200mg BD for three days.

Three days later, Jodie returns to the clinic stating that her urinary tract infection symptoms seem to have improved, however she now complains of a decreased urine output, nausea and swelling in both of her legs. To investigate further, the GP orders a full blood count and renal function bloods.

Which of the following electrolyte disturbances might you expect to find on Jodie's bloods?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypernatraemia

D.Hypokalaemia

E.Hypophosphataemia

Answer:Hyperkalaemia

Explanation:

Trimethoprim can cause tubular dysfunction, leading to hyperkalaemia and increased serum creatinine

Important for meLess important

Hyperkalaemia is correct, as trimethoprim can cause tubular dysfunction by blocking the ENaC channel in the distal nephron, causing a hyperkalemic distal renal tubular acidosis (type 4). In this patient's case, the use of trimethoprim, in the combination with her usual medications, has resulted in an acute kidney injury. Trimethoprim should be avoided if a patient is taking renin angiotensin antagonist drugs or potassium sparing diuretics, or renal function should be monitored diligently.

Hypercalcemia is incorrect, as in acute kidney injury, hypocalcemia is more common.

Hypernatraemia is incorrect, as hyponatraemia is more common in acute kidney injury.

Hyperphosphataemia is more common in acute kidney injury, due to phosphate retention.

Question:

A 42-year-old man is admitted to surgery with acute appendicitis. He is known to have hypertension, psoriatic arthropathy and polymyalgia rheumatica. His 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 Senior House Officer to assess this man as he has become delirious and hypotensive 2 hours after surgery. His blood results reveal:

Na+ 132 mmol/l

K+ 5.2 mmol/l

Urea 10 mmol/l

Creatinine 111 µmol/l

Glucose 3.5

CRP 158

Hb 10.2 g/dl

Platelets 156 \* 109/l

WBC 14 \* 109/l

What is the most likely diagnosis?

A.Septic shock secondary to appendicitis

B.Neutropenic sepsis

C.Phaeochromocytoma

D.Perforated bowel

E.Addisonian crisis

Answer:Addisonian crisis

Explanation:

Features of an addisonian crisis:

Hyponatraemia

Hyperkalaemia

Hypoglycaemia

Important for meLess important

This man is on steroids for polymyalgia rheumatica. Surgery can precipitate acute adrenal deficiency. The diagnosis is further confirmed by the blood results of hyponatraemia, hyperkalaemia and hypoglycaemia. This patient urgently needs hydrocortisone.

Question:

An 86-year-old man with no history of cognitive impairment is being treated on a geriatrics ward for pneumonia and delirium. He is on intravenous antibiotics and fluids.

His delirium has become worse the last few nights, so he has been placed in a side room with a member of staff he is familiar with and allowed open visiting from his wife.

These measures are insufficient and he has now become aggressive, posing an immediate physical danger to staff on the ward. Security are already present.

What is the most appropriate immediate management?

A.Invite in the patient's wife to help calm him down

B.Offer oral haloperidol, if refuses give intramuscularly

C.Offer oral lorazepam, if refuses give intramuscularly

D.Offer oral promethazine, if refuses give intramuscularly

E.Refer the patient for psychiatry review

Answer:Offer oral haloperidol, if refuses give intramuscularly

Explanation:

Acute confusional state: if treating the underlying cause and environmental modification not working then haloperidol sometimes used

Important for meLess important

Offer oral haloperidol, if refuses give intramuscularly is correct. Oral medication should always be offered first as the intramuscular route is associated with more risks. If the patient refuses oral medication, given that he poses an immediate physical danger to others, the intramuscular route is justified in this instance.

Invite in the patient's wife to help calm him down is incorrect. Whilst inviting the wife to come in may help settle the patient, it does not address the immediate risk the patient poses to staff at that point in time.

Offer oral lorazepam, if refuses give intramuscularly is incorrect. Benzodiazepines may worsen the patient's delirium so haloperidol would be the preferred option in this instance.

Offer oral promethazine, if refuses give intramuscularly is incorrect. Elderly patients are more sensitive to the anticholinergic effects of promethazine, so haloperidol would be the preferred option in this instance.

Refer the patient for psychiatry review is incorrect. Although this patient will need referring for a psychiatry review, this is unlikely to take place soon. The patient's risk to others needs addressing immediately.

Question:

A 47-year-old multiparous woman with autosomal dominant polycystic kidney disease receives an allograft transplant kidney in surgery and is recovering post-operatively when, 50 minutes after the operation, she develops a high fever, pain at the site of the transplant and begins to feel sick and dizzy. You notice that she has had no urine output since the operation.

Given the most likely diagnosis, what is the treatment of this condition?

A.Carry out the sepsis 6 and give empirical IV antibiotics

B.Immediate return to theatre and removal of the transplant kidney

C.Plasmapheresis to remove circulating antibodies from the blood

D.3 - 5 plasma exchange sessions daily

E.IV methylprednisolone and tacrolimus

Answer:Immediate return to theatre and removal of the transplant kidney

Explanation:

No treatment is possible for hyperacute transplant rejection - the graft must be removed

Important for meLess important

There are four types of solid organ transplant rejection:

Hyperacute rejection occurs minutes to hours after re-vascularisation of the transplanted kidney. It is due to pre-existing antibodies in the recipient's blood, such as ABO antibodies. This type of rejection is very rare now due to the sensitivity of cross-matching but risk factors include:

Previous blood transfusions

Previous transplants

Multiple pregnancies

Acute antibody-mediated rejection occurs weeks to months after transplantation. It is mediated by host antibody recognition of graft antigens as foreign and results in complement activation and immune complex deposition.

Acute T-cell mediated rejection occurs weeks to months after the transplantation. It is mediated by lymphocytic infiltration of the graft. This is the most common type of rejection.

Chronic rejection occurs months to years after transplantation. It is secondary to repeated episodes of acute rejection and results in fibrosis and atrophy of the transplant.

The most likely diagnosis is therefore hyperacute rejection as it has occurred within hours of transplantation. Hyperacute rejection causes rapid destruction of the graft organ. The only management option is the immediate removal of the transplanted organ.

Intra-abdominal sepsis is a good differential for an acutely unwell surgical patient. However, intra-abdominal sepsis is unlikely to have developed within minutes of the operation and therefore this is not the most likely diagnosis.

Plasmapheresis can be used before transplantation to remove circulating antibodies if the transplant is ABO-incompatible but this is rare and it is not a management option for hyperacute rejection.

Giving 3 - 5 plasma exchange sessions daily is a management option for acute antibody-mediated rejection but it is not an option for hyperacute rejection.

IV methylprednisolone for 3-5 days is a treatment option for acute t-cell-mediated rejection, but again is not a treatment option for hyperacute rejection. Tacrolimus is used as a prophylactic anti-rejection medication and is not usually used in treating rejection except under specialist advice.

Question:

A 65-year-old gentleman with known diabetes and heart failure is currently admitted to the general medical wards suffering from atrial fibrillation (AF). He presented with a fast AF with a tachycardia of 130 beats per minute. He has been given atenolol but this has not yet reduced his heart rate below 120/min.

Which of the following can be added as a second-line medication to help control his heart rate?

A.Amiodarone

B.Verapamil

C.Amlodipine

D.Digoxin

E.Adenosine

Answer:Digoxin

Explanation:

Digoxin can be added as a second line treatment for rate control in atrial fibrillation

Important for meLess important

This man has presented with fast atrial fibrillation. The management of atrial involves both rate and rhythm control. As suggested by the stem, the question is asking for the stepwise rate control treatment in AF patients.

The NICE guidelines state that the first line rate control medication is a beta blocker (in this case atenolol ). This is often enough in patients to normalise their heart rate and limit many of their symptoms.

If this does not completely control the patient's rate, another drug can be added to the beta blocker. This can be either diltiazem (a calcium channel blocker) or digoxin (the correct answer in this case).

Verapamil would not be used alongside a beta blocker due to the risk of heart block in combined use.

Amlodipine is not recommended as the second line treatment for AF. Only non-dihydropyridine calcium channel blockers such as Verapamil can be used due to their atrioventricular node blocking actions

Question:

A 22-year-old male presents to the GUM clinic as he has received a notification that his ex-partner has had a positive test for gonorrhoea. On questioning, he reports discharge from the tip of his penis and some discomfort on urinating. He is concerned about the implications of this diagnosis.

What is a potential local complication of gonorrhoea to inform him of in this case?

A.Pelvic inflammatory disease

B.Urethral stricture

C.Reactive arthritis

D.Peri-hepatitis

E.Bartholin's abscess

Answer:Urethral stricture

Explanation:

Urethral strictures can be a local complication of Gonorrhoea

Important for meLess important

Pelvic inflammatory disease (PID) and Bartholin's abscesses are complications of gonorrhoeal infections in females. PID is an infection of the upper female genitalia (uterus, Fallopian tubes or ovaries) and Bartholin's glands are located next to the opening of the vagina and may become inflamed for many reasons.

This patient's dysuria suggests inflammation of the urethra, which may lead to scarring and subsequent stricture formation. This can also result in local spread to the prostate and epididymis. This is the only local complication in males listed above.

Peri-hepatitis and reactive arthritis are both systemic complications of gonorrhoeal infections.

Question:

A 15-year-old girl reports heavy menstrual bleeding since menarche when she was 14. When she was younger, she frequently suffered from heavy nosebleeds. What is the most important next step after normal examination and ultrasound?

A.Endometrial biopsy

B.Thyroid hormone levels

C.Blood test for coagulation disorder

D.Reassurance that menstrual flow can be variable during puberty

E.Serum ferritin level

Answer:Blood test for coagulation disorder

Explanation:

Testing for coagulation disorders (for example, von Willebrand's disease) should be considered in women who have had heavy menstrual bleeding since menarche and have personal or family history suggesting a coagulation disorder. NICE CG44

Question:

A 43-year-old lady has undergone a total thyroidectomy for multinodular goitre. You are called to see her because of respiratory distress. On examination she has a marked stridor, her wound seems healthy but there is a swelling within the operative site. What is the most likely explanation for this problem?

A.Wound abscess

B.Hypocalcaemic tetany

C.Internal jugular vein thrombosis

D.Contained haematoma

E.Unilateral recurrent laryngeal nerve injury

Answer:Contained haematoma

Explanation:

In this setting a contained haematoma is the most likely cause. This will impair venous return resulting in laryngeal oedema and respiratory compromise.

Question:

A 46-year-old woman with is being investigated for recurrent kidney and ureteric stones over the past several years. She is admitted for a large renal stone confirmed by CT scan, which is removed via a percutaneous nephrostomy. A history taken on admission discovers that over the past 18 months she has been having increasing issues with a dry mouth and dry eyes, but is otherwise unremarkable. There is no family history of kidney stones.

A urine dipstick is positive for trace blood, with a urine pH of 5.7. Analysis of the renal stone determines it is composed of calcium phosphate.

Given her history, what is the most likely cause of this patient's recurrent renal stones?

A.Hypertension

B.Familial hypercalciuria

C.Type I renal tubular acidosis

D.Type II renal tubular acidosis

E.Type IV renal tubular acidosis

Answer:Type I renal tubular acidosis

Explanation:

Type 1 renal tubular acidosis (distal) complication - renal stones

Important for meLess important

Distal (type 1) and proximal (type 2) renal tubular acidosis (RTA) are uncommon disorders, particularly in adults. Type I RTA is characterized by impaired distal acidification and bicarbonate wasting in the urine. Type I RTA is unique among other types of RTA in that it is the only type which causes nephrolithiasis (kidney stones).

The major causes of new-onset type I RTA are autoimmune diseases such as Sjogren's syndrome and hypercalciuria. Sjogren's is the likely aetiology in the case above, demonstrated by the history of increasing dry eyes and mouth due to destruction of exocrine glands. RTA can often be the presenting complaint of Sjogren's syndrome, and any patient with type I RTA should be evaluated for Sjogren's syndrome.

Hypertension is a risk factor for the development of renal tract stones, however this is usually additive to other risk factors such as gout, diabetes and obesity. Hypertension alone is not likely to be the cause of this patient's renal stones.

Familial hypercalciuria would likely present earlier in life; this patient at age 46 has only been suffering renal tract stones for the past few years. Although hypercalciuria can cause recurrent kidney stones, the timeframe for development of disease suggests the disease is likely not hereditary.

Type II RTA does not typically cause nephrolithiasis.

Type II RTA does not typically cause nephrolithiasis.

Question:

A 62-year-old man presents to the emergency department after passing a large volume of fresh blood when he attempted to open his bowels. For the past week, he has black, foul-smelling bowel movements. His additional medical problems include liver cirrhosis and HIV infection but he has refused any kind of medical help for these problems.

He begins to vomit bright red blood, filling up a pulp sick bowl in under a minute. His observations show a heart rate of 142 beats per minute, a blood pressure of 80/52 mmHg, and oxygen saturation of 91% on room air. His respiratory rate is incalculable due to his vomiting.

His immediate treatment was to receive IV terlipressin, but he is still vomiting blood.

Which management is indicated next?

A.Blood transfusion

B.Endoscopic variceal ligation

C.IV omeprazole

D.Insertion of a Sengstaken-Blakemore tube

E.Transfer for a trans-jugular intrahepatic porto-systemic shunt (TIPS)

Answer:Insertion of a Sengstaken-Blakemore tube

Explanation:

A Sengstaken-Blakemore tube may be used to stop an uncontrolled variceal haemorrhage

Important for meLess important

This man has an episode of acute upper gastrointestinal bleeding, on a history of untreated liver cirrhosis. This points in the direction of an acute oesophageal variceal haemorrhage. The key piece of information needed to decide management is how massive, or uncontrollable, the haemorrhage is. It is clear from the history that he has been actively bleeding for a week now, given his recollection of black, foul-smelling stools, indicating melena. Melena is the outcome of digested blood, suggesting an upper gastrointestinal bleed. His haematochezia (passing of fresh blood) indicates massive haemorrhage and severe haemodynamic compromise. Finally, his current bleeding has turned into catastrophic haematemesis - a pulp sick bowl can hold up to 800 ml of fluid. His tachycardia, hypoxia and profound hypotension show the severity here.

In the management of uncontrollable variceal haemorrhaging, the first priority is to stop further bleeding. Given that IV terlipressin (which is a vasoactive substance) has failed to do this, there should be progression to further measures. This is done by inserting a Sengstaken-Blakemore tube, which acts as a balloon tamponade. There is a gastric balloon, which compresses the gastro-oesophageal junction, as well as an oesophageal balloon that compresses the lower part of the oesophagus. Stopping the bleeding is the immediate priority before he receives resuscitation and definitive treatment.

A blood transfusion will form a necessary part of his management, given his profound blood loss. However, there is no point in replenishing his blood supply when he is still actively losing blood, and therefore control of the haemorrhage is indicated first.

Endoscopic variceal ligation is indicated as the first-line once haemorrhaging is controlled. However, endoscopy cannot be performed in the context of massive bleeding. For a patient who comes in with milder active bleeding, this would be considered first-line and should be done within 12 hours of admission.

IV omeprazole can be given in the case of a duodenal or gastric ulcer, to prevent worsening. However, it is not indicated in the acute treatment of oesophageal varices, and will not help to control the bleeding, which is the first priority here.

Transferring for a trans-jugular intrahepatic porto-systemic shunt (TIPS) is the definitive management of oesophageal varices. However, this man is in no condition to be transferred or to go to surgery. He needs to be stabilised before definitive management can be considered.

Question:

A 55-year-old man presents to the emergency department after suffering from a severe motor vehicle accident involving serious chest wounds. The paramedics had difficulty obtaining IV access. On arrival, he is found to be GCS 3 with an ECG that shows ventricular fibrillation. Advanced life support (ALS) is started. Several attempts at cannulation are unsuccessful. However, he is successfully intubated.

Given this information, what is the most appropriate step to take to deliver medications for ALS?

A.Administer intramuscularly

B.Administer rectally

C.Administer via endotracheal tube

D.Central line insertion

E.Intraosseous line insertion

Answer:Intraosseous line insertion

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

Intraosseous line insertion is correct. If there is difficulty obtaining IV access, then intraosseous (IO) access should be considered as the next line to give ALS medications like adrenaline, amiodarone and fluids as needed. IO access can be very quick and is commonly done in the proximal tibia or proximal humerus.

Administer intramuscularly is incorrect. Drug absorption is too slow for ALS with intramuscular administration. This would be an inappropriate alternative.

Administer rectally is incorrect as it is inappropriate for ALS as the absorption would be too slow and rectal preparations would need to be made.

Administer via endotracheal tube is incorrect. Endotracheal administration involves giving ALS medications directly through an endotracheal tube for absorption through the alveoli. This method is no longer recommended for giving ALS medications in the guidelines, with the preferred method now being intraosseous.

Central line insertion is incorrect. If a central line is already present in a patient, then this can be used for drug administration in ALS. However, if one is not already in place, then intraosseous access would be much quicker.

Question:

You are called to see a pyrexic 29-year-old female patient in the surgical recovery room after her appendectomy. The patient doesn't report any symptoms beyond malaise from the fever. The nurse informs you that her temperature is 39.1ºC and confirms that she had an indwelling catheter placed for her operation. Operation notes reveal that the appendectomy was performed 20 hours ago.

What is the most likely cause of the patient's fever?

A.Cellulitis

B.Physiological systemic inflammatory reaction

C.Pneumonia

D.Pulmonary embolism

E.Urinary tract infection

Answer:Physiological systemic inflammatory reaction

Explanation:

Isolated fever in well patient in first 24 hours following surgery? Think physiological reaction to operation

Important for meLess important

An isolated fever in a patient with no other symptoms is likely to be a physiological systemic inflammatory reaction to the operation. Post-operatively, there is massive production of pro-inflammatory cytokines that can induce a systemic inflammatory immune response, leading to the patient's presentation, as seen in this vignette. Additionally, fevers presenting within less than 48 hours of surgery are unlikely to be of a new infectious aetiology.

Cellulitis will usually initially present as a swollen, pink-red area that is hot to touch. However, there is no evidence of erythematous skin in this patient.

Post-operative pneumonia is commonly precipitated by intubation, reduced chest ventilation in bedridden patients and a change in commensal bacteria and viruses. The lack of respiratory symptoms and timeframe from the operation excludes pneumonia. As mentioned above, hospital-acquired pneumonia would more likely present >48 hours following surgery.

Venous thromboembolism (VTE) causing a pulmonary embolism is unlikely as the patient would present with pleuritic chest pain and hypoxia. This patient will also be receiving VTE prophylaxis as an inpatient.

The presence of an indwelling catheter is a distractor in this question; the absence of dysuria and increased frequency makes a urinary tract infection less likely.

Question:

A 65-year-old man comes for review. He has a history of small cell lung cancer and ischaemic heart disease. His cancer was diagnosed five months ago and he has recently completed a course of chemotherapy. From a cardiac point of view he had a myocardial infarction two years ago following which he had primary angioplasty with stent placement. He has had no angina since.

For the past week he has become increasingly short-of-breath. This is worse at night and is associated with an occasional non-productive cough. He has also noticed that his wedding ring feels tight. Clinical examination is of his chest is unremarkable. He does however have distended neck veins and periorbital oedema. What is the most likely diagnosis?

A.Heart failure secondary to chemotherapy

B.Tumour lysis syndrome

C.Nephrotic syndrome secondary to chemotherapy

D.Superior vena cava obstruction

E.Hypercalcaemia

Answer:Superior vena cava obstruction

Explanation:

Question:

A 54-year-old lady attends with a rash. She describes a facial rash present for several weeks associated with flushing. On examination, there is erythematous papulopustular rash with telangiectasia across both cheeks and nose. Given the likely diagnosis, which associated complication may she also have?

A.Blepharitis

B.Parotitis

C.Vulvovaginitis

D.Pancreatitis

E.Pericarditis

Answer:Blepharitis

Explanation:

Acne rosacea

chronic skin condition which causes persistent facial flushing, erythema, telangiectasia, pustules, papules and rhinophyma

It can also affect the eyes causing blepharitis, keratitis, conjunctivitis

It is treated with topical antibiotics e.g. metronidazole gel or oral tetracycline (especially if ocular symptoms).

Question:

A 36-year-old female presents as she has noticed a curd-like white vaginal discharge. This is associated with pain during sex. What is the most likely diagnosis?

A.Pregnancy

B.Bacterial vaginosis

C.Candida

D.Trichomonas vaginalis

E.Physiological discharge

Answer:Candida

Explanation:

Question:

A 23-year-old man presents to the GP with shortness of breath and dry cough for the last three months. His symptoms are better during the day but worse at night and better during the day. His past medical history includes allergic rhinitis, for which he takes loratadine. He has smoked 25 cigarettes daily for the past five years.

On examination, there are bilateral expiratory wheezes on auscultation. He is subsequently referred for spirometry and bronchodilator reversibility testing, which do not show any significant results.

What is the next step in management?

A.Perform skin prick allergy testing

B.Refer for chest X-ray

C.Refer for fractional exhaled nitric oxide testing

D.Repeat spirometry and bronchodilator reversibility

E.Test serum IgE

Answer:Refer for fractional exhaled nitric oxide testing

Explanation:

A negative result on spirometry does not exclude asthma as a diagnosis, and should be further investigated

Important for meLess important

Refer for fractional exhaled nitric oxide testing is correct. This patient has signs and symptoms suggestive of asthma due to his dry cough and symptoms worsening at night (diurnal variation). All adults suspected to have asthma should have both spirometry with a bronchodilator reversibility test and a fractional exhaled nitric oxide (FeNO) test. A negative result on spirometry does not exclude asthma as a diagnosis and should be further investigated.

Perform skin prick allergy testing is incorrect. This may be considered down the line if both spirometry and FeNO are inconclusive, but this would not be an appropriate next step. It should also be remembered that asthma is a heterogeneous condition with multiple underlying aetiologies; therefore, not all cases of asthma are due to allergy.

Repeat spirometry and bronchodilator reversibility is incorrect. Repeating this investigation would be unlikely to yield any significant results if negative the first time, and it would lead to excess and unnecessary resource usage and time consumption. If there are no significant results using spirometry and bronchodilator reversibility, the next best investigation would be a referral for fractional exhaled nitric oxide testing, as a negative spirometry result alone does not exclude asthma.

Refer for chest X-ray is incorrect. This would be appropriate if the patient was having an acute exacerbation of his respiratory symptoms to rule out pathologies such as pneumonia or pneumothorax. It may also be considered in patients who smoke in order to exclude lung cancer. These diagnoses are unlikely in this patient due to the lack of these features (such as unexplained weight loss, haemoptysis, fever, or sudden-onset shortness of breath). X-rays are not part of the diagnostic work-up for asthma; hence, this patient does not require one.

Test serum IgE is incorrect. This may be considered further down the line if both spirometry and FeNO are inconclusive, but this would not be an appropriate next step. It should also be remembered that asthma is a heterogeneous condition with multiple underlying aetiologies; therefore, not all cases of asthma are due to allergy.

Question:

A 24-year-old man attends the infectious disease unit with fever, lymphadenopathy and fatigue. He returned from a 6-month trip to South America a few weeks ago where he had been camping in the Amazon. He had been well apart from noticing a small erythematous nodule on his arm. On examination there is periorbital oedema. His GP suspects he may have acquired Chagas' disease.

Which is these tests should be done urgently?

A.Chest X-ray

B.Echocardiogram

C.Liver ultrasound

D.MRI brain

E.Sperm count

Answer:Echocardiogram

Explanation:

Cardiomyopathy is the most frequent and most severe manifestation of chronic Chagas' disease

Important for meLess important

Cardiomyopathy is the most common and worrying complication of Chagas' disease (American trypanosomiasis). It is therefore important to get an echocardiogram as soon as possible. Chronic disease management will involve treating any heart failure.

Chest X-ray may show signs of heart failure, but an echocardiogram is a definitive investigation here.

Liver ultrasound may be an appropriate first-line investigation for any suspected liver pathology.

African trypanosomiasis (as opposed to American) can often present with neurological symptoms and may necessitate an MRI brain. From the history above, there is no indication that he needs an urgent MRI brain.

Sperm count would not be an appropriate investigation in this case. Some infectious diseases, particularly sexually transmitted ones, may cause infertility, so bear this in mind.

Question:

A 67-year-old woman presents to the emergency department with pain in her arm which started after bumping it into the table. The pain is severe and there is a palpable step-off on the midshaft of the radius, accompanied by generalised oedema of the forearm. An x-ray confirms a radial fracture.

The blood tests show the following:

Hb 102 g/L (115 - 160)

Platelets 112 \* 109/L (150 - 400)

WBC 4.2 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Calcium 3.1 mmol/L (2.1-2.6)

Phosphate 1.1 mmol/L (0.8-1.4)

ALP 98 u/L (30 - 100)

Vitamin D 72 nmol/L (>75)

Urea 8.1 mmol/L (2.0 - 7.0)

Creatinine 134 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Monoclonal gammopathy of undetermined significance

B.Multiple myeloma

C.Osteomalacia

D.Paget's disease

E.Waldenstrom's macroglobulinaemia

Answer:Multiple myeloma

Explanation:

Patients with multiple myeloma may present with pathological fractures due to lytic lesions

Important for meLess important

The correct answer is multiple myeloma, a haematological malignancy characterised by plasma cell proliferation. This patient is presenting with a pathological fracture (a fracture caused by a small insult). Additionally, her blood tests show anaemia, thrombocytopenia, hypercalcemia, and elevated urea and creatinine. These are all landmark features of multiple myeloma which can be remembered with the mnemonic CRABBI:

Calcium: hypercalcaemia occurs as a result of increased osteoclast activity.

Renal: renal damage caused by monoclonal chains deposition in the tubule.

Anaemia: bone marrow crowding suppresses erythropoiesis causing anaemia.

Bleeding: the bone marrow crowding also causes thrombocytopenia.

Bones: bone marrow infiltration creates lytic bone lesions

Infection: reduction in the production of normal immunoglobulins causes increased susceptibility to infection

Her vitamin D levels are only slightly decreased and cannot justify the lytic lesions. ALP levels are normal in multiple myeloma as this is an indicator of osteoblast activity and this is suppressed in multiple myeloma.

Monoclonal gammopathy of undetermined significance is a condition which causes paraproteinaemia. Around 10% of patients with this condition eventually develop myeloma at 10 years, with 50% at 15 years. It does not cause the clinical features of myeloma, such as lytic lesions, pathological fractures, anaemia, and thrombocytopenia.

Osteomalacia is a common condition, defined as a softening of the bones secondary to low vitamin D levels that in turn lead to decreased bone mineral content. It causes muscle and bone pain, low vitamin D levels, low calcium, and low phosphate, accompanied by normal ALP. This patient has normal ALP, but high calcium and normal phosphate.

Paget's disease causes increased but uncontrolled bone turnover. It usually presents with bone pain and an isolated raised ALP, accompanied by normal calcium and phosphate. This patient has normal ALP, deranged calcium, and a pathological fracture which makes this diagnosis unlikely.

Waldenstrom's macroglobulinaemia is a good differential for multiple myeloma. It is a monoclonal IgM paraproteinaemia that causes systemic effects such as weight loss, lethargy, and hyperviscosity syndrome. The hyperviscosity will cause hepatosplenomegaly and lymphadenopathy. In this case, none of these features is present.

Question:

A 70-year-old man has a routine ECG after being diagnosed with hypertension. Examination of his cardiovascular system is unremarkable other than a blood pressure of 170/106 mmHg.

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

What does the ECG show?

A.Left bundle branch block

B.Bifascicular block

C.Previous inferior myocardial infarction

D.Paced rhythm

E.Previous anterior myocardial infarction

Answer:Bifascicular block

Explanation:

The ECG shows both right bundle branch block and left axis deviation indicating bifascicular block.

Question:

Paul is a 49-year-old man who has hypertension which has been difficult to treat. He is currently on three anti-hypertensive medications and his blood pressure is still borderline.

When reviewing the results of his recent routine blood tests, you detect a hypokalaemia which has been recurrent for the past year.

You consider that there may be an underlying diagnosis of primary hyperaldosteronism and arrange referral to a specialist.

Which of the following is the most appropriate first-line investigation?

A.Plasma ACTH

B.Plasma aldosterone

C.Plasma aldosterone/renin ratio

D.Plasma renin

E.24-hour urinary free cortisol

Answer:Plasma aldosterone/renin ratio

Explanation:

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

Important for meLess important

The aldosterone/renin ratio can be used as a screening test for primary hyperaldosteronism. This ratio is preferable to measurement of either renin or aldosterone alone. Testing renal function and renin activity and aldosterone levels should be performed whilst the patient has been off diuretics for at least four weeks and off beta-blockers and dihydropyridine calcium-channel blockers for at least two weeks. Patients should also stop steroids, potassium supplements and laxatives.

Patients with hypertension and hypokalaemia or resistant hypertension should be screened. If the ratio is >800 then patients should be investigated with further imaging to locate the source.

24-hour urinary free cortisol and plasma ACTH are both investigations used in the diagnosis of Cushing's syndrome and are not used in the diagnosis of primary hyperaldosteronism.

Question:

A 56-year-old female presents to the GP with a two-week history of lower back pain, that radiates down the back of her left leg. Following investigations, she is diagnosed with a prolapsed vertebral disc at L4/L5. Conservative management has failed to relieve her symptoms and the GP decides to prescribe gabapentin.

On writing this prescription, which of the following should be printed in both figures and words?

A.The GP's general medical council number

B.The date of prescription

C.The dosage

D.The patient's date of birth

E.The quantity of tablets supplied

Answer:The quantity of tablets supplied

Explanation:

Controlled drugs - it is the quantity supplied which needs to be stated in both figures and words, rather than the dosage

Important for meLess important

Controlled medications are drugs that have the potential to be abused and/or cause addiction, therefore prescription of such drugs is tightly controlled. Gabapentin is a controlled drug and therefore there are strict rules to follow when prescribing it.

The quantity of tablets supplied is correct and must be written out in both numbers and words for all controlled drugs. This is done in order to prevent the quantity from being tampered with (a number 2 could easily be turned into a number 8).

The GP's general medical council number does not need to be written out in both numbers and words.

The date of prescription will be written in numbers but is not needed in words.

The dosage must be written in numbers with clear units.

The patient's date of birth just needs to be written in numbers.

Question:

A 60-year-old man asks you to have a look at a 'sore' on his right ear.

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

It has been present for around 6 months and is not painful. What is the most likely diagnosis?

A.Fungal otitis externa

B.Actinic keratosis

C.Pyogenic granuloma

D.Basal cell carcinoma

E.Chondrodermatitis nodularis helicis

Answer:Actinic keratosis

Explanation:

Chondrodermatitis nodularis helicis is usually painful.

Question:

Which one of the following types of oral steroid has the least amount of mineralocorticoid activity?

A.Fludrocortisone

B.Hydrocortisone

C.Dexamethasone

D.Prednisolone

E.Cortisone

Answer:Dexamethasone

Explanation:

This is clinically relevant as there are some situations where it is important to combine high glucocorticoid (anti-inflammatory) activity with minimal mineralocorticoid (fluid-retention) effects. A good example is the use of dexamethsone for patients with raised intracranial pressure secondary to brain tumours.

Question:

A 33-year-old woman is reviewed regarding her asthma control. You notice from her records that she has never had a cervical smear and raise this with her. She responds that she is a lesbian and has never had sex with a man. What is the most appropriate advice to give?

A.She does not need to have a smear

B.She may need to have a smear if her partner has previously had heterosexual relationships

C.She should have cervical screening as per normal

D.She does not need to have a smear but does need a one-off HPV test

E.She should be referred to colposcopy clinic for a case-based assessment

Answer:She should have cervical screening as per normal

Explanation:

HPV, the causative agent of cervical cancer, can be transmitted during genital contact or oral sex. Lesbian and bisexual women should therefore have cervical screening as normal. Unfortunately, the uptake amongst lesbian women is around 10 times worse than the general female population, sometimes as a consequence of incorrect advice from healthcare professionals.

Question:

A 23-year-old man with difficult to control epilepsy is reviewed in clinic, four months after a change in his antiepileptic medication. He has remained seizure free but has gained 5 kg in weight since last reviewed. Which one of the following antiepileptic drugs is most associated with weight gain?

A.Ethosuximide

B.Sodium valproate

C.Levetiracetam

D.Carbamazepine

E.Lamotrigine

Answer:Sodium valproate

Explanation:

Sodium valproate may cause weight gain

Important for meLess important

Question:

A 60-year-old man presents with urinary problems. He has been passing very frequent small amounts of urine and has also been getting up several times in the night to urinate.

On examination, he has a smooth, non-enlarged prostate, and no abdominal masses.

After further investigation, diabetes, infection, and urological malignancy are ruled out. It is decided his symptoms are due to an overactive bladder. Lifestyle advice is discussed and he is referred for bladder training exercises.

What would be the most appropriate next step?

A.Botulinum toxin injection

B.Finasteride

C.Mirabegron

D.Oxybutynin

E.Tamsulosin

Answer:Oxybutynin

Explanation:

Antimuscarinic drugs are useful in patients with an overactive bladder

Important for meLess important

Overactive bladder syndrome involved storage symptoms, including urinary urgency, with or without urgency incontinence; frequency; and nocturia. Symptoms are usually due to detrusor overactivity but can be due to other forms of voiding dysfunction. Oxybutynin is an antimuscarinic drug that relaxes the smooth muscle of the detrusor, increasing bladder capacity and therefore reducing the symptoms of overactive bladder. Other examples include tolterodine or darifenacin.

Botulinum toxin injection can be used in treating overactive bladder. It is invasive, however, and is not the most appropriate next step.

Finasteride is a 5 alpha-reductase inhibitor used to treat symptoms of BPH by decreasing prostate size over around 3-6 months. It is not indicated in the treatment of overactive bladder.

Mirabegron is a beta-3 adrenergic receptor agonist that acts to relax the smooth muscle of the detrusor, thereby increasing the storage capacity of the bladder. It is only recommended as an option for treating overactive bladder in cases where antimuscarinic drugs are contraindicated or clinically ineffective, or have unacceptable side effects.

Tamsulosin is an alpha-1 antagonist and is the first-line medication used in treating symptoms of benign prostatic hyperplasia (BPH). It works by relaxing the smooth muscle of the prostate and bladder.

Question:

A 50-year-old man presents with a 2-day history of a red, hot, swollen knee, which occurred one week after a steroid injection to the joint. He has a past medical history of hypertension and type II diabetes. IV flucloxacillin is started on arrival.

Joint aspiration is performed and synovial fluid is sent to the lab. A Gram stain of the fluid shows Gram-positive cocci in clusters, which are coagulase positive. The following day they are shown to be resistant to flucloxacillin. The patient is scheduled for a joint washout on the same day.

What is the most appropriate next step with regard to antibiotics?

A.Switch to ceftriaxone

B.Switch to mupirocin

C.Switch to rifampicin

D.Switch to tazocin

E.Switch to vancomycin

Answer:Switch to vancomycin

Explanation:

Vancomycin is a useful antibiotic to treat MRSA infections

Important for meLess important

The organism grown is Staphylococcus aureus - we know that the Gram-positive cocci are likely to be a Staphylococcal species from the grape-like clusters seen on Gram stain, and Staphylococcus aureus is the only coagulase-positive Staphylococcus. The resistance to flucloxacillin means it is an MRSA (methicillin-resistant S.aureus).

Methicillin is an early penicillin that is now no longer used. MRSA will be resistant to all beta-lactam-based antibiotics, including cephalosporins and carbapenems because it produces a mutated protein (penicillin-binding protein 2a) to which beta-lactams can no longer bind and therefore cannot affect their action. It will be sensitive to glycopeptides, including vancomycin and teicoplanin, which have different mechanisms of action. They also interfere with cell wall synthesis but do so by binding to the D-ala-D-ala terminal of the pentapeptide chain and blocking the further extension of the chain.

Switch to rifampicin is incorrect. MRSA is often sensitive to rifampicin (which would be confirmed with resistance testing) - however, rifampicin should never be used without a second antibiotic because bacteria develop resistance to rifampicin very easily if used alone so it would quickly become ineffective.

Switch to ceftriaxone is incorrect. Ceftriaxone will not treat an MRSA because it can not bind to penicillin-binding protein 2a.

Switch to mupirocin is incorrect. Mupirocin is used as part of the decolonisation protocol for patients with MRSA (as a nasal ointment) but it is not used for the treatment of infections.

Switch to tazocin is incorrect. Tazocin will not treat an MRSA because it can also not bind to penicillin-binding protein 2a.

Question:

A 57-year-old woman attends her GP with a 12-month history of worsening fatigue, generalised weakness, and pelvic pain. She has begun to find difficulty climbing stairs and walking along the full length of the high street. On examination, she has a waddling gait and has reduced power in hip flexion, hip extension, and hip abduction. Her notes show no past medical history and no regular prescriptions. She lives with her husband who moved with her to the UK 3 years ago from Riyadh. She is a non-smoker and does not drink alcohol.

What diagnosis should be considered in this patient?

A.Duchenne muscular dystrophy

B.Osteoclastoma

C.Osteomalacia

D.Paget's disease

E.Rickets

Answer:Osteomalacia

Explanation:

Bone pain, tenderness and proximal myopathy (→ waddling gait) → ?osteomalacia

Important for meLess important

This patient is presenting with symptoms of osteomalacia including weakness, fatigue, bone pain, and proximal myopathy (shown by the waddling gait, difficulty climbing stairs, and hip motor symptoms). It is also associated with pseudofractures. This patient should be checked for secondary hyperparathyroidism and hypocalcemia. The primary management is with vitamin D supplementation.

Duchenne muscular dystrophy (DMD) is an X-linked condition that affects 1 in 4000 males. It usually presents around 5.5 years of age with a waddling gait, language delay, and trouble climbing stairs. It is a progressive disease that leads to a loss of ambulation by early teens and death from respiratory failure or cardiomyopathy usually occurs by late teens/early 20s. As this patient is significantly older than this and a female, this is not the correct answer.

Osteoclastoma is also known as the giant cell tumour of bone. It commonly presents with swelling, limited range of movement and persistent deep pain. The most common location is in the knee. It most commonly affects young adults and is usually benign. Management is with curettage or wide resection. As this patient does not have swelling, is older, and her symptoms are bilateral in the hip (not a unilateral knee) this is not the most likely diagnosis.

Paget's disease is typically seen in elderly people (particularly men) with bone pain, normal calcium, and raised ALP. Typically, x-ray will show thickened, deformed, and sclerotic changes. This vignette shows a younger patient who has proximal myopathy as well as bone pain, so this is not the most likely diagnosis.

Rickets is vitamin D deficiency causing weakened developing bones in children. It is associated with insufficient calcium and phosphate. As this patient is an adult, it should be termed 'osteomalacia' rather than Rickets.

Question:

A 32-year-old woman presents to the general practitioner with a lump in her right breast. She has no past medical or family history of note. On examination, there is a small, firm, non-tender lump in the upper left quadrant of the patient right breast. The remainder of the breast examination is unremarkable.

What is the most appropriate management of this patient?

A.Conservative management, with a routine referral to breast clinic if the lump grows

B.Conservative management, with an urgent referral to breast clinic if the lump grows

C.Reassurance and conservative management only

D.Routine referral to breast clinic

E.Urgent referral to breast clinic

Answer:Urgent referral to breast clinic

Explanation:

Refer women aged >30 with an unexplained breast lump using a suspected cancer pathway referral

Important for meLess important

The correct answer is an urgent referral to breast clinic. This patient is presenting with an unexplained breast lump. According to NICE guidelines, all patients over the age of 30 with an unexplained breast lump should be offered an urgent referral to breast clinic.

Conservative management, with a routine referral to breast clinic if the lump grows is incorrect as this lump may represent cancerous pathology and should be investigated accordingly.

Conservative management, with an urgent referral to breast clinic if the lump grows is incorrect as this lump may represent cancerous pathology, which may metastasize, and should be investigated accordingly.

Reassurance and conservative management only is incorrect as this lump may represent cancerous pathology and should be investigated accordingly.

Routine referral to breast clinic is incorrect as this should only be considered in patients under the age of 30 who present with an unexplained breast lump.

Question:

A 27-year-old transgender male patient (assigned female at birth) attends clinic wishing to discuss contraception. He is currently under the care of the gender identity clinic, who have prescribed him testosterone therapy.

He has a uterus currently, although wishes to have surgery in the future, and is sexually active with a regular male partner, engaging in vaginal intercourse. His partner currently uses a condom, but the patient wishes to start on an alternative method.

Which of the following pieces of advice could you offer the patient?

A.A combined oral contraceptive pill is not suitable

B.A copper intrauterine device is not suitable

C.A progesterone-only pill is not suitable

D.A vaginal ring can be used

E.All hormonal contraception is contraindicated

Answer:A combined oral contraceptive pill is not suitable

Explanation:

For patients assigned female at birth, contraceptives containing oestrogen are not recommended in patients undergoing testosterone therapy as can antagonize the effect of testosterone therapy

Important for meLess important

Out of all the statements above, the only correct one is that the combined oral contraceptive pill is not suitable. It contains oestrogen, which is contraindicated in patients on testosterone therapy as it may antagonise its effects.

The copper intrauterine device is suitable, as it is non-hormonal and will not interfere with testosterone.

A progesterone-only pill is actually acceptable to use, as it is not thought to have any adverse effect on testosterone therapy.

A vaginal ring should not be used for the same reason as the combined pill - it contains oestrogen.

Thus, the statement claiming that 'all hormonal contraception is contraindicated' is false as progesterone-only methods are suitable.

Question:

A 54-year-old woman is taken to the emergency department after having consumed a large number of prescription medications. She was found at home with several empty bottles of imipramine around her. She is visibly drowsy, but able to tell the doctor that she took the medications approximately 8 hours ago.

On examination, she is drowsy, hypotensive and tachycardic. An ECG is performed which demonstrates a QRS width of 162ms.

Which of the following should be administered?

A.Activated charcoal

B.Intravenous amiodarone

C.Intravenous bicarbonate

D.Intravenous glucagon

E.Intravenous magnesium sulphate

Answer:Intravenous bicarbonate

Explanation:

Widened QRS or arrhythmia in tricyclic overdose - give IV bicarbonate

Important for meLess important

Imipramine is a tricyclic antidepressant, but nowadays these are more commonly used for neuropathic pain rather than depression. Overdose causes a number of symptoms and signs as described above. Importantly, if a widened QRS complex or arrhythmia is noted on ECG, intravenous (IV) bicarbonate should be administered as the first-line therapy.

Activated charcoal is used with a number of drug overdoses for gastrointestinal decontamination. If she had presented within 2 hours, this would be a reasonable step - but presenting within 8 hours means that there is unlikely to be any benefit.

Amiodarone is a class III antiarrhythmic drug. Whilst normally used for arrhythmias, in the case of tricyclic antidepressant overdose it should be avoided as it prolongs the QT interval and may worsen hypotension and conduction abnormalities.

Glucagon is a potential treatment option for beta-blocker overdose. This would present differently, with bradycardia rather than tachycardia.

Magnesium sulphate does not play a role in the management of tricyclic overdose. It is used in the management of torsades de pointes, as well as eclampsia.

Question:

An 87-year-old woman presents to the emergency department with confusion and generalised malaise following a syncope. On examination, she looks pale and clammy, her pulse is regular and slow. Her vital signs show the following: heart rate 45/min, respiratory rate 7/min, blood pressure 87/55 mmHg and temperature 35.9 ºC. She has a past medical history of amyloidosis and types two diabetes mellitus, usually well controlled.

Which one of the following management options is the most appropriate for this patient?

A.DC cardioversion

B.Transcutaneous pacing

C.IV adrenaline

D.IV adenosine

E.IV atropine

Answer:IV atropine

Explanation:

Patients with bradycardia and signs of shock require 500micrograms of atropine (repeated up to max 3mg)

Important for meLess important

The correct answer is IV atropine 500mcg. This patient is presenting with signs and symptoms of bradycardia with shock. Bradycardia is defined as a heart rate inferior to 60/min and usually does not require any treatment. When the patient starts showing signs of hemodynamic compromise, then it requires an intervention. In this case, the syncope, clamminess, and hypotension are all signs of hemodynamic compromise. Atropine 500mcg IV is the first-line treatment in this situation. If the patient does not respond, then up to 3mg of atropine can be given. If this fails as well, transcutaneous pacing can be considered. Amyloidosis is a risk factor for the development of severe bradycardia.

DC cardioversion is used to manage cases of atrial fibrillation. Patients usually present with palpitation, dyspnoea, chest pain, and an irregularly irregular heart rate. In this case, the patient has a slow regular pulse.

Transcutaneous pacing is used as a second-line management option if atropine (titrated up to 3mg) is ineffective.

IV adrenaline is used to manage cases of cardiac arrest, especially asystole/pulseless electrical activity. This patient is still conscious and should be treated for bradycardia.

IV adenosine is used to manage cases of supraventricular tachycardia. The pulse of these patients is fast and regular, whilst this patient has a slow and regular pulse.

Question:

A 24-year-old woman presents to her GP with lower abdominal pains that have been getting worse over the past two days. The pain is in the suprapubic area and slightly to the right. She had some vaginal bleeding this morning which she describes as being like a light period. The patient also describes some shoulder pain which she thinks came on following a game of squash. Her last period was eight weeks ago and was described as normal. In the past, she has been treated for Chlamydia infection and admits to not practicing safer sex.

On examination, she is tender in the right iliac fossa. Blood pressure is 100/60mmHg and the pulse is 102/min.

What is the most likely diagnosis?

A.Appendicitis

B.Ovarian torsion

C.Miscarriage

D.Pelvic inflammatory disease

E.Ruptured ectopic pregnancy

Answer:Ruptured ectopic pregnancy

Explanation:

This is a classic exam history of ectopic pregnancy - amenorrhoea, abdominal pain and vaginal bleeding in combination with shoulder tip pain suggesting peritoneal bleeding.

Question:

A 53-year-old man presents as he is worried about palpitations. These are described as fast and irregular and typically occur twice a day. They seem to be more common after drinking alcohol. There is no history of chest pain or syncope. Examination of his cardiovascular symptoms is normal with a pulse of 72/min and a blood pressure of 116/78 mmHg. Blood tests and a 12-lead ECG are unremarkable. What is the most appropriate next step in management?

A.Reassure and repeat 12-lead ECG in 3 months time

B.Request a troponin I

C.Arrange an echocardiogram

D.Arrange a Holter monitor

E.Arrange an external loop recorder

Answer:Arrange a Holter monitor

Explanation:

Palpitations should first be investigated with a Holter monitor after initial bloods/ECG

Important for meLess important

These episodes are characteristic of an arrhythmia, possibly atrial fibrillation. First-line investigations are normal and it is appropriate to investigate further to exclude an arrhythmia.

Holter monitoring should be arranged to try and capture such an episode. Given the episodes occur daily it is reasonable to do this over a 24 hour period initially.

A troponin is not indicated given the absence of chest pain and there is no suggestion of heart failure to warrant an echocardiogram.

An external loop recorder should only be considered if the Holter monitoring is normal and the patient continues to have symptoms.

Question:

A 36-year-old woman complains to her GP of itchy, red, watery eyes. Her symptoms started in the left eye 4 days ago and have since spread to her right eye too. On examination, you can see bilateral redness in both eyes with a watery discharge.

She has no significant past medical history apart from reusable contact lenses. On questioning, she reveals that her 3-year-old daughter had similar problems about a week ago.

Given the likely diagnosis, what management advice should the GP provide her?

A.Administer chloramphenicol eye drops every 3 hours and apply a cold compress as needed until symptoms resolve

B.Continue to wear contact lenses but use a cold compress several times a day until symptoms resolve

C.Do not wear contact lenses until symptoms have resolved and use chloramphenicol eye drops every 3 hours

D.Do not wear contact lenses until symptoms have resolved. Clean the eyelids with a wet cloth and apply a cold compress as needed to relieve symptoms

E.Start wearing new contact lenses today but ensure she leaves them in separate cleaning solutions overnight

Answer:Do not wear contact lenses until symptoms have resolved. Clean the eyelids with a wet cloth and apply a cold compress as needed to relieve symptoms

Explanation:

Contact lens should not be worn during an episode of conjunctivitis

Important for meLess important

Do not wear contact lenses until symptoms have resolved. Clean the eyelids with a wet cloth and apply a cold compress as needed to relieve symptoms is correct. This is most likely a case of viral conjunctivitis; viral conjunctivitis usually presents with watery discharge whereas bacterial conjunctivitis would more likely present with yellow, sticky discharge. For viral conjunctivitis, conservative management with cold compresses and good eye hygiene is advised. Patients are advised to pause contact lens use until symptoms have resolved, as they can act as an irritant or carry infections, therefore worsening symptoms.

Administer chloramphenicol eye drops every 3 hours and apply a cold compress as needed until symptoms resolve are incorrect. This patient is presenting with likely viral conjunctivitis (watery discharge from the eye following contact with a person who has an upper respiratory tract infection) therefore chloramphenicol eye drops are not indicated. This treatment would be appropriate if the infection was bacterial in cause, which causes purulent, milky discharge and patients commonly say their eye is 'stuck shut'. These symptoms are not present therefore it is not the most likely answer.

Continue to wear contact lenses but use a cold compress several times a day until symptoms resolve. Continuing to wear contact lenses should not be advised while the patient still has symptoms of conjunctivitis, especially since this patient uses reusable lenses. She should discard her current lenses, wait until symptoms have resolved and then start using new lenses again as they often act as an irritant or harbour infections.

Do not wear contact lenses until symptoms have resolved and using chloramphenicol eye drops every 3 hours is incorrect. Stopping wearing contact lenses while she has symptoms is good practice, however, chloramphenicol is not indicated given this is likely viral in cause (discharge is watery, rather than purulent).

Start wearing new contact lenses today but ensure she leaves them in separate cleaning solutions overnight is incorrect. Although keeping the lenses in separate cleaning solutions is a good practice she should not continue to wear them while she is symptomatic.

Question:

A 65-year-old right-handed man presents to the emergency department with speech difficulties and right-sided weakness. He states he first noticed this at 9 am this morning.

He has a history of hyperlipidaemia, for which he takes atorvastatin. He smokes 20 cigarettes a day and drinks 15 units of alcohol per week.

Investigations show:

Capillary blood glucose 4.1 mmol (4.0-6.0 mmol)

Oxygen saturations 95%

A non-contrast CT head is performed and is normal. A loading dose of aspirin is given. It is 12:45 pm and his symptoms are still present.

What is the most appropriate next step to consider in his management?

A.Continue aspirin + offer TIA clinic review

B.Offer clopidogrel + offer TIA clinic review

C.Thrombectomy only

D.Thrombolysis + thrombectomy

E.Thrombolysis only

Answer:Thrombolysis + thrombectomy

Explanation:

Stroke thrombolysis - only consider if less than 4.5 hours and haemorrhage excluded

Important for meLess important

Thrombolysis + thrombectomy is correct. This patient has signs and symptoms consistent with a stroke (characterised by the presence of his focal neurological deficits such as speech difficulties and right-sided weakness). In all patients with a suspected stroke, a non-contrast CT head must be performed immediately to rule out a haemorrhagic stroke, so that thrombolysis and thrombectomy may be considered. An ischaemic stroke is a clinical diagnosis based on signs and symptoms and a normal CT scan does not rule out a stroke. In the first few hours after a stroke, the CT scan can be normal or show very subtle ischaemic changes that may go unnoticed. The normal CT scan indicates no haemorrhage, meaning a loading dose of aspirin should be given and thrombolysis and thrombectomy can be considered. Since this patient has presented within the 4.5-hour window, and they have no contraindications, they can be considered for both thrombectomy and thrombolysis.

Continue aspirin + offer TIA clinic review is incorrect. This patient is not suffering a TIA, as the symptoms are still ongoing and have not resolved. In TIAs, the features typically resolve within an hour. Since this patient has presented with ongoing symptoms, the diagnosis is more suggestive of an ischaemic stroke. An ischaemic stroke is a clinical diagnosis based on signs and symptoms and a normal CT scan does not rule out a stroke.

Offer clopidogrel + offer TIA clinic review is incorrect. This patient is not suffering a TIA, as the symptoms are still ongoing and have not resolved. In TIAs, the features typically resolve within an hour. Since this patient has presented with ongoing symptoms, the diagnosis is more suggestive of an ischaemic stroke. An ischaemic stroke is a clinical diagnosis based on signs and symptoms and a normal CT scan does not rule out a stroke.

Thrombectomy only is incorrect. The patient has presented within the 4.5-hour window, and they have no contraindications, so they should be considered for both thrombectomy and thrombolysis, as both are associated with a better prognosis if performed within this timeframe.

Thrombolysis only is incorrect. The patient has presented within the 4.5-hour window, and they have no contraindications, so they should be considered for both thrombectomy and thrombolysis, as both are associated with a better prognosis if performed within this timeframe.

Question:

A 45-year-old woman presents to the emergency department with complaints of oliguria for the last 3 days. She has a history of diabetes mellitus and hypertension. Important laboratory investigations are attached. Ultrasound of the urinary tract shows bilateral small kidneys.

Na+ 139 mmol/L (135 - 145)

K+ 5.7 mmol/L (3.5 - 5.0)

Bicarbonate 19 mmol/L (22 - 29)

Urea 10 mmol/L (2.0 - 7.0)

Creatinine 136 µmol/L (55 - 120)

Calcium 2.8 mmol/L (2.1-2.6)

What investigation result in this patient's history would help differentiate chronic kidney disease from acute kidney injury?

A.Serum bicarbonate levels

B.Serum potassium

C.Serum sodium

D.Ultrasound of urinary tract

E.Urea & creatinine

Answer:Ultrasound of urinary tract

Explanation:

Small kidneys on ultrasound usually helps to differentiate CKD from AKI (exceptions include ADPKD and early stages of diabetic nephropathy)

Important for meLess important

The correct response is ultrasound of urinary tract as it shows bilateral small kidneys, which is an important diagnostic feature of chronic kidney disease (CKD). The presence of bilateral small kidneys helps differentiate CKD from acute kidney injury (AKI). Kidney sizes are normal in AKI and reduced in CKD. Exceptions to this are CKD secondary to polycystic kidney disease and early stage of diabetic nephropathy.

Serum bicarbonate levels do not help to differentiate CKD from AKI, as low bicarbonate levels can occur in both CKD and AKI. Low bicarbonate in AKI and CKD is because of the loss of the kidney's ability to generate ammonia and excrete hydrogen.

There is no significance of serum sodium in differentiating AKI and CKD. Serum sodium in renal disease varies and greatly depends on the patient's fluid status. Urinary sodium is a helpful investigation to differentiate the pre-renal and post-renal AKI.

Hyperkalaemia can occur in both CKD and AKI, so serum potassium would not help to differentiate CKD from AKI. Hyperkalaemia in renal disease is due to reduced renal potassium excretion and decreased glomerular filtration rate.

Raised urea & creatinine is an incorrect response as urea and creatinine are elevated in both AKI and CKD.

Question:

A 56-year-old man presents with lethargy, haematuria and haemoptysis. On examination he is hypertensive and has a right loin mass. A CT scan shows a lesion affecting the upper pole of the right kidney, it has a small cystic centre. Which of the options below is the most likely diagnosis?

A.Squamous cell carcinoma of the kidney

B.Nephroblastoma

C.Renal adenocarcinoma

D.Transitional cell carcinoma of the kidney

E.Polycystic kidney disease

Answer:Renal adenocarcinoma

Explanation:

Renal adenocarcinoma are the most common renal tumours. These will typically affect the renal parenchyma. Transitional cell carcinoma will usually affect urothelial surfaces. Nephroblastoma would be very rare in this age group. Renal adenocarcinoma may produce cannon ball metastasis in the lung which cause haemoptysis, this is not a feature of PKD.

Question:

A 59-year-old man presents following a loss of consciousness while at work. He reports new-onset horizontal diplopia and a 2-week history of severe headache. The headache is worst in the morning and when lying down. It is mild in intensity at the time of interview and had been gradually worsening over the past few months. Examination reveals left-sided ptosis and the left eye is abducted, depressed and intorted when the right eye is in the primary position of gaze. There is anisocoria present, with the left pupil fixed and mydriatic compared to the right. The patient is sent for neuroimaging.

What is the most likely cause of this presentation?

A.Demyelination secondary to multiple sclerosis

B.Ischaemic neuropathy

C.Ophthalmoplegia secondary to migraine

D.Subarachnoid haemorrhage

E.Uncal herniation

Answer:Uncal herniation

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

Intracranial herniation may occur when there is a pressure gradient between two different intracranial compartments. Signs of uncal herniation may include loss of consciousness, hypertension, bradycardia and Cheyne-Stokes respiration. In this patient's case, there is likely to be an underlying supratentorial space-occupying lesion. The indolent history of headaches which are worst in the morning is typical of a slowly developing cause of raised ICP. The recent onset of loss of consciousness and diplopia is likely to represent herniation, a life-threatening complication of raised ICP.

Demyelination secondary to multiple sclerosis is unlikely to present with headaches and loss of consciousness. It also typically affects central pathways causing nuclear or intranuclear lesions, with the most common example being intranuclear ophthalmoplegia.

Ischaemic neuropathy is unlikely to cause loss of consciousness. It also typically causes a pupil sparing lesion though some mild anisocoria may be present.

Ophthalmoplegia secondary to migraine is a possible differential diagnosis for headaches with a third nerve palsy, however, it is important to exclude alternative life-threatening causes first. Loss of consciousness is a worrying sign which is unlikely to be seen in migraines, and the patient's headaches seem more typical for raised intracranial pressure.

Subarachnoid haemorrhage is one of the most important differentials to exclude when evaluating a patient with a third nerve palsy with pupillary involvement. Typically they will have features of a sudden-onset, severe headache, though this may not always be present. In this vignette, the patients' headache came on gradually and was mild at the time of presentation.

Question:

Which one of the following is least useful in assessing the severity of a patient with liver cirrhosis?

A.ALT

B.Prothrombin time

C.Bilirubin

D.The presence of ascites

E.The presence of encephalopathy

Answer:ALT

Explanation:

Question:

A 78-year-old man with type 2 diabetes mellitus is reviewed in the diabetes clinic. He is currently taking metformin 1g bd. He also has a history of hypertension and hypothyroidism. His HbA1c one year ago was 44 mmol/mol (6.2%). The most recent test is reported as 46 mmol/mol (6.4%). What is the most appropriate next step in management?

A.Increase dose of metformin

B.Add glimepiride

C.Add sitagliptin

D.Add pioglitazone

E.Make no changes

Answer:Make no changes

Explanation:

This man has acceptable glycaemic control, both in terms of NICE guidance and more recent evidence looking at the harms of overzealous glycaemic control. No changes should therefore be made for now.

Question:

A 65-year-old man attends his oncology appointment after recently being diagnosed with renal cell carcinoma. He presented through the haematuria clinic where an abnormal mass was found on his abdominal x-ray. He underwent staging investigations which found a 9cm tumour on the left kidney invading the renal capsule but confined to Gerota’s fascia. There was no evidence of metastatic disease.

What would be the most effective management plan for this patient?

A.Receptor tyrosine kinase inhibitors

B.Chemotherapy and radiotherapy

C.Partial nephrectomy

D.Percutaneous radiofrequency ablation

E.Radical nephrectomy

Answer:Radical nephrectomy

Explanation:

Radical nephrectomy is the most effective management option in renal cell carcinoma - RCC is usually resistant to radiotherapy or chemotherapy

Important for meLess important

Radical nephrectomy is the correct answer. Radical nephrectomy is the most effective management option for patients with renal cell carcinoma. This patient has an 8cm tumour invading the renal capsule thus it would be appropriate for a radical nephrectomy which involves the removal of the kidney, perinephric fat, and local lymph nodes.

Partial nephrectomy is incorrect. A partial nephrectomy is commonly reserved for patients with a tumour less than 7cm that is completely confined to the kidney and not invading the capsule. This patient has a stage T2 tumour hence a partial nephrectomy would not be completely effective at removing all residues of the disease.

Receptor tyrosine kinase inhibitors is incorrect. Although biological therapies are commonly used for renal cell carcinoma and are an effective form of management they are usually reserved for patients with metastatic disease, which this patient does not have.

Chemotherapy and radiotherapy is incorrect. Chemotherapy and radiotherapy are rarely effective in renal cell carcinoma.

Percutaneous radiofrequency ablation is incorrect. This treatment can be used in patients with renal cell carcinoma. However, it is usually reserved for patients not surgically fit for nephrectomy, i.e. patients with a lot of co-morbidities. This patient is relatively young and only suffers from hypertension, thus a radical nephrectomy would be more appropriate for effective disease eradication.

Question:

A 22-year-old woman calls her GP surgery. The previous day she visited her pharmacist and was given the levonorgestrel emergency contraceptive pill following an episode of unprotected sexual intercourse. The patient explains to you that she wants a more reliable method of contraception.

You prescribe the combined oral contraceptive pill (COCP).

When can this patient start the COCP?

A.7 days after the emergency contraceptive pill

B.30 days after the emergency contraceptive pill

C.After she has had a negative pregnancy test

D.Immediately

E.The COCP is contraindicated

Answer:Immediately

Explanation:

Hormonal contraception can be started immediately after using levonorgestrel (Levonelle) for emergency contraception

Important for meLess important

After using the levonorgestrel emergency contraceptive pill, hormonal contraception can be started immediately.

Ulipristal may reduce the effectiveness of hormonal contraception. Contraception with the pill, patch, or ring should be started, or restarted, 5 days after having ulipristal. Barrier methods should be used during these 5 days.

7 days after the emergency contraceptive pill is incorrect. Levonorgestrel is not known to impact the efficacy of regular hormonal contraception. Therefore, there is no required time interval before restarting/starting hormonal contraception.

30 days after the emergency contraceptive pill is incorrect. Levonorgestrel is not known to impact the efficacy of regular hormonal contraception. Therefore, there is no required time interval before restarting/starting hormonal contraception.

After she has had a negative pregnancy test is incorrect. After taking levonorgestrel, a pregnancy test is not routinely recommended. According to NICE, a pregnancy test is only indicated if the patient's next period is more than 5-7 days late or lighter than usual.

The COCP is contraindicated is incorrect. Using levonorgestrel is not a contraindication to the COCP. Contraindications of the COCP include current breast cancer, migraine with aura or, being aged over 35 years old and smoking more than 15 cigarettes per day.

Question:

A 48-year-old woman is reviewed in the clinic. She was recently seen by the psychiatrist and it was recommended that her lithium dose was increased for better symptom control. Her renal function is stable and so you prescribe the increased dose of lithium that is recommended.

When would it be most appropriate to re-check her levels?

A.In 1 month

B.In 1 week

C.In 3 days

D.In 3 months

E.In 6 months

Answer:In 1 week

Explanation:

After a change in dose, lithium levels should be taken a week later and weekly until the levels are stable

Important for meLess important

Lithium monitoring should be performed weekly after initiation and after each dose change until concentrations are stable. In this case, with an increased lithium dose, the levels should be checked again in 1 week. It is usually checked 12 hours after the dose is taken.

One month would be too long to wait after a dose adjustment.

Three days would be too soon to assess lithium levels.

Once lithium levels are stable they can be checked in 3 months' time, and then every three months for the first year, but they need to be stable before this occurs.

The BNF suggests that if lithium levels remain stable after a year then lithium testing can go to every 6 months in low-risk patients. NICE guidance suggests that 3 monthly testing continues indefinitely. In addition thyroid function tests should be monitored 6 monthly on patients on lithium.

Question:

A 22-year-old female patient has presented to the emergency department with severe upper GI bleeding for the past 12 hours. They are known to be on warfarin and their current INR is reported as 5.8.

With respect to their INR, what is the most suitable management?

A.Stop warfarin until INR < 5

B.Administer vitamin K + stop warfarin until INR <5

C.Administer prothrombin complex + administer vitamin K + stop warfarin temporarily

D.Reduce warfarin dose

E.Nothing. The INR is satisfactory

Answer:Administer prothrombin complex + administer vitamin K + stop warfarin temporarily

Explanation:

Major bleeding - stop warfarin, give intravenous vitamin K 5mg, prothrombin complex concentrate

Important for meLess important

Acute GI bleeding is a common complication of warfarin therapy. This patient appears to be suffering quite a severe bleeding reaction (12-hours acutely). Therefore the 3 most important things to do with respect to this patients warfarin treatment and INR are:

Stop warfarin temporarily

Give vitamin K

Give prothrombin complex concentrate

It would be inappropriate to do nothing. It would also be inappropriate to reduce the warfarin dose or stop administering it until the INR < 5 only. Giving vitamin K without prothrombin complex would only be appropriate if the bleeding was minor and the INR > 5.

If prothrombin complex was not available, fresh frozen plasma could be given.

Prothrombin complex is a collection of clotting factors fII, fIX and fX. Some preparations also contain fVII

https://www.sciencedirect.com/science/article/pii/S159086581500273X

Question:

A 61-year-old man presents to his GP as he developed enlargement of his breast tissue. He has become very self-conscious and is worried about going on holiday in the summer.

Upon examination you notice he is overweight and has asymmetric enlargement of breast tissue, you suspect gynecomastia.

Which one of the following drugs is most likely to be responsible?

A.Amlodipine

B.Tamsulin

C.Phenytoin

D.Bendroflumethiazide

E.Spironolactone

Answer:Spironolactone

Explanation:

Question:

A 45-year-old man has been referred to an endocrinologist because he has been experiencing a myriad of symptoms including blurred vision, weakness, and recurrent headaches. Upon referring the patient, the GP measured the patient's blood glucose to be 2.4 mmol/L. His electrolytes are normal. The patient has a past history of drug abuse and is known to suffer from depression. He lives with his mother who is treated for type 2 diabetes with insulin.

The endocrinologist performs a stress test on the patient by administering exogenous insulin. The blood results come back and confirm a similar pre-test and post-test C-peptide level.

What is the most likely diagnosis?

A.Cushing's disease

B.Insulinoma

C.Type 2 diabetes

D.Type 1 diabetes

E.Self-medication of mother's insulin

Answer:Insulinoma

Explanation:

C-peptide production does NOT fall on exogenous insulin injection in patients with an insulinoma

Important for meLess important

The correct answer is an insulinoma. This is diagnosed by Whipple's triad:

Symptoms and signs of hypoglycemia

Plasma glucose < 2.5 mmol/L

Reversibility of symptoms on the administration of glucose

Importantly C-peptide levels do not fall on the administration of insulin if the patient has an insulinoma as endogenous levels are not reduced.

Cushing's disease would typically present with abnormal electrolytes (this patient had normal electrolytes) and phenotypical signs such as abdominal striae, distended abdomen, abnormal facies.

Type 1 diabetes typically presents in younger individuals. Even if it presented later, it would normally manifest with polyuria, polydipsia and weight loss.

Type 2 diabetes would not present with hypoglycemia.

Self-medication is an important differential. However, C-peptide levels would fall following administration of insulin if this was the underlying diagnosis.

Question:

A 65-year-old lady is undergoing an OGD for investigation of dysphagia. She is known to have achalasia. A mass is seen in the middle third of the oesophagus. There is no other pathology identified past this point.

What is the most likely type of cancer?

A.Adenocarcinoma of the oesophagus

B.Squamous cell carcinoma of the oesophagus

C.MALT tumour

D.Direct invasion from lung neoplasm

E.Benign tumour of the oesophagus

Answer:Squamous cell carcinoma of the oesophagus

Explanation:

Whilst Barrett's oesophagus increases the risk of oesophageal adenocarcinoma, achalasia increases the risk of squamous cell carcinoma of the oesophagus.

Question:

You review a 23-year-old woman who presents with a three week history of bilateral nasal obstruction, cough at night and a clear nasal discharge. She had similar symptoms around this time last year and the only history of note is asthma. What is the most likely diagnosis?

A.Allergic rhinitis

B.Chronic sinusitis

C.Nasal hypertrophy secondary to the steroid inhaler

D.Nasal polyps

E.Vasomotor rhinitis

Answer:Allergic rhinitis

Explanation:

Question:

A 31-year-old woman with a three year history of ulcerative colitis is started on azathioprine to help prevent relapses. Which one of the following vaccines must be avoided whilst she is on this treatment?

A.Yellow fever

B.Rabies

C.Pertussis

D.Diphtheria

E.Tetanus

Answer:Yellow fever

Explanation:

Live attenuated vaccines

BCG

MMR

oral polio

yellow fever

oral typhoid

Important for meLess important

Live vaccines should not be given to patients who are immunosuppressed, such as those taking azathioprine.

Question:

A 38-year-old woman presents to the emergency department with sudden-onset palpitations. She has no past medical history. She is currently taking the combined oral contraceptive.

These are her observations:

Heart rate 115bpm

Resp. rate 24/min

Blood pressure 110/75mmHg

Capillary refill time <1 sec

Temperature 37.2ºC

On assessment, she is alert and diaphoretic. Systems examinations are otherwise unremarkable.

Her chest X-ray is normal. This is her ECG tracing:

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

The ECG tracing remains unchanged after 3 hours.

What is the most likely diagnosis?

A.Atrial flutter

B.Brugada syndrome

C.NSTEMI

D.Pulmonary embolism

E.Supraventricular tachycardia

Answer:Pulmonary embolism

Explanation:

Pulmonary embolism (PE) is the correct answer. The ECG in the vignette shows sinus tachycardia (120bpm) with regular rate and sinus rhythm. There is evidence of right axis deviation (negative QRS complex in lead I and positive QRS complex in lead II and aVF). There is evidence of acute right heart strain (small R wave, large S wave, and slightly convex ST segment, with T wave inversion in the anterior leads (V1-V4) and inferior T leads (III and aVF)). There is also evidence of incomplete left bundle branch block (borderline prolonged negative QRS in V1 with a normal QRS complex duration in V6). The features of acute heart strain and tachycardia are consistent with a diagnosis of PE. Although an S1Q3T3 pattern (deep S in lead I, pathological Q waves in lead III, and T wave inversion in lead III) is present, this finding is not specific or sensitive to PE. The patient in the vignette is on the combined oral contraceptive, and one of its rare but serious side effects is the development of a PE.

Atrial flutter is incorrect. Atrial flutter is a type of supraventricular, narrow-complex tachycardia that typically results in an atrial rate of >150bpm and a characteristic 'saw-tooth' pattern of flutter waves in lead II. Although this patient has palpitations and tachycardia, the absence of flutter waves and right heart strain is more consistent with PE.

Brugada syndrome is incorrect. Brugada syndrome is a sodium channelopathy which results in characteristic ECG changes and is a cause of sudden death in patients with structurally normal hearts. Brugada syndrome results in a 'coved' (concave) ST-segment elevation in V1-V3, followed by T wave inversion. This must be associated with one clinical criterion: 1. documented ventricular fibrillation of polymorphic ventricular tachycardia, 2. family history of sudden cardiac death at <45 years old, 3. coved-type ECGs in family members, 4. inducibility of VT with programmed electrical stimulation, 5. syncope, or 6. nocturnal agonal respiration. The patient in the scenario has features of right heart strain and documented QT-prolongation and does not meet any of the criteria for Brugada syndrome.

NSTEMI is incorrect. In this case, an NSTEMI is a possible differential, as the patient has presented with palpitations and ECG changes. There is T wave inversion in lead III, aVF, and V2-3. However, the T wave inversion is not confined to a vascular territory (it has an 'anterior and inferior' pattern) and is static (not dynamic; it is the same after 3 hours). The T-wave inversion, in this case, is likely due to rate-related ischaemia (the heart is pumping so fast that there is reduced diastolic filling time and hence less blood supply to the coronary arteries leading to ischaemia). Therefore, the diagnosis is less likely to be an NSTEMI and more likely to be a PE with acute right heart strain.

Supraventricular tachycardia (SVT) is incorrect. The ECG in the vignette does not have features suggestive of an SVT. Although the patient is tachycardic, he has sinus tachycardia with a rate of 115bpm and evidence of acute right heart strain. SVT is a regular narrow complex tachycardia with a rate greater than 150bpm.

Question:

A 62-year-old man with COPD presents with shortness of breath and a new oxygen requirement.

Initial arterial blood gas on 28% venturi mask shows:

pH 7.33 (7.35-7.45)

PaCO2 6.6kPa (4.7 – 6.0 kPa)

PaO2 10.9kPa (11 – 13 kPa)

Bicarbonate 30mEq/L (22 – 26 mEq/L)

He is treated as an acute exacerbation of his COPD and given nebulised salbutamol/ipratropium, oral prednisolone and intravenous antibiotics.

On the ward he deteriorates further, requiring 15L oxygen to saturate. An arterial blood gas shows:

pH 7.27 (7.35-7.45)

PaCO2 7.8kPa (4.7 – 6.0 kPa)

PaO2 10.6kPa (11 – 13 kPa)

Bicarbonate 30mEq/L (22 – 26 mEq/L)

What is the most appropriate management?

A.Back-to-back nebulised salbutamol

B.Bi-level positive airway pressure

C.Continuous positive airway pressure

D.Intravenous magnesium sulfate

E.Intravenous methylprednisolone

Answer:Bi-level positive airway pressure

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

Bi-level positive airway pressure is correct. This patient is suffering from an acute exacerbation of his COPD. Despite initial therapy, he continues to deteriorate and is now in worsening type 2 respiratory failure. This requires non-invasive ventilation - specifically bi-level continuous positive airway pressure.

Back-to-back nebulised salbutamol is incorrect. This patient is in worsening type 2 respiratory failure and requires respiratory support. Further nebulisers are unlikely to help at this point.

Continuous positive airway pressure is incorrect. Type 1 respiratory failure is managed with continuous positive airway pressure, but this patient is in type 2 respiratory failure.

Intravenous magnesium sulfate is incorrect. This would be used in an acute exacerbation of asthma that has not responded to salbutamol, ipratropium and steroids. It is not used in the management of COPD exacerbations.

Intravenous methylprednisolone is incorrect. Although steroids form part of the management, oral prednisolone has already been initiated and respiratory support is now required given the deteriorating type 2 respiratory failure.

Question:

A 54-year-old farm worker presents for review. She has recently been diagnosed with osteoarthritis of the hand but has no other past medical history of note. Despite regular paracetamol she is still experiencing considerable pain, especially around the base of both thumbs. What is the most suitable next management step?

A.Add oral diclofenac + lansoprazole

B.Switch paracetamol for co-codamol 8/500

C.Add topical ibuprofen

D.Add oral ibuprofen

E.Add oral glucosamine

Answer:Add topical ibuprofen

Explanation:

Osteoarthritis - paracetamol + topical NSAIDs (if knee/hand) first-line

Important for meLess important

The 2008 NICE guidelines suggest the use of paracetamol and topical NSAIDs first-line

Question:

A 50-year-old woman presents to her GP with cold and painful feelings in the fingers of both of her hands, worsening in cold temperatures. On examination, her left index finger appears as below:

© Image used on license from DermNet NZ

On further questioning, she mentions she has started to become increasingly out of breath on exertion, with an associated dry cough. She has no significant medical history and has smoked 8 cigarettes a day for the past 10 years.

What is the most likely diagnosis?

A.Buerger's syndrome

B.Psoriatic arthritis

C.Raynaud's disease

D.Rheumatoid arthritis

E.Systemic sclerosis

Answer:Systemic sclerosis

Explanation:

This photograph shows a small digital ulcer on the anterior aspect of the distal interphalangeal joint, with surrounding thickened skin due to fibrosis. These findings are typical of systemic sclerosis, an autoimmune condition that causes scarring and thickening of tissues in the skin and internal organs.

Digital ulcers are strongly positively correlated with disease severity and internal organ involvement, even early in disease onset. In this case, the symptoms of exertional dyspnoea and dry cough may indicate interstitial lung disease. They can arise in 2 ways:

1. Distal/fingertip digital ulcers occur primarily due to vascular disease and ischaemia that cause Raynaud's phenomenon.

2. Proximal/dorsal ulcers occur through mechanical stretching of tense skin and repeated microtraumas.

Buerger's syndrome is incorrect. This is a vasculitis that is very strongly associated with heavy smoking. Although ischaemic ulcers are typical, this patient does not smoke enough to raise suspicion of Buerger's syndrome. Additionally, it is very rare and will not cause the thickening of the skin seen

Psoriatic arthritis is incorrect. Although it can cause dactylitis (inflammation of the fingers) and the thickening of the skin could be mistaken for a psoriatic plaque, it does not cause digital ulcers nor the Raynaud's phenomenon described.

Raynaud's disease is incorrect. Although cold extremities due to poor vascularisation are typical, ischaemic changes such as ulcers as well as the surrounding scarring and thickening will not be seen.

Rheumatoid arthritis is incorrect. Although it is very common and should be highly suspected in a patient with bilaterally painful hands, the skin changes and ulcers seen are not typical.

Question:

You are the F1 on call. You have been asked to review the drug chart of a patient with hypertension who has a potassium of 3.0 mmol/l. Which of the following drugs can cause hypokalaemia?

A.Spironolactone

B.Indapamide

C.Ramipril

D.Ibuprofen

E.Amiloride

Answer:Indapamide

Explanation:

Thiazide duiretics can lead to hypokalaemia

Important for meLess important

Indapamide is a thiazide-like diuretic. Thiazide diuretics decrease blood pressure by blocking the Na/Cl cotransporter in the distal convoluted tubule. This results in an increased excretion of sodium and chlorine (and therefore water) in the urine, leading to a decreased blood volume and therefore blood pressure.

Question:

A 35-year-old gentleman presents to his general practitioner complaining of pain which comes and goes on the left side of his face. The pain comes on suddenly and feels like an electric shock, and lasts briefly before terminating. He has noticed that it is typically brought on by shaving and brushing his teeth but sometimes happens spontaneously. He has had this pain eight times in the last month. He has also noticed that he is having difficulties hearing from his left ear, and on examination, he has a moderate degree of sensorineural hearing loss in his left ear. Which of the following is the most appropriate management for this patient?

A.Prescribe carbamazepine and advise him to return if the pain does not resolve

B.Prescribe antibiotic ear drops and advise him to return if the pain does not resolve

C.Routinely refer him for specialist assessment

D.Urgently refer him for specialist assessment

E.Advise him to use olive oil drops and advise him to return if the pain does not resolve

Answer:Urgently refer him for specialist assessment

Explanation:

Trigeminal neuralgia: red flag symptoms/signs suggesting underlying cause- requires either admission or urgent referral for specialist assessment (use clinical judgement)

Important for meLess important

This gentleman has presented with a history typical of trigeminal neuralgia. Whilst this is typically treated with carbamazepine, there are certain signs for which NICE clinical knowledge summaries advise an urgent referral for specialist assessment rather than treatment. One of these is being aged <40 years of age, as this condition does not commonly present in this age group and hence may indicate something more sinister. Another worrying feature in this gentleman is the associated sensorineural hearing loss which could indicate a mass or lesion of the central or peripheral nervous system. Other red flag symptoms and signs are listed in the notes below.

It would not be helpful to prescribe him carbamazepine meanwhile as the pain is unlikely to be due to trigeminal neuralgia as suggested by the worrying features. Given that he will be seeing a specialist in under two weeks, it would be best to leave them to decide on an appropriate management plan. Until he is seen by a specialist, it would be sufficient to advise him to use standard pain relief.

The question did not report any signs of wax or infection on examination and the symptoms are not typical of either of these conditions. Hence prescribing ear drops would not be suitable for this patient.

Question:

A 28-year-old man attends following the consumption of half a bottle of bleach in an attempt to end his own life. On examination, he has a hoarse voice and a visibly red and ulcerated oropharyngeal mucosa.

How should this patient be managed?

A.Activated charcoal

B.Endoscopy

C.Gastric lavage

D.Observation alone

E.Proton pump inhibitor

Answer:Endoscopy

Explanation:

Early endoscopy and risk stratification is important in patients with symptomatic caustic ingestion

Important for meLess important

Endoscopy is correct. The patient has had a significant injury due to the ingestion of a corrosive substance. Drooling, dysphagia, vomiting, severe pain, haematemesis, stridor and extensive oropharyngeal burns are associated with more severe injuries and indicate the need for urgent imaging/endoscopy. Both CT scan and fibreoptic endoscopy are useful in assessing the severity of injury, risk of mortality, and risk of subsequent stricture formation. These 2 imaging modalities are complementary and provide the best understanding of the injury and risk when combined. If there are severe clinical features, then endoscopy is best performed by a surgeon capable of undertaking definitive treatment.

Activated charcoal is incorrect. Gut decontamination (including activated charcoal) is contraindicated (no benefit and obscures endoscopy).

Gastric lavage is incorrect. Gastric lavage should not be undertaken due to the increased risk of aspiration.

Observation alone is incorrect. The patient clearly needs observation, however, due to the high-risk features outlined above also needs an endoscopy.

Proton pump inhibitor is incorrect. If endoscopy is likely to be delayed, then a proton pump inhibitor should be commenced prior to endoscopy.

Question:

A 22-year-old female attends your practice complaining of feeling 'sore' in the genital area. She has had multiple sexual partners recently and has not always used barrier contraception. You find small red blisters on the vulva and vagina.

How is the cause of her symptoms usually diagnosed?

A.High vaginal swab for microscopy and sensitivity

B.A blood test is the best diagnostic tool for this condition

C.Nucleic acid amplification tests (NAAT) on swab

D.This condition should only be diagnosed clinically

E.Cervical smear is required for diagnosis

Answer:Nucleic acid amplification tests (NAAT) on swab

Explanation:

Nucleic acid amplification tests (NAAT) are the investigation of choice in genital herpes

Important for meLess important

The most likely diagnosis in this case is genital herpes- a sexually transmitted infection caused but the herpes simplex virus. Ideally, this should be diagnosed and managed in a GUM clinic and choice of treatment is aciclovir 200mg five times a day as well analgesia and possibly local anaesthetic cream.

Genital herpes is diagnosed via NAAT testing on swab.

Although it can be managed if it is felt that clinically this is the most likely diagnosis, a viral swab should confirm the diagnosis.

High vaginal swabs are usually taken for bacterial causes such as bacterial vaginosis or trichomoniasis.

Blood tests are not used to diagnose herpes.

Cervical smear is inappropriate in this case.

Question:

A 68-year-old male presents to the Emergency Department with a two-hour history of crushing left-sided chest pain radiating to the jaw. He has a past medical history of dyslipidaemia and hypertension. You perform an electrocardiogram and serum troponin which confirm an anterior ST-elevated myocardial infarction (STEMI). The nearest primary percutaneous coronary intervention (PCI) centre is three hours away by ambulance and urgent fibrinolysis is therefore given in preference to PCI.

What is the most appropriate management plan regarding myocardial revascularisation of this patient?

A.Repeat ECG in 2-3 hours and refer for PCI within 96 hours if ST-elevation has not resolved

B.Repeat ECG in 2-3 hours and transfer for urgent PCI if ST-elevation has not resolved

C.Repeat serum troponin in 2-3 hours and transfer for urgent PCI if ST-elevation has not resolved

D.Repeat ECG in 60-90 minutes and transfer for urgent PCI if ST-elevation has not resolved

E.Repeat serum troponin in 60-90 minutes and repeat fibrinolysis if ST-elevation has not resolved

Answer:Repeat ECG in 60-90 minutes and transfer for urgent PCI if ST-elevation has not resolved

Explanation:

If fibrinolysis is given for an ACS, an ECG should be repeated after 60-90 minutes

Important for meLess important

The correct answer is repeat ECG in 60-90 minutes and transferring for urgent PCI if ST-elevation has not resolved.

This patient has presented with a STEMI and since PCI could not be performed within 120 minutes, they were given urgent fibrinolysis in an attempt to restore coronary flow. As fibrinolysis is not always effective, a repeat ECG is taken 90 minutes after fibrinolysis to evaluate myocardial perfusion. If ST-elevation has persisted, there is a continued obstruction to coronary flow and PCI must be performed as soon as possible to try and save as much myocardium as possible.

Repeat ECG in 2-3 hours and refer for PCI within 96 hours if ST-elevation has not resolved is incorrect. 2-3 hours is the incorrect timing for which a repeat ECG should be taken and referral for PCI (or coronary artery bypass grafting) within 96 hours is indicated in cases of NSTEMI with an intermediate or higher risk of adverse cardiovascular events (predicted 6-month mortality above 3.0%) in patient's GRACE (Global Registry of Acute Cardiac Events) score.

Repeat ECG in 2-3 hours and transfer for urgent PCI if ST-elevation has not resolved is incorrect as 2-3 hours is the incorrect timing for which a repeat ECG should be taken and a decision about a possible transfer for PCI should be made.

Repeat serum troponin in 2-3 hours and transfer for urgent PCI if ST-elevation has not resolved is incorrect as an ECG, not troponin, must be repeated within 60-90 minutes.

Repeat serum troponin in 60-90 minutes and repeat fibrinolysis if ST-elevation has not resolved is incorrect as an ECG, not troponin, must be repeated within 60-90 minutes and fibrinolysis is not repeated due to the increased risk of haemorrhage this would carry.

Question:

A 40-year-old presents with a 2-day history of nausea, diplopia and blurred vision. On examination, he has bilateral facial weakness with slurred speech. He is afebrile. He has normal power in his arms and legs. There is no rash and his skin is intact. His forced vital capacity is within the normal range and oxygen saturations are 98% on air.

His past medical history includes hypertension and type 2 diabetes. He is a sewage worker and owns 2 dogs. He has an allotment and preserves some of his own vegetables. He has not had diarrhoea recently.

What is the most important aspect of management in this patient?

A.Activated charcoal

B.Antitoxin

C.IV benzylpenicillin

D.IV metronidazole

E.Urgent intubation

Answer:Antitoxin

Explanation:

The treatment of botulism - supportive care and botulism antitoxin

Important for meLess important

The correct answer is antitoxin. This patient is suffering from foodborne botulism, which is due to Clostridium botulinum which was likely contracted through improperly canned or preserved foods made at home. Symptoms are due to the bacterial toxin, which inhibits the release of acetylcholine at the neuromuscular junction, thus causing flaccid paralysis. It classically causes symmetrical descending nerve palsies, which often present first with cranial nerve defects. This can progress to descending weakness of skeletal and respiratory muscles. Fever is generally absent. Other types of botulism include infant botulism, wound botulism, and iatrogenic botulism.

The most important aspect of management is botulinum antitoxin which counteracts the action of the botulinum toxin and should be given as soon as possible.

Activated charcoal is incorrect. There is no evidence that charcoal or inducing vomiting has any effect on foodborne botulism.

IV benzylpenicillin is incorrect. Antibiotics are not used in foodborne botulism as they are not effective and there is a concern that rapid killing of the bacteria in the GI tract could lead to greater release of the toxin. Antibiotics can be used in wound botulism alongside wound debridement.

IV metronidazole is incorrect for the same reason as above.

Urgent intubation is incorrect. Some patients with botulism will require intubation and ventilation if they have a significant compromise of the respiratory muscles. However, this patient has a normal forced vital capacity and normal oxygen saturation, so intubation is not required at this point.

Question:

A 44-year-old woman presents with increasing lethargy and cough. She puts it down to the stress she was under at a recent conference in Spain. Since then she has felt feverish and lethargic with a cough starting two days ago. She has no past medical history but admits to recent unprotected sexual intercourse. Chest x-ray shows bi-basal consolidation. Blood tests are as follows:

White cell count 12 \* 10^9/l

Haemoglobin 135 g/l

CRP 145 mg/l

Sodium 125 mmol/l

Potassium 4.7 mmol/l

Alanine Transaminase 87 IU/l

What organism is responsible?

A.Staphylococcus aureus

B.Mycoplasma pneumoniae

C.Mycobacterium tuberculosis

D.Pneumocystis jiroveci

E.Legionella pneumophilia

Answer:Legionella pneumophilia

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

Legionella pneumonia often occurs in outbreaks centred around a communal water supply. This is alluded to in this question by the recent conference in Spain. It also frequently leads to bi-basal pneumonia as demonstrated in the question.

In addition, Legionella often causes a hyponatraemia and deranged liver function tests. This is shown in this question. Hyponatraemia can often lead to the patients presenting confused, but this is not mentioned in this particular question.

The unprotected sex is a distractor. If the patient had got HIV it would take years before they would be susceptible to infections such a TB and Pneumocystis jiroveci.

Question:

You are looking to prescribe an anti-depressant to a 74-year-old woman who has been complaining of low mood. You know this patient has had problems with low appetite and maintaining her weight.

Which of the following psychiatric medications may help her appetite and mood?

A.Mirtazapine

B.Sertraline

C.Gabapentin

D.Fluoxetine

E.Pregabalin

Answer:Mirtazapine

Explanation:

Mirtazapine may be prescribed due to useful side effects (sedation and increased appetite)

Important for meLess important

Mirtazapine is known to stimulate appetite. Sertraline and fluoxetine are selective serotonin reuptake inhibitors (SSRIs) which will help with mood but are not known to significantly stimulate appetite. Gabapentin and pregabalin are used in neuropathic pain and are inappropriate here.

Question:

A 65-year-old man presents to the emergency department with a painful hand following a fall on an outstretched hand. On examination, there is tenderness in the anatomical snuffbox. The hand is neurovascularly intact. Scaphoid view x-rays of the hand reveal a fracture of the proximal pole of the scaphoid.

What is optimal management for this presentation?

A.Analgesia alone

B.Fasciotomy

C.Plaster cast

D.Surgical fixation

E.Wrist splint

Answer:Surgical fixation

Explanation:

All proximal scaphoid pole fractures require surgical fixation

Important for meLess important

Most non-displaced fractures of the scaphoid and distal pole fractures can be managed conservatively with a cast for 6 weeks. Displaced scaphoid fractures generally require surgical fixation, and all proximal pole fractures require surgical fixation due to the risk of the development of avascular necrosis.

Analgesia alone will not suffice. Surgery is needed due to the risk of AVN.

Fasciotomy is indicated for compartment syndrome, not scaphoid fractures.

A plaster cast is not sufficient for proximal pole fractures of the scaphoid - surgical fixation is needed. Casting would be indicated for non-displaced distal pole fractures.

As this is a proximal pole fracture, a wrist or hand splint is not indicated here. Surgical fixation is necessary. Splints are indicated for occult fractures of distal pole of the scaphoid, for significant soft-tissue injury or for carpal-tunnel syndrome.

Question:

Donald, a 58-year-old farmer, comes to you for a follow-up for his angina. He is taking the maximum dose of bisoprolol, but is still suffering from some exertional chest pain. This is disrupting his day as he often has to stop and rest after walking a few hundred meters. His pain never comes on during rest and he has no allergies or drug intolerances.

How should Donald's condition be managed?

A.Add amlodipine

B.Add ramipril

C.Add verapamil

D.Admit to the emergency department

E.Refer to cardiology

Answer:Add amlodipine

Explanation:

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

Important for meLess important

This patient should be started on a long-acting dihydropyridine calcium-channel blocker (CCB), such as amlodipine, according to NICE guidelines (2019). Before the addition of new medications, clinicians should ensure patients are taking the highest tolerated dose of their current medications.

Adding ramipril is not the most appropriate treatment option. Angiotensin-converting-enzyme (ACE) inhibitors are an effective treatment for hypertension and can prevent the risk of myocardial infraction (MI) and stroke in patients with patients with angina, however they are not indicated in this patient as there is no evidence of hypertension in his history.

Verapamil is a rate-limiting CCB that can be used in the management of angina, however should never be used alongside a beta-blocker. This combination increases the risk of severe bradycardia and heart failure.

This patient should not be admitted to the emergency department as he is not displaying any signs of unstable angina, such as pain at rest or rapidly progressing symptoms.

Patients should be referred to cardiology for angioplasty when there is evidence of extensive ischaemia on an electrocardiograph (ECG) or are inadequately managed on an optimised drug treatment.

Question:

A 60-year-old female presents to the emergency department due to a 2-day history of worsening upper abdominal pain, with associated nausea and vomiting. This pain often comes on with meals, and she is unable to tolerate oral intake.

On examination, she appears in distress and pain. Her vital signs are as follows:

Temperature: 37.9 ℃

Heart rate: 100 beats/minute

Respiratory rate: 18/min

Blood pressure: 120/80 mmHg

Oxygen saturation: 99% on room air

On examination, she appears in distress and pain. There is a visibly yellow tinge of her sclera. Her abdomen is not distended but there is tenderness in the right upper quadrant. There is no guarding or rigidity on light abdominal palpation. Murphy's sign is negative.

Blood lab results are shown below:

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

Female: (115 - 160)

Platelets 170 \* 109/L (150 - 400)

WBC 14 \* 109/L (4.0 - 11.0)

Bilirubin 26 µmol/L (3 - 17)

ALP 340 u/L (30 - 100)

ALT 35 u/L (3 - 40)

γGT 40 u/L (8 - 60)

Albumin 40 g/L (35 - 50)

Ultrasound of the right upper quadrant was performed which shows dilated intrahepatic and extrahepatic bile ducts and multiple hyperechoic spheres within the gallbladder. IV antibiotics and fluid resuscitation were initiated. However, the patient remains acutely ill.

Which of the following is the most appropriate next step in management?

A.Laparoscopic cholecystectomy

B.Endoscopic retrograde cholangiopancreatography (ERCP)

C.Magnetic retrograde cholangiopancreatography (MRCP)

D.Extracorporeal shock wave lithotripsy

E.Percutaneous cholecystostomy

Answer:Endoscopic retrograde cholangiopancreatography (ERCP)

Explanation:

The majority of patients diagnosed with ascending cholangitis will undergo ERCP after 24-48 hours to relieve any obstruction

Important for meLess important

This patient presents with Charcot’s triad - fever, jaundice and right upper quadrant pain. There is also leukocytosis and elevated markers of cholestasis i.e. raised ALP and direct bilirubin. Her ultrasound report confirms acute ascending cholangitis as well.

ERCP is the treatment of choice for acute cholangitis to relieve any obstruction via biliary drainage. In mild cases that respond well to antibiotics, the majority of patients will undergo ERCP 24-48 hours electively after clinical improvement. In severe cases, ERCP should be performed immediately.

Magnetic retrograde cholangiopancreatography (MRCP) can evaluate biliary tree obstructions. However, this non-invasive imaging study does not provide therapeutic drainage of the biliary tract.

Laparoscopic cholecystectomy removes potential gallstones but does not remove gallstones in the common bile duct. Moreover, this procedure is risky in septic patients when less invasive means of achieving biliary drainage are available. It is indicated when sepsis is resolved.

Percutaneous cholecystostomy is an image-guided placement of drainage catheter into the gallbladder lumen, mainly for patients with acalculous cholecystitis or reserved for severely-ill patients with ascending cholangitis that is unable to tolerate ERCP. This is a temporising measure until IV antibiotics improve the clinical situation.

Extracorporeal shock wave lithotripsy is used to break down gallstones. It may be used as an elective procedure and commonly require multiple sessions. It is not the primary intervention, especially in an acutely unwell patient.

Question:

A 25-year-old man presents with a pruritic skin rash. This has been present for the past few weeks and has responded poorly to an emollient cream. The pruritus is described as 'intense' and has resulted in him having trouble sleeping. On inspecting the skin you notice a combination of papules and vesicles on his buttocks and the extensor aspect of the knees and elbows. What is the most likely diagnosis?

A.Lichen planus

B.Chronic plaque psoriasis

C.Henoch-Schonlein purpura

D.Dermatitis herpetiformis

E.Scabies

Answer:Dermatitis herpetiformis

Explanation:

Question:

A 58-year-old man presents to his GP with hip pain. He complains that it has gradually worsened over the last three months. The pain is consistent throughout the day and night but is worst when weight-bearing. On questioning, he reports no morning stiffness. He has tried paracetamol and ibuprofen with no reduction in pain. His past medical history includes active Crohn's disease treated with corticosteroids.

On examination, there is pain on palpation over the anterior groin region but a normal range of passive movement.

What is the most likely diagnosis?

A.Avascular necrosis of the hip

B.Extracapsular neck of femur fracture

C.Greater trochanteric pain syndrome

D.Iliotibial band syndrome

E.Osteoarthritis

Answer:Avascular necrosis of the hip

Explanation:

Long-term steroid use is a significant risk factor for avascular necrosis

Important for meLess important

Avascular necrosis of the hip is the correct answer. The patient in the vignette is presenting with hip pain worsening over a few months, with no morning stiffness and exacerbation with use. He has been treated with long-term steroids due to his Crohn's disease, a key risk factor for avascular necrosis of the hip. Furthermore, the location of the pain in the anterior groin region is characteristic of avascular necrosis of the hip.

Greater trochanteric pain syndrome is incorrect. This condition is sometimes referred to as trochanteric bursitis. In the vignette, the patient's pain is in the anterior groin. In trochanteric bursitis, the pain is generally over the lateral leg radiating to the knee. Furthermore, the history of steroid use makes avascular necrosis of the hip the more likely diagnosis.

Iliotibial band syndrome is incorrect in this case. Iliotibial band syndrome generally presents with pain over the lateral aspect of the thigh that runs down to the knee, as opposed to anterior groin pain. Furthermore, this pain improves with rest and is exacerbated by running or walking, unlike the constant pain in this vignette.

Osteoarthritis is incorrect here. Although osteoarthritis may cause joint pain exacerbated by activity, the patient in the vignette presents with constant pain with pain at night, whereas osteoarthritis typically has a degree of morning stiffness and does not cause night pain. The history of steroid use makes avascular necrosis a more likely diagnosis.

Extracapsular neck of femur fracture is incorrect. The patient in the vignette presents with chronic pain in the hip area. A neck of femur fracture typically presents with acute pain and a history of trauma. Furthermore, patients with neck of femur fractures often cannot weight-bear and often present with a shortened, externally rotated leg.

Question:

A 68-year-old Asian lady presenting with a sudden onset of paranoid thoughts and suicidal ideation was admitted under section 2 of the Mental Health Act for a period of assessment. Her past medical history consisted of hypertension, type 2 diabetes mellitus and hypercholesterolaemia. Considering this first episode of sudden onset psychosis in an elderly lady, what important investigation is required to rule out other secondary causes?

A.Chest X-ray

B.CT head

C.PET scan

D.HbA1c

E.ECG

Answer:CT head

Explanation:

A CT head scan should be considered in elderly patients with new sudden onset psychosis to rule out an organic cause for their presentation

Important for meLess important

Organic causes must be considered and excluded before the psychosis can be attributed to a primary psychotic disorder. Consider brain imaging (CT or even an MRI) with initial onset of psychosis in the elderly to rule out organic causes (e.g. a brain tumour, stroke or CNS infection).

HbA1c is more commonly used to indicate how well diabetes is controlled. PET scans are more commonly used to provide detailed information about metabolic processes within tissues e.g. looking for active cancer cells. Chest X-rays and ECGs are important routine baseline investigations for new patients but are limited in the value they can add in ruling out organic disorders.

Question:

A 54-year-old man attends the emergency department with a 1-day history of chest pain. He has noticed transient moments of breathlessness and started experiencing palpitations 3 days ago. The pain eases when he sits upright and is worse when lying down.

Observations show a respiratory rate of 28 breaths/minute, 98% oxygen saturations in room air, heart rate of 120 bpm, a temperature of 38.1ºC and blood pressure of 150/102mmHg.

On cardiac auscultation, there is a scratchy, rubbing sound that is best heard during systole. An ECG is requested.

Given the likely diagnosis, what is the most likely finding on his ECG?

A.Left axis deviation

B.PR depression

C.Right bundle branch block

D.Tall, tented T waves

E.Widespread ST depression

Answer:PR depression

Explanation:

The most specific ECG finding in acute pericarditis is PR depression

Important for meLess important

PR depression is the correct answer, as this patient has symptoms consistent with acute pericarditis- chest pain improved on sitting upright or leaning forwards, tachypnoea, tachycardia, and a pericardial rub on auscultation. His temperature guides towards viral pericarditis. ECG findings with acute pericarditis include PR depression and may also show saddle-shaped ST-segment elevation.

Left axis deviation is not typically seen in acute pericarditis. This ECG finding can be seen as a normal variation, secondary to a conduction block (e.g., left anterior fascicular block), left ventricular hypertrophy, or an inferior myocardial infarction.

Right bundle branch block is incorrect and is not associated with acute pericarditis. Acute conditions associated with this ECG finding include tricyclic antidepressant (TCA) overdose and pulmonary embolism. While the patient has shortness of breath on exertion, there is no history of pleuritic chest or haemoptysis, making pulmonary embolism unlikely.

Tall, tented T waves are associated with hyperkalemia. The patient would present with abdominal pain, diarrhoea, confusion, and muscle weakness. As the patient is not experiencing any of these symptoms, this answer is incorrect.

Widespread ST depression is not a common ECG finding in acute pericarditis but indicates widespread cardiac ischaemia. Furthermore, this patient’s presentation is not typical for an acute cardiac ischaemic event. Typically, patients with cardiac ischaemia will have sudden onset chest pain (usually on the left side) radiating to the jaw and down the left arm, they may appear grey and sweaty and describe the pain as crushing in nature. The pain is not worsened on positional changes.

Question:

A 23-year-old male student presents to the emergency department with agitation, dry mouth, and blurred vision. He has a significant history of major depression and reveals that he had taken amitriptyline overdose two hours ago, in an attempt to commit suicide. On examination, respiratory rate is 18 breaths/min, heart rate is 110 beats/min, and the temperature is 37.7°C.

Given patient's clinical presentation, what is the most important initial investigation?

A.Electrocardiogram (ECG)

B.Electroencephalogram (EEG)

C.Urine drug screen

D.Serum tricyclic antidepressants concentration

E.Arterial blood gas

Answer:Electrocardiogram (ECG)

Explanation:

Perform ECG if tricyclic overdose is suspected. Widening of QRS > 100ms is associated with an increased risk of seizures whilst QRS > 160ms is associated with ventricular arrhythmias

Important for meLess important

ECG changes in tricyclic overdose include sinus tachycardia, widening of QRS, and prolongation of QT interval. Widening of QRS > 100ms is associated with an increased risk of seizures whilst QRS > 160ms is associated with ventricular arrhythmias. An ECG should be taken in all patients who present with a deliberate self-poisoning (or altered GCS of unknown aetiology) to screen for TCA overdose

Although urine drug screen, serum tricyclic antidepressants concentration, and arterial blood gas may help to establish the diagnosis of tricyclic overdose, they are not the most important initial tests. Electroencephalogram may detect seizure activity in the brain but this does not alter the management plan for tricyclic overdose.

Question:

A 29-year-old man is reviewed as an outpatient. Four weeks ago he presented with a one-month history of bloody diarrhoea. He was previously fit and well prior to this episode. When initially reviewed he was passing on average four loose stools a day with some visible blood. He was haemodynamically stable with no fever and bloods showed the following:

Hb 15.2 g/dl

Platelets 298 \* 109/l

WBC 8.6 \* 109/l

CRP 15 mg/l

Colonoscopy showed extensive inflammatory changes consistent with ulcerative colitis. He was started on oral mesalazine and a review appointment was made for today. Unfortunately, there has been no significant change in his symptoms. He is still passing around four bloody stools a day although he remains systemically well.

What is the most appropriate course of action?

A.Add oral prednisolone

B.Stop oral mesalazine and start oral prednisolone

C.Rectal corticosteroids

D.Admit for intravenous corticosteroids

E.Add oral azathioprine

Answer:Add 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 patient with mild/moderate ulcerative colitis has not responded to the appropriate first-line therapy of oral aminosalicylates. He should therefore be offered oral prednisolone to help induce remission.

As he remains systemically well there is no need to admit.

Question:

A 25-year-old woman is brought to the emergency department struggling to breathe following a wasp sting. The patient has angioedema with audible stridor. She does not have a rash.

Observations:

Oxygen saturations 94%

Heart rate 120/min

Blood pressure 90/60 mmHg

Temperature 37.2ºC

She has never had this before and has no past medical history. She is treated with 500 micrograms of IM adrenaline and has a good response with full resolution of symptoms. Serum tryptase levels are taken to confirm anaphylaxis and she remains stable after 6 hours of observation.

What further management and follow-up is required?

A.Admit for a further 6 hours of observation and assessment by an allergy specialist before discharge

B.Discharge home and prescribe two adrenaline auto-injectors with training on how to use them

C.Discharge home and refer to a specialist allergy clinic

D.Discharge home with safety-netting advice, no further management or follow-up is required

E.Discharge home, refer to a specialist allergy clinic and prescribe two adrenaline auto-injectors in the interim with training on how to use them

Answer:Discharge home, refer to a specialist allergy clinic and prescribe two adrenaline auto-injectors in the interim with training on how to use them

Explanation:

All patients with a new diagnosis of anaphylaxis should be referred to a specialist allergy clinic

Important for meLess important

Discharge home, refer to a specialist allergy clinic and prescribe two adrenaline auto-injectors in the interim with training on how to use them is the correct answer. The NICE guidelines state that all patients with a new diagnosis of anaphylaxis should be referred to a specialist allergy clinic and should be given two adrenaline auto-injectors in the interim and be trained on how to use them.

Admit for a further 6 hours of observation and assessment by an allergy specialist before discharge is incorrect. The NICE guidelines state that patients should be observed for 6-12 hours depending on their response to treatment, and a shorter observation period can be considered if there has been a prompt response to treatment. This patient had a good response to treatment and has undergone 6 hours of observation, remaining stable, and therefore should be safe to be discharged. She does not require assessment by an allergy specialist before leaving the hospital, but should be referred to the specialist allergy clinic as an outpatient and provided with two adrenaline auto-injectors in the interim.

Discharge home and prescribe two adrenaline auto-injectors with training on how to use them is incorrect. While it is correct to prescribe these, the NICE guidelines also state that all patients with a new diagnosis of anaphylaxis should also be referred to a specialist allergy clinic.

Discharge home and refer to a specialist allergy clinic is incorrect. While this follows the NICE guidelines stating that all patients with a new diagnosis of anaphylaxis should be referred to a specialist allergy clinic, the NICE guidelines also state that the patient should be prescribed two adrenaline auto-injectors in the interim. Therefore, this is not the best answer.

Discharge home with safety-netting advice, no further management or follow-up is required is incorrect. This goes against the NICE guidelines which recommend referral to a specialist allergy clinic with a prescription for two adrenaline auto-injectors in the interim. It is important that the patient is referred to a specialist allergy clinic so that the diagnosis and cause can be confirmed, and that they have adrenaline auto-injectors in case of another reaction.

Question:

A 81-year-old woman presents to the emergency department with sudden loss of vision in her right eye. She describes a painless loss of vision with no preceding symptoms 2 hours ago which has not returned.

Visual acuity is 6/12 in the left eye (corrected with a pinhole) and undetectable in the right eye. Fundoscopic examination reveals prominent retinal haemorrhages.

What is the most likely diagnosis?

A.Acute angle closure glaucoma

B.Central retinal artery occlusion

C.Central retinal vein occlusion

D.Optic neuritis

E.Retinal detachment

Answer:Central retinal vein occlusion

Explanation:

Central retinal vein occlusion - sudden painless loss of vision, severe retinal haemorrhages on fundoscopy

Important for meLess important

Monocular vision loss is a relatively common presentation in the emergency department. This patient has suffered a central retinal vein occlusion, a painless cause of vision loss which typically displays retinal haemorrhages on fundoscopy, due to increased venous pressure following downstream occlusion.

Acute glaucoma presents with a painful eye and typical examination findings of a fixed pupil, hazy cornea and increased ocular pressures.

Central retinal artery occlusion is difficult to distinguish clinically from venous occlusion. On fundoscopy, a 'cherry red spot' can often be seen in the macula where the retina is thinner. However, central retinal vein occlusion is a more common cause of painless vision loss, and the examination findings in this case indicate arterial occlusion is less likely.

Optic neuritis presents with eye pain, and often pain on eye movements.

Retinal detachment is frequently preceded by 'flashes and floaters' as described by patients. The detachment is often visible macroscopically on examination. However, it is a valid differential for painless vision loss.

Question:

A 24-year-old woman presents following a sudden, acute onset of pain at the back of the ankle whilst jogging, during which she heard a cracking sound. Which one of the following medications may have contributed to this injury?

A.Metronidazole

B.Nitrofurantoin

C.Fluconazole

D.Ciprofloxacin

E.Terbinafine

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin may lead to tendinopathy

Important for meLess important

This patient has classical signs of Achilles tendon rupture. Tendon damage is a well documented complication of quinolone therapy. It appears to be an idiosyncratic reaction, with the actual median duration of treatment being 8 days before problems occur

Question:

A 45-year-old woman is reviewed shortly after being diagnosed with having a pulmonary embolism. Around two weeks ago she was admitted with a severe community-acquired pneumonia which resulted in her being ventilated and admitted to ITU. She responded well to intravenous antibiotics but shortly before discharge became more short-of-breath again. A CTPA was requested which showed a pulmonary embolism. She is started immediately on dalteparin. What is the most appropriate next step?

A.Stop dalteparin. Start a direct oral anticoagulant for 6 weeks

B.Stop dalteparin. Start a direct oral anticoagulant for 3 months

C.Stop dalteparin. Start a direct oral anticoagulant for 6 months

D.Keep on dalteparin for 6 weeks

E.Keep on dalteparin for 3 months

Answer:Stop dalteparin. Start a direct oral anticoagulant for 3 months

Explanation:

As this patient developed a pulmonary embolism secondary to something (in this case severe illness with associated immobility) an anticoagulation period of 3 months is generally recommended.

Question:

A 54-year-old man with no past medical history is being started on tranylcypromine (a monoamine oxidase inhibitor) for depression.

Which of the following foods should he be advised to avoid?

A.Spinach

B.Cheese

C.Prawns

D.Eggs

E.Cranberries

Answer:Cheese

Explanation:

When tyramine containing foods (e.g. cheese) are taken alongside monoamine oxidase inhibitors a hypertensive crisis can occur

Important for meLess important

Patients taking monoamine oxidase inhibitors (MAOIs) should be told to avoid foods containing tyramine due to the risk of developing a hypertensive crisis. The correct answer is cheese as this contains a substantial amount of tyramine. The other foods have not been shown to interact with MAOIs.

Question:

A 48-year-old woman visits her general practitioner with a 6-week history of unbearable hot flushes and vaginal dryness. She suspects that she is going through menopause. Her past medical history includes hypothyroidism and psoriasis. She takes regular levothyroxine and has the Mirena intrauterine system in situ.

What is the most appropriate additional treatment to initiate for this patient?

A.Combined hormone replacement therapy

B.Estradiol

C.Levonorgestrel

D.Medroxyprogesterone

E.Sertraline

Answer:Estradiol

Explanation:

The Mirena intrauterine system is licensed for use as the progesterone component of HRT for 4 years

Important for meLess important

This patient is experiencing menopausal symptoms including hot flushes and vaginal dryness, secondary to oestrogen deficiency. The aim of treating symptoms of menopause is to replace oestrogen (hormone replacement therapy). However, in a woman with a uterus, an additional source of progesterone is needed to counter the action of unopposed oestrogen on the womb, increasing the risk of endometrial hyperplasia and malignancy. This patient has the Mirena intrauterine system in situ, a coil that releases progesterone locally to act on the uterus. The Mirena coil is licensed to provide the progesterone component of hormone replacement therapy. Therefore, the only additional treatment necessary to be given to this patient is oestrogen. Of all the answers listed, estradiol is the only option that only provides oestrogen therapy, making it the correct answer. This can be given topically and transdermally.

Combined HRT includes both oestrogen and progesterone and is classically given orally with either a continuous or cyclical regime. It would be inappropriate to initiate this treatment as the patient would be receiving excessive amounts of progesterone as she has the Mirena coil in situ.

Levonorgestrel is a progesterone that is typically given orally. This patient is already receiving a supply of progesterone from her Mirena coil and would be receiving an excessive dose without actually getting any oestrogen to help alleviate her menopausal symptoms.

Medroxyprogesterone can be given by mouth or injection. Similarly to levonorgestrel, it is a progesterone and again will not provide oestrogen supplementation to the patient.

Sertraline can be used in the treatment of vasomotor symptoms in menopausal patients. However, this patient also complains of vaginal dryness, for which sertraline is not the first-line treatment.

Question:

A 23-year-old female attends her pharmacy as she is concerned that she may need the emergency contraceptive pill.

She tells you that she had unprotected sex with her long-term partner 3 days ago and didn't think about contraception, as she gave birth to a baby girl only 2 weeks ago. She is formula-feeding her baby.

What is the most appropriate advice?

A.Copper coil

B.Levonorgestrel (Levonelle)

C.Mirena coil

D.No action required

E.Ulipristal acetate (EllaOne)

Answer:No action required

Explanation:

Post-partum, women only require contraception 21 days from giving birth

Important for meLess important

Contraception is not required before day 21 postpartum. As sperm can survive in the vagina for up to 7 days, and the earliest date of ovulation after giving birth is 28 days postpartum, no contraception is needed until day 21. As this patient is 14 days postpartum, she does not need emergency contraception.

Copper coil is an incorrect answer. The FSRH advise that the copper coil (intrauterine device; IUD) is contraindicated between 48 hours and 28 days postpartum due to the increased risk of uterine perforation and expulsion.

Levonorgestrel (Levonelle) is a progesterone-only emergency contraceptive that can be used after day 21 postpartum. As explained, there is no indication for emergency contraception in this case.

Mirena coil (intrauterine system; IUS) is an incorrect answer. Similarly to the copper coil, the Mirena coil should only be inserted within 48 hours of childbirth or after 4 weeks.

Ulipristal acetate (EllaOne) is also a progesterone-only emergency contraceptive that can be used after day 21 postpartum. There is no indication for emergency contraception in this case.

Question:

A 72-year-old woman attends her general practitioner with watery diarrhoea and stomach cramping.

She was treated with a 10-day course of low-dose vancomycin 2 months ago for a Clostridium difficile infection, which resulted in full symptom and laboratory resolution.

She is maintaining adequate hydration, and there is no concern over dehydration.

A stool sample is sent off and is returned positive for Clostridium difficile toxin.

What is the most appropriate management of this patient?

A.Oral fidaxomicin course

B.Oral high-dose vancomycin and IV metronidazole course

C.Oral high-dose vancomycin and oral fidaxomicin course

D.Oral metronidazole course

E.Repeat oral low-dose vancomycin course

Answer:Oral fidaxomicin course

Explanation:

A recurrent episode of C. difficile within 12 weeks of symptom resolution should be treated with oral fidaxomicin

Important for meLess important

This woman, unfortunately, presents with a recurrence of a Clostridium difficile infection. Since this recurrence is within 12 weeks of the original infection, it should be treated via the recurrence pathway and not the new infection pathway. The recurrent disease pathway advises an oral fidaxomicin course. This is because oral fidaxomicin has shown better efficacy at preventing recurrence of Clostridium difficile than oral vancomycin has. Therefore, an oral fidaxomicin course is the correct answer.

An oral high-dose vancomycin and IV metronidazole course is incorrect. This would be the treatment pathway for life-threatening Clostridium difficile infection, which this woman is not at risk of given her adequate hydration. Additionally, IV metronidazole must be given three times daily, meaning it would need to be given as an inpatient. If a patient can be managed in the community, this is preferable.

An oral high-dose vancomycin and oral fidaxomicin course is incorrect. Oral high-dose vancomycin would be the treatment if there was no original period of resolution as it is the third-line treatment. For a recurrent episode, there is no need to double dose on both vancomycin and fidaxomicin - oral fidaxomicin alone is sufficient.

An oral metronidazole course is incorrect. Oral metronidazole is not used for Clostridium difficile infection as it has not shown great enough efficacy. It can be given IV, but only as an adjunct to other treatments.

Repeating an oral low-dose vancomycin course is incorrect. This has not been shown to have as good an efficacy as oral fidaxomicin in preventing further recurrence.

Question:

A 40-year-old man was found to have elevated blood pressure (BP) of 165/102 mmHg during his health check-up. He was offered 24h ambulatory BP monitoring by his general practice. The result showed that his blood pressure was higher than 150/95 mmHg most of the time and he was started on ramipril for the past 4 months. However, his blood pressure still remains elevated and he occasionally complained of leg cramps. His blood test results were as shown below:

Na+ 138 mmol/L (135 - 145)

K+ 3.3 mmol/L (3.5 - 5.0)

Bicarbonate 32 mmol/L (22 - 29)

Urea 5.0 mmol/L (2.0 - 7.0)

Plasma renin level 3.0 mU/L (5.4 - 30)

Plasma aldosterone level 270 pmol/L (55 - 250)

A CT scan of his abdomen shows bilaterally enlarged adrenal glands.

What will be the next step in management for this patient?

A.Bendroflumethiazide

B.Spironolactone

C.Bilateral adrenalectomy

D.Nifedipine

E.Propranolol

Answer:Spironolactone

Explanation:

Primary hyperaldosteronism: manage with spironolactone

Important for meLess important

Spironolactone is a mineralocorticoid receptor antagonist which decreases sodium reabsorption, and consequent volume expansion. Thus, it reduces blood pressure. In this scenario, the patient has persistent hypertension. In healthy young patients who do not have risk factors, we will need to consider secondary causes of hypertension. The plasma aldosterone-to-renin ratio test is an appropriate screening test to check for hyperaldosteronism. If the ratio is > 20, it implies primary hyperaldosteronism due to low renin and high aldosterone level. If the ratio is < 20, it implies secondary hyperaldosteronism due to high renin and high aldosterone level. We will need to consider underlying causes that could result in high renin levels such as renal artery stenosis. In this scenario, this patient has primary hyperaldosteronism which should be managed by spironolactone.

Bendroflumethiazide is not used as part of management for patients with primary hyperaldosteronism. It is usually an add on medication for patients who still have elevated hypertension, despite being on either ACE inhibitors or calcium channel blockers, which is not the cause of hypertension in this patient.

Although bilateral adrenalectomy is one of the treatments for primary hyperaldosteronism, we should start with medication control before offering surgery in this scenario. We should always consider non-invasive treatment first in the best interest of the patient.

Nifedipine is not used as part of blood pressure management for patients with primary hyperaldosteronism. It is usually for a patient, aged >55 years old, who has essential hypertension, which is not the cause of hypertension in this patient.

Beta-blockers such as propranolol are not used as part of blood pressure management for patients with primary hyperaldosteronism. It is usually given to patients who has a history of asthma problem which is irrelevant in this scenario.

Question:

A 54-year-old man is admitted following a myocardial infarction associated with ST elevation. He is treated with thrombolysis and does not undergo angioplasty. What advice should he be given regarding driving?

A.Can continue driving but must inform DVLA

B.Cannot drive until an angiogram has been performed and reviewed by a cardiologist

C.Cannot drive for 1 week

D.Cannot drive for 4 weeks

E.Cannot drive for 12 weeks

Answer:Cannot drive for 4 weeks

Explanation:

DVLA advice post MI - cannot drive for 4 weeks

Important for meLess important

Question:

A 64-year-old man is reviewed in clinic. He has a history of ischaemic heart disease and was diagnosed with type 2 diabetes mellitus around 12 months ago. At this time of diagnosis his HbA1c was 7.6% (60 mmol/mol) and he was started on metformin which was titrated up to a dose of 1g bd. The most recent bloods show a HbA1c of 7.0% (53 mmol/mol). He has just retired from working in the IT industry and his body mass index (BMI) today is 25 kg/m². His other medication is as follows:

Atorvastatin 80mg on

Aspirin 75mg od

Bisoprolol 2.5 mg od

Ramipril 5mg od

What is the most appropriate next step?

A.Add sitagliptin

B.Make no changes to his medication

C.Add glimepiride

D.Add pioglitazone

E.Add exenatide

Answer:Make no changes to his medication

Explanation:

Since the publication of the 2015 guidelines, NICE recommend we only add another drug if the HbA1c has risen to >= 58 mmol/mol (7.5%) at this stage.

Question:

A 19-year-old female arrives at your clinic with flu-like symptoms, she has recently been diagnosed with type 1 diabetes and has come for advice regarding her diabetes management whilst she is ill. Which of the following options is one of the 'sick-day rules' insulin-dependent diabetics should adhere to during illness?

A.Reduce insulin doses

B.Monitor their glucose as normal

C.Substitute all main meals with sugar-containing foods

D.Aim to drink at least 3L of fluid

E.Check urinary ketones at the start of illness

Answer:Aim to drink at least 3L of fluid

Explanation:

Option 4 is the correct answer as patients should be encouraged to drink at least 3L of fluid over 24 hours. Patients should continue their normal insulin regimen but check their blood glucose more regularly, therefore options 1 and 2 are wrong. Main meals should not be substituted for sugary foods, if a patient is struggling to eat then they may take sugary drinks. Ketones should also be measured, but more frequently than what is being proposed in option 5, for example, every 3-4 hours or even more frequently depending on the readings.

NICE Clinical Knowledge Summaries - Diabetes Type 1

https://cks.nice.org.uk/diabetes-type-1#!scenarioclarification:2

'Candidates gave generally good responses to questions concerning management of type 2 diabetes. However, type 1 diabetes caused difficulty and candidates are reminded in particular to review the management of type 1 diabetes during intercurrent illness, and sick day rules.'

Question:

A 45-year-old woman is admitted with fever and right upper quadrant pain. Bloods show a raised CRP and an ultrasound is consistent with acute cholecystitis. Analgesia and intravenous fluids are given. What additional treatment(s) is the patient most likely to have?

A.Intravenous antibiotics + repeat ultrasound after 6 weeks

B.Open cholecystectomy within 24 hours of admission

C.Laparoscopic cholecystectomy within 24 hours of admission

D.Intravenous antibiotics + laparoscopic cholecystectomy 6 weeks after discharge

E.Intravenous antibiotics + laparoscopic cholecystectomy within 1 week

Answer:Intravenous antibiotics + laparoscopic cholecystectomy within 1 week

Explanation:

Acute cholecystitis treatment: intravenous antibiotics + early laparoscopic cholecystectomy within 1 week of diagnosis

Important for meLess important

Question:

A 23-year-old man is admitted to the emergency department following an altercation. He was hit in the face using considerable force with a cricket bat. He has a Glasgow Coma Scale score of 13. On examination, there is extensive bruising around the left eye, you can see bruising behind the left mastoid. He has clear fluid dripping down his nose. What is a quick and easy bedside test to perform to confirm that the fluid is CSF?

A.Test for lymphocytes

B.Test for breakdown products of bilirubin (Xanthochromia)

C.Test for erythrocytes

D.Check for glucose

E.Beta-3-transferrin

Answer:Check for glucose

Explanation:

In trauma, to test if the fluid draining from the nose or ear is CSF, check for glucose

Important for meLess important

Testing for lymphocytes and erythrocytes would take time as you have to send the sample to the labs and await results.

Xanthochromia usually takes at least 12 hours to present, therefore it is redundant.

Beta-2-transferrin would be the gold standard, not beta-3-transferrin.

Glucose test would show positive as it is not present in mucus and is present in CSF.

Question:

A 72-year-old woman presents with polyuria and polydipsia. Investigations reveal the following:

Fasting glucose 4.5 mmol/l

Calcium 2.88 mmol/l

Phosphate 0.75 mmol/l

Parathyroid hormone 6 pmol/L (normal range = 0.8 - 8.5)

What is the most likely underlying diagnosis?

A.Myeloma

B.Sarcoidosis

C.Primary hyperparathyroidism

D.Vitamin D excess

E.Osteomalacia

Answer:Primary hyperparathyroidism

Explanation:

The PTH level in primary hyperparathyroidism may be normal

Important for meLess important

Despite a raised calcium level the parathyroid hormone level is inappropriately normal. This points towards a diagnosis of primary hyperparathyroidism and the other causes (such as myeloma) would lead to a suppression of parathyroid hormone

Question:

A 34-year-old lady has recently been feeling lethargic, bloated and has lost significant weight over the past two months. She presents to her GP, who asks further questions and finds out that the lady had two first-degree relatives who died from cancer. Upon physical examination, the GP notices that there is an abdominal mass and also some abdominal distension. The GP is worried about the symptoms that the lady has been experiencing and orders a CA-125 test which comes back as elevated. Which of the following gene mutation confers the highest risk for the pathology indicated by high levels of CA-125?

A.WT1

B.BRCA1

C.Rb

D.c-myc

E.p53

Answer:BRCA1

Explanation:

This patient's presentation along with an elevated level of the tumour marker CA-125 is most consistent with a diagnosis of ovarian cancer. The lady also has a family history of cancer in first-degree relatives. Early onset cancer along with a strong family history of cancer should prompt consideration for a possibility of a cancer-related gene running in the family. BRCA1 is a tumour suppressor gene which confers a higher risk of ovarian cancer and breast cancer in individuals who have inherited a mutated copy.

The other tumour suppressor genes confer a higher risk for other cancers, with WT1 for Wilm's tumour, Rb for retinoblastoma, c-Myc for Burkitt lymphoma and p53 for multiple cancers (including Li-Fraumeni syndrome).

Question:

A 32-year-old lady presents to the booking clinic. She is approximately 8 weeks pregnant. During the consultation, it comes to light that she has had two deep vein thromboses in the past. Which of the following will she require given her history of previous VTEs?

A.Warfarin, starting immediately until 6 weeks postnatal

B.She does not require primary VTE prophylaxis

C.Low molecular weight heparin, starting immediately until 6 weeks postnatal

D.Unfractionated heparin, starting immediately until 6 weeks postnatal

E.VTE prophylaxis starting from 35 weeks of pregnancy until 6 weeks postnatal

Answer:Low molecular weight heparin, starting immediately until 6 weeks postnatal

Explanation:

Pregnant woman with a previous VTE history: LMWH throughout pregnancy until 6 weeks postnatal

Important for meLess important

Women with a VTE history should be anticoagulated during pregnancy until 6 weeks postnatal due to the increased risk of clotting during pregnancy. Warfarin is teratogenic during pregnancy and the standard medication used for this is low molecular weight heparin as this requires less monitoring and has a reduced side effect profile.

Question:

A 32-year-old man presents to his GP with shortness of breath. He describes a 2 month history of increasing breathlessness, which is worse on lying down and during the night.

His past medical history is significant for hypertrophic obstructive cardiomyopathy, for which he has an implantable cardioverter-defibrillator.

On examination, he has bilateral basal crepitations. There is no evidence of peripheral oedema.

What is the most likely diagnosis?

A.Biventricular failure

B.Heart failure with preserved ejection fraction (HF-pEF)

C.Heart failure with reduced ejection fraction (HF-rEF)

D.High-output heart failure

E.Right-sided heart failure

Answer:Heart failure with preserved ejection fraction (HF-pEF)

Explanation:

Hypertrophic obstructive cardiomyopathy typically causes diastolic dysfunction

Important for meLess important

Hypertrophic obstructive cardiomyopathy (HOCM) has various possible complications. One of them is heart failure. HOCM is a pathology affecting the musculature of the left ventricle, reducing the lumen of the left ventricle and preventing it fully filling with blood. This can create a backlog, leading to left-sided heart failure and pulmonary congestion, which explains this man's respiratory symptoms. Since there is no problem with the outflow, or the pumping action itself, this is a diastolic filling problem. There will be an equal reduction in both ejection systolic and end-diastolic volumes, therefore leading to a normal ejection fraction. This is termed as heart failure with preserved ejection fraction (HF-pEF), and therefore this is the correct answer.

Biventricular failure is incorrect. This refers to a failure of both ventricles, resulting in the symptoms of both sides of heart failure. Here, this man has only symptoms of left-sided failure (i.e. breathlessness), and no symptoms of right-sided failure (i.e. peripheral oedema).

Heart failure with reduced ejection fraction (HF-rEF) is incorrect. This refers to systolic dysfunction, where the left ventricle is not able to pump blood out effectively. This can be due to an outflow problem, or a musculature problem. Examples of conditions resulting in HF-rEF include dilated cardiomyopathy and ischaemic heart disease.

High-output heart failure is incorrect. This refers to a situation where the circulating volume is increased, and too much for the ventricles to keep up with. This is not seen in HOCM, as there are no changes to the circulating blood volume.

Right-sided heart failure is incorrect. There are no symptoms of right-sided failure here, and HOCM is a disease of primarily the left ventricle.

Question:

A patient with lung cancer has a Positron Emission Tomography (PET) scan to evaluate possible metastatic disease. What does this type of scan demonstrate?

A.Cellular proliferation

B.Apoptotic activity

C.Glucose uptake

D.Vascular supply

E.Tyrosine kinase activity

Answer:Glucose uptake

Explanation:

Question:

A 54-year-old man presents to his GP with a one-month history of fever, malaise and weight loss. He also complains of abdominal fullness and early satiety. His past medical history and travel history is unremarkable and he is not on any regular medications. On examination, the GP detects splenomegaly.

The results of his full blood count and white cell differential are presented below:

Hb 123 g/l (130-180 g/l)

MCV 85.6 fL (80-100 fL)

Platelets 420 \* 109/l (140-400 \* 109/l)

WBC 102 \* 109/l (4-11 \* 109/l)

Neutrophils 51.0 % (50-70%)

Bands 23.0 % (0-4%)

Lymphocytes 2.0 % (20-40%)

Monocytes 2.0 % (2-8%)

Eosinophils 1.0 % (0-5%)

Basophils 3.0 % (0-2%)

What is the most likely diagnosis?

A.Acute myeloid leukaemia

B.Acute lymphocytic leukaemia

C.Chronic myeloid leukaemia

D.Chronic lymphocytic leukaemia

E.Essential thrombocytosis

Answer:Chronic myeloid leukaemia

Explanation:

In chronic myeloid leukaemia there is an increase in granulocytes at different stages of maturation +/- thrombocytosis

Important for meLess important

Acute myeloid leukaemia - blood tests will reveal immature blood cells (blasts).

Acute lymphocytic leukaemia - far more common in children and blood tests will reveal immature blasts.

Chronic lymphocytic leukaemia - a malignancy of the lymphoid lineage so there will be a raised lymphocyte count.

Essential thrombocytosis - although patients with essential thrombocytosis can have a raised white cell count, these patients tend to have much higher platelet counts (typically >450 \* 109/l).

The white cell differential in this case demonstrates granulocytes at different stages of maturation (immature band forms and mature neutrophils) which is suggestive of chronic myeloid leukaemia. The platelet count may also be raised in these patients.

Question:

A 41-year-old woman is discharged from hospital following a diagnosis of community-acquired pneumonia, to be managed at home on amoxicillin. A day later she returns to the emergency department with a low-grade fever, widespread erythematous rash and pain throughout her joints and lower back, with her initial bloods showing a significantly elevated creatinine.

Which of the following urine findings would support the most likely diagnosis?

A.Raised urinary bilirubin

B.Raised urinary glucose

C.Raised urinary protein

D.Raised leukocytes and nitrites

E.Raised urinary white cells and eosinophils

Answer:Raised urinary white cells and eosinophils

Explanation:

Acute interstitial nephritis causes an 'allergic' type picture consisting usually of raised urinary WCC, IgE, and eosinophils, alongside impaired renal function

Important for meLess important

The clinical picture points to a diagnosis of acute interstitial nephritis, secondary to the amoxicillin. Penicillins are some of the most common causes of drug-induced interstitial nephritis, so it is always important to look out for any new drugs with any presentation of new-onset renal impairment.

Acute interstitial nephritis essential causes an 'allergy'-type reaction, so look out for urticarial-like rashes and a fever. Arthralgia is also a common feature. Classically urine shows elevated white cell counts and eosinophils. IgE is also often elevated.

Question:

A 32-year-old female patient attends clinic. She is 33 weeks pregnant and so far has had no complications with the pregnancy. However, she is now worried as she feels that her baby's usual kicking and moving has reduced over the past few days. She has not noticed any other symptoms of concern and otherwise feels well. She has no significant past medical history, nor family history. She has had two previous uncomplicated pregnancies.

Physical examination is unremarkable, and observations are stable and within normal parameters. A handheld Doppler scan is performed; no fetal heartbeat is detected.

What is the next step in management?

A.Fetal blood sampling

B.Ultrasound scan

C.Repeat Doppler in 1 hour

D.Cardiotocography for 10 minutes

E.Cardiotocography for 20 minutes

Answer:Ultrasound scan

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 RCOG guidelines stratify management of reduced fetal movements by gestation. If the patient is past 28 weeks, as in this scenario, and handheld Doppler did not demonstrate a fetal heartbeat, immediate ultrasound should be offered. Repeating Doppler in 1 hour would thus not be appropriate.

If a heartbeat was detected, cardiotocography should be used for at least 20 minutes to monitor the heart rate.

Fetal blood sampling does not play a role here.

Question:

A 77-year-old man with known atrial fibrillation is admitted following an upper gastrointestinal haemorrhage. His atrial fibrillation is managed using bisoprolol and warfarin. Since his admission, he has had four large episodes of haematemesis. You, the emergency department foundation doctor, request the patients INR to be checked as one of a series of investigations. The haematology laboratory phone through and inform you his INR is 8.5. He is currently hypotensive (90/45 mmHg) and tachycardic (120 beats per minute). You begin resuscitation using 0.9% saline, and send a cross match, group and save. What is the most appropriate treatment of this patients INR?

A.Fresh frozen plasma + stop warfarin

B.Vitamin K + stop warfarin

C.Prothrombin complex concentrates

D.Prothrombin complex concentrates + vitamin K + stop warfarin

E.Stop warfarin

Answer:Prothrombin complex concentrates + vitamin K + stop warfarin

Explanation:

Major bleeding - stop warfarin, give intravenous vitamin K 5mg, prothrombin complex concentrate

Important for meLess important

The nub of this question is the emergency management of haemorrhage in patients on warfarin. This patient has an INR greater than 8 and is actively bleeding. Therefore the answer is 4.

Patients on warfarin have reduced levels of Factor X, IX, VII and II. Rapid correction is most effectively achieved through administration of prothrombin complex concentrates.

The British Journal of Haematology states that: 'Emergency anticoagulation reversal in patients with major bleeding should be with 2550 u/kg four-factor prothrombin complex concentrate and 5 mg intravenous vitamin K'

Question:

Low levels of which one of the following types of complement are associated with the development of systemic lupus erythematous?

A.C4

B.C5

C.C6

D.C7

E.C8

Answer:C4

Explanation:

SLE: complement levels are usually low during active disease - may be used to monitor flares

Important for meLess important

Low levels of C4a and C4b have been shown to be associated with an increased risk of developing systemic lupus erythematous

Question:

A 45-year-old female with a history of bipolar disorder presents with an acute confusional state. Which one of the following drugs is most likely to precipitate lithium toxicity?

A.Sodium valproate

B.Atenolol

C.Aminophylline

D.Sodium bicarbonate

E.Bendroflumethiazide

Answer:Bendroflumethiazide

Explanation:

Lithium toxicity can be precipitated by thiazides

Important for meLess important

Both sodium bicarbonate and aminophylline may reduce plasma concentrations of lithium

Question:

A 60-year-old man with known cirrhosis secondary to alcoholic liver disease presents to the emergency department with increased abdominal distension.

On examination, his abdomen is distended with a positive fluid thrill. There are no signs of peritonism.

Which class of drug would be used to manage this patient's presenting complaint?

A.Aldosterone receptor antagonist

B.Angiotensin II receptor antagonist (ARB)

C.Angiotensin converting enzyme inhibitor (ACEi)

D.Carbonic anhydrase inhibitor

E.Loop diuretic

Answer:Aldosterone receptor antagonist

Explanation:

Patients with ascites secondary to liver cirrhosis should be given an aldosterone antagonist

Important for meLess important

Ascites is managed in the first instance through sodium and restriction fluid restriction. Alcohol cessation should be encouraged and if the patient is drinking excessively again then they may need to be put on a detoxification regime (involving a tapering dose of a benzodiazepine) to prevent withdrawal. Medical management involves the use of spironolactone, an aldosterone antagonist.

Inhibition of aldosterone leads to reduced-sodium retention (the normal physiological action of aldosterone) and subsequent natriuresis.

ARB's/ACE inhibitors are used in the management of hypertension.

Carbonic anhydrase inhibitors are used in the treatment of glaucoma. An example of this is acetazolamide.

Loop diuretics, for example, furosemide, are not typically used to treat ascites but can be used as an adjunct. Furosemide can cause hypokalemia and alkalosis. This promotes the formation of ammonia (NH3) from the ammonium ion (NH4+, which can cross the blood-brain barrier and cause hepatic encephalopathy.

Question:

A 63-year-old female attends the general practitioner with a 3-month history of fatigue. She has also noticed skin changes such as bruising and acne over this time. She is normally fit and well, has no other medical conditions, and takes no medications. On examination, she has a BMI of 33 kg/m² and truncal obesity. She also has a humped shape upper back, facial fullness, and oedematous legs. Her blood pressure was 152/60 mmHg.

A high-dose dexamethasone suppression test is completed which showed the following results:

Cortisol not suppressed

ACTH suppressed

Considering the patients' presentation and lab results, which is the most likely cause of her presentation?

A.Addison disease

B.Adrenal adenoma

C.Corticosteroid use

D.Pituitary adenoma

E.Small cell lung cancer

Answer:Adrenal adenoma

Explanation:

High-dose dexamethasone suppression test with an adrenal adenoma

Cortisol: not suppressed

ACTH: suppressed

Important for meLess important

An adrenal adenoma is the correct answer. This is an example of Cushing's syndrome in which hypercortisolism is due to something other than a pituitary adenoma releasing ACTH (Cushing disease). In this case, the adrenal adenoma releases excess amounts of cortisol directly. The reason for this result is that cortisol production is independent of the pituitary. Therefore, cortisone is not suppressed however ACTH is suppressed due to negative feedback on the hypothalamus and pituitary gland.

Addison's disease is not the correct answer. This is a primary adrenal deficiency that presents with fatigue, weakness, GI symptoms, confusion, syncope, and irritability. A short synacthen test showing impaired cortisol response can be used to diagnose Addison's disease.

Corticosteroid use is not the correct answer. There is no evidence of corticosteroid medications in the history.

A pituitary adenoma is not the correct answer. This would lead to the suppression of both cortisol and ACTH because the pituitary can still respond to dexamethasone. The high-dose dexamethasone feedback to the pituitary gland, inhibiting the over secretion of ACTH due to the adenoma which in turn leads to lower levels of cortisol.

A small cell lung cancer is not the right answer. This would be an example of an ectopic ACTH secreting tumour and therefore neither cortisol nor ACTH would be suppressed. This is because ACTH production is independent of the hypothalamus or pituitary gland.

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.

© Image used on license from DermNet NZ

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:

Question:

A 7-year-old is referred to paediatric clinic by a GP as they are concerned about the presence of a murmur, heard incidentally. The patient is otherwise asymptomatic and well. After examination, the paediatrician is reassured and diagnoses a benign ejection systolic murmur.

Which of the following is a feature of a benign ejection systolic murmur?

A.Extra heart sound

B.Diastolic component to murmur

C.Radiates to infraclavicular region

D.Causes only mild symptoms

E.Varies with posture

Answer:Varies with posture

Explanation:

A benign ejection murmur varies with posture

Important for meLess important

A benign ejection systolic murmur varies with posture. All other answers are features of pathological murmurs. 'Only mild symptoms' is not a good thing - any symptom at all is a sign that the murmur is not benign.

Question:

An 80-year-old man has come to his GP. He is complaining about changes in his bowel habit, with his stools being like small droplets now, some per rectum bleeding, and abdominal pain. His GP refers him for a red flag colonoscopy. The colonoscopy shows no malignancy, but it does show some out pouching of the bowel wall, which the GP thinks is causing this mans symptoms.

What is the most likely part of the large bowel that the 'out pouching' is seen?

A.Ascending colon

B.Descending colon

C.Sigmoid colon

D.Rectum

E.Transverse colon

Answer:Sigmoid colon

Explanation:

Diverticula are most commonly found in the sigmoid colon

Important for meLess important

This is a typical history of diverticular disease- change in bowel habit, rectal bleeding and abdominal pain. Because this so closely mimics malignancy, and they are in a similar population, these people often get red-flag referral for colonoscopy. The most common place to find the diverticular disease is in the sigmoid colon- this is the area of highest pressure in the colon. There will be no diverticular disease in the rectum usually.

Question:

A 17-year-old girl is referred to a neurologist for recurrent episodes of 'jerks'. These often occur in the morning and involve a sudden brief jerk in one of her limbs. So far she has had 6 episodes. On questioning, she has not had any episodes when she has lost consciousness.

She lives with her parents, is a non-smoker, rarely drinks alcohol, and is sexually active. She has no other past medical history.

What is the most appropriate step in her management?

A.Carbamazepine

B.Ethosuximide

C.Levetiracetam

D.Phenytoin

E.Sodium valproate

Answer:Levetiracetam

Explanation:

Myoclonic seizures: levetiracetam is first-line for females

Important for meLess important

The likely diagnosis, in this case, is myoclonic epilepsy. This presents as sudden jerks (myoclonus) of the muscles, which can occur in the limbs, face or the whole body. Classically they occur soon after waking.

Levetiracetam is the correct answer. In women, this is the first-line option. This is because, unlike some other anti-epileptic drugs (AEDs), levetiracetam has not shown any increased risk of major congenital malformation. In women of childbearing potential, AEDs associated with congenital malformation should be avoided unless effective contraception is in place.

Carbamazepine is incorrect as this can aggravate myoclonic seizures.

Ethosuximide is incorrect as it is principally used as an anti-epileptic for the treatment of absence seizures, rather than myoclonic epilepsy. This would present with episodes of the patient staring into space for a few seconds followed by a quick recovery. This is most commonly seen in children aged 3-10 years old and around 90% become seizure-free in adolescence, making absence seizures less likely.

Phenytoin is incorrect as it carries a risk of teratogenicity along with a large number of side effects, so would not be the most appropriate therapy for this patient. This patient should be offered the first-line option which is levetiracetam.

Sodium valproate is incorrect. This is the first-line for myoclonic seizures in male patients and is avoided in women of childbearing potential due to its associations with teratogenicity unless effective contraception is in place. This patient is female, of childbearing potential, and sexually active, contraindicating sodium valproate.

Question:

A 29-year-old male presents to the general practitioner clinic with a 4-month-history of lower back pain that radiates to his buttocks. His symptoms are worst in the morning, improve with exercise and are occasionally severe enough to wake him from sleep in the early hours of the morning. A radiograph is ordered, which shows sacroiliitis.

What are other radiograph findings likely to be seen in this patient?

A.Juxta-articular osteopenia, subchondral cysts and squaring of lumbar vertebrae

B.Juxta-articular osteopenia, subchondral sclerosis and osteophyte formation at joint margins

C.Subchondral cysts, sclerosis and osteophyte formation at joint margins

D.Subchondral erosions, sclerosis and periarticular erosions

E.Subchondral erosions, sclerosis and squaring of lumbar vertebrae

Answer:Subchondral erosions, sclerosis and squaring of lumbar vertebrae

Explanation:

Ankylosing spondylitis - x-ray findings: subchondral erosions, sclerosis

and squaring of lumbar vertebrae

Important for meLess important

The correct answer is subchondral erosions, sclerosis and squaring of lumbar vertebrae. This patient presents with symptoms of inflammatory joint pain (worst in the morning, improve with exercise), which, given his age, gender and nature of pain, is most likely due to ankylosing spondylitis. Diagnosis of this condition may be confirmed with the presence of sacroiliitis on x-ray. Other common x-ray findings in ankylosing spondylitis include subchondral erosions, sclerosis and squaring of lumbar vertebrae.

Juxta-articular osteopenia, subchondral cysts and squaring of lumbar vertebrae are incorrect. While squaring of lumbar vertebrae may be seen in ankylosing spondylitis, juxta-articular osteopenia is more common in rheumatoid arthritis and subchondral cysts in osteoarthritis and are therefore unlikely to be seen on this patients x-ray.

Juxta-articular osteopenia, subchondral sclerosis and osteophyte formation at joint margins are incorrect as non of these signs are commonly seen in ankylosing spondylitis. Juxta-articular osteopenia is most commonly associated with rheumatoid arthritis, and both subchondral sclerosis and osteophyte formation at joint margins are seen most commonly in osteoarthritis. As this patient is likely suffering from ankylosing spondylitis, these x-ray findings are unlikely to be seen.

Subchondral cysts, sclerosis and osteophyte formation at joint margins is incorrect. While subchondral sclerosis is often seen in ankylosing spondylitis, subchondral cysts and osteophyte formation at joint margins are more common in osteoarthritis and are therefore unlikely to be seen on this patients x-ray.

Subchondral erosions, sclerosis and periarticular erosions is incorrect. While subchondral erosions and sclerosis are often seen in ankylosing spondylitis, periarticular erosions are more common in rheumatoid arthritis and are therefore unlikely to be seen on this patients x-ray.

Question:

A 27-year-old woman presents to her general practitioner with some offensive vaginal discharge that started 3 days ago. On examination, the doctor can observe some thin, grey discharge that smells 'fishy'. A high vaginal swab shows a pH of 5.2 and a whiff test is positive.

Given the most likely diagnosis, what is the likely causative organism?

A.Candida albicans

B.Chlamydia trachomatis

C.Gardnerella vaginalis

D.Neisseria gonorrhoeae

E.Trichomonas vaginalis

Answer:Gardnerella vaginalis

Explanation:

Bacterial vaginosis - overgrowth of predominately Gardnerella vaginalis

Important for meLess important

The correct answer is Gardnerella vaginalis. This patient is presenting with offensive vaginal discharge, grey in colour, with a 'fishy' smell. These are cardinal features of bacterial vaginosis, further confirmed by vaginal pH > 4.5 and a positive positive whiff test. Gardnerella vaginalis is the most common causative organism.

Candida albicans is the most common causative organism of vaginal Candida. This would present with white 'curdy' vaginal discharge with pH <4.5, whilst in this case, the discharge is grey and offensive.

Chlamydia trachomatis infections are usually asymptomatic. When symptomatic they cause cervicitis and dysuria, rather than offensive discharge.

Neisseria gonorrhoeae infections usually present with cervicitis accompanied by discharge composed of mucus and pus that can range from white to yellow to green in colour.

Trichomonas vaginalis infections often cause vulvovaginitis accompanied by offensive, but yellow-green, frothy discharge, rather than grey.

Question:

A 2-year-old boy is admitted to the paediatric ward with suspected Kawasaki disease. On presentation to the emergency department, he had a 6 day fever, dry cracked lips, bilateral conjunctivitis and peeling of his fingers and toes. Addition of which of the following would be supportive of diagnosis?

A.Abdominal tenderness

B.Cervical lymphadenopathy

C.Blood glucose 7.8 mmol/L

D.Bilateral crackles in both lung bases

E.3 day history of diarrhoea

Answer:Cervical lymphadenopathy

Explanation:

Kawasaki disease is a rare condition mainly seen in children under 5-years-old. It is classified by a fever which is present for 5 days or more along with 4 of the following features:

Dry cracked lips

Bilateral conjunctivitis

Peeling of skin on fingers and toes

Cervical lymphadenopathy

Red rash over trunk

This makes answer 2 the correct answer.

Although not a common disease, it is important to know the criteria for diagnosis, as the vascular complications can be serious.

It is also a topic that could be examined on final examinations.

Question:

A 23-year-old male comes in after crashing his motorbike into a bus stop. He is orientated to person place and time denies head trauma but is in extreme pain in many places.

Physical examination reveals pain and tenderness in the right leg, significant abdominal bruising, and tenderness diffusely over the ribcage.

His vitals are;

Heart rate; 105 beats/min

Blood pressure; 105/62 mmHg

Respiratory rate; 20 breaths/min

SpO2; 98% on room air

Imaging reveals a fractured right femur, multiple fractured ribs, and a fractured left tibia. He is consented and sent for emergency theatre.

Which of the following is most preferable as an induction agent for anaesthesia?

A.Etomidate

B.Ketamine

C.Midazolam

D.Propofol

E.Thiopental

Answer:Ketamine

Explanation:

Ketamine doesn't cause a drop in blood pressure so useful in trauma

Important for meLess important

This patient has borderline low blood pressure, and therefore, in the context of his trauma, is at risk of low blood pressure intra-operatively. Ketamine is an NMDA receptor antagonist that increases blood pressure and is, therefore, useful for general anaesthetic in patients with trauma.

Although etomidate has milder cardiovascular effects compared to propofol, it is still not recommended compared to ketamine in trauma or bleeding patients.

Similarly, midazolam can also lower blood pressure when used as an induction agent.

Propofol causes dose-dependent hypotension and therefore is not ideal for patients who are already bleeding, with poly-trauma, or with borderline blood pressure.

Thiopental is useful in head trauma as it can lower the intracranial pressure; however, it is unlikely that this is present in this patient.

Question:

A 26-year-old woman presents to the emergency department with sudden onset lower abdominal pain that had developed over the past 2 hours. She is sexually active and has not recently been using condoms. She has not had a sexual health screen but has a long-term partner. On examination, she is tender in the right iliac fossa with a heart rate of 100 bpm, blood pressure 120/75mmHg and temperature 37.8ºC.

Which investigation should be performed first?

A.High vaginal swabs

B.Low vaginal swabs

C.Urine pregnancy test

D.Urine microscopy, culture and sensitivities (MCS)

E.Abdominal ultrasound scan

Answer:Urine pregnancy test

Explanation:

With this history, ectopic pregnancy, appendicitis and pelvic inflammatory disease should be on your list of differentials. All of these investigations would be sensible, with the exception of low vaginal swabs. However, this question asks which investigation should be performed FIRST. In any woman of child-bearing age presenting with abdominal pain, an ectopic pregnancy must be ruled out urgently with a 'bedside' urine dip.

Question:

You have just started your shift in the Emergency Department when the previous team hand over a man in his twenties who has arrived acutely short of breath. His has a history of poorly controlled asthma with multiple attendances including a previous admission to the ICU. The hand over diagnosis was 'acute severe asthma'.

You review the patient. Which vital sign would correlate with this severity assessment?

A.PEF >50–75% best or predicted

B.PEF <33% best or predicted

C.SpO₂ <92%

D.Silent chest

E.Pulse > 110 bpm

Answer:Pulse > 110 bpm

Explanation:

Severe asthma pulse > 110 bpm

Important for meLess important

The 'BTS/SIGN Asthma Guideline Quick Reference Guide 2019' categorises the severity of acute asthma using multiple physiological parameters, heart rate being one of them. It is imperative to understand that no single parameter can be taken in isolation and must therefore be combined with other bedside or point of care investigations (such as an ABG) to achieve a full assessment. Additionally, remember that guidelines give 'guidance' and if you are concerned that a patient is worse than their numbers would suggest then call for help.

PEF >50–75% best or predicted would correlate with moderate acute asthma.

PEF <33% best or predicted, SpO₂ <92% or a silent chest would each correlate with life-threatening asthma.

Question:

A 55-year-old man is admitted with central chest pain. His ECG shows ST depression in the inferior leads and the chest pain requires intravenous morphine to settle. Past medical history includes a thrombolysed myocardial infarction 2 years ago, asthma and type 2 diabetes mellitus. Treatment with aspirin, clopidogrel and unfractionated heparin is commenced. Which one of the following factors should determine if an intravenous glycoprotein Iib/IIIa receptor antagonist is to be given?

A.High GRACE (Global Registry of Acute Cardiac Events) risk score + whether a percutaneous coronary intervention is to be performed

B.Degree of ST depression

C.High GRACE (Global Registry of Acute Cardiac Events) risk score

D.Presence of a left ventricular thrombus

E.The presence of recurrent cardiac chest pain

Answer:High GRACE (Global Registry of Acute Cardiac Events) risk score + whether a percutaneous coronary intervention is to be performed

Explanation:

Question:

A 28-year-old woman presents with abdominal pain and loose stools. She says these are frothy and difficult to flush. She is finding it very hard to cope at work. She has lost 5kg in weight over the past 6 months and blood tests show a normocytic anaemia. She is told she may have coeliac disease.

Which of the following is she likely to be deficient in?

A.B12 only

B.Folate only

C.Iron only

D.Iron and folate

E.Iron, folate and B12

Answer:Iron, folate and B12

Explanation:

Coeliac disease is associated with iron, folate and vitamin B12 deficiency

Important for meLess important

This woman likely has coeliac disease. Coeliac disease commonly presents with anaemia, but it is often a mixed picture. It causes a deficiency in iron, folate and vitamin B12 (although folate deficiency is more common than vitamin B12 deficiency).

B12 is absorbed in the terminal ileum. It requires the presence of intrinsic factor to be absorbed (absent in pernicious anaemia).

Folate is absorbed in the duodenum and jejunum.

Iron is mainly absorbed in the duodenum.

Coeliac disease causes villous atrophy throughout the small intestine and therefore affects the absorption of all of these.

Question:

A 40-year-old female presents to the Emergency Department with right upper quadrant pain, nausea and vomiting. Her temperature is 38.2ºC and she was described as having rigors in the ambulance. She scores 14 on the Glasgow coma scale (GCS) as she is confused when asked questions.

Her respiratory rate is 15/min, heart rate 92/min and blood pressure 86/62 mmHg. On examination, there is yellowing of the sclera and she is tender in the right upper quadrant of her abdomen, with a positive Murphy's sign.

Given the suspected diagnosis, what collection of symptoms is she suffering with?

A.Reynold's pentad

B.Beck's triad

C.Charcot's pentad

D.Cushing's triad

E.Murphy's pentad

Answer:Reynold's pentad

Explanation:

Reynold's pentad = Charcot's triad plus hypotension and confusion

Important for meLess important

This patient is suffering from suspected ascending cholangitis and has Charcot's triad of right upper quadrant (RUQ) pain, fever and jaundice.

Severe cases of ascending cholangitis can present with Reynold's pentad. This includes Charcot's triad but in addition to confusion and hypotension which are markers of severe illness and increased mortality.

Beck's triad of hypotension, raised jugular venous pressure (JVP) and muffled heart sounds is seen in cardiac tamponade patients.

Cushing's triad of irregular and decreased respiratory rate, bradycardia and hypertension is seen in patients with raised intracranial pressure.

Question:

A 13-year-old boy presents with difficulty walking for the first time. His legs are weak and he experiences severe muscle cramps on mild exercise. On examination, there is pseudohypertrophy of his calf muscles and he needs to use his arms to help stand up from the floor. There is no intellectual impairment. His 4-year-old brother is well. Genetic testing excludes Duchenne muscular dystrophy.

What is the most likely diagnosis?

A.Juvenile idiopathic arthritis

B.Myotonic dystrophy

C.Vitamin D deficiency

D.Becker's muscular dystrophy

E.Polymyositis

Answer:Becker's muscular dystrophy

Explanation:

Becker's muscular dystrophy is a less severe form of dystrophinopathy that presents at a later age

Important for meLess important

This boy has pseudohypertrophy and a positive Gower's sign, strongly suggesting a dystrophinopathy. Since he is over the age of 10, this suggests the milder Becker's form rather than duchenne muscular dystrophy.

Myotonic dystrophy can also present with weakness from infancy to adulthood, but often includes the inability for muscles to relax. Vitamin D deficiency would present as rickets in childhood, with more prominent bone problems. Whilst polymyositis can present in childhood, it is more common in adulthood.

Question:

A 24-year-old man presents to the Emergency Department with left-sided chest pain. This came on suddenly while watching television. He denies shortness of breath and has no other symptoms. He has no past medical history, nor does he take any regular medications. He smokes 10 cigarettes per day.

On examination, he appears well in himself. There is no tenderness. On auscultation, left-sided breath sounds are reduced. Percussion is hyper-resonant on the left side. Observations are all within normal ranges. A chest X-ray demonstrates a 1.5cm rim of air between the left lung margin and the chest wall.

Which of the following is the most appropriate management of this patient?

A.Discharge with follow-up

B.Insert chest drain

C.Needle aspiration

D.Refer for chemical pleurodesis

E.Refer for surgery

Answer:Discharge with follow-up

Explanation:

Management in primary pneumothorax without shortness of breath, and <2cm in size, is discharge and review

Important for meLess important

The correct answer is 'discharge with follow-up'. British Thoracic Society guidelines stratify pneumothoraces based on underlying disease and severity. The diagnosis is primary pneumothorax, given that the patient is <50 and has no significant smoking history or lung disease. This patient has a primary pneumothorax without dyspnoea and a rim of air <2cm. In this cohort of patients, as long as they are well, discharge can be considered.

A chest drain would be inserted if aspiration failed. It was also be used immediately for a secondary pneumothorax in a patient over 50 years old, with a rim of air >2cm.

Needle aspiration would be attempted in this scenario if the rim of air was >2cm, and/or the patient had dyspnoea. For secondary pneumothorax, aspiration should be attempted if the rim of air is between 1-2cm. If this failed, a chest drain would then be inserted.

Chemical pleurodesis is an option for patients who are unable or unwilling to undergo surgery, in a selected cohort - those with recurrent pneumothoraces, persistent air leak or failure of the lung to re-expand.

Surgery would be important for the same cohort as above. However, in this scenario, a simple primary pneumothorax, surgery is unwarranted.

Question:

A 22-year-old woman presents to the GP with visual symptoms. She reports the vision in her left eye has acutely worsened over the past 2 days. There is also some pain behind her left eye with eye movements.

The patient's right eye is unaffected and she is otherwise well. She has no medical history, takes no regular medications, and has no allergies.

On basic examination, a relative afferent pupillary defect is seen and visual acuity is reduced in the left eye compared to the right.

What other feature is she most likely to report?

A.A 'curtain' coming down in the eye

B.History of joint pains and a malar rash

C.Jaw claudication

D.Peripheral vision loss with central sparing

E.Reduced colour vision

Answer:Reduced colour vision

Explanation:

Colour vision ('red desaturation') is affected in optic neuritis

Important for meLess important

A young woman presenting with unilateral acute vision changes and painful eye movements is highly suggestive of optic neuritis. The examination findings of a relative afferent pupillary defect (seen as the disease is unilateral) and reduced visual acuity further confirm this. Optic neuritis is also associated with reduced colour vision with characteristic 'red desaturation'. The probability of developing multiple sclerosis within 15-years of presentation with optic neuritis is approximately 50%. This risk is even higher if 1 or more demyelinating lesions are shown on MRI.

A curtain coming down in the eye is not associated with optic neuritis. This is a feature of retinal detachment. Whilst retinal detachment should be considered in anyone with acute visual loss, it would not cause painful eye movements and would be associated with a history of flashers and floaters prior to vision loss. This patient has no risk factors for retinal detachment (such as myopia or previous eye surgery or trauma) but does have risk factors for optic neuritis (namely her sex and age).

History of joint pains and a malar rash is suggested of systemic lupus erythematosus (SLE). Whilst optic neuritis can be associated with SLE, it is uncommon (seen in around 1% of patients with SLE). This patient is far more likely to have optic neuritis that is either idiopathic or associated with multiple sclerosis.

Jaw claudication is not associated with optic neuritis or multiple sclerosis. Jaw claudication is associated with temporal arteritis, another cause of acute unilateral vision loss with a relative afferent pupillary defect. However, in temporal arteritis, vision loss is due to ischaemic, rather than inflammatory, pathology. In temporal arteritis, vision loss would not be present in an otherwise well patient such as the patient in the brief. Instead, the patient would complain of symptoms such as new headaches, general malaise, weight loss, and jaw claudication that would have preceded the vision loss. Furthermore, temporal arteritis typically presents in much older patients (over 50s) and does not cause painful eye movements. This brief is far more likely to be optic neuritis than temporal arteritis.

Whilst optic neuritis can result in any pattern of visual field defect, the most common defect is central scotoma. Therefore, peripheral vision loss with central sparing is not the most likely feature to be reported of those listed.

Question:

A 40-year-old woman is admitted to the acute medical unit with a 2-month history of difficulty in walking and falls. She complains of paraesthesia in her lower limbs that has progressed from her feet to her upper shins. Her legs feel weaker than usual and she also reports increased irritability and a reduced ability to concentrate for prolonged periods of time. Her past medical history includes type 1 diabetes mellitus.

On examination, she appears pale. There is increased spasticity in her lower limbs with reduced power and sensation.

What is the most likely diagnosis?

A.Diabetic neuropathy

B.Guillain Barre syndrome

C.Hypothyroidism

D.Multiple sclerosis

E.Pernicious anaemia

Answer:Pernicious anaemia

Explanation:

Neurological features of pernicious anaemia may include peripheral neuropathy, subacute combined degeneration of the spinal cord and neuropsychiatric disorders

Important for meLess important

Pernicious anaemia is correct. This patient has features of pernicious anaemia including peripheral neuropathy, subacute combined degeneration of the spinal cord and neuropsychiatric features (e.g. irritability and poor concentration). Subacute combined degeneration of the spinal cord is the degeneration of the lateral corticospinal tracts and the dorsal columns. Symptoms include bilateral spastic paresis similar to this patient. Pernicious anaemia is an autoimmune disease that results in the reduced absorption of vitamin B12 secondary to autoantibodies targeting intrinsic factor +/- gastric parietal cells. The past medical history of type 1 diabetes (another autoimmune disease), increases the likelihood of this patient having pernicious anaemia. The visible pallor on examination further supports this diagnosis.

Diabetic neuropathy is incorrect. Diabetic neuropathy classically causes a reduced sensation in a glove-and-stocking distribution that, in turn, leads to diabetic ulceration that can lead to debridement and amputation if left untreated. Although this patient has diabetes mellitus, the presentation of difficulty walking and increased spasticity is not explained by diabetic neuropathy.

Guillain Barre syndrome (GBS) is incorrect. This is a demyelinating ascending polyneuropathy that is usually associated with a preceding viral infection (e.g. recent gastrointestinal illness or upper respiratory tract infection). Unlike this patient's presentation, GBS does not cause spasticity. Rather, it causes flaccid paralysis and, therefore, is not the diagnosis.

Hypothyroidism is incorrect. Although this patient is at an increased risk of hypothyroidism, given the history of autoimmune disease, symptoms of hypothyroidism include fatigue, weight gain, cold intolerance, low mood etc. This is not in keeping with this patient's presentation.

Multiple sclerosis is incorrect. This is a progressive demyelinating condition that commonly affects caucasian women around the age of 40 years. To make a diagnosis, symptoms and signs must be separated in time and space. Therefore, more than 1 episode of symptoms is generally needed to make the diagnosis (unless several demyelinated plaques can be seen on MRI imaging). In patients with multiple sclerosis, quite often the initial presentation is with optic neuritis which is also not mentioned here. Finally, the combination of spastic paraparesis, neuropsychiatric disturbance and a history of autoimmune disease makes multiple sclerosis less likely to be the correct answer.

Question:

A 7-year-old girl is brought to surgery due to a sore throat. She has a temperature of 39.2ºC and is not eating due to the pain, although she is tolerating fluids. She has had no other related symptoms such as a cough or a rash. Her heart rate is 120/min and auscultation of the chest is unremarkable. The tonsils are covered in exudate bilaterally. Examination of the ears is unremarkable. Other than supportive treatment, what is the most appropriate management?

A.Erythromycin for 10 days

B.Amoxicillin for 7 days

C.Antibiotics are not indicated

D.Phenoxymethylpenicillin for 10 days

E.Phenoxymethylpenicillin for 5 days

Answer:Phenoxymethylpenicillin for 10 days

Explanation:

This girl has marked systemic upset and should be treated with antibiotics. A 7 or 10 day course of antibiotics is appropriate to ensure eradication of possible Streptococcus infection. Phenoxymethylpenicillin is the first-line antibiotic choice in the BNF

Question:

A 41-year-old female presents with lethargy and pain all over her body. This has been present for the past six months and is often worse when she is stressed or cold. Clinical examination is unremarkable other than a large number of tender points throughout her body. A series of blood tests including an autoimmune screen, inflammatory markers and thyroid function are normal. Given the likely diagnosis, which one of the following is most likely to be beneficial?

A.Trigger point desensitisation therapy

B.Trigger point injections

C.Cognitive behavioural therapy

D.Prednisolone

E.Co-proxamol

Answer:Cognitive behavioural therapy

Explanation:

Co-proxamol was a combination of paracetamol and dextropropoxyphene. It was withdrawn several years ago due to concerns about its safety.

Question:

A 64-year-old man who was recently diagnosed with type 2 diabetes has a telephone follow-up appointment. He has a background of essential hypertension, and his 10-year cardiovascular risk score is 14% (using QRISK2).

He currently takes amlodipine, ramipril, and atorvastatin and has been on metformin 500mg TDS since his last review 3 months ago which he is tolerating well.

His recent blood test shows his HbA1c has improved from 61 mmol/mol (7.7%) to 52 mmol/mol (6.9%).

What would be the most appropriate medication change to make?

A.Add a DPP 4 inhibitor or pioglitazone or a sulfonylurea

B.Add aspirin

C.Increase metformin to the maximum tolerated dose

D.Increase metformin to the maximum tolerated dose then add an SGLT-2 inhibitor

E.Reinforce diet and lifestyle measures but do not make any medication changes

Answer:Increase metformin to the maximum tolerated dose then add an SGLT-2 inhibitor

Explanation:

SGLT-2 inhibitors should be used in addition to metformin as initial therapy for T2DM if CVD, high-risk of CVD or chronic heart failure

Important for meLess important

The correct answer is increase metformin to the maximum tolerated dose then add an SGLT-2 inhibitor. As the patient has an increased risk of cardiovascular disease (QRISK ≥10%), NICE guidelines suggest he would benefit from the addition of an SGLT-2 inhibitor with proven cardiovascular benefit. His metformin should be titrated up as tolerated before starting this.

Add a DPP 4 inhibitor or pioglitazone or a sulfonylurea is incorrect. He is not at the maximum tolerated dose of metformin and a further agent would not be required for glycaemic control unless his HbA1c rises above 58 mmol/mol. However, he would benefit from the addition of an SGLT-2 inhibitor for organ protection regardless of his HbA1c.

Add aspirin is incorrect. Antiplatelets should not be routinely offered for the primary prevention of cardiovascular disease.

Increase metformin to maximum tolerated dose is incorrect. As he has an increased risk of cardiovascular disease (QRISK ≥10%), he would benefit from dual therapy with metformin and an SGLT-2 inhibitor as initial therapy.

Reinforce diet and lifestyle measures but do not make any medication changes is incorrect. If the patient agrees, his dose of metformin should be titrated up and he should be supported to aim for an HbA1c target of 48 mmol/mol (6.5%). As his QRISK score is ≥10%, he should also be offered an SGLT-2 inhibitor for organ protection regardless of his HbA1c.

Question:

A 23-year-old woman is on the combined oral contraceptive pill and has just returned from holiday in Japan. She reports that she is feeling very short of breath. You suspect a pulmonary embolism and perform an ECG.

Which one of the following is the most common ECG finding in pulmonary embolism?

A.S1, Q3, T3 pattern

B.Tall, tented T waves

C.Prolonged QT interval

D.Sinus tachycardia

E.Sinus bradycardia

Answer:Sinus tachycardia

Explanation:

The most common ECG finding in patients with pulmonary embolism is sinus tachycardia. The S1, Q3, T3 pattern is often quoted in textbooks but is rarely seen.

Question:

A 66-year-old comes for review. He had a prosthetic aortic valve replacement five years ago for which he is warfarinised. Over the past three months he has been complaining of fatigue and a full blood count was requested:

Hb 10.3 g/dl

MCV 68 fl

Plt 356 \* 109/l

WBC 5.2 \* 109/l

Blood film Hypochromia

INR 3.0

An upper GI endoscopy was reported as normal. What is the most appropriate next investigation?

A.Transthoracic echocardiogram

B.Colonoscopy

C.Three sets of blood cultures

D.Transoesophageal echocardiogram

E.Reticulocyte count

Answer:Colonoscopy

Explanation:

Any patient of this age with an unexplained microcytic anaemia should have a lower gastrointestinal tract investigation to exclude colorectal cancer

Question:

A 61-years-old-man comes to the pulmonology clinic due to new-onset ptosis of his right upper lid. He has had a chronic cough for three months associated with streaks of blood.

His radiological image shows an opacification at the right upper part of the chest.

The patient looks ill and cachexic. His BMI is 18 kg/m² and with fasting blood sugar of 8.3 mmol/L.

What could other findings be seen in this patient?

A.Kussmaul breathing

B.Lupus pernio

C.Opsoclonus-myoclonus syndrome

D.Right upper limb pain

E.Trousseau's sign

Answer:Right upper limb pain

Explanation:

As well as Horner's syndrome, Pancoast tumours may also present with shoulder pain and upper limb neurological signs due to local extension of the tumour

Important for meLess important

Right upper limb pain is the correct answer. It is seen in patients with Pancoast tumours due to its anatomical location close to the brachial plexus. Furthermore, patients experience other symptoms like neuropathy, paresthesia, and shoulder pain. In addition, patients could demonstrate Horner's syndrome, which is quite evident here with ptosis of the ipsilateral eyelid.

Kussmaul breathing is an incorrect answer. It is a deep and laboured breathing pattern often associated with severe metabolic acidosis, particularly diabetic ketoacidosis (DKA). Although the patient has elevated fasting blood sugar levels, this reading is likely due to cytokines (like TNF-α and IL-6) that get elevated in cancer. In addition, DKA present as an acute exacerbation of type 1 diabetes mellitus. This patient does not have diabetes.

Lupus pernio is an incorrect answer. It presents as bluish-red or violaceous nodules and plaques over the nose, cheeks, and ears. It is a more common finding in sarcoidosis rather than lung cancer. Sarcoidosis is viewed in imaging studies as bilateral hilar adenopathy.

Opsoclonus-myoclonus syndrome is an incorrect answer. It is a paraneoplastic syndrome associated with several types of cancers. It is most commonly seen in children with neuroblastoma.

Trousseau's sign is an incorrect answer. Trousseau's sign is the induction of carpal spasm by inflation of a sphygmomanometer. It is classically seen in patients with hypocalcemia. Although hypocalcemia would be seen in tumours, it is not associated with Pancoast tumours.

Question:

A 27-year-old woman has a telephone appointment with her GP, concerning a 3-month history of back pain.

The patient says the pain is worst in the morning and is associated with stiffness. These symptoms then ease throughout the day with physical activity. The pain is predominantly felt in the lumbar spine, and the patient has been finding it difficult to carry out daily tasks.

The GP has not yet been able to examine the patient, yet suspects an inflammatory cause such as ankylosing spondylitis.

What feature of this history would make the GP most suspicious of this?

A.Difficulty with activities of daily living

B.Insidious onset

C.Pain improves with exercise

D.Sex of the patient

E.Site of the pain

Answer:Pain improves with exercise

Explanation:

Inflammatory back pain (e.g. ankylosing spondylitis) typically improves with exercise

Important for meLess important

The correct answer is that the pain improves with exercise . This is characteristic of inflammatory back pain, which is typically worse in the morning, or with rest, and then eases with physical activity. Causes of inflammatory back pain include ankylosing spondylitis and rheumatoid arthritis.

Difficulty with activities of daily living is incorrect as this is very non-specific, and may be a feature of other non-inflammatory causes of back pain such as mechanical back pain.

The insidious onset is an incorrect answer because although an insidious onset is usual with inflammatory back conditions such as ankylosing spondylitis, it is non-specific. For example, degenerative spine disease may also have an insidious presentation.

Sex of the patient is incorrect. Ankylosing spondylitis is actually more common in men (ratio 3:1). However, it is important to remember that it can still occur in women.

Site of the pain is incorrect as although lumbar spine pain can occur due to inflammatory disease such as ankylosing spondylitis, it is also a feature of other non-inflammatory causes of back pain such as mechanical back pain or disc herniation.

Question:

A 28-year-old man presents to the emergency department with a four day history of weakness. This initially started as a pins-and-needles sensation in his feet before progressing to an inability to move his toes. The weakness has now spread up to his thighs. He is experiencing mild pain along the distribution of the weakness but no other symptoms. He has no past medical history but mentions a recent bout of diarrhoea following a visit to a chicken shop.

On examination, there is 1/5 power in the legs bilaterally and absent knee and ankle reflexes. He is able to move his arms spontaneously with full power. His FBC, U&E, LFT and CRP show no abnormalities.

Which of the following investigations is most appropriate to perform at this stage?

A.Anti-AChR antibodies

B.Lumbar puncture

C.MRI spine

D.Serum creatinine kinase

E.Serum B12 level

Answer:Lumbar puncture

Explanation:

Lumbar puncture is the key diagnostic test in suspected Guillain-Barre syndrome

Important for meLess important

This patient is presenting with likely Guillain-Barre syndrome (GBS), given the history of ascending weakness, areflexia and recent gastroenteritis. Lumbar puncture in GBS is a useful diagnostic investigation as the finding of elevated protein with normal white cell count is found in up to 90% of patients in the first week of illness, and this finding combined with a classical history is highly suggestive of GBS.

Anti-AChR antibodies are antibodies to the acetylcholine receptor and are found in myasthenia gravis. This typically presents with fatiguable muscle weakness that gets worse during the day, commonly presenting in the extraocular muscles initially. It does not cause sensory signs.

MRI spine would be useful if there was suspected spinal cord compression. This may present similarly, with bilateral weakness and sensory changes, but the typical history would be different. This presentation of ascending weakness and areflexia following gastroenteritis in the absence of significant sensory loss or back pain is typical of GBS and less suggestive of spinal cord compression. Lumbar puncture is therefore a more appropriate initial investigations.

Serum creatinine kinase would be useful initial investigation in suspected inflammatory myopathy, such as polymyositis and dermatomyositis. This patient does not give a typical history of these conditions, where proximal muscle weakness would be seen initially, along with skin changes in dermatomyositis. Ascending weakness following gastroenteritis is more suggestive of GBS.

Serum B12 level would be useful if subacute combined degeneration of the cord was suspected. This is a degenerative myelopathy of the dorsal column due to B12 deficiency, and more commonly initially presents with loss of proprioception and vibration in the hands and feet. This patient has presented with ascending weakness and has no risk factors for B12 deficiency.

Question:

A 37-year-old male presents to the emergency department with new-onset symptoms. He has a complex past medical history, comprising of depression, schizophrenia, asthma, and rheumatoid arthritis. One hour ago, his left eye deviated upwards and inward and he started blinking repeatedly. The episode lasted three minutes and there was no loss of consciousness. Additionally, he experienced severe neck pain following the episode. Now, he is feeling well in himself.

Which one of the following medications is the most likely to have caused the symptoms?

A.Chlorpromazine

B.Fluoxetine

C.Olanzapine

D.Prednisolone

E.Procyclidine

Answer:Chlorpromazine

Explanation:

Acute dystonic reactions are an adverse effect of antipsychotic medications

Important for meLess important

The correct answer is chlorpromazine. This patient is describing an oculogyric crisis, a type of acute dystonic reaction. These reactions are associated with first-generation antipsychotics, as they most commonly cause extrapyramidal side effects. The aetiology of the reaction is not fully understood. The crisis can be managed using procyclidine, an anticholinergic.

Fluoxetine is a selective serotonin reuptake inhibitor (SSRI) used in the management of depression. It has not been proven to cause acute dystonic crises but it can commonly cause gastrointestinal upset and bleeding.

Olanzapine is an atypical antipsychotic. This class of drugs was produced as typical antipsychotics caused too many extrapyramidal side-effects, hence the chance of this drug causing the symptoms is reduced compared to chlorpromazine.

Prednisolone has not been shown to cause acute dystonic reactions. Commonly, it can cause Cushing's syndrome and osteoporosis.

Procyclidine is an anticholinergic drug that can be used to manage an oculogyric crisis, but does not cause them.

Question:

A 58 year-old male is seen in cardiology outpatients clinic. He has a background of type 2 diabetes and hypercholesterolaemia. He complains of a 6 month history of a constricting discomfort in the front of his chest, precipitated by walking up the hill to his house. The pain is relieved by rest within about 5 minutes. He is currently prescribed a sublingual nitrate spray and is taking 10mg bisoprolol once a day. Cardiovascular and respiratory examination is unremarkable. a 12-lead ECG is normal.

What would be the most appropriate additional medication?

A.Amlodipine

B.Isosorbide mononitrate

C.Ivabradine

D.Nicorandil

E.Ranolazine

Answer:Amlodipine

Explanation:

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

Important for meLess important

NICE (CG126) suggest the following approach to the management of stable angina.

Offer either a beta blocker or a calcium channel blocker as first-line treatment for stable angina.

If the person cannot tolerate the beta blocker or calcium channel blocker, consider switching to the other option (calcium channel blocker or beta blocker).

If the person's symptoms are not satisfactorily controlled on a beta blocker or a calcium channel blocker, consider either switching to the other option or using a combination of the two. When combining a calcium channel blocker with a beta blocker, use a dihydropyridine calcium channel blocker, for example, slow release nifedipine, amlodipine or felodipine

Do not routinely offer anti-anginal drugs other than beta blockers or calcium channel blockers as first-line treatment for stable angina.

If the person cannot tolerate beta blockers and calcium channel blockers or both are contraindicated, consider monotherapy with one of the following drugs:

A long-acting nitrate

Ivabradine

Nicorandil

Ranolazine

Question:

A 3-year-old child presents with his mother with a 3-day history of fever, irritability and rubbing his left ear a lot. This stopped dramatically this morning and was followed by oozing discharge from his left ear. On examination, his right ear looks normal, however, the tympanic membrane of his left ear is perforated.

What is the correct management of this child?

A.Home with analgesia and worsening advice

B.Prescribe a topical steroid

C.Prescribe an oral antibiotic

D.Prescribe topical antibiotic and topical steroid

E.Refer routinely to ear, nose and throat (ENT)

Answer:Prescribe an oral antibiotic

Explanation:

Oral antibiotics should be given in acute otitis media with perforation

Important for meLess important

This is a typical presentation of acute otitis media with perforation with fever and a unilaterally painful ear. Perforation of the tympanic membrane is commonly associated with relief of symptoms and discharge. Acute otitis media with perforation should be managed with oral antibiotics.

It would not be appropriate to send this child home with analgesia and worsening advice only as the history is typical of otitis media with perforation and therefore, the child requires treatment with oral antibiotics.

A topical steroid would not be an appropriate treatment for this child. This child is presenting with acute otitis media with perforation of the tympanic membrane and requires oral antibiotics.

A topical antibiotic and steroid combination would be appropriate management for otitis externa, which may present with an inflamed ear canal on examination. This child is presenting with features of acute otitis media with perforation and has a normal ear canal on examination. This child requires treatment with an oral antibiotic for his tympanic membrane perforation.

This child can be managed in primary care initially, therefore, a referral to ENT would not be required at this point. Referral to ENT may be required for myringoplasty if the tympanic membrane does not heal by itself.

Question:

During your weekly ward round at the local neurological rehabilitation care centre you see a 36-year-old man who has a background of depression, asthma and a traumatic spinal cord injury. The nurses report him being more distressed and agitated over the last two days.

On examination he is profusely sweating in the upper body and face, his blood pressure is 180/110mmHg, heart rate 60/min, oxygen saturations 99%, chest clear to auscultation and Glasgow coma scale 15, calves soft and non-tender, pupils equal and reactive. He admits to drinking 15 units/week and smokes 10 cigarettes/day. Regular medications include salbutamol, oxycodone, co-codamol 30/500 as required and prophylactic dose low molecular weight heparin.

What is the most likely underlying cause of the patients symptoms?

A.Alcohol withdrawal

B.Autonomic dysreflexia

C.Pulmonary embolism

D.Serotonin syndrome

E.Thyrotoxicosis

Answer:Autonomic dysreflexia

Explanation:

Faecal impaction / urinary retention are the most common triggers of autonomic dysreflexia

Important for meLess important

Autonomic dysreflexia is the correct answer. The treatment of autonomic dysreflexia involves removing the underlying cause. In this case the most likely cause is faecal impaction. Risk factors for impaction include immobility or bed-bound status, medications that cause hypomotility, anatomic conditions, such as anal fissure, past anal surgery, Hirschsprung disease, and neuropsychiatric conditions, such as dementia or previous traumatic spinal cord injury. The faecal impaction may have been caused by use of oxycodone with PRN Co-codamol use without any accompanying laxatives. This is the only answer that would cause localised flushing above the level of the cord lesion.

Alcohol withdrawal is incorrect. Physical symptoms of alcohol withdrawal would not be expected if the patient was drinking 25 units/week.

Pulmonary embolism is incorrect. You would expect tachycardia, possibly a low blood pressure or signs of a DVT.

Serotonin syndrome is incorrect. It could produce a similar clinical picture but it would not cause localised sweating as with autonomic dysreflexia. You may also expect a tachycardia and dilated pupils.

Thyrotoxicosis is incorrect. It would not produce localised sweating. There may also be other signs of thyrotoxicosis such as tachycardia, palpitations or tremor.

Question:

A 64-year-old man presents with acute-onset pain in the right knee. He describes it as incredibly intense; he has not had any previous episodes.

After examination of the knee, joint fluid is aspirated and sent to the lab. The rheumatology team are suspecting a diagnosis of pseudogout.

Which of the following features would aid in distinguishing this from gout?

A.Age

B.Chondrocalcinosis

C.Presence of crystals

D.Response to colchicine

E.Warmth at the site of pain

Answer:Chondrocalcinosis

Explanation:

Chondrocalcinosis helps to distinguish pseudogout from gout

Important for meLess important

The correct answer is chondrocalcinosis. This can be seen as linear calcifications of the meniscus and articular cartilage on an x-ray of the knee. This is seen in pseudogout, but not particularly associated with gout, and so it can be used to distinguish between the two.

Age is not a particularly distinguishing factor between gout and pseudogout. This patient is 64 years old; this does not sway the diagnosis one way or the other.

Simply the presence of crystals is not a distinguishing factor - they are present in both conditions. The type of crystals, however, differs between the two. Pseudogout crystals are weakly-positively birefringent rhomboid-shaped. Gout crystals are negatively birefringent.

Both conditions usually respond well to colchicine with regards to acute pain management, and so this is not a distinguishing factor.

There may be increased warmth of the affected joint in both conditions and so this is not a useful factor to distinguish between the two.

Question:

A mother brings her 2-year-old son to surgery. For the past two weeks he has been complaining of an itchy bottom. He is otherwise well and clinical examination including that of the perianal area is unremarkable. What is the most appropriate management?

A.Hygiene measures + single dose dimeticone for child

B.Hygiene measures + single dose mebendazole for child

C.Hygiene measures + single dose mebendazole for all the family

D.Hygiene measures + single dose mebendazole repeated after 2 weeks for all the family

E.Contact child protection officer

Answer:Hygiene measures + single dose mebendazole for all the family

Explanation:

Household contacts of patients with threadworms should be treated even if they have no symptoms

Important for meLess important

Threadworms are extremely common and in the absence of any other concern an itchy bottom would not warrant referral to the child protection officer

Question:

Joan, a 73-year-old woman, presents to her GP. She has known chronic obstructive pulmonary disease (COPD). She has recently come down with a cold after caring for her granddaughter. Over the last two days, she has been coughing more than usual and bringing up increased quantities of sputum, although this is clear in colour. She also reports an increase in her usual breathlessness.

On examination of the chest, Joan is mildly wheezy. Her observations are all within her normal limits and her chest x-ray is unchanged. Joan has no other medical history and you do not think hospital admission is indicated.

How would Joan's presentation on her background of COPD best be managed?

A.A five day course of doxycycline

B.A five day course of oral prednisolone

C.A one-off dose of oral prednisolone

D.Advice to rest, drink plenty of fluid and take paracetamol

E.Referral to the COPD nurse for review of inhaler technique

Answer:A five day course of oral prednisolone

Explanation:

Oral prednisolone is recommended for 5 days in acute exacerbations of COPD

Important for meLess important

Joan has acute worsening of her usual COPD symptoms in keeping with an acute exacerbation. This is likely due to a viral infection that Joan has picked up off of her granddaughter. In this case, there are no features to suggest that Joan requires hospital admission or that her symptoms may have a different underlying cause.

The mainstay of treatment of an acute exacerbation of COPD is a course of oral steroids. NICE advise a five-day course of prednisolone. This is therefore the appropriate answer. Joan should also be advised to increase the frequency of her bronchodilator use.

NICE do not support the approach of giving antibiotics to all patients with a COPD exacerbation. Antibiotics are recommended for patients with purulent sputum or clinical signs of pneumonia. This does not apply to Joan who has clear sputum and no clinical signs of pneumonia on examination. Also, her chest x-ray does not show any consolidation.

Referral to the COPD nurse for routine review of symptoms and inhaler technique is an important part of general management but not appropriate in the middle of an acute exacerbation.

General advice about fluids, rest, and analgesia is important in the management of an upper respiratory tract infection but will not help Joan's breathing symptoms.

Question:

A 68-year-old male presents to his GP complaining of urological symptoms. He describes getting up often in the night to urinate, sometimes with urgency, finding it difficult to begin urinating, and a poor stream when he is able to urinate. The GP performs a digital rectal exam which reveals an enlarged but smooth prostate. A blood test is taken for his PSA levels. His GP decides to prescribe tamsulosin to relieve his symptoms. What is the mechanism of action of tamsulosin?

A.α-1 agonist

B.α-2 antagonist

C.β-2 agonist

D.α-1 antagonist

E.α-2 agonist

Answer:α-1 antagonist

Explanation:

Alpha-1 antagonists promote relaxation of the smooth muscle of the prostate and the bladder to reduce LUTS

Important for meLess important

Alpha-1 antagonists promote relaxation of smooth muscle.

Question:

A 20-year-old man is brought into the emergency department. He admits to having swallowed the remainder of a bottle of his mother’s pills after a fight with his partner but does not know what the pills were called or what they are for. He cannot recall the exact time of the overdose but thinks he started taking the pills over an hour ago.

On examination, his Glasgow coma scale (GCS) is 14/15, blood pressure is 102/68 mmHg and heart rate is 150/min. His respiratory rate is 28/min. Both pupils appear dilated but are responsive to light. His mucus membranes appear dry.

An electrocardiogram (ECG) is performed which shows tachycardia and widening of the QRS (110ms).

Based on the most likely diagnosis, what is the most appropriate first-line treatment option?

A.Haemodialysis

B.Intravenous (IV) atropine

C.Intramuscular (IM) naloxone

D.IV sodium bicarbonate

E.N-acetylcysteine infusion

Answer:IV sodium bicarbonate

Explanation:

Widened QRS or arrhythmia in tricyclic overdose - give IV bicarbonate

Important for meLess important

This clinical scenario describes an overdose of tricyclic anti-depressants (TCA), which can result in hypotension, tachycardia, dehydration and dilated pupils. Possible ECG changes include prolonged QT interval and a widened QRS complex. This widened QRS complex is an indication for treatment with sodium bicarbonate, as it suggests increased risk of arrhythmias.

Haemodialysis is not effective in removing tricyclics from the blood. However, it is a potential treatment option for overdoses of salicylates and methanol.

IV atropine is the first-line option for a beta-blocker overdose, if the patient is bradycardic. Glucagon is second-line, if still bradycardic despite atropine.

IM naloxone is the treatment of choice for opioid overdose, which presents with pin-point (constricted) pupils and respiratory depression.

N-acetylcysteine infusion is used in cases of paracetamol overdose. It is used if the plasma paracetamol levels are above a 'treatment line' at 4 hours since the overdose. It should also be given if there are any signs of liver damage or if there is any uncertainty about the timing of overdose.

Question:

A 69-year-old woman is admitted to the high dependency unit with sepsis due to pneumonia. She is being treated with IV ceftriaxone and azithromycin. She has a past medical history of type 2 diabetes and 3 previous myocardial infarctions. She takes amlodipine, aspirin, clopidogrel, metformin, propranolol, and simvastatin regularly.

During catheterisation, it was noted she passed visibly haematuric urine. A urine dipstick was remarkable for 3+ blood.

A set of blood tests are shown below.

Hb 100 g/L Male: (135-180)

Female: (115 - 160)

Platelets 60 \* 109/L (150 - 400)

WBC 3.9 \* 109/L (4.0 - 11.0)

Na+ 132 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 9.0 mmol/L (2.0 - 7.0)

Creatinine 162 µmol/L (55 - 120)

CRP 50 mg/L (< 5)

What is the most likely cause of her haematuria?

A.Disseminated intravascular coagulation

B.Drug-induced haematuria

C.Granulomatosis with polyangiitis

D.IgA vasculitis

E.Pyelonephritis

Answer:Disseminated intravascular coagulation

Explanation:

Deranged coagulation in sepsis -> DIC

Important for meLess important

This patient has presented with a complex clinical picture, which has various possible explanations. Her visible haematuria is likely related to her current condition. Her blood results point us towards the reason for bleeding, showing a thrombocytopenia of 60 \* 109/L. This suggests that due to a low number of platelets, bleeding is more likely, especially as a result of a traumatic catheterisation.

The underlying cause of this thrombocytopenia is likely to be disseminated intravascular coagulation (DIC). DIC is found in sepsis, when microangiopathic clots are formed throughout the body, using up clotting factors and platelets, leading to an increased likelihood of bleeding. A coagulation screen would be necessary to confirm this, where it would show decreased fibrinogen, and an increased prothrombin time and activated partial thromboplastin time.

Drug-induced haematuria is incorrect here. Whilst aspirin may make an individual more susceptible to traumatic haematuria, DIC is more likely given the clinical picture and the blood results. None of the other drugs are known to cause haemorrhagic cystitis, which should be considered in a case like this.

Granulomatosis with polyangiitis is incorrect. It may present with haematuria and symptoms of pneumonia (i.e. a cough, shortness of breath, and chest pain) but would also be accompanied by a long history of problems and wouldn't present with a septic picture.

IgA vasculitis is incorrect. It is another term for Henoch–schönlein purpura, which may present with haematuria following an infection. However, it is less likely in this age group, and there would be a longer delay between onset of infection and haematuria. Furthermore, the haematuria is normally microscopic, and may not show up on regular urine dipstick.

Whilst concomitant infection (pyelonephritis) may be considered in this case, it is a less likely explanation than a complication of her current sepsis. Additionally, the urine dipstick being unremarkable apart from blood would lessen the likelihood of this diagnosis.

Question:

A 45-year-old man of no fixed abode is found unconscious in the street and brought to the emergency department. As part of his initial management the doctor on call performs an arterial blood gas (ABG) shown below:

pH 7.51 (7.35 - 7.45)

pCO2 7.0 kPa (4.7 - 6.0)

pO2 11.2 kPa (11.0 - 13.0)

Na+ 145 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 35 mmol/L (22 - 29)

Base excess (BE) +4 mmol/L (-2 - +2)

What is the most likely cause of this patient's condition?

A.Diabetic ketoacidosis (DKA)

B.Methanol poisoning

C.Opiate overdose

D.Prolonged diarrhoea

E.Prolonged vomiting

Answer:Prolonged vomiting

Explanation:

Metabolic alkalosis + hypokalaemia → ?prolonged vomiting

Important for meLess important

The correct answer is prolonged vomiting. This patient has a metabolic alkalosis (high pH, increased bicarbonate and base excess) with hypokalaemia. This is caused by the loss of H+ ions from the GI tract. This then leads to an intracellular potassium shift that causes hypokalaemia.

Diabetic ketoacidosis would be incorrect in this case. This is a good differential to consider at the initial presentation. However, DKA would classically lead to hyperkalaemic metabolic acidosis on ABG.

Methanol poisoning is incorrect in this case. Methanol poisoning would classically cause severe metabolic acidosis with a raised anion gap. Methanol leads to a failure of aerobic ATP production leading to severe lactic acidosis.

Opiate overdose is incorrect. Typically opioids lead to respiratory depression, causing type 2 respiratory failure. This would lead to decreased pO2 and increased pCO2 on ABG thus causing respiratory acidosis.

Prolonged diarrhoea is incorrect. This tends to cause metabolic acidosis due to the loss of bicarbonate via the GI tract with retention of the stomach acid. Furthermore, this typically leads to an extracellular shift of K+ causing hyperkalaemia.

Question:

A 72-year-old woman attends a pre-operative assessment for a total hip replacement.

She has a past medical history of severe atrial fibrillation and hypertension.

The electrocardiogram (ECG) shows the following:

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

What is the most likely cause of this ECG appearance?

A.Amiodarone therapy

B.Complete heart block

C.Digoxin therapy

D.Hyperkalaeamia

E.ST-elevation myocardial infarction

Answer:Digoxin therapy

Explanation:

The correct answer is digoxin therapy. This ECG shows the classic effects of digoxin therapy, in a patient with atrial fibrillation. There is a 'scooped' ST depression in leads II, III, aVF, v5, and V6. The presence of this 'scooping' or 'reverse-tick sign' is a typical finding in patients taking digoxin.

There are four main categories of etiologies of ST depression associated with a normal QRS complex: ischaemia, hypokalemia, digoxin, normal variant. When the QT interval is very short and 'scooped' as in this case, think digoxin.

Amiodarone is a potassium-channel blocker used to maintain sinus rhythm in patients with a history of atrial fibrillation. It does not cause the ECG changes seen in this case but can prolong the QT interval.

Complete heart block is where there is the total absence of electrical conduction between the atria and ventriculi. On an ECG, there would be no association between the P waves and QRS complexes, and often the rate would be bradycardia. In the ECG above, we can observe that the PR complex is prolonged but always rhythmically followed by a QRS complex. Additionally, complete heart block is often symptomatic, with features such as syncope, severe bradycardia, and hypotension.

Hyperkalaemia would present on ECG with peaked or 'tall-tented' T waves and loss of P waves. These features are absent in this patient's ECG.

An ST-elevation myocardial infarction would likely present with classical symptoms such as chest pain, left arm/ jaw pain, sweating, nausea, and vomiting. On an ECG, a STEMI would present with ST-segment elevation.

Question:

A 28-year-old woman with polycystic ovarian syndrome consults you as she is having problems becoming pregnant. She has a past history of oligomenorrhea and has previously recently stopped taking a combined oral contraceptive pill. Despite stopping the pill 6 months ago she is still not having regular periods. Her body mass index is 28 kg/m^2. Apart from advising her to lose weight, which one of the following interventions is most effective in increasing her chances of conceiving?

A.Metformin

B.Bromocriptine

C.Laparoscopic ovarian cautery

D.Clomifene

E.Orlistat

Answer:Clomifene

Explanation:

Infertility in PCOS - clomifene is typically used first-line

Important for meLess important

Whilst metformin has a role in the management of infertility it should be used second-line to anti-oestrogens such as clomifene. Similar questions to this often appear in which clomifene is not an option, in this case metformin is clearly the right answer.

Question:

A 25-year-old female with a history of depression presents to her GP with a two day history of numbness affecting the C6 distribution in her right arm. There is no history of neck pain or injury. Neurological examination confirms reduced sensation in that dermatome but is otherwise unremarkable. She reports no similar episodes previously although does describe an episode three months ago of reduced vision and painful movements in her right eye. This resolved spontaneously and she did not seek medical attention. What is the most likely diagnosis?

A.Somatisation disorder

B.Huntington's disease

C.Multiple sclerosis

D.Syringomyelia

E.Conversion disorder

Answer:Multiple sclerosis

Explanation:

The symptoms three months ago were likely due to optic neuritis, a common presenting feature of multiple sclerosis.

Whilst she has a depression this does not necessarily mean that her symptoms are due to either a conversion or somatisation disorder. Depression is obviously very common and may indeed be one of the subtle manifestations of multiple sclerosis.

Question:

Which one of the following statements regarding childhood squints is correct?

A.Amblyopia is a sign of a paralytic squint

B.Divergent squints are more common than convergent squints

C.The corneal light reflection test is a suitable screening test

D.Management of the majority of childhood squints should be done in primary care

E.A child with a non-paralytic squint would have a degree of double vision

Answer:The corneal light reflection test is a suitable screening test

Explanation:

Amblyopia can develop in both paralytic and non-paralytic squints.

Question:

A 62-year-old man presents to his GP with a rash on his face. He states the rash has been present for two months. On examination, the rash looks like this:

© Image used on license from DermNet NZ

What feature would most urgently require escalation to a specialist?

A.A close family member being immunocompromised

B.A large, red, bulbous nose

C.Pus-filled spots visible with a magnifying glass

D.Red, inflamed eyes and eyelids

E.Redness worsening with alcohol consumption

Answer:Red, inflamed eyes and eyelids

Explanation:

This image is of a patient with rosacea. There is evidence of widespread erythema over the nose, cheeks and forehead - commonly affected area in rosacea. There is evidence of flushing which is often the first symptom seen in patients affected with this condition, as well as visible papules and pustules on her forehead. There are potentially early stages of rhinophyma and no evident ocular involvement.

Red, inflamed eyes and eyelids are the correct answer. In this patient, it would indicate ocular involvement, which requires prompt escalation to prevent corneal scarring. Although none is immediately evident from the image, a proper examination would be required.

As rosacea is not infectious, a close family member being immunocompromised would not be a concern and therefore is not correct.

A large, red, bulbous nose (i.e. rhinophyma) is incorrect. Although this may require extra (possibly surgical) management, this is not as urgent as escalating ocular involvement to prevent corneal scarring.

Pus-filled spots visible with a magnifying glass are common in rosacea and don't require urgent treatment.

Redness worsening with alcohol consumption is also common in rosacea.

Question:

A 42-year-old lady presents to the emergency department with palpitations that started a few hours ago. She has a heart rate of 180/min and an ECG is performed that shows atrial fibrillation. The cardiologist on call wants to use flecainide to pharmacologically cardiovert the patient back into sinus rhythm. Which of the following should be performed before the flecainide is given?

A.Urea and electrolytes

B.Echocardiogram

C.Full blood count

D.ECG stress test

E.Lying and standing blood pressure

Answer:Echocardiogram

Explanation:

You should look for signs of structural heart disease before the use of flecainide in AF

Important for meLess important

This question involves a lady presenting with fast atrial fibrillation. Atrial fibrillation can be treated with rate control of rhythm control. In this case, as the patient is younger, the cardiologist would like to attempt rhythm control with pharmacological cardioversion. There are a few options for this cardioversion and flecainide is one of them.

However, flecainide cannot be used in people if there is any known ischaemic or structural heart disease and therefore an echocardiogram is required to rule this out before the drug can be given.

Question:

A 37-year-old female presents as a new referral to the thyroid clinic. She complains of dizziness, sweating, fatigue, increased frequency of stools as well as eye pain and diplopia. On examination, a goitre is noted.

Which symptoms is most suggestive of a diagnosis of Graves' disease rather than an alternative cause of hyperthyroidism?

A.Diplopia

B.Dizziness

C.Goitre

D.Heat intolerance

E.Increased stool frequency

Answer:Diplopia

Explanation:

Exophthalmos is a specific feature of Grave's disease rather than generic hyperthyroidism

Important for meLess important

Diplopia and eye pain in the context of hyperthyroidism are suggestive of thyroid eye disease. This is specific to Graves' disease and does not occur in other causes of hyperthyroidism.

Dizziness, heat intolerance and increased stool frequency are symptoms of hyperthyroidism in general, which may be present with causes other than Graves' disease.

Goitre may be present in other causes of hypo- and hyperthyroidism such as iodine deficiency, Hashimoto's thyroiditis, toxic multi nodular goitre and thyroiditis.

Question:

A 46-year-old man with schizophrenia is brought to the surgery by one of his carers. His current medication includes clozapine and procyclidine. His carer reports that he is more tired than usual and generally unwell. She also thinks he may have put on weight. What is the most important test to perform?

A.Blood sugar

B.Full blood count

C.Urea and electrolytes

D.Urine dipstick for protein

E.Liver function tests

Answer:Full blood count

Explanation:

Agranulocytosis/neutropenia is a life-threatening side effect of clozapine - monitor FBC

Important for meLess important

The most important complication of clozapine therapy to exclude is agranulocytosis. Weight gain is common in patients taking an antipsychotic

Question:

A 33-year-old businesswoman presents to the GP with persisting pain and swelling in her fore-foot. She describes that she moved to London 3 months ago for a new job, and as such she is often on her feet and usually wears high heels. She says that the pain is worse when she is weight bearing. Squeezing her foot recreates the pain. You suspect that she has a stress fracture.

What bone is most likely involved?

A.Intermediate cuneiform

B.Lateral cuneiform

C.Medial cuneiform

D.1st metatarsal

E.2nd metatarsal

Answer:2nd metatarsal

Explanation:

The most common site of metatarsal stress fractures is the 2nd metatarsal shaft

Important for meLess important

2nd metatarsal is the correct answer. Stress fractures are most common in the 2nd metatarsal as this is the longest and metatarsal bone, and it's thin and vulnerable to stress fractures.

Medial, lateral and intermediate cuneiforms are incorrect options as they are in the mid-foot and are not as vulnerable to stress fractures.

1st metatarsal is incorrect as it is less vulnerable to stress fractures given that it isn't as long or thin as the 2nd metatarsal.

Question:

A 75-year-old woman presents to her GP with bone pain and muscle tenderness. She has a past medical history of stage 3 chronic kidney disease.

The GP decides to take some blood, and the results are shown below.

Calcium 2.0 mmol/L (2.1-2.6)

Phosphate 0.67 mmol/L (0.8-1.4)

Magnesium 0.85 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 4.5 mU/L (0.5-5.5)

Free thyroxine (T4) 11.3 pmol/L (9.0 - 18)

What is the most appropriate initial management?

A.Intravenous bisphosphonates

B.Intravenous fluids

C.Levothyroxine

D.Oral bisphosphonates

E.Vitamin D supplements

Answer:Vitamin D supplements

Explanation:

Osteomalacia is managed using vitamin D supplementation (often with an initial loading dose regime)

Important for meLess important

The patient has osteomalacia which is most likely secondary to chronic kidney disease.

Osteomalacia blood tests show a low calcium and phosphate and a high alkaline phosphatase.

Intravenous fluids and bisphosphonates is not the correct answer, as this is the management for hypercalcaemia, not hypocalcaemia.

Levothyroxine is incorrect as it is used to manage hypothyroidism.

Oral bisphosphonates is incorrect as they are used in the management of osteoporosis.

Vitamin D supplementation is the correct answer and is commonly used to treat osteomalacia. Calcium supplementation may also be prescribed if the dietary intake of calcium is inadequate.

Question:

A 64-year-old man is brought into the emergency department unconscious after being found collapsed in a pool of blood with unrecordable blood pressure.

He has a background of epilepsy, he is also a current smoker and drinks 50 units of alcohol per week.

There is fresh blood on PR examination and the nurses note frequent large volume bloody stools.

Blood tests are as follows:

Hb 42 g/L Male: (135-180)

Female: (115 - 160)

Platelets 54 \* 109/L (150 - 400)

WBC 4.2 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Urea 32.1 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

CRP 90 mg/L (>5)

INR 2.1 (≤1.1)

What is the most likely cause of his bleeding?

A.Boerhaave syndrome

B.Diverticular disease

C.Haemorrhoids

D.Ischaemic colitis

E.Variceal bleed

Answer:Variceal bleed

Explanation:

High urea levels can indicate an upper GI bleed versus lower GI bleed

Important for meLess important

It is extremely important to be aware of the fact that a brisk upper GI bleed can present with fresh blood PR rather than malaena.

Variceal bleed is the correct answer. This man has a background of cirrhosis, patients with cirrhosis are at higher risk of developing varices. Excessive drinking and smoking also put him at a higher risk. The raised urea is another major clue here - high urea levels indicate upper GI bleed especially if raised out of proportion to creatinine levels. It is important to note that fresh PR bleeding rather than melaena does not rule out an upper GI bleed - a brisk upper GI bleed can present with fresh PR bleeding.

Ischaemic colitis is a common cause of lower GI bleeding rather than upper GI bleeding. Patients with colitis do present with fresh PR bleeding, abdominal pain, and raised inflammatory markers but this wouldn't explain the high urea.

Diverticular disease is a common cause of bleeding from the back passage, but would not explain the high urea levels.

Haemorrhoids are unlikely to cause such significant, acute blood loss. PR examination did not reveal any evidence of haemorrhoids which also makes this diagnosis very unlikely.

Boerhaave syndrome is an oesophageal perforation, it is differentiated from a Mallory-Weiss tear as it is a transmural tear rather than a mucosal tear. It can be associated with haematemesis but this is uncommon.

Question:

A 70-year-old woman is seen in the oncology clinic after originally presenting with a breast lump and a biopsy confirmed malignancy.

Cancer receptor testing confirms the presence of oestrogen receptors and so, given the patient is postmenopausal, a plan is made for her to be commenced on an aromatase inhibitor.

Due to known adverse effects of the medication, a DEXA scan is conducted before commencing treatment.

What drug is this patient to be commenced on?

A.Anastrozole

B.Docetaxel

C.Levonorgestrel

D.Tamoxifen

E.Trastuzumab

Answer:Anastrozole

Explanation:

Anastrozole and letrozole are aromatase inhibitors that reduces peripheral oestrogen synthesis

Important for meLess important

Anastrozole and the similar letrozole are examples of aromatase inhibitors used for the management of oestrogen receptor-positive (ER +ve) breast cancer. These drugs reduce the production of oestrogen and are particularly used for ER +ve breast cancer in postmenopausal women as aromatisation accounts for the majority of oestrogen production in this group.

Docetaxel is an example of a taxane drug, usually added to chemotherapy regimens for the treatment of breast cancer (e.g. combine with cyclophosphamide and doxorubicin to form 'CAT' one of the most common breast cancer chemotherapy regimens). As with most chemotherapy drugs it works by destroying the fast-replicating cells that cause cancer and do not affect aromatisation.

Levonorgestrel is a progestin and mimics the effect of the hormone progesterone. As such it is used in combination with oestrogen in both birth control and menopausal hormone therapy. Levonorgestrel has no role in the management of breast cancer with research indicating that its use is associated with a slightly increased risk of malignancy.

Tamoxifen is an example of a selective oestrogen receptor modulator (SERM) commonly used in the treatment of ER +ve breast cancer. Unlikely aromatase inhibitors SERMs directly block the cancer oestrogen receptors, inhibiting growth.

Trastuzumab is a monoclonal antibody used to treat specific HER2 receptor +ve breast cancers. This monoclonal antibody targets HER2, which is amplified in 20–30% of early-stage breast cancers and induces an immune-mediated response, reducing proliferation. Again aromatisation is not affected by this drug.

Question:

Alport's syndrome is associated with each one of the following, except:

A.Chronic kidney disease

B.Presentation in childhood

C.Microscopic haematuria

D.Lenticonus

E.Anosmia

Answer:Anosmia

Explanation:

Question:

A 49-year-old woman presents to her general practitioner with a 4-week history of back pain. She has tried numerous analgesics but reports little improvement in her symptoms. Her past medical history includes coeliac disease and a mild vitamin D deficiency. She smokes 10 cigarettes per day.

On examination, her observations are within normal limits. There is palpable tenderness of the T8 vertebrae with no obvious visible deformity. Her neurological examination is unremarkable.

What aspect of the patient's presentation is a red flag for further investigation?

A.Age

B.Female sex

C.Smoking history

D.Thoracic back pain

E.Vitamin D deficiency

Answer:Thoracic back pain

Explanation:

Thoracic pain is a red flag in patients presenting with back pain

Important for meLess important

Thoracic back pain is correct. When assessing a patient with back pain, it is important to be aware of red flag features such as thoracic back pain, age > 50 years, unexplained weight loss, local spinal tenderness and focal neurology (e.g. urinary or faecal incontinence or lower leg weakness). Thoracic back pain is a red flag feature for malignancy, particularly in those > 50 years. Other features include a gradual onset of symptoms that fails to resolve despite analgesia.

Age is incorrect. An age > 50 years or < 18 years is a red flag feature for back pain.

Female sex is incorrect. Female or male sex is not a red flag risk factor for back pain.

Smoking history is incorrect. Although smoking is an overall risk factor for several health conditions including cardiovascular and respiratory disease and some malignancies, it is not a red flag risk factor for a patient presenting with back pain.

Vitamin D deficiency is incorrect. Although vitamin D deficiency increases the risk of bone fragility, it is not a red flag for back pain.

Question:

A woman of child bearing age comes into your GP surgery. She wishes to try to conceive for a baby in one years time and does not wish to conceive sooner due to barrister exams she has this year. She ideally wants to fall pregnant soon after her exams. Which of the follow methods of contraception is most associated with delayed return to fertility?

A.Intrauterine system

B.Condoms

C.Combined oral contraceptive pill

D.Depo-Provera

E.Progesterone only pill

Answer:Depo-Provera

Explanation:

Condoms work as a barrier contraceptive and do not affect ovulation and hence do not delay fertility.

The intrauterine system (IUS) works by thickening cervical mucous and in some women may prevent ovulation, however the majority of women still ovulate. After removal of the IUS the majority of women regain fertility immediately.

The combined oral contraceptive pill can delay return to normal menstrual cycle in some women but the majority will be able to conceive within a month of stopping. The progesterone only pill is less likely to delay return to normal cycle as it does not contain oestrogen.

Because Depo-Provera lasts up to 12 weeks, it can take several months for the body to return to the normal menstrual cycle and hence delay fertility. For this reason, it is the least appropriate method for this woman who wants to return to ovulatory cycles immediately.

Question:

A 65-year-old gentleman presents with a 3 week history of general malaise, decreased oral intake and drowsiness. He has a past medical history of ischaemic heart disease, type 2 diabetes mellitus and gastritis. He lives alone with no carers and normally mobilises independently. A concerned neighbour went in to check on him after he was not seen for a few days. On examination his mouth is dry with reduced skin turgor. Heart sounds are normal, chest is clear, abdominal palpation reveals lower abdominal tenderness. ECG shows sinus tachycardia. Urine dip shows ketones +, glucose +++.

Blood tests show:

Hb 140 g/l Na+ 150 mmol/l

Platelets 525 \* 109/l K+ 4.2 mmol/l

WBC 14 \* 109/l Urea 13 mmol/l

Neuts 10 \* 109/l Creatinine 160 µmol/l

Lymphs 2 \* 109/l CRP 56 mg/l

Eosin 0.5 \* 109/l

Venous blood gas shows no signs of acidosis. Formal blood glucose is phoned back as 40 mmol/L.

What is the most important initial treatment?

A.Intravenous insulin

B.Low molecular weight heparin

C.Antibiotics

D.Subcutaneous insulin

E.Intravenous fluids

Answer:Intravenous fluids

Explanation:

The patient is clinically and biochemically dehydrated. Intravenous fluid resuscitation may be enough to normalise blood sugars. If hyperglycaemia is not responding then insulin may be required. Assessment for precipitant cause is also important such as infection, change in medicines, cardiovascular event etc. Low molecular weight heparin should be prescribed unless any contraindications due to the increased risk of venous thromboembolism associated with this condition.

Question:

A 31-year-old man returns for review. He was diagnosed with an anal fissure around 7 weeks ago and has tried dietary modification, laxatives and topical anaesthetic with little benefit. What is the most appropriate next step?

A.Oral bisacodyl

B.Oral calcium channel blocker

C.Topical steroid

D.Buccal glyceryl trinitrate prior to defecation

E.Topical glyceryl trinitrate

Answer:Topical glyceryl trinitrate

Explanation:

Chronic anal fissure - topical glyceryl trinitrate

Important for meLess important

Question:

You review a 52-year-old man who is being investigated for weight gain, impotence and hypertension. On examination you record a blood pressure of 180/110 mmHg and notice purple striae around his abdomen. He also has some difficulty getting up from a chair and you observe generalised decreased muscle strength. Routine bloods are ordered. Given the likely underlying diagnosis, what are the urea and electrolytes most likely to show?

A.Hypokalaemic metabolic acidosis

B.Hyperkalaemic metabolic alkalosis

C.Hypocalcaemic metabolic acidosis

D.Hypokalaemic metabolic alkalosis

E.Hyperkalaemic metabolic acidosis

Answer:Hypokalaemic metabolic alkalosis

Explanation:

Cushing's syndrome - hypokalaemic metabolic alkalosis

Important for meLess important

Question:

Which of the following is not a recognised causes of tunnel vision?

A.Papilloedema

B.Choroidoretinitis

C.Macular degeneration

D.Glaucoma

E.Retinitis pigmentosa

Answer:Macular degeneration

Explanation:

Question:

A 28-year-old woman is brought into the emergency department after a road traffic accident. She sustained multiple injuries to her neck, head, and left arm.

Her left eye is swollen shut, but her right eye opens to pain. She does not respond to commands or a trapezius squeeze. You apply supraorbital pressure, and her left arm extends, but her right arm reaches to her eye and tries to pull your hand away.

During the exam, she says no words but makes various noises to indicate she's in pain.

What is her GCS?

A.4

B.7

C.8

D.9

E.10

Answer:9

Explanation:

When assessing the GCS, take the BEST response from both sides

Important for meLess important

She is E2 V2 M5 making her GCS 9. the critical part to note about this case is when measuring GCS, you should always take the best response. The patient tried to pull your hand away when pressure was applied, so she scored M5 (localising). She opened an eye to pain which is E2, and she made noises which is V2.

It is important to remember that a trapezius squeeze is not always reliable. Patients may have spinal cord injuries, but regardless of whether there is an injury, you should always take the patient's best result.

GCS 4 is incorrect: she is M5, not M1, because she performs purposeful movement to a painful stimulus. She doesn't respond to the trapezius squeeze because she may have a spinal cord injury.

GCS 8 is incorrect: the right eye being swollen shut does not make her E1; the left eye opens to pain, so she is E2.

GCS: 7 is incorrect. M4 V2 E1 is incorrect for the reasons above and the fact that she is at least m5 because she is making purposeful movement.

GCS 10 is incorrect: as, though she is making noises, she is not saying any words, so she is V2, not V3.

Question:

You are performing a skin biopsy on a 65-year-old woman with possible skin cancer. Shortly after infiltration of the skin with xylocaine with adrenaline, you note that her fingers start to turn blue and cold.

What treatment is indicated?

A.Lipid emulsion

B.Phenoxybenzamine

C.Phentolamine

D.Physostigmine

E.Propranolol

Answer:Phentolamine

Explanation:

Adrenaline induced ischaemia - phentolamine

Important for meLess important

Adrenaline is often added to a local anaesthetic to prolong its effect. Caution is recommended when adrenaline is used in body parts with end arteries (e.g. fingers and toes). Adrenaline may constrict the arteries and reduce blood supply to those organs, resulting in complications. Adrenaline acts on α-1 adrenoceptors to cause vascular smooth muscle constriction.

Phentolamine is correct. This drug is a competitive α-adrenoreceptor antagonist which can be injected to reverse the effects of adrenaline on the vasculature.

Lipid emulsion is incorrect. This can be used for local anaesthetic toxicity which presents with peri-oral numbness, paraesthesia, tinnitus and confusion, leading to coma, seizure and cardiac toxicity.

Phenoxybenzamine is incorrect. This drug is a non-selective α-adrenergic antagonist. Although this would result in vasodilation it is not licensed for use in this context.

Physostigmine is incorrect. This drug is a reversible cholinesterase inhibitor which can be used to treat anti-cholinergic toxicity. Features of anti-cholinergic toxicity includes fever, confusion, dry mouth, and urinary retention.

Propranolol is incorrect. Propranolol is a β-adrenoreceptor antagonist and thus would not reverse the effects of adrenaline on the smooth muscle of the vasculature.

Question:

A 42-year-old woman presents to her GP with breast discharge. The discharge is from the left breast only and is blood-stained. The patient is well in herself and has no other symptoms. On examination, both breasts are of normal appearance with no overlying skin changes. A fixed and tender lump can be felt beneath the left nipple. Palpation of the axillae and tails of Spence reveals no further masses.

Given the above, what is the most likely diagnosis?

A.Breast fat necrosis

B.Fibroadenoma

C.Intraductal papilloma

D.Mammary duct ectasia

E.Pituitary prolactinoma

Answer:Intraductal papilloma

Explanation:

Blood stained discharge is most likely to be associated with a papiloma

Important for meLess important

An intraductal papilloma is a tumour of fibrovascular tissue that develops within the lactic ducts. Although benign, papillomas can continue to grow and can be painful. Treatment is by surgical excision with histology to check for any evidence of breast cancer.

Breast fat necrosis generally occurs following trauma, though can develop spontaneously. This tends to present with a firm, round lump within the breast tissue, sometimes with an associated bruise or other overlying skin change such as dimpling. The lump can be tender or non-tender. Breast fat necrosis is not associated with nipple discharge and is self-limiting in the vast majority of cases.

Fibroadenomas, or breast mice, are benign lumps that are typically small (1-2cm), non-tender, and mobile. They are often firm to rubbery in texture. Fibroadenomas are not associated with nipple discharge and do not require treatment.

Mammary duct ectasia refers to dilatation of a breast duct, often resulting in blockage. It is most common in menopausal women. Mammary duct ectasia is usually asymptomatic but can result in nipple discharge, although this is typically thick, non-bloody, and green in colour. Bloody discharge can occasionally occur, but this is less likely than in intraductal papilloma. Mammary duct ectasia is a benign condition that is usually self-limiting, although sometimes surgery is needed.

Although pituitary prolactinoma is an important differential to consider, the nipple discharge would be bilateral and non-bloodstained. Larger prolactinomas also present with bitemporal hemianopia due to compression of the optic chiasm.

Question:

A 23-year-old woman with a background of systemic lupus erythematosus (SLE) presents to her GP with pain in both her wrists over the last week. Her wrists also feel quite stiff in the morning. She usually has a minor aches in her joints but this is worse than usual.

On examination both wrists are tender and painful on passive movement. There is no obvious swelling or deformity. A rash across her cheeks is also noted which she says has also developed over the last week.

Which of the following is appropriate for this patient?

A.Anti-dsDNA titres are useful for monitoring her SLE flare – the levels are usually low during active disease

B.CRP is useful for monitoring her SLE flare – the levels are usually high during active disease

C.CRP is useful for monitoring her SLE flare – the levels are usually low during active disease

D.Complement levels are useful for monitoring her SLE flare – the levels are usually high during active disease

E.Complement levels are useful for monitoring her SLE flare – the levels are usually low during active disease

Answer:Complement levels are useful for monitoring her SLE flare – the levels are usually low during active disease

Explanation:

SLE: complement levels are usually low during active disease - may be used to monitor flares

Important for meLess important

Complement levels may be used to monitor SLE flares. This is because levels drop in active disease due to the formation of complexes leads to consumption of complement.

In comparison, CRP is non-specific and a poor marker of disease activity as it may remain normal unless there is an intercurrent infection or serositis. ESR is a better marker used in disease monitoring.

Anti-dsDNA titres can be used for disease monitoring. The levels are usually high during active disease.

Question:

A 45-year-old comes for review following an acute medical admission. He reports that he has been suffering from itchy, raised red bumps on the skin. These first appeared approximately 12 hours after taking his discharge medication for the first time and it seems to have worsened over the past few days. He has never had anything like this before that he can recall. Examination reveals some faint pink raised patches on the trunk and upper arms.

What medication is most likely to be the cause of his symptoms?

A.Aspirin

B.Atorvastatin

C.Bisoprolol

D.Metformin

E.Ticagrelor

Answer:Aspirin

Explanation:

Aspirin is a common cause of urticaria

Important for meLess important

Aspirin is the correct answer. This patient is presenting with an urticarial rash which has a new onset subsequent to the introduction of new medications. Salicylates (including aspirin) are a known cause of urticaria and therefore this would be the most likely culprit in this scenario.

Atorvastatin is not commonly associated with urticaria. Common side effects include nausea and headache. More serious side-effects of statin therapy include myalgia and myopathy, and transaminitis (or deranged liver function tests).

Bisoprolol is not commonly associated with urticaria as experienced in this case. Beta-blockers commonly cause hypotension and bradycardia which may present as light-headedness, dizziness or headache. Beta-blockers should be avoided in asthmatics due to the risk of bronchoconstriction.

Metformin is not commonly associated with urticaria as experienced in this case. It does occasionally cause gastrointestinal disturbance when initiated which may improve with moderate release preparations.

Ticagrelor does not commonly cause urticaria as experienced in this case. Patients taking this medication may experience easy bleeding and bruising.

Question:

A 25-year-old woman (G1P1) undergoes a vaginal delivery at 39 weeks gestation, followed by a physiological third stage of labour. In the hours following, she has some brown mucousy vaginal discharge with blood in it, producing approximately 100ml of blood.

On examination, the patient has a GCS of 15, a soft but tender abdomen. Her blood pressure is 132/83 mmHg, her pulse is 86 bpm, her temperature is 36.5C.

What is the most appropriate next step in her management?

A.Abdominal ultrasound

B.Give IV oxytocin

C.Give IV tranexamic acid

D.Palpate the uterus and catheterise

E.Provide sanitary pads

Answer:Provide sanitary pads

Explanation:

Postpartum haemorrhage is defined as blood loss of 500 ml after a vaginal delivery

Important for meLess important

Provide sanitary pads is correct. This patient has lost <500 ml of blood within 24 hours of delivery and is showing no signs of circulatory shock making it unlikely for the diagnosis to be a primary postpartum haemorrhage (PPH). The patient is more likely to be producing lochia, a combination of mucus, uterine tissue, and blood that is common after childbirth. This should reduce over the following days but can continue for up to 12 weeks.

Palpate the uterus and catheterise is incorrect. This patient has lost <500 ml of blood within 24 hours of delivery, making the diagnosis of PPH unlikely. The Royal College of Obstetricians and Gynaecologists (RCOG) recommend that in all cases of PPH, an ABCDE approach should be carried out initially, along with gaining IV access and sending blood samples for testing, including group and save. Since uterine atony is by far the most common cause of PPH, the first step in management is known as mechanical management and involves palpating the uterus to stimulate contractions and catheterising to prevent bladder distention, which is indicated in this patient.

Give IV oxytocin is incorrect. This would be appropriate if palpation of the uterus had been tried without success. This patient has no indications for palpation yet, which is done before starting medical management and so is inappropriate.

Abdominal Ultrasound is incorrect. Although a useful investigation to identify retained products this patient has no indications for this and only has mild bleeding.

Give IV tranexamic acid is incorrect. Although tranexamic acid may be considered for use in PPH, it is given alongside medical management such as IV oxytocin, which is given after uterine palpation. This patient has not had uterine palpation tried yet as they currently are not showing signs of PPH.

Question:

A 35-year-old woman with a history of multiple spontaneous miscarriages, recurrent DVT / PEs presents to your clinic for a review appointment. On examination, you notice purpuric rashes, splinter haemorrhages and livedo reticularis. Given the likely diagnosis, which of the following would be the most appropriate auto-immune antibody test to perform?

A.Anti-cyclic citrullinated peptide antibodies

B.Anti-double stranded DNA antibodies

C.Anti-cardiolipin antibodies

D.Anti-Jo-1 and anti-Mi-2 antibodies

E.Anti-Ro and anti-La antibodies

Answer:Anti-cardiolipin antibodies

Explanation:

Anti-phospholipid syndrome antibodies are lupus anticoagulant (LA) and anti-cardiolipin antibodies (aCL)

Important for meLess important

1 - Incorrect. This is the antibody test for rheumatoid arthritis.

2 - Incorrect. This is the antibody test for SLE.

3 - Correct. This is the antibody test for anti-phospholipid syndrome.

4 - Incorrect. This is the antibody test for polymyositis.

5 - Incorrect. This is the antibody test for Sjogren's syndrome.

Question:

A 25-year-old man presents with acute shortness of breath and has a history of asthma. You want to assess the severity of his asthma attack, and are considering that he might be having an acute severe attack.

Which of the following is a feature of this classification?

A.Inability to complete full sentences

B.O2 saturations <92%

C.Peak expiratory flow rate 50-75% of best or predicted

D.Pulse >100 bpm

E.Respiratory rate >20/min

Answer:Inability to complete full sentences

Explanation:

The features of acute severe asthma are: PEFR 33-50% best or predicted, inability to complete full sentences, RR >25/min and pulse >110 bpm

Important for meLess important

The features of acute severe asthma are: PEFR 33-50% best or predicted, inability to complete full sentences, RR >25/min and pulse >110 bpm. Oxygen saturations less than 92% indicate a life-threatening attack.

Question:

A 24-year-old man is reviewed in the gastroenterology clinic following a recent admission for a suspected first episode of ulcerative colitis. Colonoscopy during the admission had found moderate proctitis and the patient was started on first-line topical therapy to induce remission. Following review, it is decided to prescribe the patient medication to maintain remission.

What medication should be prescribed?

A.Intravenous ciclosporin

B.Oral azathioprine

C.Oral prednisolone

D.Topical mesalazine

E.Topical prednisolone

Answer:Topical mesalazine

Explanation:

A topical (rectal) aminosalicylate +/- an oral aminosalicylate is used first-line in maintain remission in ulcerative colitis patients with proctitis and proctosigmoiditis

Important for meLess important

This scenario describes a patient with ulcerative colitis with proctitis who has entered remission and is due to start a medication to maintain remission. Given that the patient had moderate proctitis, the most suitable medication would be topical mesalazine as topical/rectal aminosalicylates are first-line choices.

Intravenous ciclosporin is an incorrect answer. Intravenous ciclosporin is reserved for cases in which severe colitis does not improve after 72 hours with other management. This is not the case for the above described scenario.

Oral azathioprine is an incorrect answer. Azathioprine is an immunosuppressant that is reserved for severe relapses or when there have been 2 or more ulcerative colitis flares within the last year.

Oral prednisolone is an incorrect answer. Corticosteroids are not first-line agents for proctitis, and given that remission has been successfully achieved with topical therapy, steroids are not indicated.

Topical prednisolone is an incorrect answer. Corticosteroids are not indicated in this patient as remission has been achieved with a first-line therapy agent (e.g. topical aminosalicylates).

Question:

A 38-year-old woman visits her GP reporting episodes of 'flushing' affecting her face. She says that over the past few months she has noticed that her face might turn red at random, but that this particularly occurs after she has consumed alcohol. She also complains of an increased number of 'spots' over her cheeks recently and isn't sure if these symptoms are related.

On examination, the GP notes two small telangiectases - one on the nose and one on the left cheek. There are also a couple of small papules on each cheek.

What should the GP offer this patient to help manage her symptoms?

A.Laser therapy

B.Oral isotretinoin

C.Oral oxytetracycline

D.Topical fusidic acid

E.Topical ivermectin

Answer:Topical ivermectin

Explanation:

Rosacea: topical ivermectin is first-line for patients mild papules and/or pustules

Important for meLess important

The history for this patient is suggestive of acne rosacea. They describe flushing with a relationship to alcohol, as well as some 'spots' which can often be mistaken for acne vulgaris. In mild cases, the recommended treatment is topical ivermectin. As this patient only has a couple of telangiectases and papules, this would be most appropriate for her.

Laser therapy may be offered to patients with persistent telangiectasia but would not be appropriate at this stage and would likely be organised by a specialist.

Oral isotretinoin is not indicated in the management of acne rosacea and is instead used for the treatment of severe acne vulgaris. It can only be prescribed by a specialist due to potential harmful adverse effects.

Oral oxytetracycline would be appropriate if this patient had more severe acne rosacea with more troublesome papules and pustules.

Topical fusidic acid is not indicated in the management of acne rosacea but can be used to treat impetigo.

Question:

A 59-year-old man complains of dry, sore eyes for the past six months. There has been no change in his vision and he doesn't wear contact lens. The only past history of note is hypothyroidism.

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What is the most likely diagnosis?

A.Blepharitis

B.Grave's eye disease

C.Episcleritis

D.Conjunctivitis

E.Hay fever

Answer:Blepharitis

Explanation:

Question:

What dose of adrenaline should be given during a cardiac arrest?

A.0.5 mg

B.1 mg

C.5 mg

D.10 mg

E.100 mg

Answer:1 mg

Explanation:

The recommended dose of adrenaline to give during advanced ALS is 1mg

Important for meLess important

Question:

A 21-year-old woman presents to the emergency department with her mother with a 2-day history of severe generalised abdominal pain and arm weakness. She has been feeling very low in mood recently and has been struggling to sleep, and her mother is concerned that she has seemed confused today. Her mother reports having had similar episodes to this herself in the past. On examination, her hands and eyes appear normal. Her abdomen is soft and there are no palpable masses. Upper limb power is 3/5 and upper limb reflexes are absent. Sensation is intact. Lower limbs are normal.

What is the most likely diagnosis?

A.Acute intermittent porphyria

B.Guillain-Barré syndrome

C.Motor neurone disease

D.Multiple sclerosis

E.Wilson's disease

Answer:Acute intermittent porphyria

Explanation:

Acute intermittent porphyria typically presents with abdominal, neurological and psychiatric symptoms

Important for meLess important

Acute intermittent porphyria is the correct answer. This typically presents with episodes of abdominal, neurological and psychiatric symptoms as this patient is experiencing. Acute intermittent porphyria is more common in women and typically presents between the ages of 20 and 40. The positive family history of similar episodes is further suggestive of acute intermittent porphyria as it is inherited in an autosomal dominant manner.

Guillain-Barré syndrome is incorrect. This causes muscle weakness which typically starts in the feet and legs, while this patient's weakness was in her arms. Also, this would not explain her severe abdominal pain.

Motor neurone disease is incorrect. This patient would be very young to develop motor neurone disease, with the typical patient aged 50-70, although it is possible. Motor neurone disease usually develops insidiously over weeks and months with gradual weakness which is typically unilateral to begin with. Sudden onset of bilateral upper limb weakness in a young patient would not be typical of motor neurone disease. Also, motor neurone disease would not explain the severe abdominal pain.

Multiple sclerosis is incorrect. Multiple sclerosis typically presents with episodes of sensory and/or motor symptoms, most commonly unilateral. It also frequently presents with visual symptoms. Bilateral upper limb weakness would not be typical, and multiple sclerosis would also not explain the patient's severe abdominal pain.

Wilson's disease is incorrect. This can present similarly to acute intermittent porphyria with neurological and psychiatric symptoms but also causes liver disease. On examination of a patient with Wilson's disease, you would typically see eye signs including Kayser-Fleischer rings and/or jaundice, and they may have hepatomegaly. This patient does not have these clinical signs of Wilson's disease, making this less likely.

Question:

A 24-year-old woman with a past history of polycystic ovarian syndrome (PCOS) attends your clinic. She is receiving optimum medical therapy for her condition and is still finding it difficult to conceive. Herself and her husband have now been trying to conceive for 2 years. Given her history, you believe that she may be a suitable candidate for in-vitro fertilisation (IVF) therapy. What are women with PCOS at particular risk of when undergoing IVF?

A.Treatment failure

B.Chronic pelvic pain

C.Ovarian hyperstimulation syndrome

D.Gestational diabetes

E.Haemorrhage

Answer:Ovarian hyperstimulation syndrome

Explanation:

Ovarian hyperstimulation syndrome is a particular risk for women with PCOS who undergo IVF.

Treatment failure is a complication of any IVF treatment not just those women with PCOS. Chronic pelvic pain, Caesarean section delivery and haemorrhage are not complications of IVF treatment.

Please see the following NICE guidelines for more information on PCOS:

http:cks.nice.org.uk/polycystic-ovary-syndrome#!scenariorecommendation:10

Question:

A 24-year-old man presents to his follow-up psychiatry appointment after being prescribed Risperidone for a new diagnosis of schizophrenia. He has been stable since starting this medication but complains of milky discharge from both nipples and asks if another medication can control his schizophrenia without causing nipple discharge.

What medication would be most appropriate to try next?

A.Aripiprazole

B.Chlorpromazine

C.Clozapine

D.Haloperidol

E.Olanzapine

Answer:Aripiprazole

Explanation:

Aripiprazole has the most tolerable side effect profile of the atypical antispsychotics, particularly for prolactin elevation

Important for meLess important

Aripiprazole is correct - Aripiprazole is an atypical antipsychotic with the most tolerable side effect profile and is particularly effective in preventing a rise in prolactin levels. Therefore it is the most appropriate medication to trial for this patient as his nipple discharge is likely caused by high prolactin levels.

Chlorpromazine is incorrect - Chlorpromazine is a typical antipsychotic. There is a higher chance of extrapyramidal side effects with typical antipsychotics. Atypical antipsychotics would be more appropriate to trial for this patient due to the increased risk of side effects with typical antipsychotics and his schizophrenia is already well controlled on an atypical antipsychotic.

Clozapine is incorrect - Clozapine is an atypical antipsychotic used for treatment-resistant schizophrenia. Two other antipsychotics must have been trialled before clozapine is trialled due to its large side effect profile so it would be inappropriate to trial in this patient.

Haloperidol is incorrect - Haloperidol is a typical antipsychotic. There is a higher chance of extrapyramidal side effects with typical antipsychotics.

Olanzapine is incorrect - Olanzapine is an atypical antipsychotic but has a risk of metabolic syndrome. Aripiprazole would be more appropriate for this patient as there is a lower risk of metabolic syndrome and it is more effective in preventing rises in prolactin levels.

Question:

A 4-month-old infant is brought into GP with a lump in the groin, it is lateral to the pubic tubercle. The parents state that they are able to push it in and it goes away but it pops back out when the child cries.

What is the most appropriate definitive management?

A.Immediate surgical reduction

B.Reassure that this is a normal variant but follow up a 6 months and reduce surgically if still present

C.Reassure that this is normal but follow up annually until it has resolved

D.Reassure that this is normal, no further follow up

E.Surgical reduction within 2 weeks

Answer:Surgical reduction within 2 weeks

Explanation:

Inguinal hernias require urgent treatment whereas umbilical hernias spontaneously resolve

Important for meLess important

This child has an inguinal hernia, due to a patent process vaginalis. The classic presentation is of a bulge lateral to pubic tubercle on crying (due to the raised intra-abdominal pressure). An inguinal hernia in a child is pathological, with a significant risk of incarceration and so requires surgical correction following the six/two rule:

< 6 weeks old = correct within 2 days

< 6 months = correct within 2 weeks

< 6 years = correct within 2 months

Don’t get confused with umbilical hernias which are due to delayed closure of the passage through which the umbilical veins reached the foetus in utero. Umbilical hernias usually resolve by 3-years-old and rarely require surgical correction.

Question:

A 80-year-old woman presents with a 5 month history of urinary incontinence when she coughs or sneezes. She has tried pelvic floor exercises for the last 3 months but has not found them helpful. She is extremely worried about having surgery and would rather have medical treatment for her incontinence.

What is the first-line drug therapy to treat her presentation?

A.Desmopressin

B.Duloxetine

C.Mirabegron

D.Oxybutynin

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

Duloxetine is a serotonin–norepinephrine re-uptake inhibitor which is used to treat patients with stress incontinence. It increases sphincter tone during the filling phase of urinary bladder function. However before drug therapy is started, pelvic floor exercises should be trialled and surgical intervention considered.

Oxybutynin is an anticholinergic drug used for the treatment of urge incontinence or symptoms of detrusor overactivity. Oxybutynin is contraindicated in frail, older women at risk of deterioration in their health.

Desmopressin is the recommended drug treatment for children with nocturnal enuresis. It may also be used in women with nocturia.

Mirabegron is used in patients with urge incontinence who can not tolerate antimuscarinic/anticholinergic drugs. It is a beta-3 adrenergic agonist which relaxes the bladder.

Tolterodine is an antimuscarinic which is also used to treat an overactive bladder. It is less effective than oxybutynin, yet is better tolerated with dry mouth being a less severe side effect.

Question:

Mr Smith is a 59-year-old man who presents to the walk-in clinic complaining of central chest pain that is sharp in nature and is associated with a low-grade fever of 37.9ºC. He complains that it is worse when he goes to bed at night and better when he sits forward. He denies any recent infections or trauma to the chest. Upon reading the patient's notes the following entry is found dated 2 weeks previously. It reads as follows:

Mr Smith presented to the emergency department with central crushing chest pain that radiated to his jaw that started 40 minutes ago. The admitting ECG revealed marked ST-elevations in leads II, III, and AVF. He was sent directly for percutaneous coronary intervention where a stent was inserted into the right coronary artery...

Given the history and the current presenting complaint, what is the most likely diagnosis?

A.Ventricular free wall rupture

B.Myocardial infarction

C.Dressler's syndrome

D.Viral pericarditis

E.Pneumonia

Answer:Dressler's syndrome

Explanation:

The notes suggest that 2 weeks after a confirmed myocardial infarction, Mr Smith developed chest pain suggestive of pericarditis.

Dressler syndrome fits the presentation and the time frame in this instance. It is a condition characterised by an autoimmune response mounted by the body after an injury to the myocardium or pericardium, in the case of this gentleman - a myocardial infarction. The condition comprises of fever, pericarditis, pleuritic pain +/- pericardial effusion. Dressler syndrome usually occurs between 2 -3 weeks after the initial injury, but can also present a few months later.

As there is no history of recent infections, viral pericarditis and pneumonia are less likely. Free wall ruptures are extremely severe complications after a myocardial infarction which often results in death.

Question:

A 27-year-old primigravid woman is brought into the hospital by ambulance with preterm premature rupture of membranes. On assessment, the cord is visible below the level of the introitus.

What is the most appropriate immediate action while preparing for a caesarian section?

A.Apply suprapubic pressure

B.Give IV oxytocin

C.Insert a urinary catheter and fill the bladder with saline

D.Perform an episiotomy

E.Push the cord back inside the vagina

Answer:Insert a urinary catheter and fill the bladder with saline

Explanation:

Retrofilling the bladder with 500-700ml of saline may be helpful in umbilical cord prolapse

Important for meLess important

Of the options above, the best action would be to insert a urinary catheter and fill the bladder with saline. This will lift the presenting part off the cord. Otherwise, the presenting part should be lifted manually to prevent cord compression.

Apply suprapubic pressure is not the correct management for cord prolapse. This is part of the management for shoulder dystocia, whereby pressure is placed behind the anterior shoulder of the foetus to disimpact it from underneath the maternal pubic symphysis.

It would be inappropriate to give IV oxytocin as this would induce contractions. Instead, tocolytics (e.g. terbutaline, nifedipine) can be used to relax the uterus and stop contractions to delay delivery while transferring a patient to theatre for a caesarian section.

Perform an episiotomy is not the correct answer. This can form part of the management of shoulder dystocia as it can make more space for manoeuvres.

It would be inappropriate to push the cord back inside the vagina as touching the cord can precipitate vasospasm and result in foetal hypoxia.

Question:

Alice, an 80-year-old recently widowed woman, attends your GP practice with her daughter, who is worried about her mother's memory. For the past few months, she's been forgetting appointments and conversations that they had only a few days ago, needing prompting often to remember recent events. After talking to Alice she tells you she doesn't have much of an appetite nowadays is waking up earlier than she used to. She denies any hallucinations or movement problems.

On mini mental state exam Alice scores 23, you notice she's not properly concentrating on your questions, answering many of the questions with 'i don't know'.

What is the most likely diagnosis?

A.Alzheimer's disease

B.Lewy body dementia

C.Depression

D.Vascular dementia

E.Normal age related changes

Answer:Depression

Explanation:

Alzheimer's and depression in elderly patients can present very similarly, depression is very common in the elderly population and this should always be considered in your differentials. Lack of concentration with depression can mimic memory loss.

The main symptoms that point to depression here are:

Recent loss of a spouse

Loss of appetite

Early morning wakening

Poor concentration

As a rule of thumb, when performing a mini mental state examination on a patient with depression they will answer with 'I don't know', whereas patients with Alzheimer's will try their best to answer your questions, but answer incorrectly.

MMSE scores:

24-30- no cognitive impairment

18-23- mild cognitive impairment

0-17- Severe cognitive impairment

Question:

A 78-year-old female presents to the Emergency Department after fainting at home with a background of a three-day history of diarrhoea and abdominal pain. She has a past medical history of type 2 diabetes mellitus and dyspepsia and is currently taking ciprofloxacin for a moderate infection in a diabetic foot ulcer and omeprazole. Her observations show a respiratory rate of 22 breaths/min, pulse of 123 beats/min, temperature of 38.1ºC, blood pressure of 80/62 mmHg and oxygen saturations of 96% on room air. As part of a panel of investigations, a stool sample is taken which returns a positive result for Clostridium difficile toxin (CDT) and an abdominal radiograph shows large bowel distension (diameter > 5.5cm).

Which of the following is the most appropriate antibiotic prescribing strategy for this patient?

A.Continue ciprofloxacin and commence oral vancomycin and IV metronidazole

B.Stop ciprofloxacin and commence IV vancomycin and IV metronidazole

C.Stop ciprofloxacin and commence oral vancomycin

D.Stop ciprofloxacin and commence oral vancomycin and IV metronidazole

E.Stop ciprofloxacin and commence oral vancomycin and oral metronidazole

Answer:Stop ciprofloxacin and commence oral vancomycin and 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 to stop ciprofloxacin and commence oral vancomycin and IV metronidazole.

The combination of this patient's medication (ciprofloxacin and omeprazole are high-risk for Clostridium difficile) and her positive CDT stool sample made a diagnosis of current Clostridium difficile infection likely. As this patient is profoundly hypotensive and has radiographic evidence of toxic megacolon, this is a life-threatening infection. Correct antibiotic prescribing in these cases includes commencing oral vancomycin and IV metronidazole and stopping any other antibiotics (in this case ciprofloxacin). Please note, a positive CDT stool has poor positive predictive value, as it only shows exposure to the bacteria, rather than current infection.

Continue ciprofloxacin and commence oral vancomycin and IV metronidazole is incorrect as ciprofloxacin should be stopped.

Stop ciprofloxacin and commence IV vancomycin and IV metronidazole is incorrect as vancomycin should be given orally.

Stop ciprofloxacin and commence oral vancomycin is incorrect as this is the management of severe, not life-threatening Clostridium difficile infection.

Stop ciprofloxacin and commence oral vancomycin and oral metronidazole is incorrect, as metronidazole should be given IV in life-threatening infections.

Question:

A patient is undergoing medical management for primary open-angle glaucoma. The class of medication prescribed acts to reduce intraocular pressure. After a few weeks of treatment, the patient reports increased eyelash length, and iris and periocular pigmentation.

What class of medication has caused these side effects?

A.Beta-blockers

B.Carbonic anhydrase inhibitors

C.Miotic medications

D.Prostaglandin analogues

E.Sympathomimetic medications

Answer:Prostaglandin analogues

Explanation:

Key side effects of prostaglandin analogues include increased eyelash length, iris pigmentation and periocular pigmentation

Important for meLess important

Prostaglandin analogue side effects include hyperaemia, increased eyelash growth, periocular skin pigmentation and increased iris pigmentation. The other answers listed do not have the above side effects.

Beta-blockers may worsen asthma and heart block.

Sympathomimetic medications may cause hyperaemia.

Carbonic anhydrase inhibitors may cause sulphonamide-like reactions.

Miotics can cause a constricted pupil, headache and blurred vision.

Question:

A 55-year-old man presents to the general practitioner for routine blood tests before he is placed on a statin. His renal function is found to be reduced and he is sent for further investigation.

Na+ 135 mmol/l

K+ 4.2 mmol/l

Urea 15 mmol/l

Creatinine 152 µmol/l

Which of the following would indicate that the cause of this man's presentation was chronic and not acute?

A.A normal parathyroid level

B.Normal kidney size on ultrasound

C.Oliguria

D.Anuria

E.Hypocalcaemia

Answer:Hypocalcaemia

Explanation:

Hypocalcaemia is an indication that kidney disease is chronic and not acute

Important for meLess important

This question is asking about the differentiating factors between acute and chronic kidney disease. Therefore given the above options, the correct answer is hypocalcemia. This is because renal failure can result in reduced levels of metabolised vitamin D/1,25(OH)2D. This results in reduced calcium reabsorption in the kidneys.

A normal parathyroid level would indicate a more acute cause of this man's presentation. This is because chronic kidney disease is a cause of secondary hyperparathyroidism and thus a normal value does not indicate chronic disease.

A normal-sized kidney on ultrasound would again indicate acute disease rather than chronic. This is because most chronic conditions cause shrunken kidneys on ultrasound.

Anuria or oliguria are symptoms of acute, rather than chronic kidney disease.

Question:

A 28-year-old woman attends clinic complaining of an intense itch that has developed over the past couple of weeks. She is 33 weeks pregnant and has so far had no complications. She describes the itch as being worse around the palms and soles. She otherwise feels well and denies any fever or recent illness.

Examination is unremarkable; there is no evidence of a rash. Blood tests are performed which are also unremarkable, except for the following:

Bilirubin 35 (3-17 umol/L)

Alanine transferase (ALT) 54 (3-40 iu/L)

Aspartate transaminase (AST) 36 (3-30 iu/L)

Alkaline phosphatase (ALP) 109 (30-100 umol/L)

Which of the following should be discussed with the patient?

A.Cholestyramine

B.Dexamethasone

C.Magnetic resonance cholangiopancreatography (MRCP)

D.Elective caesarean section at 37 weeks

E.Induction of labour at 37 weeks

Answer:Induction of labour at 37 weeks

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

The history, especially pruritus without rash, localised to palms and soles, is strongly suggestive of a diagnosis of intrahepatic cholestasis of pregnancy. This typically presents in the third trimester. The blood results support this - an elevated bilirubin, and mildly-elevated LFTs. Visible jaundice is only detected in around 20% of patients. Acute fatty liver of pregnancy is an important differential but would also feature abdominal pain, nausea and vomiting, and ALT would typically be elevated to over 500.

The most important consideration here is induction of labour at 37 weeks. Intrahepatic cholestasis of pregnancy is thought to increase the risk of stillbirth as the pregnancy continues, and so RCOG guidelines recommend a discussion with the patient regarding induction.

Elective caesarean is thus not an appropriate answer and plays no role in management.

Ursodeoxycholic acid, not cholestyramine, is often used for symptomatic management.

RCOG guidelines state that dexamethasone should not be used first-line, due to conflicting results and concerns around adverse effects on the fetus of repeated administration.

The diagnosis is quite convincing from the history and blood results, and so an MRCP would not add any benefit here.

Question:

A 32-year-old primiparous woman, who is 33 weeks pregnant, attends the emergency department after the onset of abdominal pain and vaginal bleeding. She quantified the bleeding as about a teaspoon of blood, and both the bleeding and the pain have now stopped. Her pregnancy has been uncomplicated so far, and she has been engaging well with antenatal care. She is certain her waters have not broken.

On examination, her vital signs are stable, and a handheld doppler is reassuring in terms of foetal heart rate. She has a tense and tender abdomen.

Transvaginal ultrasound shows a small retroplacental haemorrhage and an apically located placenta.

What is the next most appropriate step in her management?

A.Admit for IV corticosteroids and monitoring

B.Admit for tocolysis and monitoring

C.Admit for a category 2 caesarean section

D.Admit for 24-hour cardiotocography monitoring

E.Discharge with planned induction at 37-38 weeks

Answer:Admit for IV corticosteroids and monitoring

Explanation:

Placental abruption is characterised by constant pain, shock out of keeping with the visible loss, tender and tense uterus

Important for meLess important

This woman has presented with an antepartum haemorrhage. Given that her waters have not broken, the two main differentials are placenta praevia or placental abruption. Placenta praevia will result in painless vaginal bleeding, whereas placental abruption is painful vaginal bleeding. Placental abruption is more likely here as she has abdominal pain and the ultrasound shows a retroplacental haemorrhage. Equally, since the placenta is apically located, it cannot be placenta praevia.

Placental abruption may have a concealed blood loss, where there is a large haemorrhage behind the placenta, which is not visible per vagina but is visible on maternal vital signs. However, thankfully, this woman has stable vital signs. Equally, it is reassuring that the pregnancy has been uncomplicated, and there are no signs of fetal distress.

Due to having no signs of maternal or fetal compromise, and also a gestation of 33 weeks, it is appropriate to take a conservative management approach. This must still involve monitoring, and be within a hospital setting in case of larger haemorrhaging and the need for an emergency caesarean section. IV corticosteroids are sensible due to the immaturity of fetal lungs and the need to develop them. At this gestation, management is about monitoring and trying to prolong the pregnancy until it is safe to deliver (i.e. after corticosteroids).

Admission for tocolysis and monitoring is not the correct approach here. Whilst monitoring is expected, tocolysis is not indicated in placental abruption. There is a possibility of tocolytics exacerbating the abruption, and tocolysis should only be considered for very premature foetuses.

Admission for a category 2 caesarean section is incorrect. There is no indication that imminent delivery is needed, and it more sensible to administer steroids first to improve neonatal outcomes. If there had been signs of maternal or foetal compromise, a category 1 caesarean section would be indicated.

Admission for 24-hour cardiotocography monitoring is incorrect. This implies that there will be no active intervention to ensure the foetus would have improved outcomes if delivery was needed imminently.

Discharging with a planned induction is also not the appropriate response. Placental abruption, of any amount, requires admission and monitoring in case of maternal or foetal compromise. There is also no indication for a 3-week delay in delivery, as delivery will likely be required sooner than this.

Question:

A 45-year-old man is started on ciclosporin following a renal transplant. Which one of the following adverse effects is most likely to occur?

A.Depression

B.Increased risk of ischaemic heart disease

C.Pulmonary fibrosis

D.Impaired glucose tolerance

E.Nephrotoxicity

Answer:Nephrotoxicity

Explanation:

Ciclosporin may cause nephrotoxicity

Important for meLess important

Nephrotoxicity is common with ciclosporin use whereas impaired glucose tolerance is a relatively rare side-effect

Question:

A 25-year-old woman attends the rheumatology clinic having been diagnosed with systemic lupus erythematosus. Her symptoms are mild and you plan to start monotherapy with hydroxychloroquine.

What specific monitoring is recommended when considering starting this drug?

A.Echocardiography

B.Liver function tests

C.Pregnancy test

D.Tuberculin skin test or IGRA

E.Visual acuity and fundoscopy

Answer:Visual acuity and fundoscopy

Explanation:

Hydroxychloroquine - may result in a severe and permanent retinopathy

Important for meLess important

The correct answer is visual acuity and fundoscopy. Hydroxychloroquine is now recognised to cause retinopathy, particularly in patients taking it for longer than 5 years. Early signs can be detected with a detailed ophthalmological assessment, but at later stages the damage becomes irreversible. Monitoring recommendations vary but generally baseline screening is advocated. Annual screening is recommended after 5 years but can be started earlier if there is a pre-existing eye disease.

Echocardiography is incorrect. Hydroxychloroquine isn't commonly associated with cardiac toxicity. There are rare cases of restrictive cardiomyopathy described, but screening or monitoring in the absence of symptoms is not recommended. There is a role for echocardiography in SLE, which can cause valvular pathology, pericardial effusion and pulmonary hypertension. However, these presentations relate to the disease itself rather than the drug treatment.

Liver function tests is incorrect. Some rheumatological medications such as methotrexate can cause liver injury and would require baseline testing and subsequent monitoring of LFTs. However, hydroxychloroquine is not associated with liver toxicity.

Pregnancy test is incorrect. Some drugs used in rheumatology should be avoided in pregnancy. For example, methotrexate and leflunomide are avoided throughout pregnancy. Most biologics are stopped either before or during pregnancy. Hydroxychloroquine, however, is considered safe during conception and pregnancy.

Tuberculin skin test or IGRA is incorrect. These tests are used to screen for latent tuberculosis. This is particularly important when considering anti-TNF agents such as infliximab or etanercept, which can cause the reactivation of tuberculosis. Hydroxychloroquine does not carry this risk, and screening is therefore not required.

Question:

A 27-year-old man is receiving a blood transfusion following a motorbike accident. He suffered an open fracture which has been treated with external fixation. Suddenly, he starts feeling feverish and complaining of abdominal pain.

An ABCDE assessment shows the following:

A: patent airway

B: respiratory rate 24/min, saturation 99% on air

C: heart rate 134/min, blood pressure 82/65 mmHg

D: GCS 15/15

E: temperature ºC 38.3, external fixation in place, abdominal pain

What is the most likely diagnosis?

A.Acute haemolytic reaction

B.Anaphylaxis

C.Non-haemolytic febrile reaction

D.Transfusion-associated circulatory overload (TACO)

E.Transfusion-related acute lung injury (TRALI)

Answer:Acute haemolytic reaction

Explanation:

Fever, abdominal pain, hypotension during a blood transfusion → acute haemolytic reaction

Important for meLess important

The correct answer is acute haemolytic reaction. This patient is presenting with fever, abdominal pain, tachycardia, tachypnoea and hypotension, which are all characteristic of an acute haemolytic reaction.

An acute haemolytic reaction is caused by the administration of ABO-incompatible blood, usually by human error. This causes both intravascular and extravascular haemolysis, causing complete activation and phagocytosis. Macrophage activation increases the production of cytokines that induce a systemic response, causing fever, chills, abdominal pain.

Anaphylaxis would cause hypotension, dyspnoea, wheezing and angioedema. Although this patient has hypotension, he does not have any signs of acute respiratory distress such as dyspnoea or wheeze. He complains of abdominal pain rather than angioedema.

A non-haemolytic febrile reaction would cause fever and chills, but it would not explain the hypotension and systemic upset seen in this patient.

A transfusion-associated circulatory overload (TACO) is caused by an excessive rate of transfusion on a background of pre-existing heart failure. It causes pulmonary oedema and hypertension rather than fever, abdominal pain and hypotension.

A transfusion-related acute lung injury (TRALI) is non-cardiogenic pulmonary oedema caused by the immune system response to the transfusion. It would present with mainly respiratory symptoms such as hypoxia, pulmonary infiltrates on chest x-ray, fever and possibly hypotension, but it would not explain the abdominal pain.

Question:

Ms. Andrews a 24-year-old sales promoter was diagnosed with left tubal ectopic pregnancy 3 weeks ago. She was started on medical treatment with methotrexate and her progress was then closely monitored. However, her hCG titres failed to respond adequately. Surgical treatment was indicated and considered. She has no significant medical history and is medically fit.

Which of the following surgery is mostly likely to be carried out by the surgeon?

A.Laparotomy

B.Oophorectomy

C.Salpingectomy

D.Salpingotomy

E.Salpingocentesis

Answer:Salpingectomy

Explanation:

In this case, the patient failed to respond to medical treatment (methotrexate) for ectopic pregnancy, based on the βhCG levels. Moreover, the women does not have any history of increased risk of infertility.

Based on the NICE guidelines, salpingectomy is offered to women who has a tubal ectopic unless they have other risk factors for infertility eg. Contra lateral tube damage. Otherwise, salpingotomy is offered as an alternative.

Inform women having a salpingotomy that up to 1 in 5 women may need further treatment. This treatment may include methotrexate and/or a salpingectomy.

Question:

A 72-year-old patient on the geriatric ward has suffered a fall. He has a CT head. The report is as follows:

There is a very large acute right subdural haematoma which is causing significant mass-effect and midline shift from right-to-left. The lateral ventricles are significantly displaced to the left side, and there is significant uncal herniation.

What are the most likely findings when you examine the patient's eyes?

A.Both eyes deviated downwards and outwards; both pupils dilated

B.Left eye deviated downwards and outwards; left constricted pupil

C.Left eye deviated downwards and outwards; left dilated pupil

D.Right eye deviated downwards and outwards; right constricted pupil

E.Right eye deviated downwards and outwards; right dilated pupil

Answer:Right eye deviated downwards and outwards; right dilated pupil

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

The patient has suffered a significant subdural bleed which has caused a raised ICP, leading to a third nerve palsy.

As the bleed has occurred on the right side of the brain, this will affect the third cranial nerve on the right side. This will present with the typical features of a fixed, dilated pupil, unresponsive to light. The lesion will also leave the eye in the down and out position. Ptosis can also occur due to the loss of levator palpebrae superioris.

The other answers are incorrect as they do not fit the features of a right sided third nerve palsy.

Question:

A 54-year-old woman is admitted to the hospital with severe epigastric discomfort and melaena. She undergoes emergency endoscopy and a bleeding ulcer within the duodenum is identified and injected with adrenaline. Following this, she is commenced on intravenous (IV) omeprazole, oral amoxicillin, and oral clarithromycin. Her regular long-term medications include ibuprofen, ramipril, and mirtazapine. Two days after admission, her bloods show new hyponatraemia.

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

A.Amoxicillin

B.Clarithromycin

C.Mirtazapine

D.Omeprazole

E.Ramipril

Answer:Omeprazole

Explanation:

PPIs can cause hyponatraemia

Important for meLess important

The correct answer is 'omeprazole'.

This patient has presented with an upper gastrointestinal (GI) bleed secondary to a duodenal ulcer. As such she has been started on IV omeprazole and antibiotics for Helicobacter pylori eradication. Proton pump inhibitors (PPIs) such as omeprazole are known to cause hyponatraemia. The fact that hyponatraemia is a common side effect of PPIs and that it is a new medication mean this is the most likely cause of her blood results.

Amoxicillin and clarithromycin are antibiotics that have been prescribed for Helicobacter pylori eradication. Neither of them is known to cause hyponatraemia.

Mirtazapine is an antidepressant medication. Antidepressants can cause hyponatraemia, however, mirtazapine is fairly low risk for this. Additionally, it is a long-term medication so would be unlikely to suddenly cause new hyponatraemia.

Ramipril is an angiotensin-converting enzyme inhibitor prescribed to treat hypertension. It is not known to cause hyponatraemia.

Question:

A 30-year-old man presents to the clinic after being referred for a 3-month history of shortness of breath on exertion and a dry cough. His symptoms are worse at night and early in the morning and occur most days of the week, and he often wakes up at night due to them. He smokes 10 cigarettes daily.

On auscultation, heart sounds are normal and regular. Bilateral expiratory wheezing is heard.

Investigations are performed:

Fractional exhaled nitric oxide 32 ppb (<40)

FEV1 pre-salbutamol 2354 mL

FEV1 post-salbutamol 2669 mL

What is the most appropriate next step in his management?

A.Advise at-home peak flow measurements

B.Perform direct bronchial challenge testing

C.Prescribe a salmeterol inhaler

D.Prescribe an ipratropium inhaler

E.Prescribe salbutamol and low-dose inhaled corticosteroid

Answer:Prescribe salbutamol and low-dose inhaled corticosteroid

Explanation:

An increase in the FEV1 of 12% or more after inhalation of a short-acting bronchodilator is indicative of asthma

Important for meLess important

Prescribe salbutamol and low-dose inhaled corticosteroid is correct. This patient has signs and symptoms consistent with asthma, characterised by his shortness of breath and dry cough with diurnal variation (varying throughout the day). It is common for symptoms to be worse at night and early in the morning. The presence of bilateral expiratory wheeze also supports this diagnosis. NICE recommend that all patients with suspected asthma undergo fractional exhaled nitric oxide (FeNO) testing and bronchodilator reversibility. The FeNO result is normal, which can be the case in many patients. The FEV1 pre-salbutamol and post-salbutamol are the results of bronchodilator reversibility (BDR) testing, and it can be seen that there is a 13% improvement. A result of 12% or greater is indicative of asthma, therefore treatment should be initiated. Since this patient's symptoms have been occurring on most days of the week (more than 3 days a week) and there is night-time waking, the NICE guidelines state that salbutamol (a short-acting beta agonist, SABA) and low-dose inhaled corticosteroid (ICS) should be prescribed.

Advise at-home peak flow measurements is incorrect. Although many clinicians still use this to aid the diagnosis of asthma, NICE recommend the use of objective tests. The first-line investigations for any adult with suspected asthma are FeNO and BDR testing.

Perform direct bronchial challenge testing is incorrect. This is generally considered if spirometry and peak flow rate measurements do not show reversibility and variability (which are characteristic traits of asthma). This involves the use of histamine or methacholine to constrict the airway smooth muscle and assess airway hyper-responsiveness.

Prescribe a salmeterol inhaler is incorrect. This is a long-acting beta-agonist (LABA) and is considered a 4th-line option in the management of asthma. The first line is prescribing salbutamol, then adding a low-dose inhaled corticosteroid, and then adding a leukotriene receptor antagonist (LTRA). The next step would be to add a LABA and continue the LTRA if it works. Since this patient's symptoms have been occurring on most days of the week (more than 3 days a week) and there is night-time waking, the NICE guidelines state that salbutamol (a short-acting beta agonist, SABA) and low-dose inhaled corticosteroid (ICS) should be prescribed.

Prescribe an ipratropium inhaler is incorrect. This is a short-acting muscarinic antagonist (SAMA) and is one of the first-line options for the management of COPD. Given that this patient has significant bronchodilator reversibility findings and his symptoms have diurnal variation, a diagnosis of asthma is more likely.

Question:

A 34-year-old woman who is 35 weeks pregnant presents to her general practitioner with painful blisters affecting the vagina and cervix, along with inguinal lymphadenopathy. She has never had these symptoms before. The GP diagnoses primary genital herpes. Which of the following management strategies is most appropriate?

A.Simple analgesia only

B.Oral aciclovir for 5 days

C.Oral aciclovir until delivery and delivery by caesarean section

D.Caesarean section

E.Oral aciclovir until delivery

Answer:Oral aciclovir until delivery and delivery by caesarean section

Explanation:

Guidelines issued by the Royal College of Obstetricians and Gynaecologists state that women who present with first-episode genital herpes during their third trimester should be managed with daily suppressive oral aciclovir 400mg until delivery. Delivery should be by caesarean section due to a high risk of neonatal HSV (herpes simplex virus) transmission.

It can be difficult to clinically distinguish between primary and recurrent episodes of genital herpes. If a patient has not noticed the symptoms in the past it is recommended that management is initiated on the assumption that it is the first episode. Type-specific HSV antibody testing can be performed in order to confirm or refute this, but this can take 2-3 weeks to yield results - hence the recommendation to initiate the above management plan which can later be modified if appropriate.

(RCOG and BASHH Joint Guideline - Management of Genital Herpes in Pregnancy)

Question:

A 23-year-old male is under review by the GP following insidiously worsening lower back pain. The pain is worse in the morning and after periods of inactivity. Over the preceding 6 months, he also reports increasing fatigue. Symptoms improved dramatically after the GP commenced regular NSAIDs. A lumbar spine x-ray is performed which is suggestive of ankylosing spondylitis.

Which of the following is most likely to be seen on the patient's x-ray?

A.Juxta-articular osteoporosis

B.Loss of vertebra height

C.Osteopaenia

D.Subchondral erosions

E.Vertebral body wedging

Answer:Subchondral erosions

Explanation:

Ankylosing spondylitis - x-ray findings: subchondral erosions, sclerosis

and squaring of lumbar vertebrae

Important for meLess important

The correct answer is subchondral erosions. These are typically seen in the corners of vertebral bodies and on the iliac side of the sacroiliac joint, preceded by subchondral sclerosis. Squaring of the lumbar vertebrae consequently occurs, leading to a characteristic bamboo spine appearance.

Juxta-articular osteoporosis is typically observed in rheumatoid arthritis, often affecting joints of the hand, not the lumbar spine.

Loss of vertebral height is incorrect; this would be observed in vertebral body compression fractures.

Osteopenia occurring in a 23-year-old would likely be caused by malnutrition or malabsorptive disorders. It is not directly caused by ankylosing spondylitis.

Vertebral body wedging has multiple etiologies, including fractures, scoliosis and spina-bifida. It is not seen in ankylosing spondylitis.

Question:

A 64-year-old female is referred to rheumatology out-patients by her GP with a history of arthritis in both hands. Which one of the following x-ray findings would most favour a diagnosis of rheumatoid arthritis over other possible causes?

A.Loss of joint space

B.Juxta-articular osteoporosis

C.Subchondral sclerosis

D.Osteophytes

E.Subchondral cysts

Answer:Juxta-articular osteoporosis

Explanation:

Juxta-articular osteoporosis/osteopenia is an early x-ray feature of rheumatoid arthritis

Important for meLess important

Juxta-articular osteoporosis would point towards a diagnosis of rheumatoid arthritis (RA). Loss of joint space is common in both RA and osteoarthritis

Question:

A 70-year-old woman presents to the GP with a 7-day history of dysuria and urinary urgency. She also needed the toilet 8 times yesterday, which caused great distress.

She had a urinary tract infection 12 months ago, for which she needed a catheter during treatment. She has a family history of diabetic nephropathy.

The GP suspects another urinary tract infection and a mid-stream urine sample is sent.

What aspect of this woman's history necessitates this investigation to be carried out?

A.Age more than 65 years old

B.Duration of symptoms

C.Family history of diabetic nephropathy

D.History of catheter in situ

E.Previous urinary tract infection 12 months ago

Answer:Age more than 65 years old

Explanation:

An MSU should be sent for all women over > 65-years-old with a suspected urinary tract infection

Important for meLess important

Age more than 65 years old is the correct answer. According to NICE guidelines, a mid-stream urine sample should be sent for women with a suspected lower urinary tract infection to look for resistant or atypical organisms with the following indications:

Have symptoms that are persistent or do not resolve with antibiotic treatment.

Have recurrent UTI (2 episodes in 6 months or 3 in 12 months).

Have a urinary catheter in situ or have recently been catheterised.

Have risk factors for resistance or complicated UTI such as abnormalities of the genitourinary tract, renal impairment, residence in a long-term care facility, hospitalisation for more than 7 days in the last 6 months, recent travel to a country with increased resistance or previous resistant UTI.

Have atypical symptoms.

Have visible or non-visible (on urine dipstick) haematuria.

Pregnant

Age more than 65 years old.

Duration of symptoms is incorrect. This woman's presentation has been ongoing for 7 days; this does not warrant a mid-stream urine sample to be sent. If the woman had already been treated with previous antibiotics treatment, and symptoms have persisted or not improved, this would warrant a midstream urine sample.

Family history of diabetic nephropathy is incorrect. Although this suggests there is a history of renal impairment in her family, there is no suggestion of the patient herself having renal impairment; hence this would not be an indication to send a urine culture.

History of catheter in situ is incorrect. This patient had her catheter in situ 12 months ago during her previous urinary tract infection. This does not warrant a urine culture as this did not occur recently and is unlikely to impact bacterial colonisation of her current urinary tract infection.

Previous urinary tract infection 12 months ago is incorrect. A history of 3 previous urinary tract episodes in 12 months warrants a urinary culture. This patient would have only had 2 episodes (including her current episode) in 12 months.

Question:

While working in general practice you see a 15-year-old female presenting with nipple discharge. Her 84-year-old grandmother died 8 months previously from breast cancer. The discharge is bilateral and pale in colour. The volume is small and on examination, there are no masses palpable. She is concerned she has breast cancer. What is the most likely diagnosis?

A.Breast cancer

B.Prolactinoma

C.Fat necrosis of the breast

D.Hormonal changes

E.Breast abscess

Answer:Hormonal changes

Explanation:

Bilateral nipple discharge is unlikely to be associated with breast cancer

Important for meLess important

Bilateral, small volumes of pale or colourless discharge in someone of this age is most likely to be associated with the hormonal changes of puberty.

Breast cancer is a very unlikely diagnosis and this rarely presents with bilateral nipple discharge. Often, if the discharge is a presenting feature, this will be unilateral and bloody in colour and there will be an associated breast lump. Also given her age this is an unlikely diagnosis.

A prolactinoma is a benign pituitary tumour which produces prolactin. As a result of this tumour, there may be bilateral lactation which is often cream coloured.

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.

A breast abscess is associated with puss discharging from the nipple and red, swollen, warm breast skin.

Question:

A 19-year-old male presents with bilateral gynaecomastia, poor vision and nipple discharge. Which of the following blood tests is most likely to be abnormal?

A.Oestrogen

B.Testosterone

C.β HCG

D.Prolactin

E.Calcitonin

Answer:Prolactin

Explanation:

A combination of nipple discharge, gynaecomastia and poor vision may well be associated with a prolactinoma. The poor vision results from compression of the optic chiasm resulting in bi temporal hemianopia.

Question:

A 77-year-old female with type 2 diabetes mellitus attends her annual diabetic eye screening appointment. She had previously been diagnosed with mild non-proliferative diabetic retinopathy (NPDR) when micro-aneurysms were noted on visualisation of her retina. Examination identifies the additional presence of cotton wool spots in both eyes.

What is the pathophysiology of this new finding?

A.Central retinal vein occlusion

B.Lipid deposition in the retina

C.Pre-capillary arteriolar occlusion

D.Thickening of the walls of retinal arterioles

E.Thinning of the neuroretinal rim

Answer:Pre-capillary arteriolar occlusion

Explanation:

In diabetic retinopathy, cotton wool spots represent areas of retinal infarction

Important for meLess important

The correct answer is pre-capillary arteriolar occlusion.

This patient is presenting with new cotton wool spots, representing the advancement of her NPDR. The pathophysiology leading to the formation of cotton wool spots is pre-capillary arteriolar occlusion, leading to retinal infarction.

Central retinal vein occlusion is incorrect. This is a cause of acute blindness and commonly occurs due to either thromboembolism or vasculitis. Severe retinal haemorrhages are seen on fundoscopy.

Lipid deposition in the retina is incorrect. This is the pathophysiology underlying both hard exudate (seen in NPDR) and drusen (seen in age-related macular degeneration) formation.

Thickening of the walls of retinal arterioles is incorrect. This is the pathophysiology causing silver-wiring in hypertensive retinopathy.

Thinning of the neuroretinal rim is incorrect. This is the pathophysiology leading to optic disc cupping seen in glaucoma.

Question:

Which one of the following is not a recognised feature of anorexia nervosa?

A.Hypokalaemia

B.Low LH

C.Impaired glucose tolerance

D.Low FSH

E.Reduced growth hormone levels

Answer:Reduced growth hormone levels

Explanation:

Anorexia features

most things low

G's and C's raised: growth hormone, glucose, salivary glands, cortisol, cholesterol, carotinaemia

Important for meLess important

Question:

A 22-year-old woman attends the emergency department. While walking, her right foot slipped off the kerb and she now has tenderness over the lateral aspect of her midfoot. She has difficulty walking. A radiograph of the right foot shows a 5th metatarsal fracture.

By what mechanism of action has this fracture most likely occurred?

A.Dorsiflexion of the foot and ankle

B.Eversion of the foot and ankle

C.External rotation of the hip and knee

D.Internal rotation of the hip and knee

E.Inversion of the foot and ankle

Answer:Inversion of the foot and ankle

Explanation:

5th metatarsal fractures often follow forced inversion of the foot and ankle

Important for meLess important

5th metatarsal fractures usually occur in athletes such as dancers, football players or rugby players, but can happen after simple accidents, like stepping off a kerb. Avulsion fractures occur when the muscle peroneus brevis pulls the proximal part of the 5th metatarsal during inversion of the foot.

All other ankle and hip movements are not associated with 5th metatarsal fractures.

Question:

A 26-year-old woman presents to her GP, asking about emergency contraception. She had unprotected sexual intercourse with a male partner 7 days ago. She has a regular 28-day menstrual cycle and, based on her last period, estimates that today is day 17 of her current cycle.

What can be used as emergency contraception for this patient?

A.Copper intrauterine device

B.Levonorgestrel

C.Mirena intrauterine system

D.Norethisterone

E.Ulipristal

Answer:Copper intrauterine device

Explanation:

The copper intrauterine device can be inserted for emergency contraception within 5 days after the first unprotected sexual intercourse in a cycle, or within 5 days of the earliest estimated date of ovulation, whichever is later

Important for meLess important

Of the options listed here, the only suitable method for this patient is the copper intrauterine device (IUD). As well as being an effective form of regular contraception, it can be used as a form of emergency contraception if inserted within 5 days of unprotected sexual intercourse. Alternatively, if presenting after more than 5 days, it may be fitted up to 5 days after the likely ovulation date. As this patient has a regular 28-day cycle, her ovulation would be expected to occur at day 14. She is currently at day 17 and so within the 5-day window for fitting of the IUD.

Levonorgestrel is a tablet commonly used for emergency contraception. It must be taken within 72 hours of unprotected sexual intercourse, however, and so would not be suitable in this instance.

The Mirena intrauterine system is a hormonal device fitted in the uterus that acts as an extremely effective form of regular contraception. It is generally more popular than the copper device nowadays, due to generally reducing bleeding/stopping periods altogether, rather than increasing the heaviness of bleeding as the copper device does. However, unlike the copper device, it cannot be used as emergency contraception.

Norethisterone is a drug used to control dysfunctional uterine bleeding and also to delay periods. It is not used as emergency contraception.

Ulipristal is an alternative tablet to levonorgestrel and can be taken up to 5 days after unprotected sexual intercourse. Given that this patient is presenting 7 days later, this is not a suitable option.

Question:

A 67-year-old male presents to the emergency department complaining of new-onset pain in his left groin. On examination, a large, warm, non-reducible mass located inferolateral to the pubic tubercle can be observed. It is accompanied by erythema of the overlying skin. When asked, he admits to vomiting twice and passing stools with blood mixed in them once. He looks in pain and sweaty. He has a past medical history of peptic ulcer disease, managed with omeprazole.

Which one of the following is the most likely diagnosis?

A.Incarcerated femoral hernia

B.Incarcerated inguinal hernia

C.Perforated peptic ulcer

D.Strangulated femoral hernia

E.Strangulated inguinal hernia

Answer:Strangulated femoral hernia

Explanation:

Strangulation is an important complication of femoral hernias

Important for meLess important

The correct answer is a strangulated femoral hernia. This patient is presenting with a non-reducible mass located inferolateral to the pubic tubercle with erythema of the overlying skin. The position is characteristic of a femoral hernia. The features accompanying it, such as vomiting, the passage of bloody stools, and the patient having a toxic appearance, are in keeping with a diagnosis of strangulated femoral hernia. Strangulation happens when the blood supply to the herniated tissue is compromised, leading to ischemia or necrosis.

An incarcerated femoral hernia would present as a non-reducible mass inferolateral to the pubic tubercle. These hernias are at high risk of strangulation but they have not lost their blood supply yet. The sick appearance of the patient, accompanied by symptoms of necrosis such as vomiting and bloody stool indicates that strangulation has occurred.

Incarcerated inguinal hernias are non-reducible masses superior and medial to the pubic tubercle. They do not cause symptoms of strangulation.

A perforated peptic ulcer would present with epigastric pain, syncope, and possibly haematemesis. This patient's complaint is focused on the groin area rather than the epigastric area.

A strangulated inguinal hernia would present with similar symptoms such as systemic upset, pain, erythema, vomiting, and bloody stools. But the mass would be superior and medial to the pubic tubercle rather than inferolateral.

Question:

A 72-year-old man is admitted with chest pain. He has associated nausea and vomiting. On examination he is pale and sweaty. An ECG shows ST elevation in V3-V6. A diagnosis of ST elevation myocardial infarction is made. The patient unfortunately deteriorates and goes into cardiac arrest. Prompt CPR is initiated. One cycle of CPR is completed before a heart tracing is obtained. The ECG shows monomorphic ventricular tachycardia. The patient still has no pulse.

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:Defibrillation

Explanation:

The Resuscitation Council has clear guidelines on how to manage cardiac arrest (Adult advanced life support guidelines). In the shockable rhythms - ventricular fibrillation (VF) and pulseless ventricular tachycardia (pVT), CPR should be immediately provided and the patient defibrillated as soon as possible. Therefore the correct answer is defibrillation.

If VF/pVT persists, only after a third shock should adrenaline 1 mg IV and amiodarone 300 mg IV be administered.

Question:

You are reviewing a 4-year-old boy with constipation in primary care. When examining his abdomen you notice a small mass in his left lower abdomen. It does not seem to cause him any distress when you palpate it.

Mum tells you that a GP had previously noticed this, but reassured her that it is most likely some stool that is palpable due to constipation.

He is otherwise well and mum has no particular concerns.

Which one of the following is the most appropriate next step in management?

A.Trial of laxatives and review in 2 weeks

B.Request an abdominal ultrasound scan

C.Request an abdominal x-ray

D.Routine referral to paediatrics for review

E.Discuss him with the on-call paediatric registrar

Answer:Discuss him with the on-call paediatric registrar

Explanation:

For a child with a palpable abdominal mass or unexplained enlarged abdominal organ: refer very urgently (<48hr) for specialist assessment for neuroblastoma and Wilms' tumour

Important for meLess important

The correct answer is to 'discuss him with the on-call paediatric registrar'.

A child with a palpable abdominal mass has a malignancy until proven otherwise and needs to be seen urgently.

Neuroblastomas form from nerve tissue and can arise in many different places. They usually present in early childhood. Unfortunately, (and probably because symptoms can be very vague) they have often already metastasised when they are diagnosed.

Whilst it may be possible that this mass is due to constipation you do not want to miss a neuroblastoma (which can actually cause constipation). A 2-week review is therefore inappropriate.

Equally, a routine referral would cause unnecessary delay.

Paediatrics would usually arrange an abdominal ultrasound scan - but they can arrange this much quicker than you can from primary care.

Abdominal x-rays involve a large amount of radiation and this would not be appropriate in this case (particularly given his young age).

Question:

The mother of a 2-month-old boy comes to surgery as she has noticed a soft lump in his right groin area. There is no antenatal or postnatal history of note. He is breast feeding well and is opening his bowels regularly. On examination you note a 1 cm swelling in the right inguinal region which is reducible and disappears on laying him flat. Scrotal examination is normal. What is the most appropriate action?

A.Refer to paediatric surgery

B.Refer to orthotics for fitting of a Pavlik harness

C.Reassure mother + ask her to return if not resolved by 6 months

D.Reassure mother + ask her to return if not resolved by 12 months

E.Reassure mother + ask her to return if not resolved by 2 years

Answer:Refer to paediatric surgery

Explanation:

Congenital inguinal hernias have a high rate of complications and should be repaired promptly once identified.

Question:

A mother brings her 4-year-old daughter into surgery as she thinks she may have 'nits'. Which one of the following statements regarding head lice is NOT correct?

A.Malathion is an option for first-line treatment

B.Fine-toothed combing of wet or dry hair is the standard way of diagnosing head lice

C.Children should be excluded from school until treatment has been started

D.Caused by Pediculus capitis

E.Wet combing alone is a suitable first-line treatment

Answer:Children should be excluded from school until treatment has been started

Explanation:

School exclusion is not advised for children with head lice

Question:

A 64-year-old woman presents to ED with productive cough, haemoptysis, and vague abdominal pain for the past 2 weeks. She has no past medical history of note. Chest X-ray shows multiple large, round, well-circumscribed masses in both lungs.

What is the most likely underlying diagnosis?

A.Hepatocellular carcinoma

B.Miliary tuberculosis

C.Adenocarcinoma

D.Rheumatoid arthritis

E.Renal cell carcinoma

Answer:Renal cell carcinoma

Explanation:

Renal cell carcinoma can metastasise to the lungs, causing 'cannonball metastases'

Important for meLess important

The multiple large, round, well-circumscribed masses in both lungs seen on Chest X-ray here are a characteristic description for 'cannonball metastases'. Metastases with this appearance are often due to renal cell carcinoma, although they can also be seen with other malignancies such as choriocarcinoma or endometrial cancer.

Question:

A 2-year-old boy is brought to the emergency department following a seizure. After a period of observation and several investigations, he is diagnosed with febrile convulsions and his parents are reassured that he is safe to return home.

What advice is it important to give the parents?

A.If he develops another fever, he should be placed in a cool bath

B.If the seizure lasts longer than 5 minutes, they should call an ambulance

C.Regular paracetamol will decrease his risk of further febrile convulsions

D.There is a 20% chance that he will go on to develop epilepsy

E.There is an 80% chance that he will have another febrile convulsion

Answer:If the seizure lasts longer than 5 minutes, they should call an ambulance

Explanation:

Parents should be advised to call an ambulance if a febrile convulsion lasts >5 minutes

Important for meLess important

Febrile convulsions are very scary for parents, so it is important to give them information regarding the condition so that they can safely manage their children at home. The majority of febrile convulsions last for less than 5 minutes, and these seizures do not require hospital admission. However, if the seizure lasts for longer than 5 minutes then the parents should call an ambulance.

To treat fever at home, parents should remove excessive clothing, give fluids and give antipyretics only if the child is uncomfortable. Active cooling is not advised.

Febrile convulsions recur in ~30% of children and there is a very slightly increased risk of developing epilepsy, but this is negligible. There is no evidence that paracetamol decreases the risk of further convulsions.

Question:

A 60-year-old man presents with weakness and a skin rash on his upper eyelids. He also complains of a cough which has been present for 3 months. He has a 60 pack-year smoking history. On examination he is noted to have symmetrical proximal muscle weakness.

What is the most appropriate test from the options below?

A.Anti-CCP (cyclic citrullinated peptide) antibody

B.Anti-Jo1 antibody

C.ANCA (anti-neutrophil cytoplasmic antibody)

D.Anti-dsDNA antibody

E.Anti-Ro / Anti-La antibodies

Answer:Anti-Jo1 antibody

Explanation:

The clinical features are suggestive of dermatomyositis. A positive anti-Jo1 antibody can assist in making the diagnosis.

Question:

A 54-year-old female is admitted with a severe pneumonia following a holiday in Turkey. Bloods reveal both hyponatraemia and deranged liver function tests. A chest x-ray shows patchy alveolar infiltrates with consolidation in the right lower lobe. Which one of the following investigations is most likely to confirm the probable diagnosis?

A.Sputum culture

B.Urinary antigen

C.Blood cultures

D.Bone marrow aspirate

E.Lumbar puncture

Answer:Urinary antigen

Explanation:

Legionella pneumophilia is best diagnosed by the urinary antigen test

Important for meLess important

Question:

You're a medical student on your psychiatry placement. You are performing a mental state examination on one of the patients on the inpatient psychiatry ward, a 20-year-old man who was admitted 2 days ago.

Whenever you ask him a question, you notice that he repeats the question back to you. You notice that he is also repeating some of the phrases you use.

What form of thought disorder is this an example of?

A.Clang association

B.Echolalia

C.Neologism

D.Perseveration

E.Poverty of speech

Answer:Echolalia

Explanation:

Echolalia is the repetition of someone else's speech including the questions being asked

Important for meLess important

Clang association is when someone uses words that rhyme with each other or sound similar.

Echolalia is the repetition of someone’s speech, which is what is seen in the above scenario.

Neologism is the formation of new words.

Perseveration is when ideas or words are repeated several times.

Poverty of speech is a restricted quantity of speech with brief responses to questions.

Question:

A 55-years-old man presents to the emergency department with severe epigastric pain and fever. He looks unkempt and affirms to be drinking 40 units of alcohol per week. He presented to the emergency department after suffering from the symptoms for two days, due to a phobia of hospitals.

Given the most likely diagnosis, which of the following is the single best investigation to order?

A.Amylase

B.Lipase

C.Ultrasound imaging

D.Contrast-enhanced CT

E.Endoscopy

Answer:Lipase

Explanation:

Serum lipase has a longer half-life than amylase when investigating suspected acute pancreatitis and may be useful for late presentations > 24 hours

Important for meLess important

This patient presents with a classical picture of acute pancreatitis. The most common cause is alcohol. Both amylase and lipase are pancreatic enzymes that can be used to diagnose pancreatitis clinically however serum lipase has a longer half-life than amylase and may be useful for late presentations (>24 hours). Since our patient presented after two days of pain, lipase is more likely than amylase to be raised. With characteristic pain and lipase >3 times normal level, acute pancreatitis can be diagnosed.

Amylase is another pancreatic enzyme that can be used for a clinical diagnosis but it has a short half-life and is may have already normalised down in this patient.

Ultrasound imaging can be used to investigate whether there are stones in the bile duct causing pancreatitis, but will not be diagnostic if this is not the aetiology.

Contrast-enhanced CT scans are not used to diagnose acute pancreatitis but can help to investigate the aetiology.

Endoscopy is the first-line investigation to diagnose a gastric ulcer. This patients history, time-course and fever point more towards a diagnosis of pancreatitis.

Question:

A 35-year-old man presents with progressive weakness of his hands. On examination you notice wasting of the small muscles of the hand. A diagnosis of syringomyelia is suspected. Which one of the following features would most support this diagnosis?

A.Hyper-reflexia in the upper limbs

B.Loss of vibration sensation in the hands

C.Loss of temperature sensation in the hands

D.Loss of light touch sensation in the hands

E.Fasciculation of the small muscles of the hand

Answer:Loss of temperature sensation in the hands

Explanation:

Syringomyelia - spinothalamic sensory loss (pain and temperature)

Important for meLess important

Question:

A 56-year-old Caucasian man attends for his annual health check at the GP surgery. He has a past medical history of hypertension and gout. He is well and does not complain of any headache, visual changes or chest symptoms. His clinic blood pressure is 165/95mmHg. He is currently on allopurinol and the maximum dose of perindopril.

Which of the following is the most appropriate next step management for his hypertension?

A.Calcium channel blocker

B.Thiazide-like diuretic

C.Aldosterone antagonist

D.Angiotensin receptor blocker

E.Loop diuretic

Answer:Calcium channel blocker

Explanation:

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

Important for meLess important

The correct answer is 'calcium channel blocker'. This patient's hypertension remains uncontrolled despite the maximum dose of an ACE inhibitor. In this instance, NICE recommends adding a calcium channel blocker or a thiazide-like diuretic. A thiazide-like diuretic is contraindicated due to the history of gout, therefore calcium channel blocker is the more appropriate management for this patient.

Aldosterone antagonist is indicated in the subsequent management steps of hypertension. It may be an option if the patient is intolerant to calcium channel blocker or remains hypertensive despite optimal treatment.

Angiotensin receptor blocker and ACE inhibitor should not be used in combination for the management of hypertension due to the risk of acute kidney injury. Hence the answer “angiotensin receptor blocker” is incorrect.

Loop diuretics may be indicated in resistant hypertension where blood pressure remains uncontrolled with the optimal or maximum tolerated doses of four drugs. This patient is currently only on one drug. Hence, this answer is incorrect.

Question:

A 19-year-old male presented to the andrology clinic with failure to gain secondary sexual characteristics. His height is 186 cm and his weight is 65 kg with a body mass index of 18.7 kg/m².

Investigations results are as follows:

Testosterone 6.2 nmol/L (8.7 - 29)

FSH 0.3 u/L (0.3 - 10.0)

LH 1.6 u/L (1.7 - 8.6)

What is the most likely diagnosis?

A.Androgen insensitivity syndrome

B.Kallmann syndrome

C.Klinefelter syndrome

D.Testicular regression syndrome

E.21-hydroxylase deficiency

Answer:Kallmann syndrome

Explanation:

Kallman's syndrome - LH & FSH low-normal and testosterone is low

Important for meLess important

Kallmann syndrome is a recognised cause of delayed puberty secondary to hypogonadotropic hypogonadism. Patients are typically of normal or above-average height with anosmia. Sex hormone levels are low. LH, FSH levels are low/inappropriately normal.

Klinefelter syndrome (47,XXY) is the set of symptoms that result from two or more X chromosomes in males. The primary features are infertility and small poorly functioning testicles. It is characterised by low testosterone levels with increased levels of FSH and LH.

21-hydroxylase deficiency is due to congenital adrenal hyperplasia, characterised by virilisation of female genitalia and precocious puberty in males.

Androgen insensitivity syndrome is an X-linked recessive condition due to end-organ resistance to testosterone causing genotypically male children (46XY) to have a female phenotype.

Bilateral testicular regression syndrome is a very rare condition characterized by the absence of testicular tissue in a genotypic male. It is characterised by low testosterone levels with increased levels of FSH and LH.

Question:

A 57-year-old man presents to the emergency department complaining of fever and painful joints, with occasional shortness of breath.

On examination, his heart rate is 110/min, respiratory rate 20/min, blood pressure 125/92 mmHg and temperature 39.2 ºC. A cardiorespiratory examination highlights an early diastolic murmur.

He had never experienced similar symptoms before and was previously healthy, except for a sore throat he had three weeks ago. He is a known intravenous drug user with no fixed abode.

What is the most likely cause of his murmur?

A.Aortic regurgitation

B.Aortic stenosis

C.Mitral regurgitation

D.Mitral stenosis

E.Tricuspid regurgitation

Answer:Aortic regurgitation

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

The correct answer is aortic regurgitation. This patient suffers from a textbook presentation of rheumatic fever, an immunological reaction to a recent Streptococcus pyogenes infection. This condition can cause different valvulopathies but in this case, the murmur is described as an early diastolic murmur. It can be easily mistaken for other conditions such as infective endocarditis, but in this case, it is important to focus on the description of the murmur, which gives the key to the correct diagnosis.

During diastole, the blood has already been ejected from the ventricles and has bypassed the aortic and pulmonary valves, which are now closed. Suppose the aortic valve is 'leaky' as in aortic regurgitation. In that case, an early diastolic murmur will be heard as the blood backflow from the aortic arch to the left ventricle due to valvular incompetence. Hence, the only correct answer here is aortic regurgitation.

Aortic stenosis would cause an ejection systolic murmur, as in aortic stenosis the leaflets of the aortic valve become 'harder' and prevent a smooth passage of the blood through the valve. The blood will be squeezed through a narrower lumen during systole, causing the characteristic murmur. Additionally, it is usually associated with an older population and it is not caused by rheumatic fever.

Mitral regurgitation would cause a pansystolic murmur. During systole, the blood is ejected from the ventricles which are contracting. If the mitral valve is 'leaky' as in mitral regurgitation, the blood will backflow to the left atrium during this process, causing a pansystolic murmur. It is typically associated with myocardial infarction but can be associated with rheumatic fever.

Mitral stenosis would cause a mid-late diastolic murmur. During diastole, the blood passes from the atria through the ventricles. In mitral stenosis, the leaflets of the mitral valve become 'harder' and prevent a smooth passage of the blood through the valve. The blood will be squeezed through a narrower lumen during diastole, causing the characteristic murmur. It is most commonly caused by rheumatic fever, but in this case, this is not the described murmur.

Tricuspid regurgitation is a good differential, as it is a common finding in intravenous drug users with new-onset murmurs. It would cause a pan-systolic murmur, as, during systole, the blood is ejected from the ventricles which are contracting. If the tricuspid valve is 'leaky' as in tricuspid regurgitation, the blood will backflow to the right atrium during this process, causing a pansystolic murmur.

Question:

A 44-year-old man presents to his GP complaining of weakness in his hands and legs and numbness in his feet. He first noticed some problems with walking in his late teens and reports that he’s always been “clumsy” and will often trip over. He is otherwise well and takes no regular medications. On examination, he has a high-stepping gait with wasting of the lower legs and high arches. Power is reduced in all limbs and reflexes are difficult to elicit. There is a reduction in sensation which is more pronounced distally. Coordination is intact.

What is the most likely diagnosis?

A.Duchenne muscular dystrophy

B.Cervical spondylotic myelopathy

C.Guillain-Barre syndrome

D.Subacute combined degeneration of the cord

E.Charcot-Marie-Tooth disease

Answer:Charcot-Marie-Tooth disease

Explanation:

Charcot-Marie-Tooth disease can affect both motor and sensory peripheral nerves

Important for meLess important

Charcot-Marie-Tooth disease is a hereditary sensory and motor peripheral neuropathy. UMN signs are not present in these patients. Patients can present with lower motor neurone signs in all limbs and reduced sensation (more pronounced distally).

Duchenne muscular dystrophy is an inherited myopathy. It is caused by progressive degeneration and weakness of specific muscle groups. Most patients lose the ability to walk by 12 years of age and require ventilatory support by the age of 25. Sensation is intact in these patients.

Cervical spondylosis is the term used for osteoarthritis of the spine and can result in compression of the spinal cord. This is more likely to result in LMN signs at the level of the compression (ie. upper limb if the lesion is below C5) with UMN signs below (in the lower limb). Patients usually complain of neck pain and stiffness.

Guillain-Barre syndrome (GBS) is an inflammatory peripheral sensory and motor neuropathy. It typically presents over the course of days to weeks, not years. There is often a recent bacterial or viral infection in the history.

Patients with subacute combined degeneration of the cord (SCDC) classically have an ataxic gait (due to degeneration of the dorsal columns) and mixed UMN and LMN signs (due to degeneration of lateral motor tracts and peripheral nerves). The history will typically be subacute, occurring over months rather than decades. Patients with SCDC often notice sensory symptoms before weakness.

Question:

A 25-year-old man presents with depressed mood for 6 months. He reports feeling fatigued and suicidal on a daily basis. His clothes are dirty and he looks unkempt. He has made five suicide attempts in the last three months.

The patient’s psychiatrist decides to manage this patient’s depression with electroconvulsive therapy (ECT), which is to begin in a week. The patient is currently on sertraline medication of 100mg per day.

What is the most appropriate action to take with regards to this medication prior to ECT treatment for this patient?

A.Increase the sertraline daily dose

B.Reduce the sertraline daily dose

C.Stop the sertraline completely

D.Switch sertraline to citalopram

E.Switch sertraline to lithium

Answer:Reduce the sertraline daily dose

Explanation:

Antidepressant medication should be reduced but not stopped when a patient is about to commence ECT treatment

Important for meLess important

Reducing the sertraline dose is the correct answer. With antidepressants and ECT, you do not suddenly stop them when the patient commences ECT treatment. The recommended regime is to safely reduce them to the minimum dose. You may actually add an increased dose of antidepressant towards the end of the ECT course.

Increasing the sertraline dose or stopping it completely are both incorrect instructions with regards to current antidepressant dose; rarely would it be increased at the start of ECT treatment and if the patient was severely depressed it would not be stopped.

Changing the medication to an alternative psychiatric drug, such as another SSRI or lithium, is incorrect. This could be potentially dangerous immediately prior to ECT treatment.

Question:

Each one of the following is associated with hirsutism, except:

A.Porphyria cutanea tarda

B.Congenital adrenal hyperplasia

C.Polycystic ovarian syndrome

D.Adrenal tumour

E.Cushing's syndrome

Answer:Porphyria cutanea tarda

Explanation:

Porphyria cutanea tarda is a cause of hypertrichosis rather than hirsutism.

Question:

A 14-year-old boy is being monitored in the high dependency unit (HDU) following his first episode of diabetic ketoacidosis (DKA), which he experienced yesterday. The patient is currently on fluid replacement and a fixed-rate intravenous insulin infusion as per local protocols. Today, he is nil-by-mouth and his vitals are stable.

These are the results of his investigations:

On admission 24º post admission

Venous pH 7.1 7.2

K+ 5.0 mmol/L 4.7 mmol/L

Bicarbonate 10.1 mmol/L 14.2 mmol/L

Glucose 25 mmol/L 9.0 mmol/L

Ketones 5.0 mmol/L 2.0 mmol/L

Based on these results, what is the next best step in his management?

A.Arrange discharge as improving clinically

B.Review with a diabetes specialist nurse

C.Review with a senior endocrinologist

D.Switch to subcutaneous insulin once patient is eating and drinking

E.Switch to variable rate insulin infusion

Answer:Review with a senior endocrinologist

Explanation:

Diabetic ketoacidosis: if the ketonaemia and acidosis have not been resolved within 24 hours then the patient should be reviewed by a senior endocrinologist

Important for meLess important

Review with a senior endocrinologist is the correct answer. Although this patient's biochemical findings show a positive trajectory, there is still an evident ketonaemia and acidosis at 24º since admission. The next best step in his management would be to arrange a review with a senior endocrinologist. This is because it is unusual for DKA not to have biochemically resolved by 24º despite appropriate treatment. It is important to identify and address the reasons for standard treatment failure.

Arranging for discharge as he is improving clinically is incorrect. Although this patient is clinically stable, his biochemical findings still show that he is in DKA.

Review with a diabetes specialist nurse is incorrect. The involvement of the diabetes specialist team within the first 24º of presentation is recommended as it is associated with better recovery and outcomes. However, in this scenario, this patient has been in prolonged DKA (which is clinically unusual). This warrants senior input to identify and treat the underlying causes of this abnormal presentation. This is not the next best step in this patient's management and is therefore incorrect.

Switch to subcutaneous insulin once the patient is eating and drinking is incorrect. This patient is still in DKA. This management option is only appropriate once the DKA has been resolved completely.

Switch to variable rate insulin infusion is incorrect. This patient is still in DKA. This management option is only appropriate once the DKA has been resolved completely.

Question:

A 45-year-old man is attending his pre-operative assessment for his elective hernia repair that he is due to undergo next week. He tells the anaesthetist that both his father and brother have had a reaction to an anaesthetic, later found to be malignant hyperthermia.

Which of the following may the anaesthetist want to avoid giving in this case?

A.Ketamine

B.Benzodiazepines

C.Suxamethonium

D.Propofol

E.Vecuronium

Answer:Suxamethonium

Explanation:

Suxamethonium can cause malignant hyperthermia

Important for meLess important

This question is asking about drugs that are safe to use in malignant hyperthermia. From the list above, only suxamethonium is known to be causative, all the others are safe

Question:

Fernando is a 56-year-old man who presents to the emergency department as he has noticed a gradual increase in swelling around his abdomen over the last few months. He has not noticed any other symptoms over this time.

On examination, his blood pressure is 120/80mmHg, heart rate 65/minute and regular, respiratory rate 15/minute, and he is afebrile. Fernando appears generally well although his abdomen appears distended and tense. Shifting dullness is present on percussion of the abdomen.

Fernando is sent for an ascitic tap and the fluid is sent for analysis. The serum ascitic albumin gradient (SAAG) returns as 13g/L. The white cell count is <250 neutrophils/mm³.

Which of the following conditions would be a plausible cause of Fernando's ascites?

A.Bowel malignancy

B.Liver cirrhosis

C.Nephrotic syndrome

D.Pancreatitis

E.Spontaneous bacterial peritonitis

Answer:Liver cirrhosis

Explanation:

Ascites: a high SAAG gradient (> 11g/L) indicates portal hypertension

Important for meLess important

The answer is liver cirrhosis. The SAAG indirectly measures portal pressure and therefore can be used to determine if a patient's ascites is due to portal hypertension or other causes. SAAG = serum albumin - ascitic fluid albumin.

A high SAAG (>11g/L) indicates portal hypertension and the ascitic fluid is a transudate. Causes of this include liver cirrhosis, hepatic failure, venous occlusion (e.g. Budd Chiari syndrome), alcoholic hepatitis, and kwashiorkor malnutrition.

A low SAAG (<11g/L) suggests the ascitic fluid is an exudate. Causes of this include malignancy, infection, pancreatitis and nephrotic syndrome. Therefore, bowel malignancy, nephrotic syndrome and pancreatitis are incorrect.

Spontaneous bacterial peritonitis is not a cause of ascites. Rather, it is a result of having ascites and liver cirrhosis. The most common bacteria are gram-negative Escherichia coli and Klebsiella pneumoniae.

Question:

A 21-year-old man presents to the emergency department following the sudden appearance of a painful erythematous rash, covering both his mouth and his skin. He has a background of epilepsy, for which he started a new medication for three weeks ago, and bipolar affective disorder.

Which medication has most likely triggered this reaction to occur?

A.Carbamazepine

B.Clonazepam

C.Gabapentin

D.Lithium

E.Olanzapine

Answer:Carbamazepine

Explanation:

Carbamazepine may cause Steven-Johnson syndrome

Important for meLess important

Carbamazepine is a possible medication cause of Steven-Johnson syndrome, with the medication often started 2-3 weeks before the onset of the syndrome.

Steven Johnson syndrome describes painful erythematous macules evolving to target lesions, with severe mucosal ulceration of at least 2 surfaces (e.g. skin, mouth, urethra).

Clonazepam is a benzodiazepine not linked with Steven-Johnson syndrome. Common side effects include ataxia and agitation.

Gabapentin is an antiepileptic medication used also for neuropathic pain. It is not linked to Steven-Johnson syndrome and its side effects include drowsiness and gastrointestinal issues such as diarrhoea and vomiting.

Lithium is a mood stabilising medication used in bipolar disorder. Steven-Johnson syndrome is not known complication of this medication.

Olanzapine is an antipsychotic that is used mainly for schizophrenia management but can also be used for mood stabilisation. It is not associated with Steven-Johnson syndrome.

Question:

A 27-year-old man who has recently moved to the UK from Uganda presents complaining of fatigue and purple skin lesions all over his body. On examination he has multiple raised purple lesions on his trunk and arms. You also notice some smaller purple lesions in his mouth. He has recently started taking acyclovir for herpes zoster infection.

What is the most likely diagnosis?

A.Dermatofibroma

B.Kaposi's sarcoma

C.Drug reaction to acyclovir

D.Psoriasis

E.Haemangioma

Answer:Kaposi's sarcoma

Explanation:

Raised purple lesions is a classic description of Kaposi's sarcoma suggesting he has underlying HIV infection. HIV has a high prevalence in Uganda and the recent herpes zoster infection suggests he may have underlying immunocompromise.

Dermatofibromas are usually small pink/red nodules that are characteristically very firm and would not be found in the mouth. Psoriasis presents with red, scaly lesions and again is not seen on mucosal surfaces. A drug reaction is unlikely to present like this. A haemangioma can present with a purple raised lesion but again it would be unusual to see them in the mouth and Kaposi's sarcoma is much more likely in this case.

Question:

A 27-year-old known intravenous drug user presents to the emergency department with haemoptysis. He has been coughing blood for thirty minutes, but he denies any other symptoms. He denies any past medical history except for a cold he recovered last week from.

His observations are:

Heart rate:110/min

Blood pressure: 100/75mmHg

Respiratory rate:19/min

Temperature: 36.1 ºC.

On examination, he looks alert. A cardiovascular examination reveals a mid-late diastolic murmur.

What is the most likely diagnosis?

A.Aortic regurgitation

B.Mitral stenosis

C.Pneumonia

D.Pulmonary embolism

E.Tricuspid regurgitation

Answer:Mitral stenosis

Explanation:

Haemoptysis can be a symptom of mitral stenosis

Important for meLess important

The correct answer is mitral stenosis. This patient is presenting with new-onset haemoptysis with a co-existing mid-late diastolic murmur. These are characteristic features of mitral stenosis, a condition most commonly caused by rheumatic fever.

The valve will become thicker, obstructing blood flow across the mitral valve from the left atrium to the left ventricle, leading to an increase in pressure within the left atrium, pulmonary vasculature and right side of the heart. This might cause increased pressure in the pulmonary circulation causing rupture of pulmonary vessels, leading to haemoptysis.

Aortic regurgitation would cause an early diastolic murmur, as it causes backflow of blood into the ascending aorta during diastole. It is also not associated with haemoptysis.

Pneumonia might cause haemoptysis due to inflammation, irritation and recurrent coughing. But it would cause fever, and sweats and make the patient systemically unwell, features which are not present in this case.

A pulmonary embolism can cause haemoptysis, so this is a good differential. But it would not justify the mid-late diastolic murmur. Additionally, pulmonary emboli are usually associated with dyspnea and chest pain which are not present in this case.

Tricuspid regurgitation is a valve defect associated with intravenous drug users, but it would cause a pan-systolic murmur, rather than a mid-late diastolic murmur. Additionally, it would not explain the haemoptysis.

Question:

A 45-year-old female known to have rheumatoid arthritis presents to the hospital's emergency department with a red, swollen painful right eye.

The patient is currently on hydroxychloroquine, with good drug compliance. She has had 3 arthritic flares in the past year, all responding to the IV steroids.

She frequently takes artificial teardrops, with good effect, as she often experiences foreign body sensation. However, her current ocular symptoms are not in keeping with previous episodes and are not responding to artificial teardrops.

Which of the following is the most likely diagnosis?

A.Allergic conjunctivitis

B.Episcleritis

C.Keratitis

D.Retinopathy

E.Scleritis

Answer:Scleritis

Explanation:

Scleritis is painful, episcleritis is not painful

Important for meLess important

Approximately 25% of patients with rheumatoid arthritis have ocular manifestations of the disease. These range from episcleritis (inflammation of the outermost covering of the eye) to the drug (chloroquine) induced retinopathy. Scleritis is characterised by a red, swollen, and painful eye as described in this patient.

Episcleritis is commonly mistaken for scleritis however, episcleritis is painless.

As there is no clear history of stimuli exposure (i.e. pollen, dust) or increased lacrimation allergic conjunctivitis is least likely in this case.

Keratitis is usually associated with eye discharge.

Retinopathy can occur due to hydroxychloroquine use in rheumatoid arthritis therefore, annual eye exams are advised for rheumatoid patients. Retinopathy results in a painless reduction in visual acuity which is not in keeping with this patient's presentation.

Question:

A 24-year-old nulliparous female with a history of recurrent deep vein thrombosis presents with shortness of breath. The full blood count and clotting screen reveals the following results:

Hb 12.4 g/dl

Plt 137

WBC 7.5 \* 109/l

PT 14 secs

APTT 46 secs

What is the most likely underlying diagnosis?

A.Third generation oral contraceptive pill use

B.Protein C deficiency

C.Antithrombin III deficiency

D.Antiphospholipid syndrome

E.Activated protein C resistance

Answer:Antiphospholipid syndrome

Explanation:

Antiphospholipid syndrome: (paradoxically) prolonged APTT + low platelets

Important for meLess important

The combination of a prolonged APTT and thrombocytopenia make antiphospholipid syndrome the most likely diagnosis

Question:

A 74-year-old presents to her GP with severe left groin pain radiating into the knee when she walks. The pain has developed insidiously over the last 7 weeks and is associated with stiffness. The patient is not aware of any triggers and denies trauma.

The patient was diagnosed with polymyalgia rheumatica 9 months ago. This is controlled with 1mg prednisolone daily, although after diagnosis she required 3 months of high-dose prednisolone. She drinks 30 units of alcohol/week. Her BMI is 33kg/m².

Hip x-rays show some very mild joint space narrowing only which is bilateral.

What is the most appropriate next step?

A.Advise weight loss and simple analgesia only

B.Increase dose of prednisolone and review in one week

C.Refer for MRI hip

D.Refer for hip ultrasound

E.Stop prednisolone and refer to rheumatology for consideration of an alternative diagnosis

Answer:Refer for MRI hip

Explanation:

Long-term steroid use is a significant risk factor for avascular necrosis

Important for meLess important

MRI of the hip is the correct answer. This is the most sensitive investigation for avascular necrosis (AVN) of the hip, which presents with the insidious development of anterior hip pain and stiffness. This patient has a significant risk factor for AVN (long-term steroid use). Her obesity and alcohol intake also increases her risk. X-rays can be normal or minimally changed in early AVN, so the lack of X-ray changes here does not rule out the diagnosis.

Weight loss and simple analgesia only are incorrect. This is because this is appropriate management for hip osteoarthritis (OA), not AVN. Whilst OA also causes anterior hip pain during exercise, this pain develops over months to years, not weeks. Furthermore, this patient has already had hip X-rays, with minimal features of OA beyond some minor joint space narrowing. This is bilateral, and does not explain why the patient has such significant left-sided symptoms. Some minor degenerative x-ray changes would be very common at this patient's age and are not enough alone to confirm that this is the cause of the patient's symptoms. Given the risk factors for AVN, this must be ruled out before a diagnosis of OA.

An increased dose of prednisolone is incorrect. This history is not suggestive of a polymyalgia rheumatica (PMR) relapse. In PMR, hip pain is usually bilateral, associated with prolonged morning stiffness and associated with shoulder pain and constitutional symptoms.

Hip ultrasound is incorrect. Whilst this may be useful for diagnosing soft tissue causes of hip pain, such as bursitis, it is not the preferred imaging method to assess the bony structures of the hip and so will not diagnose or rule out AVN.

Stop prednisolone and refer to rheumatology for consideration of an alternative diagnosis is incorrect. This is because, firstly, stopping prednisolone abruptly would dangerous, as long-term prednisolone leads to suppression of the body's endogenous corticosteroid production. Secondly, this history is suspicious for AVN which requires MRI imaging and subsequent orthopaedic referral.

Question:

A 13-year-old girl is reviewed in clinic after experiencing episodes of sudden bilateral upper and lower limb jerking without a loss of consciousness or stiffness over the last few months. Each episode lasts for around 10 seconds before resolving and has occurred right before bed, except for the last episode which was different as she experienced bilateral upper and lower limb stiffening along with jerking with a loss of consciousness.

She has no other past medical history and she has been performing well in school. Her father has had similar problems in the past.

What is the most likely diagnosis?

A.Benign rolandic epilepsy

B.Focal aware epilepsy

C.Generalised tonic-clonic epilepsy

D.Juvenile myoclonic epilepsy

E.Lennox-Gastaut syndrome

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 patient has presented with unprovoked episodes of myoclonus (jerking) bilaterally in the upper and lower limbs which occur more near bedtime (i.e. nearing sleep deprivation) and one episode of a generalised tonic-clonic seizure due to muscle stiffness (increased tonus) and jerking (clonus). The presence of episodes of myoclonus early in the morning or following sleep deprivation makes a diagnosis of juvenile myoclonic epilepsy (JME). Her age and sex also support this diagnosis, as JME is more common in girls and people in their teenage years. If left untreated, JME may progress to generalised tonic-clonic seizures, which are seen in nearly all people with JME and often begin a few months after the myoclonic jerks start.

Benign rolandic epilepsy is incorrect. This tends to occur in children aged 4-12 years of age and is characterised by partial seizures occurring at night, typically paraesthesias affecting the face. Since this patient's seizures consist of bilateral myoclonus and they have had a generalised tonic-clonic seizure, benign rolandic epilepsy is less likely.

Focal aware epilepsy is incorrect. This would be the case if the patient presented with jerking restricted to one focal area (such as a single limb) with retained consciousness. This patient's features are bilateral. As well as this, this patient's seizures tend to occur near bedtime, which would not be explained by a diagnosis of focal-aware epilepsy.

Generalised tonic-clonic epilepsy is incorrect. Although this patient has experienced a generalised tonic-clonic seizure, she has had multiple episodes of myoclonus preceding it, and all episodes have occurred near bedtime (i.e. nearing sleep deprivation). This pattern fits more with a diagnosis of JME. If left untreated, JME may progress to generalised tonic-clonic seizures, which are seen in nearly all people with JME and often begin a few months after the myoclonic jerks start, which explains the generalised tonic-clonic seizure she had. As a reminder, epilepsy describes a patient's tendency to have seizures. A seizure is a singular episode of neurological dysfunction.

Lennox-Gastaut syndrome is incorrect. This tends to present in children aged 1-5 years and is characterised by frequent tonic seizures, which present as limb stiffening. Most patients also have moderate-severe learning disabilities which are not mentioned here. Most seizures in this syndrome also occur during sleep and only last for a few seconds, which does not apply here as this patient's seizures happen while they are awake.

Question:

A 65-year-old woman is brought in by ambulance to the emergency department, accompanied by her husband, with new-onset right-sided weakness.

On examination, she scores 2/5 on the muscle power scale (MRC) scale for shoulder abduction and elbow flexion, and MRC 3/5 for hip flexion, knee flexion and ankle dorsiflexion. Movements on her left side are normal in power. Hyperreflexia is present on her right side. The sensation is normal on both sides.

Her cranial nerve examination also revealed left-sided mild ptosis and fixed dilated pupil pointing down and out.

What is the area most likely affected by ischaemia?

A.Basilar artery

B.Left anterior inferior cerebellar artery

C.Left middle cerebral artery

D.Left posterior cerebral artery

E.Left posterior inferior cerebellar artery

Answer:Left posterior cerebral artery

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

Left posterior cerebral artery is the correct answer. The patient has presented with right upper motor neurone symptoms including hemiparesis (as demonstrated by the reduced muscle power scale (MRC) score) and right hyperreflexia. She also presented with an oculomotor (CN III) palsy, as her pupil is dilated (mydriasis due to lack of parasympathetic supply), squinted (mild-ptosis occurs as the oculomotor nerve supply the levator palpebrae superioris is cut off, however, sympathetic supply will still allow the superior tarsal muscle to function) and down-out pointing (without the oculomotor nerve the only eye muscles working are the rectus abducens and superior oblique).

Her right hemiparesis and left CNIII palsy point to a possible diagnosis of Weber's syndrome on the left. This involves ischaemia in the posterior cerebral artery that supplies the midbrain. Due to the CNIII's proximity to the posterior cerebral artery, it might be affected. As the decussation of the upper motor neurone occurs below the lesion, the contralateral side is affected by hemiparesis.

Basilar artery is incorrect. Ischemia to this artery can result in motor deficits, hemiparesis or quadriparesis, facial palsies, dizziness, headache, and speech abnormalities. Often known as the locked-in syndrome, it is not likely here due to the patient's presentation.

Left anterior inferior cerebellar artery is incorrect. Ischaemia in this artery would most likely produce ipsilateral facial paralysis (facial nerve nucleus affected) with deafness (cochlear nuclei affected) and contralateral ataxia and loss of lateral spinothalamic sensations (pain and temperature). This lateral pontine syndrome is not supported by the symptoms of this patient and is therefore unlikely.

Left middle cerebral artery is incorrect. Ischaemia in that area would result in hemiparesis of the upper limbs more so than the lower limbs with muscle weakness. However, the lesion in the CNIII suggests that another diagnosis is most likely. Ischaemia in the posterior cerebral artery would explain the lesion of CNIII alongside right hemiparesis.

Left posterior inferior cerebellar artery is incorrect. Ischaemia in this artery would result in lateral medullary syndrome or Wallenberg's syndrome. This would present is ipsilateral loss of spinothalamic sensation (pain and temperature) of the face and contralateral loss of spinothalamic sensation in the body. This would also be accompanied by dysphagia, hoarseness or absent gag reflex, which is how it is usually differentiated from an anterior inferior cerebellar artery stroke.

Question:

A 56-year-old male presents to the emergency department with ongoing symptoms of difficulty breathing. He reports that recently he has also been experiencing some pain in his chest, worse when he takes deep breaths in. On auscultation of his lungs, there are reduced breath sounds bilaterally and there is a notable dullness to percussion. Following a chest x-ray, the respiratory consultant is suspecting a pleural effusion and so requests for drainage for analysis.

Given that the fluid protein/serum protein ratio comes back as 0.25, what is the most likely cause of this man's symptoms?

A.Pneumonia

B.Mesothelioma

C.Pancreatitis

D.Nephrotic syndrome

E.Tuberculosis

Answer:Nephrotic syndrome

Explanation:

If a pleural effusion fluid protein/serum protein ratio is >0.5, the effusion is an exudate

Important for meLess important

As this man's ratio is less than 0.5, this suggests that the effusion is a transudate. Nephrotic syndrome is the only option that would cause a transudate effusion, due to the loss of albumin, whereas the other options are all causes of exudate effusion.

1,2,3,5 - incorrect - all of these would can an exudative effusion.

Question:

A 19-year-old student falls from a 2nd-floor window. He is persistently hypotensive. A chest x-ray shows a widened mediastinum with depression of the left main bronchus and deviation of the trachea to the right. What is the most likely injury?

A.Tension pneumothorax

B.Parenchymal lung injury

C.Aortic rupture

D.Cardiac tamponade

E.Flail chest

Answer:Aortic rupture

Explanation:

He has a deceleration injury, with persistent hypotension (contained haematoma). This should indicate aorta rupture. Widened mediastinum may not always be present on a CXR. A CT angiogram will provide clearer evidence of the extent of injury. The presence of persistent hypotension, from a early stage, is more consistent with haematoma than a tension pneumothorax in which it occurs as a final peri-arrest phenomena.

Question:

A 22-year-old woman visits her general practitioner with a 4-week history of dry cough and chest tightness. She was diagnosed with asthma 6-months ago and has been prescribed a salbutamol inhaler to use when necessary. Over the last month, she reports having increased shortness of breath and has been using her salbutamol inhaler up to 10 times per day.

On examination, her observations are within normal limits. Her peak expiratory flow rate is 270L/min (best 380L/min).

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

A.Combined inhaled corticosteroid and long-acting beta-agonist

B.Leukotriene receptor antagonist

C.Long-acting beta-agonist

D.Low-dose inhaled corticosteroid

E.Short-acting muscarinic antagonist

Answer:Low-dose inhaled corticosteroid

Explanation:

Adult with asthma not controlled by a SABA - add a low-dose ICS

Important for meLess important

Low-dose inhaled corticosteroid is correct. This patient is experiencing worsening respiratory symptoms relating to her underlying asthma. NICE guidelines recommend that for patients whose asthma is not controlled by a short-acting beta-agonist (such as this patient's salbutamol inhaler), then a low-dose inhaled corticosteroid must be added.

Combined inhaled corticosteroid and long-acting beta-agonist is incorrect. This is not introduced into the asthma management regime until symptoms cannot be controlled with both a low-dose inhaled corticosteroid and a short-acting beta-agonist +/- a leukotriene receptor antagonist. A long-acting beta-agonist is usually introduced with a low-dose inhaled corticosteroid as a combined inhaler (e.g. Symbicort - budesonide/formoterol).

Leukotriene receptor antagonist is incorrect. This is the third step in the management of asthma if symptoms cannot be controlled with both a low-dose inhaled corticosteroid and a short-acting beta-agonist.

Long-acting beta-agonist is incorrect. A long-acting beta-agonist is not introduced into the asthma management regime until symptoms cannot be controlled with both a low-dose inhaled corticosteroid and a short-acting beta-agonist +/- a leukotriene receptor antagonist. A long-acting beta-agonist is usually introduced with a low-dose inhaled corticosteroid as a combined inhaler (e.g. Symbicort - budesonide/formoterol).

Short-acting muscarinic antagonist is incorrect. This is used in the management of the chronic obstructive pulmonary disease. A long-acting muscarinic antagonist can be added to the management regime. However, this is done at a much later stage.

Question:

A 25-year-old male is brought to the emergency department after being struck on the side of the head with a bottle in a nightclub. According to one of his accompanying friends, he was knocked unconscious initially but then regained consciousness. An ambulance was called after the patient lost consciousness again. The admission CT head scan shows an intracranial haemorrhage.

What is the most likely intracranial haemorrhage based on the history?

A.Extradural haematoma

B.Acute subdural haematoma

C.Contusion

D.Concussion

E.Diffuse axonal injury

Answer:Extradural haematoma

Explanation:

Patients with an intracranial extradural haematoma may experience a lucid interval in which they briefly regain consciousness after the injury before progressing into a coma

Important for meLess important

An extradural haematoma is typically caused by blunt-force, low-impact traumatic head injury. Patients may regain consciousness initially following the injury but progressively slip into a coma as the haematoma continues to expand.

An acute subdural haematoma is typically caused by high-impact injuries (such as a road traffic accident or severe fall) and is often accompanied with diffuse injuries (such as diffuse axonal injury). Patients are either comatose from the outset and do not have the classical lucid interval that is seen in patients with extradural haematomas.

Contusions are a common consequence of traumatic head injury. Over the two to three days following a head injury, contusions can expand and swell (caused by oedema). This effect is termed 'blossoming'. This is a slower process than the neurological deterioration seen in extradural haematoma, which is typically minutes to hours.

Diffuse axonal injury is associated with acceleration and deceleration forces (such as those imposed by a road traffic accident). Coma is of immediate onset and recovery typically takes weeks to months.

Question:

You are a junior doctor who has been bleeped to a crash call. The patient is a 36-year-old male on the endocrine ward.

You start assessing him using the ABCDE method.

The patient looks pale and clammy, but is still responsive.

Airway - clear and patent, the patient is talking.

Breathing - respiratory rate is 24 breaths per minute and oxygen saturation is at 98% on room air. Chest expansion is equal and bilateral and the trachea is central. Air entry is good and equal bilaterally.

Circulation - heart rate is 175 beats per minute, and blood pressure is 88/56 mmHg. IV access is already in place. His ECG shows a regular broad complex tachycardia.

Which of the following is the most appropriate next action?

A.IV adenosine

B.IV adrenaline

C.IV amiodarone

D.Start cardiopulmonary resuscitation (CPR)

E.Synchronised DC cardioversion under anaesthesia

Answer:Synchronised DC cardioversion under anaesthesia

Explanation:

In the context of a tachyarrhythmia, a systolic BP < 90 mmHg → DC cardioversion

Important for meLess important

The patient is most likely in ventricular tachycardia (VT) given the regular broad complex tachycardia. It is important to note that he is hypotensive, which is a sign of shock - one of the adverse features stated by the Resuscitation Council peri-arrest guidelines. The other adverse features include syncope, myocardial ischaemia (chest pain) and heart failure.

Due to the presence of shock, the most appropriate action is to give him a synchronised DC shock under sedation or general anaesthesia. An unsynchronised shock is for rhythms which have no coordinated electrical activity such as ventricular fibrillation or pulseless VT.

IV adrenaline and CPR are not necessary as he is not currently in cardiac arrest.

IV adenosine is used in the management of narrow complex tachycardias such as supraventricular tachycardias.

IV amiodarone is used after a DC shock has been given in unstable patients. It is also given in stable patients in VT.

Question:

A 35-year-old man presents to his general practitioner with a history of right-sided hearing loss, vertigo and tinnitus.

Cranial MRI demonstrates a mass at the cerebellopontine junction.

Given the most likely diagnosis, which one of the following cranial nerves are most likely to be affected?

A.II, VII and VIII

B.II, VIII and IX

C.III, VIII and IX

D.V, VII and VIII

E.VII, VIII and X

Answer:V, VII and VIII

Explanation:

Cranial nerves V, VII and VIII are affected in vestibular schwannomas

Important for meLess important

The correct answer is cranial nerves V, VII, VIII.

The patient has features and imaging compatible with a diagnosis of vestibular schwannoma (acoustic neuroma). The classical history of acoustic neuroma includes a combination of vertigo, sensorineural hearing loss and tinnitus.

Acoustic neuroma typically arises from Schwann cells of the vestibulocochlear nerve (CNVIII) at the cerebellopontine junction. The sensorineural hearing loss, vertigo, and tinnitus are caused by tumoral infiltration into CN VIII. The location of the tumour can most commonly result in pathology of CN V, VII and VIII, which all pass closely to the cerebellopontine junction. This may result in an absent corneal reflex due to a lesion in CN V or facial palsy due to a lesion in CN VII.

The option II, VII, and VIII is incorrect because the optic nerve (CN II) arises from the cerebrum so it is unaffected.

The option II, VIII, and IX is wrong because both cranial nerves II is unaffected. Involvement of the lower cranial nerves (IX arises from the medulla) can occur in very large tumours but this is much rarer.

The option III, VIII, and IX is incorrect because CN III arises from the midbrain and IX arises from the medulla.

The option VII, VIII, and X is incorrect because CN X arises from the medulla - like IX it can be affected only if the tumour is very large.

Question:

A 24-year-old male is admitted to the Emergency Department complaining of severe abdominal pain. On examination he is shivering and rolling around the trolley. He has previously been investigated for abdominal pain and no cause has been found. He states that unless he is given morphine for the pain he will kill himself. This is an example of:

A.Hypochondrial disorder

B.Conversion disorder

C.Malingering

D.Munchausen's syndrome

E.Somatisation disorder

Answer:Malingering

Explanation:

Lying or exaggerating for financial gain is malingering, for example someone who fakes whiplash after a road traffic accident for an insurance payment

Important for meLess important

This is difficult as the patient may well be an opiate abuser who is withdrawing. However, given the above options the most appropriate term to use is malingering as the patient is reporting symptoms with the deliberate intention of getting morphine

Question:

A patient on the surgical ward is being assessed for a new-onset tachycardia.

Observations:

Blood pressure: 69/38 mmHg

Pulse: 150bpm

Respiratory rate: 32/min

Oxygen saturation: 89%

On examination, the patient looks pale and clammy but can converse in single words. A peri-arrest call is immediately put through. The following ECG is conducted on the patient.

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

What is the immediate management plan?

A.Adenosine

B.Amiodarone

C.CPR

D.Synchronised cardioversion

E.Vagal manoeuvre

Answer:Synchronised cardioversion

Explanation:

The above ECG shows a narrow complex tachycardia of a heart rate of 150. However, the patient is haemodynamically unstable and would require immediate synchronised cardioversion. This patient is haemodynamically unstable as the blood pressure is no longer being maintained. Moreover, together with the low oxygen saturation, indicates perfusion failure.

Adenosine can be used to terminate narrow complex tachycardia only if the patient is haemodynamically stable.

Amiodarone is often used in patients with wide-complex tachycardia if they are haemodynamically stable. It is also used under specialist recommendations for cases of paroxysmal supraventricular, nodal or ventricular tachycardia when other drugs are ineffective.

CPR is not the right answer as the patient is not in a cardiac arrest.

Vagal manoeuvres can also be trialled as well for haemodynamically stable narrow complex tachycardia.

Common vagal manoeuvres include:

1) Valsalva manoeuvre where the patient is asked to bear down against a closed airway. The vagus nerve is triggered and conduction from the atria through the ventricles is slowed.

2) Carotid sinus massage is another vagal manoeuvre that is used. By increasing the pressure on the baroreceptors, the vagus nerve is triggered to slow the heart rate.

Question:

A 42-year-old male is admitted to the acute medical ward with right upper quadrant pain. He describes symptoms of pruritus and lethargy, and on examination has yellow sclera. Relevant investigations are ordered:

Antimitochondrial antibody negative

Perinuclear antineutrophil cytoplasmic auto-antibody (pANCA) positive

ERCP shows strictures giving a 'beaded' appearance.

Given the probable diagnosis causing these symptoms, what other condition is he most likely to have in his past medical history?

A.Crohn's disease

B.Ulcerative colitis

C.Coeliac disease

D.HIV

E.Hepatitis B

Answer:Ulcerative colitis

Explanation:

Ulcerative colitis is very common (80%) amongst patients with PSC

Important for meLess important

Although not all patients with primary sclerosing cholangitis (PSC) with have positive pANCA, if you see it in a question with negative antimitochondrial antibodies (which would suggest primary biliary cirrhosis if positive) think PSC. This is backed up by the classic 'beaded' strictures on ERCP

A number of studies have shown that the majority of patients with primary sclerosing cholangitis (PSC) also have ulcerative colitis (UC). There is a weaker association with Crohn's and HIV. Coeliac has been associated with primary biliary cirrhosis. Hep B could cause similar symptoms to PSC but is not likely without relevant risk factors.

It is important to stress that although having UC does increase your risk of developing PSC, most people with UC do not have PSC (see notes below)

Question:

A 3 month old boy is suspected of having hypospadias. At which of the following locations is the urethral opening most frequently located in boys suffering from the condition?

A.On the distal ventral surface of the penis

B.On the proximal ventral surface of the penis

C.On the distal dorsal surface of the penis

D.On the proximal dorsal surface of the penis

E.At the base of the scrotum

Answer:On the distal ventral surface of the penis

Explanation:

The defect is located ventrally and most often distally. Proximally located urethral openings are well recognised. Circumcision may compromise reconstruction.

Question:

A woman who is 34 weeks pregnant is admitted to the obstetric ward. She has been monitored for the past few weeks due to pregnancy-induced hypertension but has now developed proteinuria. Her blood pressure is 162/94 mmHg. Which one of the following antihypertensives is it most appropriate to commence?

A.Nifedipine

B.Atenolol

C.Labetalol

D.Losartan

E.Methyldopa

Answer:Labetalol

Explanation:

Labetalol is first-line for pregnancy-induced hypertension

Important for meLess important

Question:

A home visit is requested by the husband of a 71-year-old woman who is 'off her legs'. On arriving the patient states that since mid-morning her left arm has felt weak and a degree of facial asymmetry is noted when she smiles. She is normally fit and well other than a past history of hypertension for which she takes ramipril. What is the most appropriate action?

A.Arrange same-day medical admission

B.Dial 999 for emergency admission

C.Arrange review at rapid access TIA clinic

D.Arrange review at rapid access TIA clinic + give aspirin 300 mg

E.Dial 999 for emergency admission + give aspirin 300 mg

Answer:Dial 999 for emergency admission

Explanation:

This lady is most likely having a stroke, nowadays rightly recognised as a medical emergency. Aspirin should only be given once a haemorrhagic stroke has been excluded

Question:

A 56 year old gentleman is being treated as an inpatient for a duodenal ulcer. He notices that his first metatarsophalangeal joint is severely inflamed on waking this morning. There is swelling and tenderness of the joint, and fluid is sent for microscopy. He has a past medical history of hypertension. What is the best initial medication to prescribe?

A.Diclofenac

B.Allopurinol

C.Cyclizine

D.Colchicine

E.Indomethacin

Answer:Colchicine

Explanation:

Diclofenac and indomethacin are contraindicated because of his duodenal ulcer. Colchicine is a suitable alternative. Allopurinol should not be given in the acute phase, but is good for preventing recurrent attacks.

Gout can be a precursor to conditions such as ischaemic heart disease and hypertension, which should be investigated for.

Weight loss and alcohol avoidance should be encouraged in patients with gout.

Question:

Sandra is a 64-year-old female who is brought to her general practitioner by her daughter due to progressively worsening headaches over the past month. The headaches are unilateral and throbbing in nature. There are no visual disturbances, however Sandra reports nausea and sometimes vomiting with these headaches. Her daughter comments that Sandra has become more moody and aggressive recently, and has started gambling down at the pub every night. Sandra has a history of childhood migraines, and she takes no regular medications.

On examination, her pulse is 60/min, blood pressure is 130/85mmHg, respiratory rate 16/min, and she is afebrile. There are no focal neurological deficits in the face, upper limbs, or lower limbs.

What is the next most appropriate step in management?

A.Recommend propranolol and metoclopramide therapy

B.Recommend regular paracetamol, and review in one week

C.Refer for temporal artery biopsy and blood test for erythrocyte sedimentation rate (ESR)

D.Referral to neurologist for frontotemporal dementia workup

E.Urgent imaging

Answer:Urgent imaging

Explanation:

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

Important for meLess important

Urgent imaging is the correct answer due to the progressively worsening headache with higher cognitive impairments. Higher cognitive impairments in this case include disinhibition (aggression) and change in impulse control (gambling). Other higher cognitive impairments may include inflexible thinking, poor problem solving and worsening decision making. It is important to identify the red flags when it comes to headaches, as these will require further investigations and/or referral.

Propranolol is recommended in the prophylactic treatment of migraines, and metoclopramide is an anti-emetic used in the acute management of migraines for nausea. It is possible that Sandra's headaches could be migraines given the unilateral, throbbing headaches and nausea. However, given the red flags, further investigations are required before diagnosing these as migraines.

Regular paracetamol and reviewing in one week is the incorrect answer given the red flags and higher cognitive impairment.

Temporal artery biopsy and ESR testing would be the next step if the suspected diagnosis was giant cell arteritis. This is an unlikely diagnosis in this case. The characteristic features of giant cell arteritis include headache, visual disturbances and jaw claudication.

Frontotemporal dementia could explain the disinhibition and change in impulse control, however this diagnosis is not time-sensitive and it is important to first rule out the red flags. Furthermore, headaches are not characteristic of this condition.

Question:

A 54-year-old man is brought to the emergency department by his wife, complaining of a 5-hour history of vomiting and abdominal pains. His past medical history includes alcohol-related liver cirrhosis.

Urinalysis is performed and is positive for ketones only. An arterial blood gas (ABG) is also performed and the results are shown below:

pH 7.31

pCO2 4.1 kPa

pO2 14 kPa

Bicarbonate 19 mmol/L

A blood glucose sample is also taken, and the results (with reference ranges) are shown below:

Random blood glucose 4.5 mmol/L 4-7 mmol/L

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

A.Fast-acting carbohydrate

B.Intravenous (IV) 0.9% saline and fixed-rate insulin infusion

C.IV 0.9% saline and low-molecular-weight heparin (LMWH)

D.IV hydrocortisone and 0.9% saline

E.IV thiamine and 0.9% saline

Answer:IV thiamine and 0.9% saline

Explanation:

Alcoholic ketoacidosis is managed with an infusion of saline and thiamine

Important for meLess important

The past medical history of this patient, along with the results of the ABG and urinalysis strongly suggest a diagnosis of alcoholic ketoacidosis in this patient. In this condition, the body becomes starved and requires the breakdown of fats to produce energy. Ketones are also produced as a by-product, resulting in a ketoacidosis, in the presence of a normal blood glucose. It should be treated with 0.9% saline to hydrate the patient and normalise the ketones. Patients with a history of alcohol excess are often deficient in thiamine, which can cause Wernicke's encephalopathy, a neuro-psychiatric condition causing ataxia, confusion, nystagmus and ophthalmoplegia. Thiamine replacement will prevent this.

Fast-acting carbohydrate would be the treatment of choice for hypoglycaemia of blood glucose < 4mmol/L, in a patient who can swallow. However, the normal blood glucose in this patient excludes this diagnosis. It is worth noting that alcoholic ketoacidosis can result in low blood glucose levels in some cases. Apart from alcohol, other causes of hypoglycaemia include over-administration of insulin/ sulfonylureas, insulinomas and Addison's disease.

Although DKA is another differential for metabolic acidosis, and would be treated with IV saline and insulin infusion, a patient with DKA would present with hyperglycaemia. Furthermore, it is a complication of type 1 diabetes, and it is very unlikely for a 65-year-old patient to have a first presentation of type 1 diabetes.

HHS should be treated with IV 0.9% saline and LMWH. However, the investigation results do not fit with a diagnosis of HHS. HHS is a complication of type 2 diabetes, resulting from hyperglycaemia. Part of the criteria for diagnosing HHS requires hyperglycaemia in the absence of ketonaemia or acidosis. This criteria is not met in this patient. The further criteria for diagnosis are hypovolaemia and hyperosmolarity.

IV hydrocortisone and 0.9% saline is the treatment for an Addisonian crisis. Addison's disease results from destruction of the adrenal cortex, resulting in glucocorticoid and mineralocorticoid deficiency. An acute exacerbation of Addison's disease (e.g. from infection or steroid withdrawal) can lead to Addisonian crisis, resulting in hypotension and hypoglycaemia. A patient may present similarly, with nausea, vomiting and drowsiness. However, they would typically have a low blood glucose and a history of steroid use or further symptoms of Addison's disease, including hyperpigmentation and weight loss.

Question:

A 26-year-old man with a history of speech and behavioural problems presents with lethargy. On examination he is noted to have jaundiced sclera. What is the most likely diagnosis?

A.Wiskott-Aldrich syndrome

B.Haemochromatosis

C.Friedreich's ataxia

D.Wilson's disease

E.Acute intermittent porphyria

Answer:Wilson's disease

Explanation:

A combination of liver and neurological disease points towards Wilson's disease

Important for meLess important

Question:

A 65-year-old man with a background of chronic obstructive pulmonary disease, rheumatoid arthritis and polymyalgia rheumatica presents with difficulty in climbing the stairs, worsening bruising on his arms and weight gain. These symptoms have been progressively getting worse and he is concerned whether it could be due to the fact that he has been taking long term steroids for his underlying conditions. He is aware of the sick-day rules which he reports adhering to and denies ever stopping his treatment.

If a venous blood gas was to be performed on this patient you would most likely find which of the following?

A.Hyperkalaemic metabolic acidosis

B.Hyperkalaemic metabolic alkalosis

C.Hypokalaemic metabolic acidosis

D.Hypokalaemic metabolic alkalosis

E.Mixed metabolic acidosis

Answer:Hypokalaemic metabolic alkalosis

Explanation:

Cushing's syndrome - hypokalaemic metabolic alkalosis

Important for meLess important

This patient has symptoms suggestive of Cushing's syndrome caused by prolonged exposure to exogenous corticosteroids such as Prednisolone for his medical conditions.

Cushing's syndrome - hypokalaemic metabolic alkalosis. The metabolic alkalosis is due to excess aldosterone which increases acid and potassium excretion in the kidney.

Addison's disease - hyperkalaemic metabolic acidosis. The metabolic acidosis is due to insufficiency of aldosterone which decreases acid secretion in the kidney and leads to the retention of potassium.

Question:

A 6-year-old boy is brought to his GP by his father with what he describes as 'red sores' around the mouth. On examination you diagnose him with localised impetigo and decide to prescribe an antibiotic. The father states that the boy is currently otherwise well but suffered with an asthma exacerbation three weeks previously.

Topical hydrogen peroxide did not help for a similar episode previously.

What would be the most appropriate treatment in this case?

A.Topical retapamulin

B.Topical mupirocin

C.Oral flucloxacillin

D.Topical fusidic acid

E.Oral clarithromycin

Answer:Topical fusidic acid

Explanation:

Impetigo - topical fusidic acid if hydrogen peroxide not suitable

Important for meLess important

Question:

A 57-year-old man presents to the hospital with central chest pain that radiates down his left arm, nausea, and sweating. He has an ECG in ED that shows ST elevation in leads V1, V2, V3, and V4. He is given 300mg of aspirin in the Emergency Department and undergoes primary percutaneous coronary intervention. He is admitted to the Coronary Care Unit following this procedure and recovers well. On discharge, he is referred for cardiac rehabilitation programme and is discharged with secondary prevention medication and lifestyle modification advice.

Three weeks later he presents to his GP for a check-up. He has been engaging with his cardiac rehabilitation program and his medication concordance is good. He feels well but is still tired following the admission and gets breathless when engaging in the rehab activities. He has had no further episodes of chest pain. The GP does an ECG which shows Q waves and convex ST elevation in leads V1, V2, V3, and V4.

What is the most likely diagnosis?

A.Acute myocardial infarction

B.Left ventricular aneurysm

C.Left ventricular thrombus

D.Papillary muscle rupture

E.Post-MI pericarditis (Dressler's syndrome)

Answer:Left ventricular aneurysm

Explanation:

Persistent ST elevation following recent MI, no chest pain - left ventricular aneurysm

Important for meLess important

Patients who have had a myocardial infarction (MI) are at an increased risk of having another. However, this is less likely in this scenario, given the absence of chest pain or other symptoms of a MI.

Left ventricular aneurysms can occur after an MI due to significant damage to part of the ventricular muscle resulting in it weakening. They typically present with tiredness and breathlessness and there will be persistent ST elevation on ECG.

A left ventricular thrombus can develop secondary to left ventricular aneurysms due to the stasis of blood within the ventricle. However, this is diagnosed on echocardiogram and would not be solely diagnosed by these ECG findings.

Papillary muscle rupture is a severe complication of an inferior MI. It causes incompetence of the mitral valve and results in pulmonary oedema. Peak incidence is about 3-5 days following an MI.

Dressler's syndrome is a good differential for ST-elevation >2 weeks after an MI. However, you would expect to see widespread ST elevation with PR depression and it would typically present with fever and pleuritic chest pain that is worse on lying supine.

Question:

A newborn male is noted to be quite pale and tachycardic. He is also in the 11th percentile for birth weight. There is no evidence of cyanosis or any other visible abnormalities. A paediatrician is called who performs a full systematic examination of the newborn. Ultrasound scanning of the heart reveals a congenital defect, which the doctor notes are the most common type of congenital cardiac malformation.

Given the most likely diagnosis, what would you expect to hear on auscultation of the heart?

A.A murmur spanning both systolic and diastolic periods

B.A murmur which is more prominent at the beginning of systole

C.A murmur which is more prominent at the start of diastole

D.A murmur which is more prominent towards the end of systole

E.A murmur which spans the entire systolic period

Answer:A murmur which spans the entire systolic period

Explanation:

Ventricular septal defect - classically associated with a pansystolic murmur

Important for meLess important

The scenario describes a newborn with a cardiac abnormality, low birth weight, pallor and absence of cyanosis. The most common congenital cardiac abnormality which does not cause cyanosis is a ventricular septal defect. Ventricular septal defects are associated with a pansystolic murmur, which is a murmur that spans the entire systolic period.

A murmur spanning both systolic and diastolic periods is incorrect, this describes the continuous machinery murmur found in patent ductus arteriosus. Whilst a patent ductus arteriosus is a possible answer, ventricular septal defects are more common and therefore the most likely answer.

A murmur which is more prominent at the beginning of systole (ejection systolic) is incorrect, as this would be found in atrial septal defects. Atrial septal defects are the most common heart defects found in adults, not in a newborn.

A murmur which is more prominent at the start of diastole is incorrect. This is the description of early diastolic murmur which is found in aortic and pulmonary regurgitation.

A murmur more prominent towards the end of systole is indicative of either coarctation of the aorta or mitral valve prolapse. Coarctation of the aorta would present with other signs such as aortic clicks and radio-femoral delay.

Question:

A woman who is 36 weeks pregnant is reviewed. This is her first pregnancy. Her baby is known to currently lie in a breech presentation. What is the most appropriate management?

A.Reassure mother baby will most likely turn to a cephalic presentation prior to delivery

B.Refer for external cephalic version

C.Admit for induction of labour and trial of vaginal delivery

D.Refer for radiological pelvimetry

E.Admit for caesarean section

Answer:Refer for external cephalic version

Explanation:

Question:

Neuropathic pain characteristically responds poorly to opioids. However, if standard treatment options have failed which opioid is it most appropriate to consider starting?

A.Tramadol

B.Morphine

C.Codeine

D.Oxycodone

E.Buprenorphine

Answer:Tramadol

Explanation:

Question:

A 7-year-old boy is brought in to see you by his mother. He has a diagnosis of asthma which has been treated with salbutamol as and when required. His mother feels that his symptoms have worsened and he now has a night time cough which is keeping him awake and affecting him during exercise at school. The examination is unremarkable. How should you manage this?

A.Refer to paediatrics

B.Add an inhaled steroid

C.Advise regular salbutamol

D.Arrange spirometry

E.Add in monteleukast

Answer:Add an inhaled steroid

Explanation:

In this question, as is currently common in clinical practice, the child is not taking an inhaled corticosteroid. The 2016 British Thoracic Society guidelines recommend all children, and adults, are started on an inhaled corticosteroid at the time of diagnosis. The previous initial 'step 1' of using a short-acting beta agonist by itself has now gone. Therefore, the most appropriate action is to add a 'very low' dose inhaled corticosteroid.

Question:

A 50-year-old woman was taken to the emergency department with acute abdominal pain and vomiting. She was referred to the general surgeons who diagnosed her as having pancreatitis. She was started on IV fluids and analgesia by the registrar, who then asked the FY1 to complete a Modified Glasgow Score to calculate the severity of pancreatitis. Which of the following information will the FY1 need to find out in order to complete his task?

A.Insulin level

B.Urea level

C.Amylase level

D.ALT level

E.Lipase level

Answer:Urea level

Explanation:

The Modified Glasgow Score is calculated to predict the severity of pancreatitis. Three or more of the following factors identified within 48 hours of onset indicates severe pancreatitis.

Pa02 <8kPa

Age >55 years

Neutrophilia WBC >15x10^9

Calcium <2mmol/L

Renal function Urea >16mmol/L

Enzymes LDH >600 ; AST >200

Albumin <32g/L

Sugar Blood glucose >10mmol/L

Note the acronym PANCREAS to help you remember it.

Reference - Oxford Handbook of Clinical Medicine; 9th edition; Page 638-639

Question:

A 67-year-old man is diagnosed with a right middle cerebral artery infarct. His ECG on admission shows normal sinus rhythm.

He has a 72-hour ambulatory ECG which shows 2 episodes of atrial fibrillation (AF) lasting approximately 2 minutes each.

Based on this investigation, what long-term medication would you consider starting?

A.300mg aspirin OD

B.75mg clopidogrel OD

C.75mg aspirin OD

D.5mg apixaban BD

E.300mg clopidogrel OD

Answer:5mg apixaban BD

Explanation:

All patients with AF post-stroke should be considered for anticoagulation with warfarin or another anticoagulant

Important for meLess important

AF and paroxysmal AF both carry an increased risk of stroke. This risk of stroke is most reduced by starting the patient on an anticoagulant.

Apixaban is an example of an anticoagulant. The other medications listed are antiplatelets, not anticoagulants. Although antiplatelets do reduce the risk of stroke in patients with AF, they are less effective than anticoagulant therapy.

Question:

You are a GP in your practice. A 25 years old male with a known history of Marfan syndrome complains of progressive shortness of breath over a few months. On examination, he notices that the pulse is collapsing and has wide pulse pressure.

Which cardiac abnormality do these findings suggest?

A.Aortic stenosis

B.Mitral regurgitation

C.Aortic regurgitation

D.Mitral stenosis

E.Mitral valve prolapse

Answer:Aortic regurgitation

Explanation:

Aortic regurgitation is associated with Marfan syndrome

Important for meLess important

Due to the abnormal production of fibrillin gene, the connective tissues are affected. A patient with Marfan's syndrome is likely to have aortic regurgitation.

Aortic stenosis typically presents with the triad of angina, syncope and heart failure. The typical sign is slow rising pulse with narrow pulse pressure.

Mitral regurgitation results in pansystolic murmur at the apex and radiates to axilla.

Mitral stenosis results in mid-diastolic murmur which is heard best on expiration.

Mitral valve prolapse would result in low volume pulse and rumbling mid-diastolic murmur ie .

Question:

A 34-year-old female presents due to a skin rash under her new wrist watch. An allergy to nickel is suspected. What is the best investigation?

A.Skin prick test

B.Skin patch test

C.Skin biopsy

D.Serum IgE

E.Serum nickel antibodies

Answer:Skin patch test

Explanation:

Question:

A 68-year-old man, while talking to his wife, starts staring into space. He seems unresponsive to what his wife is saying to him, and he is also smacking his lips multiple times. After 1 minute, he stops and acts normally again, but denies any of this happened when his wife questions him.

What is the most likely diagnosis?

A.Focal impaired awareness seizure

B.Generalised absence seizure

C.Generalised atonic seizure

D.Myoclonic seizure

E.Psychogenic non-epileptic seizure

Answer:Focal impaired awareness seizure

Explanation:

A man suddenly stares into space and is non-responsive. He then repeatedly smacks his lip and appears to be chewing. This lasts for around 1 minute - focal impaired awareness seizure

Important for meLess important

Focal impaired awareness seizure is correct. The automatism (smacking his lip) and the stare into the space without being aware of what is happening are both suggestive of a focal impaired awareness seizure.

Generalised absence seizure is wrong. Although during these seizures awareness is also lost, they usually only last a few seconds and the patient may also transiently lose their consciousness without realising it. In addition, they are mostly seen in young children with no associated signs and automatism, while in this case, the patient is a 68-year-old man who was smacking his lips during the seizure.

Generalised atonic seizure is wrong. Such seizures are characterised instead by a sudden loss of muscle tone, the limbs of the patient may go limp and they may lose their consciousness.

Myoclonic seizure is incorrect. These seizures are characterized by jerking movements and are usually very brief, lasting much shorter than the 1 minute of this scenario. Also, the absence component which is described in this case is quite unlikely.

Psychogenic non-epileptic seizure is wrong. They can possibly exhibit some similarities to epileptic seizures, especially tonic-clonic seizures, as patients' muscles may experience both an increase in stiffness and jerking movements. However, non-epileptic seizures can be differentiated from epileptic seizures by checking the post-seizure lactate levels on a venous blood gas. In the former, lactate levels do not rise, while in the latter there is a significant increase. In addition, non-epileptic seizures are caused by psychiatric factors rather than abnormal brain activity, thus a psychiatric background would be usually present.

Question:

A 26-year-old woman presents to her general practitioner to get the results from a recent exam she underwent. She has been suffering from bloating and diarrhoea for a year. The results of her endoscopic intestinal biopsy showed villous atrophy, crypt hyperplasia, and an increase in intraepithelial lymphocytes.

She is quite shocked to receive the diagnosis and anxious about her future. Particularly, she is worried about her risk of developing cancer in the long term as a result of her diagnosis.

What cancer is she at increased risk of developing?

A.Adenocarcinoma of the oesophagus

B.Colorectal carcinoma

C.Enteropathy-associated T-cell lymphoma

D.Pancreatic cancer

E.Squamous cell carcinoma of the oesophagus

Answer:Enteropathy-associated T-cell lymphoma

Explanation:

Coeliac disease increases the risk of developing enteropathy-associated T cell lymphoma

Important for meLess important

The correct answer is enteropathy-associated T-cell lymphoma. This patient is being diagnosed with coeliac disease following a duodenal biopsy. In these patients, a malignant T-cell lymphoma can develop in areas of the small intestine afflicted by the disease's intense inflammation. It is an extremely rare cancer, but patients with this condition are more at risk than the general population of developing it.

Adenocarcinoma of the oesophagus is most likely to present in patients with Barret's oesophagus. On oesophageal biopsy, you would observe metaplasia from squamous to columnar epithelium at the gastro-oesophageal junction.

An increased risk to develop colorectal carcinoma is associated with Lynch syndrome, an autosomal dominant condition. This syndrome would not cause any histological changes in the small bowel.

Pancreatic cancer has been associated with multiple endocrine neoplasia and chronic pancreatitis, but it has not been associated with coeliac disease.

Squamous cell carcinoma of the oesophagus has been associated with smoking and achalasia, but it has not been associated with coeliac disease.

Question:

A 27-year-old G1P0 woman presents to her general practitioner for a routine antenatal appointment at 12 weeks gestation. She complains of burning retrosternal pain and is prescribed omeprazole. A urine sample was taken and urinalysis showed a trace of protein and no haematuria, nitrates, or white cells. She denies any urinary symptoms. Her blood pressure is measured as 135/88mmHg.

The urine sample is sent to the laboratory of microscopy, culture, and sensitivity and is found to have scant growth of Escherichia coli.

What is the most appropriate management?

A.Prescribe a 7 day course of nitrofurantoin

B.Prescribe a 7 day course of trimethoprim

C.Prescribe aspirin, labetalol, and a 7-day course of nitrofurantoin

D.Prescribe aspirin, labetalol, and a 7-day course of trimethoprim

E.Reassure and advise the woman to reattend for antibiotics if she develops urinary symptoms

Answer:Prescribe a 7 day course of nitrofurantoin

Explanation:

Asymptomatic bacteriuria in pregnant women should be immediately treated with antibiotics

Important for meLess important

The correct answer is prescribe a 7-day course of nitrofurantoin. Although this woman is asymptomatic, bacteriuria in pregnancy should always be treated to avoid progression to symptomatic urinary tract infection or pyelonephritis. Nitrofurantoin can safely be prescribed in the first and second trimester, though is contraindicated in the third trimester due to increased risk of neonatal haemolysis. This woman's blood pressure is <140/90 and does not require treatment. The trace of protein in her urine is likely related to her asymptomatic bacteriuria, but this should be monitored with subsequent urine dips. The trace of protein alone does not necessitate antihypertensive treatment.

Prescribe a 7-day course of trimethoprim is incorrect, as trimethoprim is a folate-antagonist and therefore contraindicated in the first trimester of pregnancy due to the increased risk of neural-tube defects.

Prescribe aspirin, labetalol, and a 7-day course of nitrofurantoin is incorrect, as this woman does not meet the diagnostic criteria for pre-eclampsia or pregnancy-induced hypertension, and as such aspirin and labetalol are not indicated. To diagnose pre-eclampsia women must be at least 20 weeks gestation and have a blood pressure higher than 140/90. Nitrofurantoin is the correct antibiotic to treat the patient's asymptomatic bacteriuria, though aspirin and labetalol are not indicated here.

Prescribe aspirin, labetalol, and a 7-day course of trimethoprim is incorrect, as this woman does not meet the diagnostic criteria for pre-eclampsia or pregnancy-induced hypertension. Furthermore, trimethoprim is a folate-antagonist and therefore contraindicated in the first trimester of pregnancy due to the increased risk of neural-tube defects.

Reassure and advise the woman to reattend for antibiotics if she develops urinary symptoms is incorrect, as optimal management would prevent the woman from developing a symptomatic urinary tract infection in pregnancy. It is thought that 20-35% of women with asymptomatic bacteriuria will develop a symptomatic urinary tract infection.

Question:

A 45-year-old man presents to the emergency department with chest pain that radiates to his back. On questioning he says in the last couple of days the chest pain has started, and it is much worse on inspiration. On examination you notice that when the patient breaths in, his jugular venous pulse (JVP) rises.

What is the most likely cause of this man's pain?

A.Cardiac tamponade

B.Constrictive pericarditis

C.Pancreatitis

D.Pneumonia

E.Unstable angina

Answer:Constrictive pericarditis

Explanation:

In constrictive pericarditis, the JVP will rise on inspiration; this is known as Kussmaul's sign

Important for meLess important

This is a typical history of two of the options- constrictive pericarditis and cardiac tamponade. They present with very similar symptoms, but there are a few signs to differentiate the two. Kussmaul's sign- JVP rise on inspiration, is typical of constrictive pericarditis. Pericarditis often occurs after non-specific viral illness. Unstable angina is an important differential, but the history is more typical of constrictive pericarditis. Pneumonia and pancreatitis are important things to remember, but again the history is not typical of either.

Question:

A 31-year-old female attends her general practice due to the presence of multiple red lesions on her shins which have developed over 48 hours and are painful. Clinical examination reveals:

© Image used on license from DermNet NZ

Which of the following medications is most likely to be responsible for this finding?

A.Clarithromycin

B.Isoniazid

C.Methotrexate

D.Prednisolone

E.Sulfasalazine

Answer:Sulfasalazine

Explanation:

The clinical history and examination findings are consistent with a diagnosis of erythema nodosum. Erythema nodosum is a cutaneous hypersensitivity reaction characterised by inflammation of subcutaneous tissue, causing rapid onset of tender, red nodules on the shins. It may also affect the thighs, calves, buttocks and face. The most common medications associated with the development of erythema nodosum are penicillins, sulfonamides (such as sulfasalazine), and the combined oral contraceptive pill.

Clarithromycin is not associated with erythema nodosum. Antibiotics containing penicillin can cause erythema nodosum.

Isoniazid is a treatment for TB and it has not been associated with the development of erythema nodosum. TB infection itself may cause erythema nodosum.

Methotrexate is not associated with erythema nodosum.

Prednisolone has not been linked to the development of erythema nodosum.

Question:

A 74-year-old woman with a breast cancer attends a clinic with palliative care due to a recent diagnosis of brain metastases. She reports feeling nauseous and vomited several times in the past week. She asks for some medication to ease these symptoms.

Which is the best anti-emetic to prescribe in the first instance?

A.Cyclizine

B.Domperidone

C.Haloperidol

D.Metoclopramide

E.Ondansetron

Answer:Cyclizine

Explanation:

Cyclizine is a good first line anti-emetic for intracranial causes of nausea and vomiting

Important for meLess important

Raised ICP from her metastases can stimulate H1 receptors in the cerebral cortex, causing the symptoms of nausea and vomiting. H1 receptor antagonists, such as cyclizine, are a good choice to combat these symptoms.

Dexamethasone can also be used to reduce nausea and vomiting in the context of raised ICP.

Domperidone and metoclopramide are useful for nausea and vomiting when caused by gastric stasis.

Metoclopramide and haloperidol are useful for nausea induced by drugs (such as chemotherapy) and toxins.

Ondansetron is good for chemically mediated symptoms, for example, from opioids.

Question:

A 72-year-old male presents to his general practitioner with a 2-month history of urinary hesitancy, haematuria and perineal pain. Digital rectal examination identifies a nodular enlargement of the prostate gland with loss of the median sulcus. A prostate-specific antigen (PSA) level is reported as:

PSA 14.1ng/mL (0-5.5 ng/mL)

What is the first-line investigation for this patient?

A.Multiparametric CT

B.Multiparametric MRI

C.Positron emission tomography

D.Trans-perineal prostate biopsy

E.Trans-rectal ultrasound (TRUS) biopsy

Answer:Multiparametric MRI

Explanation:

Multiparametric MRI has replaced TRUS biopsy as the first-line investigation in suspected prostate cancer

Important for meLess important

This patient has suspected prostate cancer that requires further investigation. The first-line investigation of suspected prostate cancer is multiparametric MRI.

Multiparametric CT is incorrect, this imaging modality does hold use for some conditions, particularly those in the field of hepatology such as high-risk nonalcoholic fatty liver disease (NAFLD) and hepatitis C related liver fibrosis.

Positron emission tomography is incorrect, while this may be used in the staging of metabolically active tumours, it is not used for the initial diagnosis of prostate cancer.

A trans-perineal prostate biopsy is incorrect, imaging is required before prostate biopsies are taken and this is usually done via a trans-rectal route.

Trans-rectal ultrasound (TRUS) biopsy is incorrect, while this used to be used as the first-line investigation of suspected prostate cancer, this is no longer the case and is now used as a second-line investigation after multiparametric MRI has been performed.

Question:

A 47-year-old woman has been recently diagnosed with breast cancer. She undergoes a wide-local excision followed by whole-breast radiotherapy. The pathology results show that the tumour is oestrogen receptor-positive and HER2 negative. She has a past medical history of hypertension and premature ovarian failure.

Which one of the following adjuvant treatments is she most likely to be offered?

A.Anastrozole

B.Goserelin

C.Herceptin

D.Imatinib

E.Tamoxifen

Answer:Anastrozole

Explanation:

Adjuvant hormonal therapy for ER +ve breast cancer: anastrozole in post-menopausal women

Important for meLess important

The correct answer is anastrozole. Adjuvant hormonal therapy is offered if tumours are positive for hormone receptors. In this case, the tumour is positive for oestrogen receptors and negative for HER2 receptors. The adjuvant treatment of oestrogen receptors positive tumours depends on whether the woman is postmenopausal or premenopausal. In this case, the patient has a history of premature ovarian failure, indicating that she is postmenopausal. Hence, anastrozole (an aromatase inhibitor) should be used. This is due to the fact that aromatisation accounts for the majority of oestrogen production in postmenopausal women and therefore an aromatase inhibitor should be used.

Goserelin is a synthetic GnRH agonist that can be used to achieve ovarian suppression in estrogen receptors positive tumours. It is used in premenopausal women. This patient already underwent menopause.

Herceptin is the most common type of biological therapy used to treat HER2 positive tumours. In this case, the patient is HER2 negative.

Imatinib is a tyrosine kinase inhibitor that can be used to manage chronic myeloid leukaemia associated with the BCR-ABL defect. It has no role in the management of breast tumours.

Tamoxifen is an adjuvant hormonal therapy used in premenopausal women with estrogen receptors positive tumours. This patient already underwent menopause, making this option incorrect.

Question:

A 72-year-old male presents to the emergency department with severe pain in the perineal area. It started yesterday morning and seems to be getting worse. On examination, you can observe a red, swollen patch of skin with gas gangrene on it. The zone is extremely tender and the patient has decreased sensibility to light touch. He has a complex medical history, comprising type two diabetes mellitus, hypertension and ulcerative colitis.

Given the most likely diagnosis, which one of the following drugs could have contributed to its development?

A.Amlodipine

B.Azathioprine

C.Dapagliflozin

D.Metformin

E.Ramipril

Answer:Dapagliflozin

Explanation:

Diabetes treated with SGLT-2 inhibitors are at particular risk of necrotising fasciitis

Important for meLess important

This patient is presenting with a classical picture of necrotising fasciitis. This condition presents with pain, swelling, and erythema at the affected site. Additionally, the patients are extremely tender over infected tissue with decreased sensation to light touch and skin necrosis and crepitus/gas gangrene are late signs. Hence, the correct answer is dapagliflozin, an SGLT-2 inhibitor. This medication is used in the treatment of type two diabetes mellitus. It increases the urinary excretion of glucose, increasing the chances of developing a urinary and genital infection, including necrotising fasciitis.

Amlodipine is a calcium-channel blocker used in the management of hypertension. Ankle swelling is the most common side effect and it has not been reported to increase the risk of necrotising fasciitis.

Azathioprine is used in the management of ulcerative colitis. It can cause bone marrow depression, hence in those cases, you would expect a higher number of infections. But necrotising fasciitis in the urogenital area is more likely to be explained by a drug that causes an increased risk in that specific zone, such as dapagliflozin.

Metformin is used mainly in the treatment of type 2 diabetes mellitus. It works by increasing insulin sensitivity. Gastrointestinal upsets are common and can cause lactic acidosis but it has not been shown to increase the risk of necrotising fasciitis.

Ramipril is an angiotensin-converting enzyme inhibitor used in the management of hypertension. This class of drugs often causes cough and first-dose hypotension, but it has not been shown to increase the risk of necrotising fasciitis.

Question:

A 19-year-old woman was diagnosed with an early miscarriage 2 weeks ago by transvaginal ultrasound.

She was G1P0, with no significant medical history. It was decided to try expectant management.

Today, she presents with light vaginal bleeding which has been ongoing for 10 days. A further urinary pregnancy test taken today is still positive.

She reports no cramps, no purulent vaginal discharges and no systemic symptoms such as fever or muscle aches.

What is the appropriate next step in management?

A.Prescribe oral methotrexate alone

B.Prescribe oral mifepristone alone

C.Prescribe oral misoprostol and oral mifepristone

D.Prescribe vaginal misoprostol alone

E.Prescribe vaginal misoprostol and oral mifepristone

Answer:Prescribe vaginal misoprostol alone

Explanation:

Medical management of a miscarriage involves giving vaginal misoprostol alone

Important for meLess important

Medical management of miscarriage is indicated following a failed trial of expectant management, provided there is no indication for immediate surgical intervention. It consists of giving vaginal misoprostol only. This is a prostaglandin analogue, which helps stimulate uterine contractions. This helps expedite the time needed to pass the products of conception.

Prescribing oral methotrexate alone is inappropriate. This drug is used in the management of an ectopic pregnancy, not within the management of miscarriages.

Prescribing oral mifepristone alone is inappropriate. This is a drug that is used in terminations of pregnancy, as it has anti-progesterone actions, which ends the pregnancy. It is not currently recommended for the management of miscarriages, since it is seen as a 'primer' medication that is used to loosen the attachment of products of conception to the uterine wall - misoprostol is the mainstay of treatment as it causes uterine contraction.

Prescribing oral misoprostol and oral mifepristone is inappropriate. As stated above, vaginal misoprostol is better as it limits side effects. Additionally, there is not a large evidence base for the addition of oral mifepristone, in early pregnancy when progesterone levels are low anyway.

Prescribing vaginal misoprostol and oral mifepristone is inappropriate. This regime is currently recommended in America, however, there is limited evidence of increased efficacy of adding oral mifepristone. Recent enquiries by NICE didn't find enough evidence to support its introduction.

Question:

A 55-year-old woman presents with a 3-day history of vertigo. She describes 'the room spinning' when turning over in bed or looking upwards. This lasts around 10 seconds each time. There is some nausea but no vomiting, hearing loss, or tinnitus. The patient has otherwise felt well in herself recently.

What is the specific examination used to diagnose the most likely condition being described here and the expected findings during this examination?

A.Dix-Hallpike manoeuvre-rotatory nystagmus

B.Dix-Hallpike manoeuvre-vertical nystagmus

C.Epley manoeuvre-rotatory nystagmus

D.Epley manoeuvre-vertical nystagmus

E.Unterberger's test-lateral rotation of patient

Answer:Dix-Hallpike manoeuvre-rotatory nystagmus

Explanation:

Rotatory nystagmus is indicative of a positive Dix-Hallpike manoeuvre

Important for meLess important

Benign paroxysmal positional vertigo (BPPV) is the most likely diagnosis given the history above of vertigo occurring with a change of head position that lasts for less than 1 minute. The Dix-Hallpike manoeuvre is the National Institute for Health and Care Excellence (NICE) recommended examination to display signs of BPPV and provokes rotatory upbeat nystagmus.

Although Dix-Hallpike manoeuvre is the specific examination that produces signs suggestive of BPPV, it produces rotatory and not vertical nystagmus.

The Epley manoeuvre is used in the treatment of BPPV rather than as an examination to make the diagnosis.

Unterberger's test is not used to diagnose BPPV. It is however used in the assessment of vertigo to examine for dysfunction of one of the labyrinths which would be associated with hearing loss and tinnitus.

Question:

A 35-year-old man presents with visual problems. He has had very poor vision in the dark for a long time but is now worried as he is developing 'tunnel vision'. He states his grandfather had a similar problem and was registered blind in his 50's. What is the most likely diagnosis?

A.Leber's congenital amaurosis

B.Vitelliform macular dystrophy

C.Central serous retinopathy

D.Primary open angle glaucoma

E.Retinitis pigmentosa

Answer:Retinitis pigmentosa

Explanation:

Retinitis pigmentosa - night blindness + tunnel vision

Important for meLess important

Question:

A 43-year-old man attends his GP with pain and facial swelling after an upper respiratory tract infection. On examination, erythema and swelling surround the right eye and there is pain on eye movements. Visual acuity is 6/6 on the left and 6/24 on the right.

What is the most appropriate course of action?

A.Admit to hospital for IV antibiotics

B.Prescribe high-dose oral steroids and check thyroid function

C.Prescribe high-dose oral steroids and refer urgently to Rheumatology

D.Supportive management and nasal decongestants

E.Urgent referral to maxillofacial surgeons for debridement

Answer:Admit to hospital for 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

The correct answer is admit to hospital for IV antibiotics. The symptoms described are suggestive of orbital cellulitis. This usually results from the spread of organisms from the upper respiratory tract. Admission for IV antibiotics is recommended as under-treatment can lead to cavernous sinus thrombosis.

Prescribe high-dose oral steroids and check thyroid function is incorrect. Thyroid eye disease could cause orbital pain and painful eye movements and should be in the differential here. However, the recent upper respiratory tract symptoms and facial pain/swelling are more suggestive of orbital cellulitis, which often results from the spread of infection from the upper respiratory tract.

Prescribe high-dose oral steroids and refer to Rheumatology is incorrect. This would be the appropriate choice for suspected giant cell arteritis. This condition is extremely unusual under the age of 65. It can cause headache and visual loss but this is usually in the form of monocular blindness rather than reduced acuity.

Supportive management and nasal decongestants is incorrect. This would be appropriate for conditions such as sinusitis that may lead to orbital cellulitis. However, the facial pain and swelling with painful eye movements suggest orbital cellulitis has now developed. At this stage, supportive therapy would not be appropriate and IV antibiotics are required.

Urgent referral to maxillofacial surgeons for debridement is incorrect. Orbital cellulitis is generally managed with IV antibiotics rather than operative intervention. This may be required if there were suspicion of necrotising infection but there is nothing to suggest this is a concern here.

Question:

A 35-year-old presents with worsening haematuria, recurrent urinary tract infections, and vague abdominal pain. On examination, there is mild flank tenderness and well-circumscribed flank masses are palpable bilaterally. His heart rate is 65 /min, his blood pressure is 164/95 mmHg, his respiratory rate is 15 /min, and his temperature is 37.2ºC.

An ultrasound is performed which demonstrated multiple echogenic spaces with well-defined walls on both flanks. He has a family history of renal failure.

What additional complication is this patient most likely to suffer from?

A.Colonic diverticula

B.Liver failure

C.Sensorineural deafness

D.Splenomegaly

E.Subarachnoid haemorrhage

Answer:Subarachnoid haemorrhage

Explanation:

Adult polycystic kidney disease increases the risk of brain haemorrhage due to ruptured berry aneurysms

Important for meLess important

Subarachnoid haemorrhage is correct. This patient has presented with signs and symptoms consistent with autosomal dominant polycystic kidney disease (ADPKD). The ultrasound findings demonstrating cysts in both kidneys (described as multiple echogenic spaces with well-defined walls) along with the family history of renal failure additionally aid the diagnosis of ADPKD. The most common extra-renal manifestations from most to least common are liver cysts, cerebral berry aneurysms (which can rupture and lead to a subarachnoid haemorrhage), and cysts in other organs (such as the pancreas and spleen). Out of the options present, the subarachnoid haemorrhage is most common, especially in those with a family history. Liver cysts are the most common extra-renal manifestation, not liver failure itself, which is quite rare.

Colonic diverticula is incorrect. This is associated with ADPKD, however, subarachnoid haemorrhages due to rupture berry aneurysms are more common.

Liver failure is incorrect. Liver cysts are the most common extra-renal manifestation (up to 70% of patients), but liver failure itself is very rare and can occur if the liver is extremely enlarged due to cysts. Liver cysts do not typically affect liver function and typically cause problems due to mass effects (e.g. abdominal pain, swelling, and bloating). Out of the options present, the subarachnoid haemorrhage is most common, especially in those with a family history.

Sensorineural deafness is incorrect. This is associated with Alport's syndrome which usually presents in childhood with microscopic haematuria, progressive renal failure, and bilateral sensorineural deafness. Sensorineural deafness is not seen in ADPKD.

Splenomegaly is incorrect. This is associated with ADPKD, however, subarachnoid haemorrhages due to rupture berry aneurysms are more common.

Question:

A 53-year-old woman attends with vague abdominal discomfort for 2 months.

On further questioning, she also reports a 1-month history of loose stools up to three times daily. Previously, she had had passed solid stools once daily. She denies any weight loss, or blood in her stool.

On examination, her abdomen is soft, non-tender. She is post-menopausal and urine dip normal.

You arrange some blood tests (including CA-125 and a coeliac screen) and a faecal calprotectin. All results return within the normal range.

You suspect the patient has irritable bowel syndrome, but the patient says she is concerned she may have colorectal cancer.

What is the most appropriate next step?

A.Advise on dietary changes

B.Faecal immunochemical test (FIT)

C.Offer reassurance

D.Refer to colorectal team via 2-week wait pathway

E.Repeat the faecal calprotectin

Answer:Faecal immunochemical test (FIT)

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

The FIT test is often recommended for patients with new symptoms of possible colorectal cancer who do not meet the 2-week criteria.

In this case, the patient has unexplained abdominal pain, and a change in bowel habit. Given her age, and the absence of rectal bleeding, NICE guidance suggests a FIT test is the most appropriate next step.

We are not yet in a position to reassure her or simply suggest diet changes that might improve her symptoms, as we have not done the necessary tests. Her symptoms require complete investigation.

Repeating a faecal calprotectin level is unlikely to be fruitful, and will simply postpone her getting the correct support she needs.

Question:

A worried mother attends the paediatric emergency department with her 10-year-old son. He has had a productive cough and runny nose for a few days but she has become worried as he has become pale and the whites of his eyes are starting to become yellow. She mentions he has a history of neonatal jaundice. You request a blood film which shows Heinz bodies.

What is the most likely diagnosis?

A.Biliary atresia

B.Hereditary elliptocytosis

C.Hereditary spherocytosis

D.Sickle cell disease

E.G6PD deficiency

Answer:G6PD deficiency

Explanation:

Stereotypical history of G6PD deficiency: Greek boy develops pallor and jaundice after having a lower respiratory tract infection. He has a history of neonatal jaundice. The blood film shows Heinz bodies

Important for meLess important

This boy has G6PD deficiency which has decompensated secondary to a recent infection. Remember that certain drugs and broad (fava) beans can also precipitate a crisis. Heinz bodies are seen on blood film.

Biliary atresia presents in infants with failure to thrive and jaundice. This boy is too old to be suffering from this.

Hereditary elliptocytosis is an inherited condition where red blood cells are abnormally shaped. Symptoms include fatigue, shortness of breath, abdominal pain, gallstones, and jaundice. Elliptocytes would be seen on blood film.

Hereditary spherocytosis is another inherited red cell disorder that typically presents with fatigue, abdominal pain, splenomegaly, anaemia and jaundice. Abnormally shaped spherocytes are seen on blood film.

Sickle cell disease would primarily present with anaemia accompanied by painful crises. It would be unusual for a first presentation to occur at age 10.

Question:

Sally is a 29-year-old female who has come to the GP because of a few symptoms she has been experiencing for the past 3 weeks. She first noticed a rash on her thighs which then appeared on her forearms. It is dry, itchy and red. Then she began to have pain in her knees which was worse on movement, the same pain then spread to her left wrist and began to limit her movement. In the last week she has noticed difficulty in moving some of her right fingers from a bent to straight position, it being painful to do so.

The doctor takes blood cultures and sends them off.

What is most likely to been seen on microscopy?

A.Gram-negative diplococci

B.Gram-negative rod with single flagella

C.Gram-positive cocci in clusters

D.Gram-positive diplococci

E.Gram-positive flagellated rod

Answer:Gram-negative diplococci

Explanation:

Disseminated gonococcal infection triad = tenosynovitis, migratory polyarthritis, dermatitis

Important for meLess important

The patient is infected with Neisseria gonorrhoea, a gram-negative diplococcus that when spread through the blood from the reproductive tract, causes a triad of symptoms.

Gram negative rods with a single flagella would be Pseudomonas aeruginosa.

Gram-positive cocci in clusters is Staphylococcus aureus, a common cause of reactive arthritis.

Group B streptococcus, a gram-positive diplococcus that is often found in the reproductive tract but is does not usually disseminate.

Gram-positive flagellated rods are Listeria monocytogenes, the causative pathogen of listeriosis.

Question:

A 75-year-old woman presents to the emergency department with chest pain, shortness of breath and oxygen saturation of 92%. Soon after being placed onto oxygen, she develops ventricular fibrillation with a GCS of 3. Advanced life support (ALS) is started. She has a previous history of multiple pulmonary emboli and type 2 diabetes.

Given this information, what drug should be considered in addition to the routine ALS medications for the management of this patient?

A.Adenosine

B.Alteplase

C.Apixaban

D.Clopidogrel

E.Verapamil

Answer:Alteplase

Explanation:

Thrombolytic drugs should be considered during CPR if a PE is suspected

Important for meLess important

Alteplase is correct and can be considered in ALS if a PE is suspected. This patient initially presented with symptoms suggestive of a PE in addition to a medical history of previous pulmonary emboli. This falls under one of the four 'T's of the reversible cause of arrest: thrombus, toxins, tamponade (cardiac), tension pneumothorax. Thrombolysis could be life-saving in this patient.

Adenosine is incorrect and has use in supraventricular tachycardia but has little use in this situation. It is a class 5 antiarrhythmic.

Apixaban is incorrect. It is an anticoagulant that has use in the long term treatment, and prevention of pulmonary emboli. It is not used in the immediate setting in a hemodynamically unstable patient requiring advanced life support..

Clopidogrel is incorrect. It is an antiplatelet medication that can be used in peripheral arterial disease and acute coronary syndrome. It has no place in the acute treatment of a life-threatening pulmonary embolism.

Verapamil is incorrect as it is an antiarrhythmic that can be used in controlling supraventricular tachycardias, but not in ALS.

Question:

A 70-year-old woman presents as she is feeling generally run-down and has muscle aches. The back, arm and thigh muscles ache and are stiff, particularly in the morning. These symptoms have been present for the past two weeks. Prior to this she was generally fit and well. Clinical examination is unremarkable other than some tenderness over her deltoid and thigh muscles. Muscle strength is normal. What is the most likely diagnosis?

A.Fibromyalgia

B.Rheumatoid arthritis

C.Polymyositis

D.Polymyalgia rheumatica

E.Depression

Answer:Polymyalgia rheumatica

Explanation:

Question:

A 34-year-old gentleman was admitted to the intensive care unit two weeks ago after being being struck by a vehicle. On admission he was intubated, and for the past fourteen days has required the assistance of a ventilator. On examination it was noted that there was abdominal distension associated with ventilation.

His past three days of investigations are below:

2 days ago Yesterday Today

CRP 1 4 9

WCC (x1011/L) 7 12 16

Chest X-ray Normal Normal ?Right sided consolidation

What is the most likely cause of the clinical presentation?

A.Post nasal drip

B.Tracheo-oesophageal fistula formation

C.Traumatic endotracheal tube insertion

D.Viral thyroiditis

E.Oesophageal reflux

Answer:Tracheo-oesophageal fistula formation

Explanation:

Long term mechanical ventilation in trauma patients can result in tracheo-oesophageal fistula formation

Important for meLess important

Long term mechanical ventilation can result in tracheo-oesophageal fistula (TOF) formation, which increases the risk of ventilator-associated pneumonias and aspiration pneumonias - the latter caused by aspirated stomach contents. The pressure arising from the endotracheal tube on the posterior membranous wall of the trachea can result in ischaemic necrosis that also involves the anterior wall of the oesophagus. This results in TOF formation.

Post nasal drip is not likely to be the cause of the abdominal distension and infective picture as in this scenario. A traumatic endotracheal tube insertion is likely to have been identified much earlier than day fourteen. Correct positioning of the endotracheal tube at the time of insertion would have excluded TOF. Viral thyroiditis and oesophageal reflux are unlikely to result in these clinical findings and are unlikely to result in airway compromise.

Question:

A 32-year-old female presents at 28 weeks gestation in her third pregnancy. An ultrasound scan at 12 weeks had confirmed a dichorionic diamniotic twin pregnancy. She was admitted complaining of bleeding per vaginum. The bleeding was bright red in nature and painless. She has a history of two previous caesarian sections. What is the most likely diagnosis?

A.Uterine rupture

B.Uterine inversion

C.Placenta abruption

D.Placenta praevia

E.Placenta accreta

Answer:Placenta praevia

Explanation:

Placenta praevia is a complication of pregnancy where the placenta is attached to the lower part of the uterus. The key clinical feature is painless bleeding after 24 weeks of gestation. Risk factors include previous placenta praevia, previous caesarean section, endometrium damage and multiple pregnancies. Placenta praevia is often associated with a high presenting part or abnormal lie as a direct consequence of the low lying placenta.

Question:

You are considering prescribing an antibiotic to a 28-year-old man who tells you he has Long QT syndrome. Which antibiotic is it most important to avoid?

A.Doxycycline

B.Trimethoprim

C.Erythromycin

D.Rifampicin

E.Co-amoxiclav

Answer:Erythromycin

Explanation:

Erythromycin can cause a prolonged QT interval

Important for meLess important

Question:

A 22-year-old woman presented with a history of a sudden loss of vision of her left eye for 4 days in duration. It was associated with pain in eye movement.

Ocular examination revealed visual acuity of the left eye was only counting fingers with a positive afferent pupillary defect. Visual acuity of the right eye was 6/6. Anterior segments of both eyes showed normal ocular findings. The contrast sensitivity and colour vision test were severely impaired. The visual field showed unilateral central scotoma.

What is the underlying diagnosis?

A.Corneal ulceration

B.Episcleritis

C.Glaucoma

D.Macular degeneration

E.Optic neuritis

Answer:Optic neuritis

Explanation:

A central scotoma is a feature of optic neuritis

Important for meLess important

Optic neuritis is an inflammation of the eye's optic nerve. The two most common symptoms of optic neuritis are vision loss and eye pain. Central scotoma is recognised as a characteristic visual field defect pattern of optic neuritis. It may be associated with demyelinating diseases or infectious or inflammatory processes. The signs include decreased visual acuity, decreased colour vision (red desaturation) and relative afferent pupillary defect (RAPD).

Episcleritis is a common condition affecting the episclera, the layer of tissue between the surface membrane (conjunctiva) and the firm white part of the eye (the sclera). In episcleritis, the episclera becomes inflamed and red. It often causes irritation, soreness or a gritty sensation. However, it typically does not cause visual loss which makes this incorrect.

Glaucoma is an eye condition that is often associated with elevated intraocular pressure, in which damage to the optic nerve can lead to loss of vision and even blindness. The visual field loss (scotoma) in glaucoma has a distinctive pattern that differs from visual loss due to other causes and includes para-central scotoma, nasal step, and arcuate defect.

Corneal ulceration is an erosion or open sore on the surface of the cornea which causes sudden painful visual loss. A corneal ulcer usually results from an eye infection, but severe dry eye or other eye disorders can cause it. The absence of tearing and redness make this diagnosis unlikely.

Macular degeneration produces a scotoma which most often appears in the central visual field resulting in its being called a central scotoma. In dry macular degeneration, the light-sensing cells (called rods and cones) in the centre of the retina degenerate along with their supporting cells. This diagnosis is unlikely as it is typically painless and also age-related.

Question:

A 58-year-old man, Wayne, presents to the emergency department complaining of a cough, high fever, fatigue and palpitations. Wayne informs you that his palpitations started 12 hours ago. His temperature is 38ºC, his heart rate is 110bpm and his ECG shows an irregularly irregular rhythm with the absence of P waves. His blood pressure is 120/70 mmHg and his respiratory rate is 17/minute. His X-ray shows right lower-lobe consolidation. He is otherwise well, with no comorbidities. He is started on treatment for his underlying pneumonia. Which of the following management options should be considered for this patient's AF

A.Immediate DC cardioversion

B.Left atrial catheter ablation

C.Rate-control

D.Rhythm control

E.External pacing

Answer:Rhythm control

Explanation:

Use rhythm control to treat AF if there is coexistent heart failure, first onset AF or an obvious reversible cause

Important for meLess important

The NICE guidelines for AF advice are to 'Offer rate control as the first‑line strategy to people with atrial fibrillation, except in people: 1. whose atrial fibrillation has a reversible cause'. As this acute onset of AF is secondary to pneumonia (a reversible cause), rate control would not be appropriate for this patient.

For AF caused by a reversible cause, management generally involves treatment of the underlying cause (in this cause pneumonia), and rhythm control where appropriate. Patients with reversible causes of AF sometimes spontaneously revert to sinus rhythm after the underlying cause is treated, however, some patients will not. However, it is important to know that rate control is inappropriate these patients and to consult a specialist for further advice. Ultimately a specialist should make the decision of whether and when to use rhythm control.

Immediate DC cardioversion is only recommended when there is life-threatening haemodynamic instability caused by new-onset atrial fibrillation. This patient does not have any signs of life-threatening haemodynamic instability.

Left atrial catheter ablation is only offered if rate and rhythm control has failed to control symptoms or is unsuitable for patients with paroxysmal or persistent atrial fibrillation

External pacing is usually used as a therapy for bradycardia which doesn't respond to atropine. The 'pace and ablate' strategy is a separate method which involves pacing and atrioventricular node ablation and is used as a last line therapy for specific cases of atrial fibrillation.

(NICE guideline [CG180])

Question:

A 46-year-old female presents with a 6 month history of abdominal pain and menorrhagia. On examination the abdomen is non-tender and the uterus feels bulky. What is the most likely diagnosis?

A.Fibroids

B.Endometriosis

C.Endometrial adenocarcinoma

D.Adenomyosis

E.Irritable bowel syndrome (IBS)

Answer:Fibroids

Explanation:

Fibroids (Leiomyoma) are a common cause of menorrhagia and abdominal pain in a menstruating female. If the fibroids are large the uterus can feel bulky on examination. An abdominal ultrasound confirming an enlarged uterus with multiple masses is virtually diagnostic.

Adenomyosis may also give rise to these symptoms and an enlarged uterus, however we would expect imaging to reveal a 'boggy' uterus with subendometrial linear striations.

Question:

A patient arrives at the emergency department with right-sided hemiplegia, facial weakness and is having difficulty with speech. You suspect a stroke. Which of the following is the recommended tool used to assess a patient in this situation?

A.CHA2DS2VASC

B.ROSIER

C.ABCD2

D.FAST

E.FRAX

Answer:ROSIER

Explanation:

The correct answer is ROSIER.

ROSIER is an acronym for 'Recognition Of Stroke In the Emergency Room'. It is the tool recommended by NICE to assess stroke symptoms in an acute setting. More information can be found below.

FRAX is an acronym for Fracture Risk Assessment Tool. It is a tool developed by the World Health Organisation to assess an individual's risk of fracture. It would not be relevant in this situation.

ABCD2 is used to assess a patient's stroke risk after a transient ischaemic attack. As the patient in the question is still symptomatic and you suspect a stroke, this tool would not be appropriate.

FAST is a quick screening tool publicised by Public Health England. It teaches the general public about the signs of stroke, so they can seek help quickly. It should be used by the general public, not in the acute medical setting.

CHA2DS2VASC is a scoring tool used to assess the risk of stroke in patients with atrial fibrillation. As such, it is not appropriate here.

References:

NICE (2008). Stroke and transient ischaemic attack in over 16s: diagnosis and initial management.

Question:

A 6-year-old boy is brought into the GP surgery by his mother for a sore throat that began three days ago. On examination, the boy has cervical lymphadenopathy and a temperature of 38.6ºC. He doesn't complain of cough. This is the first time he has experienced this and has no past medical history or allergies of note.

What is the most appropriate management for this child?

A.Amoxicillin

B.Ceftriaxone

C.Clarithromycin

D.Phenoxymethylpenicillin

E.Throat swab

Answer:Phenoxymethylpenicillin

Explanation:

Phenoxymethylpenicillin is the first line antibiotic for tonsillitis

Important for meLess important

Phenoxymethylpenicillin is the first-line antibiotic treatment for bacterial tonsillitis. The patient's sore throat and fever, along with his enlarged tonsils, make tonsillitis the most likely diagnosis. The Centor criteria are used to determine the likelihood that the sore throat is caused by a bacterial infection. Given that this patient meets 3 of the Centor criteria (absence of cough, cervical lymphadenopathy, history of fever), he is likely to have bacterial tonsillitis, and thus antibiotics are indicated.

Amoxicillin and ceftriaxone are not recommended therapies for tonsillitis as per NICE guidelines.

Clarithromycin is indicated in bacterial tonsillitis if the patient is allergic to penicillin. However, as this patient has no noted allergies, phenoxymethylpenicillin is the preferred first-line treatment.

Throat swabs are not routinely carried out in patients with sore throats, according to NICE CKS.

Question:

A 21-year-old woman present to her GP due to lethargy, breast tenderness, and bloating in the week before her period. She also reports mildly reduced concentration and occasional mood swings at this time. These symptoms do not occur at any other time during the month.

The patient has a past medical history of migraines with aura. She takes sumatriptan as needed and has no allergies.

Whilst her symptoms do not significantly affect her daily life, she does find them irritating and is keen to find a way to improve them.

What is the most appropriate management of these symptoms?

A.Advise reduction of dietary fats and dietary carbohydrates

B.Advise regular exercise and small, regular meals rich in complex carbohydrates

C.Prescribe as required diazepam to use in the luteal phase

D.Prescribe sertraline to take during the luteal phase

E.Prescribe the combined oral contraceptive pill

Answer:Advise regular exercise and small, regular meals rich in complex carbohydrates

Explanation:

Specific lifestyle changes to manage premenstrual syndrome include 2-3 hourly small balanced meals rich in complex carbohydrates

Important for meLess important

The correct answer is advise regular exercise and small, regular meals rich in complex carbohydrates. The first-line management of premenstrual syndrome advised by the Royal College of Obstetrics and Gynaecology (2016) is lifestyle changes, such as smoking cessation, alcohol reduction, regular sleep, regular exercise, and sleep reduction. They also advise eating regular meals rich in complex carbohydrates. Much of these suggestions are based simply on what constitutes a healthy lifestyle. There is some evidence that exercise reduces symptoms of premenstrual syndrome. The advice to eat meals rich in complex carbohydrates is based on the hypothesis that they increase levels of tryptophans and subsequently levels of serotonin.

Advise reduction of dietary fats and dietary carbohydrates is incorrect. As discussed, it is a diet rich in complex carbohydrates that is recommended. Furthermore, there is no evidence that eating a low-fat diet improves symptoms of premenstrual syndrome. On the contrary, there is actually evidence that fatty acids may improve premenstrual symptoms.

Prescribe as required diazepam to use in the luteal phase is incorrect. Benzodiazepines are prescribed with extreme caution due to the risk of dependence. They are not part of the routine management of the premenstrual syndrome. They may be used in a select subset who experience significant anxiety. In this case, they are used for a short time period (e.g. 2-3 days) and other treatments such as antidepressants or psychological intervention would be the mainstay of management. This patient does not have any significant anxiety symptoms.

Sertraline and other selective serotonin reuptake inhibitors can be used for premenstrual symptoms. They are given either throughout the whole month or just during the luteal phase. However, they are a treatment for severe premenstrual syndrome. This patient has few, mild symptoms and her symptoms do not interfere with her daily life. Therefore, she is likely to only require lifestyle changes to notice an improvement.

Prescribe the combined oral contraceptive pill is an option for moderate premenstrual syndrome. What constitutes moderate symptoms depends on clinical judgment and the impact the patient feels that the symptoms are having on her life. In this case, the patient's symptoms appear mild and may well improve with lifestyle measures alone. However, more significantly, this patient has migraines with aura. This means she should not take any combined hormonal contraception due to the increased risk of thromboembolic events. Therefore, whilst in a patient without this history it may seem appropriate to discuss the combined contraceptive pill, it is incorrect for this patient.

Question:

You are an F1 doctor working on the renal ward. You are on the ward round with a consultant near retirement and have reviewed a patient who was diagnosed with multiple myeloma yesterday. A head CT shows findings consistent with a 'pepperpot skull'. You propose to the consultant that a skeletal survey should be ordered but he strongly denies the need for this investigation, saying 'we already know he has widespread disease from his head CT'. You can't quite remember why myeloma patients need a skeletal survey but feel uncomfortable with the decision to not request it. What is the most appropriate response to this situation?

A.Ask the consultant if you can phone haematology to get advice just in case

B.Revise your myeloma knowledge on a reputable website and order the skeletal survey if recommended

C.Explain the case to another consultant and ask their advice

D.Accept your consultant's decision as he's very experienced

E.Report the consultant to the hospital director for negligence

Answer:Ask the consultant if you can phone haematology to get advice just in case

Explanation:

Option 1 is correct. In line with Good Medical Practice, patients should be referred to an appropriate practitioner where this suits the patient's needs and so suggesting you yourself phone haematology is most appropriate. Ordering a skeletal survey as an F1 when your consultant has said no isn't professional, nor is immediately going to another consultant behind their back. Doing nothing does not address the concerns over the patient's needs and reporting the consultant is an over-reaction at this point.

GMC Explanatory Guidance - Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 23-year-old woman with cystic fibrosis attends a review with her respiratory specialist. She has been having much more frequent infections and is wondering if there is anything else that she can do to ensure she reduces her risks of getting any more chest infections.

What is the most appropriate response?

A.Introduce a low calorie diet

B.Reduce outdoor exercise

C.Start a salbutamol inhaler

D.Minimise contact with other cystic fibrosis patients

E.Provide more enzyme supplements

Answer:Minimise contact with other cystic fibrosis patients

Explanation:

Patients with cystic fibrosis should minimise contact with each other due to the risk of cross-infection

Important for meLess important

This question is asking about 23-year-old woman with cystic fibrosis who is asking about ways to reduce her risk of getting infections. From the above options, the only recommended advice is to minimise contact with other cystic fibrosis patients due to the risk of cross-contamination and infection.

Introducing a low-calorie diet is not recommended in patients with cystic fibrosis. In fact, patients are recommended to have a high-calorie diet to increase calories and fats.

Patients with cystic fibrosis should be recommended to exercise as much as they feel comfortable. They should also ensure they get adequate chest physiotherapy.

Starting a salbutamol inhaler will help with the symptomatic relief of breathlessness, however, it will not reduce the risk of infections.

While enzyme supplements are useful in the treatment of cystic fibrosis, they will not reduce the risk of infection.

Question:

A 33-year-old woman who was diagnosed as having HIV-1 two years ago is reviewed in clinic. She is fit and well currently and has no symptoms of note. The only medication she takes is the occasional paracetamol for tension headaches. Her latest blood tests are as follows:

CD4 325 \* 106/l

What is the most appropriate action with regard with to anti-retroviral therapy?

A.Wait until the CD4 count is below 200 \* 106/l

B.Wait until the CD4 count is above 350 \* 106/l

C.Wait until the CD4 count is below 250 \* 106/l

D.Start antiretroviral therapy now

E.Wait until the CD4 count is below 300 \* 106/l

Answer:Start antiretroviral therapy now

Explanation:

Question:

A 35-year-old woman presents to the neurology clinic with recurrent headaches. These occur around once a month. Furthermore, she complains that she sees strange flashes before the pain starts. When she is having an attack she feels tired and says that lying down in a dark room helps.

Given the most likely diagnosis, which medication should she be given for the prevention of her symptoms?

A.Amitriptyline

B.Paracetamol

C.Propranolol

D.Sumatriptan

E.Topiramate

Answer:Propranolol

Explanation:

Propranolol is preferable to topiramate in women of childbearing age (i.e. the majority of women with migraine)

Important for meLess important

The correct answer is propranolol. The patient in the question is demonstrating symptoms of a migraine with a visual aura. Propranolol is the best medication to use for migraine prevention in women of childbearing age, as topiramate is teratogenic. Both medications are similarly effective.

Amitriptyline is incorrect here. Amitriptyline can be used for migraine prophylaxis; however, it has a harsher side effects profile than propranolol and topiramate and so is generally reserved for if these medications don't work. The patient in the question is presenting for the first time and so propranolol is the best choice. Amitriptyline is especially good in episodic migraines.

Paracetamol is incorrect here. Paracetamol is recommended for the acute management of migraine. However, the question asks about the treatment for prevention of symptoms, which paracetamol is not recommended for.

Sumatriptan is incorrect. This is recommended for acute management of a migraine and is recommended to be taken by the patient as soon as aura symptoms appear. However, it is not recommended to take sumatriptan more than twice per week as this may lead to medication overuse headaches. The question asks for the treatment to prevent migraine which sumatriptan wouldn't be appropriate for.

Topiramate is incorrect here. In this question, the patient is 35 years old and thus is of childbearing age a beta-blocker such as propranolol, as topiramate is teratogenic. In patients not in this demographic, topiramate can be used for migraine prophylaxis if the patient cannot take beta-blockers (i.e. if they have asthma).

Question:

A 26-year-old man attends the emergency department with reduced urinary output, new swelling in his hands and feet, and nausea 3 days after a marathon race. He competes for his university and has been training hard in the months leading up to the event. He has no past medical history and doesn't take any regular medication. He informs you that he had some tendonitis in the week prior to the event but managed this himself with strapping and simple analgesia. Full blood count, urea and electrolytes, and urine samples are sent to the lab, an initial report returns showing:

Urinary sodium 45 mmol/L (>20)

Urinary osmolality 250 mOsm/kg ( 50-1200)

Fractional sodium excretion 3% ( 1-2)

Urea : creatinine ratio 50:1 (40:1 - 100:1)

What is the likely diagnosis?

A.Acute tubular necrosis

B.Glomerulonephritis

C.Hepatorenal syndrome

D.Obstructive renal failure

E.Pre-renal uraemia

Answer:Acute tubular necrosis

Explanation:

Acute tubular necrosis - urine sodium > 40 mmol/L

Important for meLess important

This patient is attending with signs of an Acute Kidney Injury (AKI) with reduced urinary output and acute peripheral oedema. AKI is defined as stage I, II, or III (see table below for further information). AKI can be caused by many etiologies, including dehydration, physiological stress (such as a hard endurance event), or excessive use of nephrotoxic medications (such as NSAIDs).

The investigation results given in the vignette show a raised urinary sodium - this occurs in acute tubular necrosis (ATN) (the most common renal cause of an AKI). This occurs when there is damage to the tubular cells from prolonged ischaemia or the presence of toxins (e.g. NSAIDs). The kidneys are no longer able to concentrate urine or retain sodium leading to high urinary sodium and low urine osmolality.

While glomerulonephritis is another cause of a renal AKI, this is less likely than ATN based on the description in the vignette of a young athlete who has completed an endurance event where he is likely to have become dehydrated and has been using NSAIDs to manage tendonitis. Glomerulonephritis can occur in patients with inflammatory diseases (such as vasculitis) or is often tested in exams as post-streptococcal glomerulonephritis (where a young person presents with dark urine and loin pain after having a sore throat).

Hepatorenal syndrome is renal failure secondary to fulminant liver cirrhosis and is highly unlikely given the vignette of a young athlete with no indication of cirrhosis. It represents the end stage of progressive reduction in renal perfusion and would be seen in patients with advanced liver cirrhosis who would likely be jaundiced, weak, lethargic, and cachectic.

Obstructive renal failure is a post-renal cause of an acute/chronic kidney injury. In acute settings, this can be due to a renal calculus or cast nephropathy. The presentation of the patient is not with a typical loin-to-groin, severe pain (seen in renal calculi) which should steer the student away from choosing this answer.

Pre-renal uraemia (or azotemia) is defined as an elevation of serum nitrogenous products (BUN) and creatinine. Knowing this definition, this answer can be immediately discounted as the BUN : creatinine ratio is within range. Pre-renal uraemia can occur due to renal hypoperfusion (such as shock, dehydration, haemorrhage, or burns) however due to the investigation results given, this answer is incorrect.

Question:

A 23-year-old man presents to his GP with his girlfriend. He has a past medical history of epilepsy and has been taking carbamazepine, which he says was working great until last week when he had two seizures.

He doesn't have any recollection of either event, aside from 'feeling funny' beforehand. His girlfriend tells you that the seizures both lasted for around 2 minutes and during this time he became still, staring into the distance and then started smacking his lips together. After the event, she tells you that he seemed lethargic, couldn't understand her and that his speech was also affected.

What area of the brain is likely to be affected in this patient?

A.Cerebellum

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Temporal lobe

Explanation:

Lip smacking + post-ictal dysphasia are localising features of a temporal lobe seizure

Important for meLess important

Motionless staring, automatisms (such as lip-smacking) and post-ictal dysphasia are localising features of a temporal lobe seizure. Focal temporal lobe seizures can be described as aware or as having impaired awareness. In this scenario, the patient has impaired awareness as he doesn't recall anything during the time of the seizure. Episodes typically last for 1-2 minutes and the patient can report feeling drowsy/confused for around 15-30 minutes after the event, with some level of difficulty speaking/comprehending words. Other features that may be seen in temporal lobe epilepsy are hallucinations (gustatory, auditory, olfactory) and amnesia/deja vu sensations.

When the cerebellum is affected the patient would experience problems with coordination, gait, balance and posture.

Frontal lobe epilepsy tends to cause seizures in which there are abnormal head/arm/leg movements, abnormal posturing, repetitive movements and post-ictal weakness. The patient may also show signs of a Jacksonian march (progression of muscle contractions from distal to proximal on the ipsilateral side).

Occipital lobe seizures can cause positive or negative phenomena. Positive phenomena are things like flashes and floaters, while negative phenomena can be loss of areas of the visual field.

Parietal lobe epilepsy causes seizures with altered sensation on the contralateral side. This can be paraesthesia, loss of temperature and/or pain sensation and tingling.

Question:

A 21-year-old woman presents to the emergency department reporting suicidal thoughts following an argument with her boyfriend. She has longstanding difficulties with relationships and has frequent arguments with friends and family. She denies any paranoid thoughts or unusual beliefs. She sometimes hears her voice in her head describing her negative thoughts. During the consultation, you note multiple superficial scars on her forearms. You do not note any unusual speech or evidence of delusions.

What diagnosis is most likely?

A.Borderline personality disorder

B.Paranoid personality disorder

C.Schizoid personality disorder

D.Schizophrenia

E.Schizotypal personality disorder

Answer:Borderline personality disorder

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

Borderline personality disorder is the correct answer. Symptoms include fluctuating mood, turbulent relationships and self-harm. Paranoid thoughts and visual or auditory hallucinations can also occur.

Paranoid personality disorder is incorrect. People with paranoid personality disorder find it hard to trust and confide in others. They interpret innocuous remarks and situations as dangerous and threatening. This patient does describe a degree of paranoia, but the other symptoms are more indicative of borderline personality disorder and would not be expected in paranoid personality disorder.

Schizoid personality disorder is incorrect. A patient with this disorder would have difficulties forming close relationships and prefer to be alone, whereas relationships with partners, friends and family are described here. They may struggle to relate to people and be emotionally cold towards them.

Schizophrenia is incorrect. The core symptoms of schizophrenia are delusions, auditory hallucinations and disorders of thought perception.

Schizotypal personality disorder is incorrect. Symptoms of this include delusions, distorted perceptions, using unusual words or phrases and struggling to relate to others.

Question:

Ezal is a 54-year-old Syrian refugee who has recently been diagnosed with tuberculosis (TB) after experiencing fevers and haemoptysis. The consultant informs him he will have to start on a regime of 4 medications to treat his TB. She tells him he must first do a few tests, prior to starting treatment.

Which set of investigations below are most appropriate for this patient?

A.Liver Function Tests (LFTs), Full Blood Count (FBC), Urea and Electrolytes, and hearing testing

B.Vision testing, Urine dip, FBC and LFTs

C.Urea and Electrolytes, vision testing and FBC

D.LFTs, Urea and Electrolytes and Urine dip

E.Urea and Electrolytes, LFTs, vision testing, FBC

Answer:Urea and Electrolytes, LFTs, vision testing, FBC

Explanation:

LFTs must be taken prior to starting anti TB medications as they are hepatotoxic

Important for meLess important

This is a difficult question.

The medication regime is Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol.

We need to have baseline LFTs as all drugs in the regimen are hepatotoxic.

We test Us and Es to monitor electrolyte disturbances and any elevation in Creatinine as a result of treatment.

We need a baseline visual assessment as Ethambutol can cause loss of vision.

We need an FBC as a baseline, and to assess for platelet count which can be important in the context of hepatotoxicity.

We do not need a Urine dip. Rifampicin does turn urine and tears orange-red but should not cause derangement of urine tests.

Question:

A man sees his GP for a review of his type 2 diabetes. He is on metformin at the maximum tolerated dose. His latest HbA1c is 64 mmol/mol.

His GP starts him on gliclazide and plans to repeat the HbA1c in 3 months' time.

What is the patient's new target HbA1c?

A.48

B.53

C.58

D.63

E.68

Answer:53

Explanation:

The Hba1c target for patients on a drug which may cause hypoglycaemia (eg sulfonylurea) is 53 mmol/mol

Important for meLess important

The correct answer is 53 mmol/mol. Gliclazide belongs to the class of sulfonylurea drugs associated with hypoglycaemia. 53 mmol/mol is the target HbA1c for adults prescribed a single hypoglycaemic agent, or two or more antidiabetic drugs in combination.

48 mmol/mol is the target for adults with type 2 diabetes who are managed by diet and lifestyle alone, or a single antidiabetic drug not associated with hyperglycaemia (e.g. metformin). As the patient is being started on gliclazide, this is not the correct answer.

58 and 63 are incorrect answers for the reasons above.

68 is the incorrect answer as it would seem inappropriate to suggest a poorly controlled type 2 diabetic increase their HbA1c!

Question:

A 41-year-old man presents to clinic due to ongoing poorly controlled hypertension.

He was originally diagnosed at a routine appointment and has a family history of hypertension at a young age. He is currently on the following drug therapy:

Lisinopril 80 mg OD

Nifedipine MR 40 mg BD

His clinic blood pressure today is 154/93 mmHg. Blood tests ordered previously show:

Na+ 144 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 32 mmol/L (22 - 29)

Urea 3.5 mmol/L (2.0 - 7.0)

Creatinine 60 µmol/L (55 - 120)

A US KUB previously performed for renal stones showed normal anatomy.

What is the most appropriate next management step?

A.Ask patient to monitor blood pressure at home and re-attend clinic with BP diary

B.Measure plasma aldosterone/renin ratio

C.Perform a renal artery doppler

D.Perform thyroid function tests

E.Add indapamide to therapy

Answer:Measure plasma aldosterone/renin ratio

Explanation:

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

Important for meLess important

It is often difficult to discern between primary hypertension and secondary hypertension, yet clues such as persistently high or malignant blood pressure, labile blood pressure measurements, young age and electrolyte abnormalities provide clues to a possible secondary aetiology.

In this scenario, treatment-resistant hypertension is accompanied by modest hypokalaemia and raised bicarbonate. This electrolyte picture is suggestive of primary hyperaldosteronism- where excess aldosterone secretion leads to increased sodium reabsorption whilst favouring potassium secretion in the urine. It is important to note, however, that primary hyperaldosteronism can also exclusively present with severe, treatment-resistant hypertension and no electrolyte abnormalities.

The first-line investigation in suspected primary hyperaldosteronism is a plasma aldosterone/renin ratio. Confirmation of the diagnosis is given by an elevated ratio, suggestive of aldosterone raised inappropriately in comparison to normal/low circulating renin.

Asking the patient to monitor blood pressure at home is important, however it would not solve his hypertension and the electrolyte abnormalities.

A renal artery doppler could elucidate the presence of renal artery stenosis (RAS), a common cause of secondary hypertension. In this scenario, previous normal imaging and preserved renal function in view of therapy with an ACE inhibitor makes RAS a less likely diagnosis.

Hypertension may be associated with hypothyroidism, hence requesting thyroid function tests would not be incorrect. However, this is unlikely given the lack of other symptoms and signs of hypothyroidism and not the most appropriate management of this presentation.

NICE guidelines recommend a thiazide-like diuretic as a third-line antihypertensive, however prescribing indapamide would be incorrect in this scenario. Indeed, this drug would likely worsen the pre-existing hypokalaemia, exposing the patient to an arrhythmia risk. Moreover, this fails to address the underlying cause of the hypertension.

Question:

A 6-year-old boy is reviewed in clinic due to nocturnal enuresis. His mother has tried using a star-chart but unfortunately this has not resulted in any significant improvement. Of the following options, what is the most appropriate initial management strategy?

A.Enuresis alarm

B.Trial of oral desmopressin

C.Trial of imipramine

D.Trial of intranasal desmopressin

E.Restrict fluids in the afternoon and evening

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

Restricting fluids is not recommended advice - Clinical Knowledge Summaries suggest: 'Do not restrict fluids. The child should have about eight drinks a day, spaced out throughout the day, the last one about 1 hour before bed.'

Question:

A 72-year-old man presents to his GP complaining of a large bulge in his groin. His past medical history is unremarkable. On examination, a reducible lump with cough impulse is visible above and medial to the pubic tubercle. The patient denies pain or any other symptoms.

What is the most appropriate management?

A.Physiotherapy referral

B.Reassurance and safety netting

C.Routine surgical referral

D.Ultrasound scan

E.Urgent surgical referral

Answer:Routine surgical referral

Explanation:

Inguinal hernias should usually be referred for repair, even if they are asymptomatic

Important for meLess important

This patient has an inguinal hernia.

Routine surgical referral is the correct answer. Inguinal hernias should be referred for repair even if asymptomatic. There may be exceptions for patients that have significant comorbidities that make surgery high-risk. This patient is fit and well and therefore surgical referral would be appropriate.

Physiotherapy referral is incorrect. Physiotherapy plays an important role in the management of many conditions but there is no indication for physiotherapy here in an asymptomatic patient with a hernia.

Reassurance and safety netting is incorrect. This patient has a large hernia and a referral is indicated. Safety netting is always appropriate.

Ultrasound scan is not appropriate. The need for imaging will be assessed by the surgical team.

Urgent surgical referral is incorrect. There are no features indicating the need for urgent surgical input such as strangulation.

Question:

Said is a 32-year-old male who has recently emigrated to the UK from Nepal. He attends his GP practice with regards to symptoms of weight gain, tiredness and hoarseness of voice. Following blood tests, including a thyroid function test, it is found that he has hypothyroidism. What is the most likely cause of hypothyroidism in this patient?

A.Hashimoto's thyroiditis

B.Iodine deficiency

C.Thyroid adenoma

D.Toxic multinodular goitre

E.De Quervain's thyroiditis

Answer:Iodine deficiency

Explanation:

The likely cause of this patient's hypothyroidism is iodine deficiency. The important factor to consider when answering this question is the patient's demographics. Iodine deficiency is the leading cause of hypothyroidism in the world, with areas of Africa and Asia being some of the most severely affected. With this patient having recently emigrated to the UK from Nepal, it is most likely that his hypothyroidism would be due to an iodine deficiency. Mountainous regions such as the Himalayas are particularly prone due to the iodine having been washed away by glaciation and flooding.

Hashimoto's thyroiditis is the most common cause of hypothyroidism in countries whose iodine consumption is adequate, generally referring to the developed countries. De Quervains thyroiditis is a less common cause of hypothyroidism than both iodine deficiency and Hashimoto's thyroiditis, therefore it is an incorrect answer. Patients with thyroid adenomas are generally asymptomatic and are found on clinical examination or self-palpation, therefore they are less likely to present like the patient in this scenario. Toxic multinodular goitre is a cause of hyperthyroidism, not hypothyroidism, and hence it is an incorrect answer.

Question:

An 80-year-old man presents to accident and emergency with leg swelling. He has been more fatigued recently. His past medical history includes diabetes and chronic obstructive pulmonary disease. He has been on metformin and inhalers for many years.

On examination, you note a barrel chest, elevated jugular venous pressure, and a systolic murmur over the 4th intercostal left parasternal region. You ask him to take a deep breath in and the murmur becomes louder. You listen over the carotids but hear no murmurs. Lungs are vesicular with no wheezes or crackles. You examine his legs which show bilateral pitting oedema. Heart rate 85 and blood pressure 130/80mmHg.

What valvular pathology is present in this patient's heart?

A.Aortic stenosis

B.Mitral regurgitation

C.Mitral stenosis

D.Tricuspid regurgitation

E.Tricuspid stenosis

Answer:Tricuspid regurgitation

Explanation:

Tricuspid regurgitation becomes louder during inspiration, unlike mitral regurgitation

Important for meLess important

This patient has tricuspid regurgitation as evidenced by the following:

1- Systolic murmur.

2- Loudest in the 4th intercostal left parasternal region.

3- Louder on inspiration.

4- The patient has chronic obstructive pulmonary disease and is developing signs of core pulmonale.

Aortic stenosis presents as an ejection systolic murmur loudest in the right parasternal 2nd intercostal space. The murmur becomes louder on expiration due to increased left ventricular preload and softer on inspiration as left ventricular preload decreases due to reduced intra-thoracic pressure. Aortic stenosis commonly radiates to the carotids which was not the case in this patient.

Mitral regurgitation presents as a pan-systolic murmur loudest in the left mid-clavicular 4th intercostal space. It is louder on expiration due to higher left ventricular preload, and softer on inspiration due to pooling of the blood in the lungs. Mitral regurgitation often occurs in patients with hypertension, which is not present in this patient and is not a consequence of COPD and cor pulmonale.

Mitral stenosis presents with an end-diastolic murmur loudest in the left mid-clavicular fourth intercostal space. It often leads to left heart failure with pulmonary oedema and breathlessness. This patient did not have crackles in the chest. Furthermore, the anatomical location and the timing of the murmur in the cardiac cycle were not suggestive of mitral stenosis.

Tricuspid stenosis is rare and usually presents in neonates as an end-diastolic murmur loudest in the left parasternal 4th intercostal space. Both tricuspid stenosis and regurgitation increase on inspiration as the intrathoracic pressure decreases leading to right heart filling and increased preload. Despite being in the same anatomical location as in this patient, it is a diastolic rather than a systolic murmur.

Question:

A 51-year-old female is referred to the haematology clinic with a haemoglobin of 19.2 g/dl. She is a non-smoker. Her oxygen saturations on room air are 98% and she is noted to have mass in the left upper quadrant. What is the most useful test to establish whether she has polycythaemia vera?

A.Bone marrow aspiration

B.Blood film

C.Red cell mass

D.Transferrin saturation

E.JAK2 mutation screen

Answer:JAK2 mutation screen

Explanation:

Polycythaemia rubra vera - JAK2 mutation

Important for meLess important

The discovery of the JAK2 mutation has made red cell mass a second-line investigation for patients with suspected JAK2-negative polycythaemia vera

Question:

A 19-year-old patient of South Asian ethnicity presents to their GP having developed several small patches of pale skin on their face over the past 4 weeks. They have a past medical history of eczema, atopy, and depression. They last visited their GP 6 weeks ago when they were prescribed sertraline and clobetasone topical cream.

What is the most likely cause of their symptoms?

A.Melasma

B.Resolving eczematous lesions

C.Seborrheic dermatitis

D.Sertraline

E.Clobetasone

Answer:Clobetasone

Explanation:

Topical corticosteroids may cause patchy depigmentation in patients with darker skin

Important for meLess important

Remember to consider iatrogenic causes of symptoms.

Clobetasone is a topical corticosteroid cream commonly prescribed for atopic eczema. Topical corticosteroids can cause depigmentation of the skin particularly in patients with darker skin. It is important, both in exams and in future practice, to recognize the side effects of common drug treatments in all ethnic groups.

Melasma presents as hyperpigmented brown or grey macules and patches, rather than pale areas. It is more common in people with darker skin and associated with sun exposure, non-steroidal anti-inflammatory drugs, and oral contraceptives. It is not however associated with topical corticosteroids.

In patients with darker skin, inflammation can appear as patches of hyperpigmentation, which may be seen during the course of an eczematous rash. Depigmentation in this situation would be unusual.

Seborrheic dermatitis would present with flaky, oily areas of skin.

Sertraline is not known to cause skin depigmentation.

Question:

A 35-year-old woman comes to see you, her GP, because she feels tearful and low since the birth of her son 1 month ago and she isn't sleeping well. She says she thinks the baby hates her and feels they aren't bonding, though she is still breast feeding. She has a good family network, including the baby's father and has never suffered with depression in the past. She does not feel suicidal and has not been abusing any substances, you do not feel the baby is at risk. What is the most appropriate management?

A.Refer to social services

B.Antidepressant therapy

C.Cognitive behavioural therapy (CBT)

D.Mindfulness

E.Prescribe zopiclone

Answer:Cognitive behavioural therapy (CBT)

Explanation:

The National Institute for Health and Care Excellence recommends that for women without previous history of severe depression, the first line treatment for moderate to severe depression in pregnancy or the post-natal period should be a high intensity psychological intervention (such as CBT).

If this is refused, or symptoms do not improve, then an antidepressant should be used. NICE suggests a selective serotonin re-uptake inhibitor (SSRI) or tricyclic antidepressant (TCA). Mindfulness may be useful for women with persistent subclinical depressive symptoms. You would only need to involve social services if you felt that someone in the household may be at risk. According to the British National Formulary (BNF) zopiclone should be avoided whilst breast feeding as it is present in breast milk.

Question:

A 19-year-old man presents to the emergency department after falling from his skateboard and landing onto his outstretched right hand. During examination, the man complains of significant pain and tenderness between the extensor pollicis longus and extensor pollicis brevis tendons of his right hand. An X-ray is performed but shows no abnormality.

What is the most appropriate initial management for this injury?

A.Immediate open reduction and internal fixation

B.Immobilise using Futuro splint or standard below-elbow backslab before specialist review

C.Immobilise using Futuro splint or standard below-elbow backslab for 4 weeks

D.Immobilise using standard above-elbow backslab before specialist review

E.Immobilise using standard above-elbow backslab for 4 weeks

Answer:Immobilise using Futuro splint or standard below-elbow backslab before specialist review

Explanation:

In the emergency department, suspected scaphoid fractures should be managed with immobilisation using a Futuro splint or standard below-elbow backslab before specialist review

Important for meLess important

The man is presenting with pain and tenderness in the anatomical snuffbox after falling onto his outstretched right hand, which should raise suspicion of a scaphoid fracture. The most appropriate initial management in the emergency department is to immobilise using a Futuro splint or standard below-elbow backslab until specialist review.

X-ray has an 80% sensitivity for detection of scaphoid fractures in the first week after injury. Therefore, it is important to avoid excluding scaphoid fracture on the basis of a negative X-ray immediately after injury. CT is an appropriate second-line imaging modality for patients with suspected scaphoid fracture despite normal X-ray.

Internal fixation is recommended for scaphoid fractures with > 1.5mm displacement. The fact that no abnormality was reported in the X-ray suggests that if there is, in fact, a scaphoid fracture, it is likely to be minimally displaced. Therefore, conservative management with immobilisation is more appropriate than operative management.

In 90% of non-displaced or minimally displaced (< 0.5mm) scaphoid fractures, union is achieved after 6 weeks of immobilisation. Given scaphoid fractures are associated with the potential for poor long-term outcomes such as avascular necrosis, it is important to arrange specialist review.

A standard above-elbow backslab would immobilise the elbow, which is unnecessary for suspected scaphoid fractures.

Question:

A 26-year-old woman presents to the GP with pain and swelling in her hand joints for the last four months. She also mentions that her joints are stiff in the morning, and the stiffness usually lasts for an hour. She denies pain or swelling of her elbows, ankles, or knees.

On physical examination, she has swelling and tenderness of the second and third metacarpophalangeal (MCP) joints of both hands. Laboratory investigations show an elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP).

NICE has recommended which of the following investigations, to be performed on all such patients?

A.Anti-neutrophil cytoplasmic antibody (ANCA)

B.Antinuclear antibodies (ANA)

C.Serum uric acid

D.X-ray of hands and feet

E.Complements C3 and C4

Answer:X-ray of hands and feet

Explanation:

NICE recommend performing x-rays of the hands and feet of all patients with suspected rheumatoid arthritis

Important for meLess important

The sign and symptoms in this patient are suggestive of rheumatoid arthritis. NICE recommends performing x-rays of the hands and feet of all patients with suspected rheumatoid arthritis. Other tests that should be performed in this patient include rheumatoid factor (RF) and anti-cyclic citrullinated peptide antibody (anti-CCP).

Anti-neutrophil cytoplasmic antibody (ANCA) are the autoantibodies that characteristically occur in vasculitic syndromes. This patient does not have clinical features suggesting this.

Antinuclear antibody (ANA) is performed when systemic lupus erythematosus (SLE) is suspected and constitutes one of the eleven criteria used in the diagnosis of SLE. It should not be routinely performed when rheumatoid arthritis is suspected.

Serum uric acid is useful in monitoring the extent of hyperuricemia in patients who are diagnosed with gout.

Complements C3 and C4 levels are performed in SLE and other forms of vasculitis.

Question:

A 7-year-old girl is brought to the emergency department after an episode of visible haematuria. She feels unwell and has been passing less urine. Her only past medical history includes a penicillin allergy and scarlet fever 11 days ago which was treated with azithromycin.

Her pulse is 75 bpm, her blood pressure is 154/75 mmHg, and she is afebrile. Blood tests show:

Hb 130 g/L (115-140)

Platelets 200 \* 109/L (150 - 400)

WBC 7.4 \* 109/L (4.0 - 11.0)

Albumin 46 g/L (35-50)

Urea 7.3 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

Urinalysis protein and red blood cells present

Based on these features, what is the most likely diagnosis?

A.Acute interstitial nephritis

B.IgA nephropathy

C.IgA vasculitis

D.Minimal change disease

E.Post-streptococcal 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 (PSGN) is correct. Haematuria, hypertension, oliguria, and proteinuria that is not significant to cause hypoalbuminaemia and oedema suggests the presence of nephritic syndrome. If the proteinuria were severe enough to cause oedema, this would be a nephrotic syndrome. Nephritic syndrome presenting 1-2 weeks following infection with Streptococcus pyogenes in scarlet fever suggests a diagnosis of PSGN, which is the case in this scenario. The degree of derangements in urea and creatinine can vary depending on the severity and duration of PSGN.

Acute interstitial nephritis (AIN) is incorrect. Although AIN can occur following taking drugs (particularly penicillin antibiotics), this causes an acute kidney injury and deranged urea and creatinine. It does not present with all the features of nephritic syndrome (such as haematuria and hypertension). AIN presents as an AKI following the administration of a causative drug and may have a fever, rash, and eosinophilia, which are not seen in this patient. Furthermore, urinalysis would show white cells and white cell casts, which are not seen here.

IgA nephropathy (IgAN) is incorrect. PSGN and IgAN can both cause nephritic syndrome, however in IgAN, nephritic syndrome and hypertension are both rarer. The two can be differentiated based on the time the symptoms develop following an infection. IgAN tends to present 1-2 days following an upper respiratory tract infection (URTI), whereas for PSGN it is 1-2 weeks, as seen in this scenario (11 days). IgAN also tends to have recurrent episodes of haematuria, therefore if this patient were to have IgAN and presented later than the typical 1-2 days following a URTI, there would be a history of recurrent episodes, which is not the case here.

IgA vasculitis (IgAV) is incorrect. Also known as Henoch-Schonlein purpura (HSP), although this can cause an IgA nephropathy which may lead to nephritic syndrome, this is a systemic condition which does not only affect the kidneys. HSP is characterised by a palpable purpuric rash over the extensor surfaces of the arms and legs and over the buttocks, abdominal pain, and polyarthritis. These features are not seen here.

Minimal change disease (MCD) is incorrect. This is the most common cause of nephrotic syndrome in children, which is characterised by proteinuria significant enough to cause hypoalbuminaemia and oedema, and other features including hyperlipidaemia. Hypertension is not typically present in MCD and haematuria is not seen.

Question:

A 50-year-old man presents to his GP after he noticed some changes to his toenails over the past 2 years. He complains that they look unsightly. There is no past medical history of note and he takes no regular medications.

His toes are examined, as shown below:

What is the most likely cause of this patient's current presentation?

A.Candida albicans

B.Coccidioides immitis

C.Staphylococcus aureus

D.Trichophyton rubrum

E.Trauma

Answer: Trichophyton rubrum

Explanation:

The image above is consistent with a fungal nail infection, or onychomycosis. The image shows some yellow discolouration of the nails and is noticeably thicker, with evidence of onycholysis. It also appears to be jagged and flaking away. Multiple organisms can result in a fungal nail, however, the most likely microorganism is Trichophyton rubrum. This is a dermatophyte and is closely associated with other conditions, such as athlete's foot, jock itch, and ringworm.

Candida albicans can also cause a fungal nail infection, however, it is only prevalent in 10% of cases, which makes it less likely to be a causative agent.

Typically, trauma is the initial insult that results in a fungal nail infection, as it allows the fungus to enter the nailbed and proliferate from there. This is typically due to ill-fitting footwear, but can also be due to various other causes. However, trauma alone is unlikely to cause an infection.

Bacterial infections such as Staphylococcus aureus typically don't cause a fungal nail infection. They are more often associated with skin infections, such as cellulitis or erysipelas.

Coccidioides immitis is a rarer fungal infection associated with coccidioidomycosis. This rare infection is typically seen outside of the UK (in Central America) and causes a pneumonia-type picture.

Question:

An 18-year-old woman is brought into the emergency department after being involved in a traffic collision. She is minimally responsive, visibly pale, and groaning in pain.

Key findings from the initial A-E approach are:

Airway Patent

Breathing Chest clear and equal air entry bilaterally, respiratory rate 35 breaths per minute, oxygen saturation 96%

Circulation Heart rate 150 beats per minute, blood pressure 70/40mmHg

Disability GCS 10/15, blood glucose 8mmol/L, pupils equal and reactive to light

Everything else Tense abdomen with diffuse tenderness

You make several attempts at siting a cannula but fail.

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

A.Call a senior to place a central line

B.Call a trained individual to attempt intraosseous access

C.Call vascular access to site a peripherally inserted central cannula (PICC)

D.Encourage oral fluid intake

E.Place an nasogastric (NG) tube and give fluids to be given enterally

Answer:Call a trained individual to attempt intraosseous access

Explanation:

If intravenous access is difficult or impossible, consider the intraosseous (IO) route during a cardiac arrest

Important for meLess important

This is an extremely stressful situation and not one that a foundation doctor would be expected to manage independently. However, it is important to be aware of the appropriate and available options in such a situation to support their facilitation.

Working through the limited information from the A-E approach it is clear that this patient has a 'circulation' problem (i.e. from the circulation section of the A-E approach but not necessarily a 'vascular' cause) that requires intervention. This patient requires management of her blood pressure. Thus, in the first instance, she requires fluid resuscitation, and likely blood products after this. Current Resus Council guidelines state that if you cannot get peripheral IV access within 2 minutes of presentation, intraosseous access should be sought.

Whilst a central line could be used for fluid resuscitation, doing so would take longer and thus is not appropriate for immediate resuscitation.

A peripherally inserted central cannula (PICC line) is an intervention typically used for long-term therapy and is not considered appropriate in an acute emergency. Placing a PICC line is likely to take even longer than placing a central line.

Oral fluid intake is inappropriate as this patient has a reduced GCS. It also would not lead to the rapid rise in blood pressure that is needed in this situation.

Similarly, placing an NG tube is inadequate for rapid fluid resuscitation.

Question:

Ken, 76, has been diagnosed with a mid-rectal tumour. Following a CT scan and other investigations it is concluded that the tumour is graded as T2N0M0 and is deemed acceptable to be operated on. Which of the following surgeries is the preferable option for Ken?

A.Total colectomy

B.Low anterior resection

C.Hartmann's procedure

D.Abdominoperineal resection

E.Left hemicolectomy

Answer:Low anterior resection

Explanation:

A low anterior resection would be the most preferable surgery for the patient in this scenario. The important information to consider when answering this question is the position of the tumour, the grading and whether it is operable. The fact that this patients tumour is rectal means that there are only two surgical procedures in the list of possible answers that could be right; abdominoperineal resection and low anterior resection. Left hemicolectomy and total colectomy are used to surgically treat colonic diseases, including malignancies. Furthermore, Hartmann's procedure is no longer used as frequently as in the past, and is now largely reserved for emergency colorectal surgery and terminally ill patients. Due to this, these options are inappropriate responses to this question.

Both abdominoperineal resections and low anterior resections are used to treat rectal malignancy. However, abdominoperineal resections, which involve the removal of the anus, rectum and section of sigmoid colon, are used for tumours located in the distal one third of the rectum. Given that the patient in this question has a mid-rectal tumour, this surgical procedure would be inappropriate. Low anterior resection is the operation of choice for this patient and patients whose malignancy lies in the upper two thirds of their rectum. This surgery involves resection of the area of malignancy, followed by anastomosis. To attempt to reduce complication rates, a defunctioning ileostomy can be created, which results in the majority of bowel matter bypassing the newly formed anastomosis.

Question:

You review a 3-year-old girl who is being treated for idiopathic constipation with Movicol Paediatric Plain. Her mother has increased the dose but unfortunately there has been no response. She remains well and examination of the abdomen is normal. What is the most appropriate next step?

A.Add senna

B.Ask the health visitor to insert a glycerin suppository

C.Stop Movicol Paediatric Plain and add lactulose + senna

D.Add lactulose

E.Prescribe a one-off dose of sodium picosulfate to be given whilst the health visitor is present

Answer:Add senna

Explanation:

Question:

A 28-year-old woman is admitted to a psychiatry ward from the emergency department. She was brought by a concerned friend who was worried by her recent behaviour. She had been engaging in large amounts of gambling, spending nearly every night at the local casino and hardly sleeping. When asked if she understands the risks of gambling, she is convinced that nothing can go wrong. She struggles to focus on the topic and begins rambling about investing money in various different businesses that are sure to make her a fortune. A diagnosis of a manic episode is made and she is stabilised on treatment with quetiapine. Subsequently it is decided to initiate lithium to maintain her mood.

When should her serum lithium levels next be monitored?

A.1 week - 12 hours after last dose

B.1 week - 6 hours after last dose

C.3 months - 12 hours after last dose

D.3 months - 6 hours after last dose

E.6 months - 12 hours after last dose

Answer:1 week - 12 hours after last dose

Explanation:

When checking lithium levels, the sample should be taken 12 hours post-dose

Important for meLess important

This patient had an acute manic episode. To prevent her having another manic episode, lithium can be started as a prophylactic mood stabiliser.

Lithium should be monitored weekly when treatment is initiated or dose is changed. The lithium level should be checked 12 hours post-dose. Therefore the lithium levels should next be checked after 1 week, 12 hours after the last dose.

After lithium treatment is established, monitoring frequency can be reduced to 3 monthly. Samples should be taken 12 hours after the last dose.

U&E and TFTs should be monitored every 6 months after initiating treatment.

Question:

A 34-year-old non-binary patient presents for their regular check-up at the diabetes clinic. They reported that for the past few weeks, they have become more hyperglycaemic than usual after meals. Their glucose used to be commonly sitting at 7-8 mmol/L two hours after meals, but now are commonly sitting at 9-10 mmol/L 2 hours after meals.

They think this change may be due to a new medication that was started just over a month ago.

Which medication could they have been started on?

A.Bendroflumethiazide

B.Carbamazepine

C.Gliclazide

D.Propranolol

E.Sertraline

Answer:Bendroflumethiazide

Explanation:

Thiazides can worsen glucose tolerance

Important for meLess important

Bendroflumethiazide, like other thiazides, can cause impaired glucose tolerance, leading to more frequent hyperglycaemia, especially post-prandial hyperglycaemia. This may be due to both reduced glucose-stimulated insulin release and increased peripheral resistance to the action of insulin.

Carbamazepine is an anti-epileptic drug that may cause hyperglycaemia in overdose but has no effect on glucose levels at therapeutic doses.

Gliclazide is a sulfonylurea that augments insulin secretion. It is more likely to cause hypoglycaemia than hyperglycaemia.

Propranolol is a beta-blocker and is more likely to cause hypoglycaemia than hyperglycemia.

Sertraline is a selective serotonin reuptake inhibitor (SSRI), which can cause hypoglycaemia, rather than hyperglycaemia.

Question:

You are working in the emergency department. The first patient you see is a 50-year-old man complaining of hearing loss in the right ear that started 1 hour ago. Other than the hearing loss the patient feels well. He complains of no other symptoms and can continue his job of being a professional boxer. After taking a focussed history, you perform Rinne's and Weber's tests. The results from the tests are shown below:

Rinne's test (right ear): positive.

Rinne's test (left ear): positive.

Weber's test: sound lateralises to the left ear.

What is the most common cause of this patient's hearing loss?

A.Acoustic neuroma

B.Excess earwax

C.Idiopathic

D.Meniere's disease

E.Tympanic membrane perforation

Answer:Idiopathic

Explanation:

The majority of sudden-onset sensorineural hearing loss is idiopathic in nature

Important for meLess important

Idiopathic is the correct answer as the majority of sudden-onset sensorineural hearing loss is idiopathic. We know that the patient has right-sided sensorineural hearing loss by the positive Rinne's test and sound lateralising to the left ear during Weber's test.

It is important to consider an acoustic neuroma , especially in unilateral sensorineural hearing loss but it is not the most common cause. Additionally, the hearing loss associated with an acoustic neuroma tends to occur gradually but this patient's hearing loss happened only 1 hour ago.

Excess earwax is a common cause of conductive hearing loss but, based on the results of Rinne's and Weber's tests, the patient likely has sensorineural hearing loss. If the patient demonstrated conductive hearing loss then excess earwax would be a very likely cause.

Meniere's disease is not the most common cause of this patient's hearing loss. Although Meniere's disease is a frequent cause of sensorineural hearing loss, an idiopathic cause is more likely. Additionally, if the patient had Meniere's disease you would expect them to complain of other symptoms such as dizziness or a feeling of pressure in the ear.

Tympanic membrane perforation would be an important differential due to the patient's job as a professional boxer. However, based on the results of Rinne's and Weber's tests, we know that the patient is suffering from sensorineural hearing loss. If the patient demonstrated conductive hearing loss then a perforation would be a very likely cause.

Question:

A 52-year-old man has a set of fasting bloods as part of a work-up for hypertension. The fasting glucose comes back as 6.5 mmol/l. The test is repeated and reported as 6.7 mmol/l. He says he feels constantly tired but denies any polyuria or polydipsia. How should these results be interpreted?

A.Impaired fasting glycaemia

B.Suggestive of diabetes mellitus but not diagnostic

C.Diabetes mellitus

D.Normal

E.Impaired glucose tolerance

Answer:Impaired fasting glycaemia

Explanation:

Question:

A 34-year-old man is diagnosed as being HIV positive. He was born and brought up in the United Kingdom and is currently fit and well with no past medical history. At what point should anti-retroviral therapy be started?

A.At the time of diagnosis

B.CD4 < 200 \* 106/l

C.CD4 < 250 \* 106/l

D.CD4 < 300 \* 106/l

E.CD4 < 350 \* 106/l

Answer:At the time of diagnosis

Explanation:

Anti-retroviral therapy for HIV is now started at the time of diagnosis, rather than waiting for the CD4 count to drop to a particular level

Important for meLess important

Question:

A 28-year-old contact lens wearer attends the emergency department with pain in his right eye. He reports a gritty sensation like something is stuck in the eye.

The eye is globally erythematous and he struggles to look at lights. On slit-lamp assessment, a hypopyon is present and there are focal white infiltrates on the cornea.

What is the most likely underlying organism?

A.Neisseria gonorrhoea

B.Pseudomonas aeruginosa

C.Acanthamoeba

D.Herpes simplex

E.Onchocerca volvulus

Answer:Pseudomonas aeruginosa

Explanation:

Pseudomonas infection should be suspected in contact lens associated keratitis

Important for meLess important

The correct answer is Pseudomonas aeruginosa. This case describes bacterial keratitis. The key features are the foreign body sensation, conjunctival injection, and hypopyon on slit-lamp examination. The most common causes of this are staphylococci, streptococci, and pseudomonas. The latter is especially common in contact lens wearers, making it the correct answer here.

Neisseria gonorrhoea is incorrect. This most commonly causes ophthalmia neonatorum, a syndrome of conjunctivitis in the newborn. It is an uncommon cause of keratoconjunctivitis in adults, usually resulting from exposure to a sexual partner's infection.

Acanthamoeba is incorrect. This can cause severe keratitis and is more common in contact lens wearers. However, it usually results from exposure to water, especially natural bodies such as rivers and lakes. It is less commonly caused by washing lenses with tap water or swimming. There is no history to suggest an exposure risk here.

Herpes simplex is incorrect. This causes keratitis with a classic appearance known as a dendritic ulcer. This is a branching ulcer with surrounding infiltrates and does not fit the description of the slit-lamp findings here.

Onchocerca volvulus is incorrect. This is a filarial infection found mainly in West Africa that causes the syndrome of river blindness. It is transmitted by the blackfly and causes a variety of dermatological manifestations before causing eye disease later. The larvae are often seen on slit-lamp examination. In this case, there is no suggestive travel history or skin symptoms and the examination appearance is not consistent with the diagnosis.

Question:

A young woman who is planning to get pregnant is currently taking paroxetine and wants to know if it will have any adverse effects during pregnancy. What should you advise her?

A.It is advised that paroxetine be avoided during pregnancy unless the benefits outweigh the risk, as the mother is more likely to experience serotonin syndrome

B.It is advised that while no studies have been carried out, paroxetine is generally regarded as safe to use during pregnancy

C.It is advised that while no studies have been carried out, paroxetine is generally regarded as safe to use during pregnancy, but folic acid should be taken at 5mg/day

D.It is advised that paroxetine be avoided during pregnancy unless the benefits outweigh the risk, as paroxetine can lead to an increased risk of congenital malformations

E.It is advised that while no studies have been carried out, psychiatric medicines are always avoided in pregnancy

Answer:It is advised that paroxetine be avoided during pregnancy unless the benefits outweigh the risk, as paroxetine can lead to an increased risk of congenital malformations

Explanation:

Paroxetine use in pregnancy - can lead to increased risk of congenital malformations

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 66-year-old man presents to the Emergency Department with a 5-day history of worsening breathlessness. He also reports a headache over a similar time period. He has noticed these symptoms are worsened on bending forward. He has a long-standing cough. He has a past medical history of small-cell lung cancer, chronic obstructive pulmonary disease (COPD), ischaemic heart disease and gout.

On examination, the patient is tachypnoeic with a respiratory rate of 25 breaths/min. Oxygen saturations are 92% on room air. Pulse is 90 beats per minute and blood pressure is 150/85 mmHg. Temperature is 37.2ºC.

You note the patient's face appears slightly flushed. The jugular venous pulse (JVP) is elevated. Heart sounds are normal. There are scattered crepitations in both bases, but the lungs are otherwise clear. There is bilateral pitting oedema to the calves but the patient reports this is longstanding.

Chest xray demonstrates hyperexpanded lungs, cardiomegaly and a mass in the right upper lobe.

Which of the following is the most likely explanation for this patient’s presentation?

A.Acute exacerbation of COPD

B.Acute pulmonary oedema

C.Cardiac tamponade

D.Pulmonary embolism

E.Superior vena cava obstruction (SVCO)

Answer:Superior vena cava obstruction (SVCO)

Explanation:

SVC obstruction - oncological emergency

Important for meLess important

This patient’s presentation is typical for SVCO. The history of lung malignancy, facial flushing, and the postural nature of symptoms are key features of this diagnosis. SVCO can be caused by external pressure, thrombus or direct tumour invasion causing obstruction of the SVC. It occurs in 5–10% of patients with a right-sided thoracic malignancy, most commonly lung cancer (70% of all cases), but also lymphoma and thymoma. If SVCO is suspected, urgent CT chest should be performed in order to confirm the diagnosis. Initial treatment includes sitting the patient up, oxygen and a stat dose of dexamethasone to help reduce swelling. Definitive management options include SVC stenting, radiotherapy and chemotherapy.

Acute exacerbation of COPD is incorrect. While this patient has a history of COPD, this presentation is not in keeping with an exacerbation, which would usually present with symptoms including worsened cough, increased sputum production, wheeze and hypoxia (and/or hypercarbia).

Acute pulmonary oedema is incorrect. This often presents with a short history of breathlessness, fatigue, and worsened peripheral oedema. The chest examination findings in this patient are not in keeping with this diagnosis.

Cardiac tamponade is incorrect. This can present with dyspnoea and may occur in patients with malignancy due to metastatic infiltration of the pericardium. Pulsus paradoxus is often present, and the JVP is seen to vary with respiration. Quiet heart sounds, hypotension and tachycardia are also key diagnostic features.

Pulmonary embolism is incorrect. This typically presents with symptoms including dyspnoea, pleuritic chest pain, haemoptysis and fever. Unilateral eg swelling may be present.

Question:

A 17-year-old female has presented to the emergency department having taken a paracetamol overdose. Her paracetamol levels were recorded on admission and the decision to treat with IV acetylcysteine was made. On admission, her physical observations were all within normal ranges.

You are dealing with another patient when you are called urgently to re-assess this young female. She is now complaining of severe shortness of breath and describes herself as feeling 'funny'. The IV acetylcysteine was commenced 10 minutes ago. The nurse has kindly carried out a set of observations for you below.

Respiratory rate - 32 breaths per minute

Oxygen saturations - 87%

Blood pressure - 114/71mmHg

Heart rate - 106bpm

Temperature - 37.1ºC

What is the most appropriate response to this?

A.Continue the infusion

B.Continue the infusion and give nebulised salbutamol

C.Immediately stop the IV acetylcysteine infusion, give nebulised salbutamol and bleep the on-call hepatobiliary consultant to discuss surgical interventions

D.Immediately stop the IV acetylcysteine infusion, give nebulised salbutamol, then re-commence the IV infusion at a slower rate

E.Immediately stop the IV acetylcysteine infusion, give nebulised salbutamol, then re-commence the IV infusion at the same rate

Answer:Immediately stop the IV acetylcysteine infusion, give nebulised salbutamol, then re-commence the IV infusion at a slower rate

Explanation:

Anaphylactoid reactions to IV N-Acetylcysteine are generally treated by stopping the infusion, then restarting at a slower rate

Important for meLess important

The change in this patient's presentation has occurred after the administration of the IV acetylcysteine. She has described being short of breath, her oxygen saturations have dropped and her respiratory effort has increased. All of this points to bronchospasm, a common anaphylactoid reaction to the acetylcysteine.

In the case of an anaphylactoid reaction, it is most appropriate to stop the current infusion which is responsible for the change in presentation. Continuing the infusion, regardless of the nebulised salbutamol, would be the incorrect response.

Following this, adequate symptom control is necessary to treat the bronchospasm, then you would aim to re-start the IV infusion at a slower rate, usually at 50mg/kg over four hours.

Restarting the IV infusion at the same rate would likely lead to the same outcome.

Bleeping the on-call hepatobiliary consultant to discuss surgical interventions would be inappropriate here. This is a common anaphylactoid reaction and is not related to the degree of paracetamol overdose.

Question:

A 74-year-old woman presents to the ophthalmology clinic for her annual review. She has a long past medical history of uncontrolled hypertension, despite multiple trials of medications. She is currently on amlodipine, ramipril, indapamide and doxazosin. Otherwise, she is well in herself.

The doctor performs an ophthalmoscopy which shows the following:

What stage of Keith-Wagener classification does this patient have?

A.Category I

B.Category II

C.Category III

D.Category IV

E.Category V

Answer:Category IV

Explanation:

The correct answer is category IV. This patient is at high risk of developing hypertensive retinopathy, given her longstanding history of uncontrolled hypertension, due to the damage to the small blood vessels in the retina relating to systemic hypertension. The disease severity is classified based on the Keith-Wagener classification, which has four categories numbered I-IV.

In this case, we can observe different elements of hypertensive retinopathy on ophthalmoscopy. Firstly, the optic disc is enlarged and the margins are blurred, indicating papilloedema secondary due to ischaemia of the optic nerve. Secondly, we can indicate multiple cotton wool spots, which indicate ischaemia of the retina causing damage to nerve fibres. We can identify some hard exudates close to the optic nerve, caused by damaged vessels leaking lipids into the retina. Lastly, we can see some arterial narrowing and retinal haemorrhage superior to the optic nerve, due to the high blood pressure. The presence of papilloedema is pathognomonic for a category IV Keith-Wagener hypertensive retinopathy, making this the correct option.

Category I is incorrect. This category is defined by the presence of arteriolar narrowing and tortuosity and increased light reflex, which can be observed here, but papilloedema can be observed as well which represents the most extensive damage to the eye thus making this category IV.

Category II is incorrect. This category is defined by the presence of arteriovenous nipping, defined as arterioles causing compression of the veins where they cross which can be observed here. Papilloedema can also be observed in this fundoscopy, and its presence makes this a category IV Keith-Wagener hypertensive retinopathy, hence, this is an incorrect option.

Category III is incorrect. This category is defined by the presence of cotton-wool exudates and retinal haemorrhages, which can be observed here, but the presence of papilloedema is an indicator of a category IV Keith-Wagener hypertensive retinopathy, making this an incorrect option.

Category V is incorrect. The Keith-Wagener classification only has four categories.

Question:

A 19-year-old patient attends the emergency department after being bitten by his boyfriend's cat. He has a small bite mark on the first web space of his right hand. The bite has broken the skin and there is evidence of bleeding, but this has since stopped. There are no signs of redness, contamination of the wound or deep puncture marks. He is not on any regular medications, has no known drug allergies and no significant medical history.

Which of the following is correct with respect to antibiotic prescription?

A.He does not need any antibiotic prophylaxis

B.A 3-day course of co-amoxiclav should be prescribed, to be used immediately

C.A 3-day course of doxycycline should be prescribed, to be used immediately

D.He should be sent home with a delayed 5-day course of co-amoxiclav, to use if signs of infection

E.He should be sent home with a delayed 5-day course of doxycycline to use if signs of infection

Answer:A 3-day course of co-amoxiclav should be prescribed, to be used immediately

Explanation:

Animal bite - co-amoxiclav

Important for meLess important

Current NICE guidelines suggest that antibiotics should be given at a prophylactic dose for:

A human bite that has drawn blood or broken the skin in a high-risk individual

A cat bite that has drawn blood or appears to be deep

A dog bite that has caused considerable tissue damage or is contaminated

This patient has had a cat bite that has drawn blood, so he should therefore be offered antibiotics. There are no signs of infection, so a prophylactic dose (3 days) would be appropriate rather than a treatment dose (5 days).

Co-amoxiclav is the first-line for animal bites, compared to the second-line which is doxycycline AND metronidazole.

Delayed antibiotic prescriptions do not have a place within the treatment of animal bites.

Question:

A 65-year-old woman is admitted with proximal muscle weakness present in the face, neck, shoulder & pelvic muscle girdles. On examination, she has double vision present in her left eye and drooping of her left eyelid. She also has difficulty swallowing. Antibody tests show antibodies to the acetylcholine receptors. A diagnosis of myasthenia gravis is made. During the admission, she develops an acute exacerbation of her symptoms and starts experiencing breathing difficulties and goes into respiratory depression. The anaesthetists are bleeped who successfully intubate her and she is subsequently transferred to ICU. What is the medical management in an acute myasthenic crisis?

A.Dantrolene and lorazepam

B.IV hydrocortisone, propranolol, IV fluids

C.1mg of 1:10,000 IV adrenaline

D.Plasmapheresis and intravenous immunoglobulin

E.IV hydrocortisone, IV fluids, glucose, antibiotics

Answer:Plasmapheresis and intravenous immunoglobulin

Explanation:

Management of myasthenic crisis - intravenous immunoglobulin, plasma electrophoresis

Important for meLess important

1 - Incorrect. This is the treatment for neuroleptic malignant syndrome.

2 - Incorrect. This is the treatment for a thyroid storm crisis.

3 - Incorrect. This treatment is used during the cardiac arrest treatment protocol.

4 - Correct. Plasmapheresis removes circulating antibodies, including the autoimmune antibodies responsible for the disease. Immunotherapy with intravenous gammaglobulin appears to diminish the activity of the disease.

5 - Incorrect. This treatment is for an Addisonian crisis.

Question:

A 29-year-old man presents to the emergency department with nausea and vomiting, alongside vague abdominal pain. He has a past medical history of alcohol abuse and depression. His mood has been particularly low recently following a relationship breakdown and he had eaten very little in the last few days.

Observations: heart rate 92 beats per minute, blood pressure 112/68mmHg, respiratory rate 20 breaths per minute, temperature 37.3ºC, oxygen saturations 98% on air.

Initial investigations are done including a capillary glucose, capillary ketones, arterial blood gas and electrocardiogram(ECG).

ECG: sinus tachycardia

Capillary glucose 4.7 mmol/L (4-7)

Capillary ketones 3.8 mmol/L (0-0.6)

pH 7.33 (7.35-7.45)

pO2 14 kPa (10-14)

pCO2 4.6 kPa (4.5-6)

Lactate 1.6 mmol/L (0-2)

What is the most appropriate management at this stage?

A.IV glucose

B.IV saline 0.9% and IV insulin fixed rate infusion

C.IV saline 0.9% and chlordiazepoxide

D.IV saline 0.9% with glucose

E.IV saline 0.9% and thiamine

Answer:IV saline 0.9% and thiamine

Explanation:

Alcoholic ketoacidosis is managed with an infusion of saline and thiamine

Important for meLess important

This man has alcoholic ketoacidosis - denoted by the acidosis, raised ketones and normal/low blood glucose. This occurs in chronic alcoholics following an episode of reduced intake of food. Once the person becomes malnourished, after an alcohol binge the body can start to break down body fat, producing ketones. Hence the patient develops a ketoacidosis. The important initial steps in management are:

Rehydration - with IV fluids such as saline

Thiamine - to prevent the development of Wernicke's encephalopathy

Although the patient has a borderline low glucose, just replacing this without co-replacing thiamine can be dangerous. The glucose promotes metabolism, in which thiamine acts as a co-factor. This can accelerate the depletion of thiamine and increases the risk of Wernicke's.

IV insulin fixed rate infusion is used in the management of diabetic ketoacidosis (DKA). In this patient the glucose is not high enough to fulfil the criteria for DKA. However, beware the diabetic patient who is taking a sodium-glucose transport protein 2 inhibitor. These patients are at risk of developing euglycaemic DKA.

Although chlordiazepoxide has a role in prevent alcohol withdrawal, the focus of initial management should be the prevention of Wernicke's.

Question:

A 37-year-old female presents to the emergency department with severe shortness of breath and chest pain. She describes the pain as 7/10, being worse on inspiration.

Her heart rate is 120, her respiratory rate is 20/min, her blood pressure is 130/76 mmHg and her temperature is 36.2 ºC. A chest examination highlights no abnormalities. Her left calf is swollen, tender, and erythematous.

The doctor would like to complete an investigation but there is a prolonged wait for a computed tomography pulmonary angiogram (CTPA).

What is the next best step in management for this patient?

A.Arrange a D-dimer test

B.Perform an ultrasound of the leg

C.Prescribe analgesia and wait for the investigation

D.Prescribe aspirin whilst awaiting further investigation

E.Prescribe rivaroxaban whilst awaiting further investigation

Answer:Prescribe rivaroxaban whilst awaiting further investigation

Explanation:

Strong suspicion of PE but a delay in the scan: start on treatment dose anticoagulant meanwhile

Important for meLess important

The correct answer is to prescribe rivaroxaban while waiting. This patient presents with classical signs and symptoms of a pulmonary embolism (PE). She has pleuritic chest pain, a normal chest examination and a high suspicion level for deep vein thrombosis (DVT).

When encountering a patient with a suspected PE, you should calculate the 2-levels Wells score. In this case, the score is 4.5, given by clinical signs and symptoms of DVT, such as swollen, swollen, tender, and erythematous calve (+3) and a heart rate faster than 100 bpm (+1.5). If the Wells score is higher than 4, you should perform an immediate computed tomography pulmonary angiogram (CTPA). In this case, the waiting for the investigation is long, hence you should prescribe interim therapeutic anticoagulation (rivaroxaban) until the scan is performed.

Arranging a D-dimer test is incorrect, as this investigation should only be arranged if the Wells score is less than 4. In this case, the Wells score is 4.5, making the option not appropriate.

Ultrasound of the leg is an appropriate investigation for a suspected DVT. In this case, the patient presents with symptoms of a PE rather than a DVT. Probably, the patient had a clot in the leg that dislodged and reached pulmonary circulation, causing the symptoms.

Prescribing analgesia and wait for the investigation is inappropriate, as the NICE guidelines clearly state that if the investigation is delayed the patient should prescribe interim therapeutic anticoagulation (rivaroxaban) until the scan is performed.

Prescribing aspirin while waiting is inappropriate as aspirin is antiplatelet, whilst the guidelines suggest the prescription of a direct oral anticoagulant, such as rivaroxaban.

Question:

An elderly man presents with a carer who states that he has been alternately aggressive and withdrawn, and not recognising members of staff, which is different to his normal mild-mannered personality.

His past medical history includes hypertension, chronic obstructive pulmonary disease, ischaemic heart disease, benign prostatic hyperplasia and bilateral knee replacements, but he usually has no cognitive impairment.

On examination, he has mild crepitations throughout his chest and his abdomen is distended and tender over the suprapubic region. Digital rectal examination reveals a large, smooth prostate and soft stool in the rectum.

What initial investigation is most likely to reveal the cause of his delirium?

A.Bladder scan

B.Blood cultures

C.Blood glucose

D.CT head

E.Chest X ray

Answer:Bladder scan

Explanation:

Acute urinary retention may present as delirium in older patients

Important for meLess important

Abdominal distension and suprapubic tenderness on a background of prostatic hyperplasia indicate that this man is in acute urinary retention, which can present as delirium in older patients. An ultrasound scan of his bladder is likely to reveal a large volume of urine, which can be relieved by catheterisation.

A blood glucose sample would rule out hypoglycaemia as a cause of confusion and is part of a confusion screen. It is therefore likely to be done as well, but would not help to diagnose acute urinary retention.

Blood cultures are also part of a confusion screen, and might also be done in this scenario, but would not help a diagnosis of acute urinary retention.

A CT head might be done for a confused patient if there was a concern about intracranial or lung pathology. In this case, there is nothing to suggest a neurological cause for his confusion and getting a confused patient to undergo a CT scan is likely to be challenging, making it less likely to yield useful results.

A chest X-ray might also be done given his background of COPD. However, his widespread crepitations are more likely due to underlying COPD than any acute lung pathology, and would also not help in a diagnosis of acute urinary retention.

Question:

A 50-year-old man with multiple co-morbidities attends the emergency department with abdominal discomfort, nausea and itching. Baseline bloods are shown.

Hb 130g/L Male: (135-180)

Female: (115 - 160)

Na+ 136 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Creatinine 100 μmol/L (55 - 120)

Bilirubin 33 μmol/L (3 - 17)

ALT 39 U/L (3 - 40)

ALP 300 u/L (30 - 100)

Following further discussion with the patient, it is concluded the patient’s condition is secondary to a new medication started at the clinic a few days previous.

What medication is the most likely cause of the patient’s presentation?

A.Amiodarone

B.Atorvastatin

C.Co-amoxiclav

D.Methotrexate

E.Sodium valproate

Answer:Co-amoxiclav

Explanation:

Co-amoxiclav is a well recognised cause of cholestasis

Important for meLess important

The combined amoxicillin and clavulanate, Co-amoxiclav is an antibiotic widely used in the treatment of mild-to-moderate bacterial infections and is a well-recognised cause of cholestasis. It may be used to manage several infections in an outpatient setting including sinusitis, otitis media, cellulitis and community-acquired pneumonia and therefore is commonly commenced by GPs or clinic specialists. The cause of co-amoxiclav’s hepatotoxicity is unknown but is thought to be immunoallergic in origin with allergic manifestations commonly occurring with cholestasis including a rash, fever and eosinophilia. Hepatotoxicity appears to be due to the clavulanate aspect of the drug as re-exposure to amoxicillin alone has not been associated with recurrence whereas re-exposure to the combination commonly results in a more rapid and severe hepatic injury.

The antiarrhythmic medication, amiodarone, has been well-documented to cause liver damage but mainly results in a hepatocellular picture and not a cholestatic picture. Hepatotoxicity appears to be a result of direct damage to the hepatic cells’ lipid bilayer and disturbance of lysosomal and/or mitochondrial function.

Statins such as atorvastatin, used commonly as cholesterol-lowering agents, are associated with mild, asymptomatic and usually transient serum aminotransferase elevations in a lower percentage of uses (1-3%). Significant hepatotoxicity is extremely rare with cholestasis even rarer.

Methotrexate, used in the management of several auto-immune conditions, has the potential to cause severe and fatal hepatotoxicity, even in low doses. The cause of this hepatotoxicity is multi-factorial, including the induction of mitochondrial dysfunction and hepatic cell damage, how it usually presents with a hepatocellular picture and not a cholestatic picture.

Sodium valproate has been associated with cases of hepatotoxicity, again presenting with a hepatocellular picture believed to be secondary to mitochondrial toxicity.

Question:

An 8-year-old boy presents to the emergency department with a 3-day history of right-sided otalgia and otorrhoea. On further questioning, his father believes he has a middle ear infection as he has suffered from these in the past.

On examination, he is pyrexial and tender behind his right ear. His right ear appears more prominent than his left ear. Otoscopy of the affected ear reveals an erythematous tympanic membrane with a visible tear and purulent discharge.

Given the likely diagnosis, what is the usual first-line management?

A.IV antibiotics

B.Oral antibiotics

C.Routine referral to ENT

D.Topical antibiotic

E.Urgent CT head

Answer:IV antibiotics

Explanation:

Mastoiditis is typically diagnosed clinically and requires IV antibiotics

Important for meLess important

The patient presents with clinical features of mastoiditis, which is an infection of the mastoid airspace in the temporal bone. Mastoiditis can be a complication of untreated or recurrent otitis media as seen in this case. Mastoiditis is the likely diagnosis due to pain on palpation of the mastoid bone and bulging of the affected ear due to swelling along with symptoms of otitis media.

IV antibiotics is the correct answer. Mastoiditis is typically a clinical diagnosis requiring urgent treatment with IV antibiotics.

Oral antibiotics is the incorrect answer. While mastoiditis is an infection that requires treatment with antibiotics, it is also an emergency and therefore IV antibiotics are the treatment modality of choice.

Routine referral to ENT is the incorrect answer. Mastoiditis needs to be treated urgently and therefore a routine referral is inappropriate and immediate access to IV antibiotics is necessary.

Topical antibiotic is the incorrect answer. This is an inappropriate treatment for mastoiditis, this would typically be used to treat otitis externa.

Urgent CT head is the incorrect answer. Mastoiditis is typically a clinical diagnosis and requires IV antibiotics. A CT head may occasionally be requested by ENT to assess the extent of infection and determine treatment options.

Question:

A 35-year-old female presents to the Emergency Department following a deliberate paracetamol overdose. Which one of the following features is most indicative of a continuing high risk of suicide?

A.Staggered overdose

B.Mixed overdose involving other drugs

C.Female gender

D.Made efforts to avoid herself being found by friends and family

E.Consumed 50g of paracetamol

Answer:Made efforts to avoid herself being found by friends and family

Explanation:

Whilst deliberate self-harm is more common in females completed suicide is more common in males.

Question:

A 51-year-old man presents to his GP with groin swelling and burning on urination. He also complains of groin pain and penile discharge. He is sexually active with his wife of 6 years.

On examination, his heart rate is 91/min, respiratory rate is 15/min, blood pressure is 129/84 mmHg, and temperature is 38.3ºC. The right testicle is painful, but this is relieved by elevating the scrotum.

What organism is most likely responsible for his symptoms?

A.Chlamydia trachomatis

B.Enterococcus faecalis

C.Escherichia coli

D.Neisseria gonorrhoeae

E.Treponema pallidum

Answer:Escherichia coli

Explanation:

Epididymo-orchitis in individuals with a low STI risk (e.g. married male in 50s, wife only partner) is likely due to enteric organisms (e.g. E. coli)

Important for meLess important

Escherichia coli is correct. This man is presenting with signs and symptoms of epididymo-orchitis: unilateral painful, tender, swollen testicle, dysuria, and easing of pain when the testicle is raised. As this man is older than 35 and has a low-risk sexual history, causative organisms include E coli and E faecalis of which the former is more common.

Chlamydia trachomatis is incorrect. This is one of the commonest causes of epididymo-orchitis in individuals who are younger than 35 and have a high-risk sexual history for developing sexually transmitted infections. This man fits neither of these criteria. As he is older and has a low-risk sexual history, the most likely organism is E coli.

Enterococcus faecalis is incorrect. This man is presenting with signs and symptoms of epididymo-orchitis: unilateral painful, tender, swollen testicle, dysuria, and easing of pain when the testicle is raised. As this man is older than 35 and has a low-risk sexual history, causative organisms include E coli and E. Faecalis. However, the former is the most common.

Neisseria gonorrhoeae is incorrect. This is one of the commonest causes of epididymo-orchitis in individuals who are younger than 35 and have a high-risk sexual history for developing sexually transmitted infections. This man fits neither of these criteria. As he is older and has a low-risk sexual history, the most likely organism is E coli.

Treponema pallidum is incorrect. This causes syphilis, which commonly presents with a single, painless ulcer and painless lymphadenopathy. It would not explain this patient's features of epididymo-orchitis, which is most commonly caused by E coli in older patients with a low risk of sexually transmitted infections.

Question:

A 19-year-old primigravida at 9 weeks presents with vaginal bleeding and suprapubic pain. Tissue has passed through her vagina. The cervix is closed and blood is pooled in the vagina. Ultrasound shows an empty uterine cavity. What is the diagnosis?

A.Inevitable miscarriage

B.Incomplete miscarriage

C.Threatened miscarriage

D.Complete miscarriage

E.Ectopic pregnancy

Answer:Complete miscarriage

Explanation:

Complete miscarriage

Complete miscarriage is a spontaneous abortion with expulsion of the entire fetus through the cervix.

Pain and uterine contractions stop after fetus has been expelled.

Diagnosis: U/S shows an empty uterus

Question:

An 82-year-old man presents for review to his GP surgery. He was seen in the surgery previously with a raised HbA1c. Due to not tolerating metformin, he was keen to try lifestyle changes. Following a discussion, he agrees on a target HbA1c of 48 mmol/mol. Unfortunately on his repeat blood test his HbA1c remains elevated at 55mmol/mol.

He has no risk of CVD, established CVD or chronic heart failure.

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

A.DPP‑4 inhibitor, pioglitazone or sulfonylurea

B.Encourage further lifestyle changes

C.GLP-1 mimetic

D.Insulin

E.Metformin

Answer:DPP‑4 inhibitor, pioglitazone or sulfonylurea

Explanation:

T2DM initial therapy: if metformin is contraindicated (and no risk of CVD, established CVD or chronic heart failure) → choice of DPP‑4 inhibitor or Pioglitazone or Sulfonylurea or even SGLT-2 (if NICE criteria met)

Important for meLess important

The correct answer is DPP‑4 inhibitor, pioglitazone or sulfonylurea as one of these drugs should be initiated if metformin is contraindicated.

Encourage further lifestyle changes is incorrect as his HbA1c has remained elevated.

GLP-1 mimetic would be used after DPP‑4 inhibitor / Pioglitazone / Sulfonylurea / SGLT-2 had been trialled and was found to be ineffective AND the patient's BMI was >35.

Likewise, insulin would be used after DPP‑4 inhibitor / Pioglitazone / Sulfonylurea / SGLT-2 had been trialled and was found to be ineffective (no BMI restriction).

Metformin is contraindicated in this patient due to him previously not tolerating this. As per the BNF, metformin is potentially inappropriate if eGFR is less than 30 mL/minute/1.73m².

Question:

A 57-year-old man is coming off the cardiac bypass circuit following a successful coronary artery bypass procedure. Which drug should be administered to normalise the patients clotting prior to decannulation and chest closure?

A.Intravenous vitamin K

B.Protamine sulphate

C.Aprotinin

D.Fresh frozen plasma

E.None of the above

Answer:Protamine sulphate

Explanation:

Heparin overdose may be reversed by protamine sulphate

Important for meLess important

Since cardiac bypass circuits are thrombogenic large doses of intravenous heparin are administered. This is reversed with protamine sulphate. FFP may be effective but would carry a significant risk of fluid overload.

Question:

A 47-year-old woman,comes to the clinic to discuss contraception. She stopped having her periods 12 months ago. She is normotensive with a blood pressure recording of 122/78 mmHg in clinic. She smokes 10 cigarettes per day. She has a past history of breast cancer, successfully treated 4 years ago. You advise:

A.Cerazette (Progesterone-only-pill)

B.No longer requires contraception

C.Copper Intrauterine Device (Cu-IUD)

D.Rigevidon (Combined oral contraceptive pill)

E.Depot injection

Answer:Copper Intrauterine Device (Cu-IUD)

Explanation:

This woman has entered the postmenopausal period as she has not had a period for 12 months. Even though she is postmenopausal she still requires contraception because she is under the age of 50. Guidelines advise: 'Women using non-hormonal methods of contraception can be advised to stop contraception after 1 year of amenorrhoea if aged over 50 years, 2 years if the woman is aged under 50 years.' (FSRH)

A copper coil is the best option for this woman because of her past history of breast cancer. All other methods, as they are hormonal, are a UKMEC Category 3, and this may be considered an unacceptable risk.

References: NICE Guidelines Menopause and Management https://www.nice.org.uk/guidance/ng23

UK Medical Eligibility Criteria for Contraceptive Use http://www.fsrh.org/pdfs/UKMEC2009.pdf

FSRH Clinical Guidance Contraception for Women Aged over 40 Years http://www.fsrh.org/pdfs/ContraceptionOver40July10.pdf

Question:

A 26-year-old woman presents to her GP with a history of infrequent menstruation. She uses a period tracking app on her phone, which demonstrates that she had five periods in the last 12-month period, each at random intervals.

On further questioning, she describes the growth of thick, dark hair on her upper lip and neck. She has been suffering from worsening acne for several years.

Given the likely diagnosis and assuming other causes are ruled out, what is required in order for the patient to meet the diagnostic criteria?

A.Diagnosis can be made clinically based on her symptoms

B.Measurement of body mass index (BMI)

C.Measurement of free testosterone levels

D.Measurement of total testosterone levels

E.Pelvic ultrasound

Answer:Diagnosis can be made clinically based on her symptoms

Explanation:

DIagnosis of PCOS needs 2 out of 3 features:

oligomenorrhoea

clinical and/or biochemical signs of hyperandrogenism

polycystic ovaries on ultrasound, oligomenorrhoea or amenorrhoea, and hirsutism

Important for meLess important

Diagnosis can be made clinically based on her symptoms is correct. The patient is likely to be suffering from polycystic ovary syndrome (PCOS). For a diagnosis of PCOS to be made, 2 out of 3 of the following must be present:

Infrequent or no ovulation (usually manifested as infrequent or no menstruation).

Clinical and/or biochemical signs of hyperandrogenism (such as hirsutism, acne or elevated levels of total or free testosterone).

Polycystic ovaries on ultrasound scan.

The patient has 2 of these features (oligomenorrhoea and clinical signs of hyperandrogenism) and so the diagnosis can be made on clinical grounds. However, NICE guidelines recommend that other causes of menstrual disturbance are investigated before the diagnosis is formally made. The workup for excluding alternative causes of her clinical features is likely to include measurement of sex hormones and referral for an ultrasound scan, however, this would be to consider alternative diagnoses and would not formally be required to confirm the diagnosis. Neither normal levels of sex hormones nor the absence of polycystic ovaries on ultrasound exclude the diagnosis of PCOS.

Measurement of body mass index (BMI) is incorrect. Obesity (particularly truncal obesity) is a feature of PCOS but does not form part of the diagnostic criteria.

Measurement of free testosterone levels is incorrect. Increased levels of free testosterone would be considered 'biochemical signs of hyperandrogenism' but this patient has clinical signs (acne and hirsutism) and so elevated free testosterone levels are not required to make the diagnosis.

Measurement of total testosterone levels is incorrect. Similarly to the above, this patient has clinical signs of hyperandrogenism, therefore testosterone testing is not essential for the diagnosis of PCOS.

Pelvic ultrasound is incorrect. Polycystic ovaries on ultrasound form part of the diagnostic criteria, but the patient has 2 out of 3 features based on her symptoms alone.

Question:

A 49-year-old male presents to the emergency department with a productive cough and fever.

He has a past medical history of systemic lupus erythematosus, gout, dyspepsia and had a renal transplant 3 years ago.

His current medications include azathioprine, allopurinol and omeprazole. He drinks 25 units of alcohol a week and has done so for the past decade.

His observations show:

Respiratory rate of 34 /min

Pulse of 123 bpm

Temperature of 39.4ºC

Blood pressure of 84/56 mmHg

Oxygen saturation of 94% on room air

Blood results show:

Hb 90 g/L Male: (135-180)

Platelets 85 \* 109/L (150 - 400)

WBC 1.3 \* 109/L (4.0 - 11.0)

Neuts 0.7 \* 109/L (2.0 - 7.0)

Which of the following drug interactions likely resulted in this patient's presentation?

A.Allopurinol and chronic alcohol use

B.Azathioprine and allopurinol use

C.Azathioprine and chronic alcohol use

D.Azathioprine and omeprazole use

E.Omeprazole and allopurinol use

Answer:Azathioprine and allopurinol use

Explanation:

Allopurinol increases risk of azathioprine toxicity

Important for meLess important

This patient has presented with neutropenic sepsis, evidenced by the clinical history, observations and blood results. Azathioprine is a prodrug, meaning it is metabolised to its active form, 6-mercaptopurine, which causes immunosuppression (preventing kidney rejection in this patient). The active 6-mercaptopurine is subsequently metabolised by xanthine oxidase to inactive this uric acid which is excreted. As allopurinol inhibits xanthine oxidase, the combination of the two drugs can lead to excessive myelosuppression and therefore increase the risk of neutropenic sepsis.

Allopurinol and chronic alcohol use would be less likely to cause neutropenic sepsis, although chronic alcohol use may induce CYP enzymes.

Azathioprine and chronic alcohol use is incorrect. 6-mercaptopurine is not metabolised by the CYP family of enzymes. A combination of the two will, therefore, not significantly increase a patient's risk of myelosuppression.

Azathioprine and omeprazole use is incorrect. While omeprazole use may inhibit the CYP of enzymes, 6-mercaptopurine is not metabolised via this route, so the combination will not significantly increase a patient's risk of myelosuppression.

Omeprazole and allopurinol do not cause myelosuppression, and the two do not interact.

Question:

A 73-year-old man presents to the emergency department after 1 week of diarrhoea, which has left him clinically dehydrated. He is drowsy and confused. He has no past medical history of note.

Whilst in the department, a healthcare assistant pulls the emergency buzzer, after he began seizing. He is experiencing a full-body seizure, rapidly switching between episodes stiffening and jerking. He has been seizing for 2 minutes.

His latest blood tests show the following:

Na+ 145 mmol/L (135 - 145)

K+ 3.0 mmol/L (3.5 - 5.0)

Bicarbonate 19 mmol/L (22 - 29)

Ca2+ 1.5 mmol/L (2.2 - 2.6)

Mg2+ 0.3 mmol/L (0.85 - 1.15)

What is the most appropriate initial management of this patient?

A.IM midazolam

B.IV calcium gluconate

C.IV magnesium sulphate

D.IV infusion 1 litre 0.9% saline + 40 mmol potassium chloride over 6 hours

E.IV 500ml 0.9% saline fluid bolus

Answer:IV magnesium sulphate

Explanation:

Hypomagnesaemia: IV magnesium is usually given if <0.4 mmol/L or tetany, arrhythmias, or seizures

Important for meLess important

This man had numerous electrolyte abnormalities, which are likely due to his profound diarrhoea and subsequent dehydration. He then goes onto suffer a generalised tonic-clonic seizure, which is full body periods of stiffening and jerking, as described.

Whilst numerous electrolyte abnormalities can cause a seizure, it is important to look at the magnitude of the abnormality. Magnesium is the most deranged electrolyte, and severe hypomagnesemia (0.3 mmol/L or below) can cause tonic-clonic seizure, tetany or arrhythmias. Additionally, although hypokalemia is also worrying, hypomagnesemia may exacerbate hypokalemia, by increasing distal tubule potassium secretion. Treating low magnesium first can then make low potassium easier to handle. For these reasons, hypomagnesaemia should be treated first, and IV magnesium sulphate can be given in order to rapidly restore magnesium and terminate the seizure. If magnesium is replaced, there need be no other drug given and the seizure will still terminate.

IM midazolam is a benzodiazepine that can be used to terminate seizures in status epilepticus. There is no indication that this is a prolonged or treatment-refractory seizure, and therefore this is not the appropriate first line.

IV calcium gluconate is used to treat profound or symptomatic hypocalcaemia. Whilst this would be expected at some point to correct the calcium abnormality, it is important to note that magnesium should always be corrected first. Without sufficient magnesium, calcium will only have a minor increase with replacement.

An IV infusion of 1 litre 0.9% saline + 40 mmol potassium chloride over 6 hours would be the appropriate treatment for severe or symptomatic hypokalemia. This man has only mild hypokalemia, which would normally be managed by oral supplementation. Additionally, hypokalemia is more likely to cause arrhythmias, paralysis and rhabdomyolysis, rather than a seizure.

An IV 500ml 0.9% saline fluid bolus would be appropriate as fluid resuscitation. However, we are not told enough about his hydration status to know whether he requires immediate fluid resuscitation. Additionally, this should not be the first priority in a seizure.

Question:

A 71-year-old man presents to surgery with his wife. She describes his hearing as having been 'terrible' for many years but unfortunately it has recently got worse. Otoscopy shows bilateral mild otitis externa with wax blocking the view of the tympanic membranes. Treatment for otitis externa is given, following which you arrange an audiogram:

What does the audiogram show?

A.Left conductive hearing loss

B.Bilateral conductive hearing loss

C.Bilateral sensory hearing loss

D.Left mixed hearing loss

E.Left sensorineural hearing loss

Answer:Left mixed hearing loss

Explanation:

Question:

A 24-year-old man presents with a three day history of painful ulcers on the shaft of his penis and dysuria. He has had no similar previous episodes. A clinical diagnosis of primary genital herpes is made. What is the most appropriate management?

A.Topical famciclovir

B.No treatment is indicated

C.Topical podophyllotoxin

D.Topical valaciclovir

E.Oral aciclovir

Answer:Oral aciclovir

Explanation:

Oral antiviral therapy is indicated for primary genital herpes infections, even if the presentation is delayed for up to 5 days

Question:

Nancy is a 25-year-old woman who is 30 weeks pregnant with her first child. She has not felt the baby kick for 3 hours. Her pregnancy has been unremarkable, however, her baby is slightly small for gestational age. She presents to the obstetric emergency walk-in unit at her local hospital.

What is the next best step in the management of this patient?

A.Check a urine sample to assess for urinary tract infection (UTI)

B.Organise an ultrasound scan

C.Perform cardiotocography (CTG)

D.Reassure her that this is normal

E.Use a handheld doppler to auscultate the fetal heart rate

Answer:Use a handheld doppler to auscultate the fetal heart rate

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

Most women start to feel the baby moving at around 20 weeks of gestation. The Royal College of Obstetrics and Gynaecology (RCOG) has provided very good guidelines on reduced fetal movements. It is not normal to have reduced fetal movements at 30 weeks of gestation. The reduced movements could indicate that the foetus is in distress and therefore more investigations are needed. According to the RCOG guidelines, a doctor should attempt to auscultate the foetal heart rate in any woman who presents with reduced foetal movements, therefore this is the correct option.

Although a UTI can increase the risk of premature labour and stillbirth, checking a urine sample is not a priority in this situation given the lack of foetal movements and more urgent issues.

Performing an ultrasound is the incorrect answer as the first investigation should be to assess foetal viability. An ultrasound may be a second line investigation once foetal viability is confirmed in this case with a hand-held doppler.

She should not be reassured that this is normal, as previously mentioned, this is quite abnormal. Reduced foetal movements at 30 weeks is an indication for further assessment.

CTG is incorrect in this situation as it is only used to assess reduced foetal movement once viability has been confirmed. The viability must be initially confirmed with a handheld doppler to detect a foetal heartbeat.

Question:

An 18-month old child presents to the GP with his worried parents. They have just noticed that his foreskin swells when he urinates and they cannot retract the foreskin. Which of the following is the best immediate management of this condition?

A.Reassure parents and review in 6-months

B.Forcibly retract the foreskin

C.Referral to paediatric surgeons

D.Non-urgent referral to paediatric outpatients clinic

E.Advise daily application of lubricant cream and review in 2 weeks

Answer:Reassure parents and review in 6-months

Explanation:

In phimosis forcible retraction should be avoided in younger children

Important for meLess important

In children less than 2 years of age, phimosis (a non-retractable foreskin) is normal and will most likely resolve with time

You should avoid forcible retraction of a phimosis as this can result in scar formation

As this is likely physiological there is no need for an urgent or non-urgent referral to paediatrics or referral to paediatric surgeons

Lubricant has no place in the management of phimosis, however, the use of topical steroids has been shown to have some benefit

Question:

A 76-year-old gentleman presents with a 1-month history of fatigue and 2kg of weight loss. He also complains of a “full stomach” and he has noticed that he sometimes bleeds from his gums, which he’s never had before.

A blood film demonstrates ‘tear drop’ cells.

What is this most likely diagnosis?

A.Myelofibrosis

B.Acute Myeloid Leukaemia

C.Multiple myeloma

D.Polycythaemia Rubra Vera

E.Chronic Myeloid Leukaemia

Answer:Myelofibrosis

Explanation:

Myelofibrosis is associated with ‘tear drop’ poikilocytes on blood film

Important for meLess important

Tear drop cells are red blood cells with a tapered end. They are associated with thalassaemia, megaloblastic anaemia and myelofibrosis. This, coupled with the fact that the patient has constitutional symptoms (fatigue and weight loss), splenomegaly (indicated by the stomach fullness), and easy bleeding points towards myelofibrosis. This reduces the ability of the bone marrow to produce normal cells, thus causing thrombocytopenia, anaemia and extramedullary haematopoiesis in the spleen.

Question:

A 43-year-old male presents with episodes of waking up in distress. He describes late at night feeling breathless with his heart is racing. These episodes are becoming more frequent and it is worrying him immensely. His wife also adds that he snores loudly which sometimes subsides if he changes position. As well as this, he finds himself taking short naps during the day which is affecting his job as an IT technician. Past medical history includes type 2 diabetes and obesity.

Which of the following is the best investigation in the diagnosis of the patient's condition?

A.Drug-induced sleep endoscopy (DISE)

B.Multiple Sleep Latency Test (MSLT)

C.Cinematic MRI

D.Arterial blood gas (ABG)

E.Polysomnography (PSG)

Answer:Polysomnography (PSG)

Explanation:

Polysomnography is diagnostic for obstructive sleep apnoea

Important for meLess important

PSG is the best diagnostic test for obstructive sleep apnoea (OSA). It is used to study and evaluate abnormalities of sleep by monitoring and quantifying the biophysiological changes. The patient is recorded using wires measuring various parameters including rapid eye movements, oxygen saturations and the electrical activity of the brain.

The pathophysiology of OSA can be split into the narrowing or collapse of the pharyngeal airway and then the further biophysiological complications. One drawback of PSG is that it does not reveal the site of obstruction. Cinematic MRI and sleep endoscopy are useful in investigating the anatomical basis of disease. These tests aid in the diagnosis and are important for potential candidates for surgery.

Due to the hypoventilation in OSA patients develop a respiratory metabolic acidosis. A rebound metabolic alkalosis may occur where the kidneys retain bicarbonate in response to the sleep acidosis. Performing an ABG when these patients are acutely unwell would be useful in the assessment but are not diagnostic for OSA.

MSLT is an objective measurement of daytime hypersomnolence. During daytime naps the patients are monitored and the sleep latency is measured (how quick a patient falls asleep). If performed it typically follows PSG and can aid in the diagnosis of OSA.

Question:

A 48-year-old women presents with recurrent loin pain and fevers. Investigation reveals a staghorn calculus of the left kidney. Infection with which of the following organisms is most likely?

A.Staphylococcus saprophyticus

B.Proteus mirabilis

C.Klebsiella

D.E-Coli

E.Staphylococcus epidermidis

Answer:Proteus mirabilis

Explanation:

Infection with Proteus mirabilis accounts for 90% of all proteus infections. It has a urease producing enzyme. This will tend to favor urinary alkalinisation which is a relative per-requisite for the formation of staghorn calculi.

Question:

A 26-year-old woman was admitted at 34 weeks gestation with preterm labour. On examination she has a blood pressure of 175/105 mmHg. Urinalysis reveals 3+ proteinuria. She is commenced on magnesium sulphate and labetalol. She is now complaining of reduced foetal movements. A cardiotocogram shows late decelerations and a foetal heart rate of 90 beats/minute. What should be the next step in the management?

A.Give further Magnesium Sulphate

B.Elective caesarian section

C.Emergency caesarian section

D.Foetal scalp pH testing

E.Induce labour

Answer:Emergency caesarian section

Explanation:

A diagnosis of pre-eclampsia can be made due to the heavy proteinuria and hypertension. Magnesium sulphate is given to reduce the risk of development of eclampsia, and labetalol is given to control the blood pressure. Late decelerations and foetal bradycardia on cardiotocography (CTG) is a worrying sign and would justify an emergency caesarian section. Induction would be inappropriate with an abnormal CTG.

Question:

A 65-year-old man with short bowel syndrome due to Crohn's disease presents to the emergency department with an inflamed and swollen central line. The team decides to perform a swab of the site and send it to the lab for cultures.

Which one of the following organisms is more likely to be grown in the culture?

A.Haemophilus influenzae B

B.Staphylococcus aureus

C.Staphylococcus epidermidis

D.Streptococcus agalactiae

E.Streptococcus pyogenes

Answer:Staphylococcus epidermidis

Explanation:

Most common organism found in central line infections - Staphylococcus epidermidis

Important for meLess important

The correct answer is Staphylococcus epidermidis. The patient presented with an infected central line. This bacteria is the most common cause of central line infections.

Haemophilus influenzae B can cause periorbital cellulitis, acute epiglottitis, and acute exacerbations of COPD.

Staphylococcus aureus causes skin infections (e.g. cellulitis), abscesses, osteomyelitis, toxic shock syndrome.

Streptococcus agalactiae may lead to neonatal meningitis and septicaemia.

Streptococcus pyogenes is the organism responsible for rheumatic fever, erysipelas, impetigo, cellulitis, type 2 necrotizing fasciitis and pharyngitis/tonsillitis.

Question:

Concurrent use of which one of the following would make the combined oral contraceptive pill less effective?

A.Fluconazole

B.Cimetidine

C.St John's Wort

D.Fluoxetine

E.Isoniazid

Answer:St John's Wort

Explanation:

St John's Wort is an enzyme inducer and can reduce the effectiveness of the combined oral contraceptive pill

Important for meLess important

St John's Wort is an inducers of the P450 enzyme system in the liver. This results in the combined oral contraceptive pill being metabolised faster and hence may reduce effectiveness.

Question:

A 54-year-old man attends his GP with symptoms of reflux. He tests positive for Helicobacter pylori and undergoes triple therapy with amoxicillin, clarithromycin, and omeprazole. His regular medications include ramipril and amlodipine for hypertension. He completes the course of amoxicillin and clarithromycin and continues on omeprazole.

Several months later he attends due to muscle aches. His blood results are as shown.

Hb 150 g/L Male: (135-180)

Female: (115 - 160)

Platelets 215 \* 109/L (150 - 400)

WBC 5 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 3.9 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 4 mmol/L (2.0 - 7.0)

Creatinine 75 µmol/L (55 - 120)

Calcium 2.4 mmol/L (2.1-2.6)

Phosphate 1.2 mmol/L (0.8-1.4)

Magnesium 0.53 mmol/L (0.7-1.0)

Creatine kinase 51 U/L (35 - 250)

Which of his medications is most likely to be causing his muscle aches?

A.Clarithromycin

B.Ramipril

C.Amlodipine

D.Amoxicillin

E.Omeprazole

Answer:Omeprazole

Explanation:

Long term proton pump inhibitor therapy can cause hypomagnesaemia

Important for meLess important

Rarely proton pump inhibitors can cause hypomagnesaemia which can cause muscle weakness. This is most commonly seen after 1 year but can be seen after 3 months.

Clarithromycin does not cause hypomagnesaemia.

Ramipril does not cause hypomagnesaemia.

Amlodipine does not cause hypomagnesaemia.

Amoxicillin does not cause hypomagnesaemia.

Question:

Following an uneventful pregnancy, a 19-year-old woman delivers a male child vaginally. At assessment one week later the child is noted to have purulent discharge and crusting of the eyelids. What is the next step in the management of the child?

A.Advise that this is normal in infants

B.Prescribe erythromycin ophthalmic ointment empirically

C.Take urgent swabs of the discharge for microbiological investigation

D.Prescribe oral erythromycin immediately

E.Prescribe chloramphenicol if not improved in 48 hours

Answer:Take urgent swabs of the discharge for microbiological investigation

Explanation:

Although minor conjunctivitis with encrusting of the eyelids is common and often benign, a purulent discharge may indicate the presence of a serious infection (for example, with chlamydia or gonococcus).In babies with a purulent eye discharge swab samples should be taken urgently for microbiological investigation, using methods that can detect chlamydia and gonococcus. While the guidance is to start systemic antibiotic treatment for possible gonococcal infection while awaiting the swab microbiology results, swabs must be taken first.

Guidelines: http://www.nice.org.uk/guidance/cg149/chapter/1-recommendations

Question:

A 12-hour-old newborn, born at 34 weeks to a healthy mother, is currently undergoing a check whilst on the ward. The baby appears healthy on general inspection and the mother reports no concerns so far. On examination, a large volume, collapsing pulse is noted, and a heaving apex beat, as well as a left subclavicular thrill. On auscultation of heart sounds, the doctor notes a continuous 'machinery-like' murmur.

The doctor arranges an urgent echocardiogram, which confirms her suspected diagnosis. No other abnormalities or defects are demonstrated on the echo.

Given the findings and likely diagnosis, what would be the most appropriate initial management?

A.Arrange a routine surgical opinion

B.Arrange an urgent surgical opinion

C.Give indomethacin to the neonate

D.Monitor and repeat serial echocardiograms over the first three months of life

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

The likely diagnosis here, given the examination findings, is that of pulmonary ductus arteriosus (PDA). The 'machinery-like' murmur described is classical of PDA. The most appropriate management here would be giving indomethacin (or ibuprofen) to the neonate, as this would block prostaglandin production. Prostaglandins keep the duct open, and so blockage usually causes the duct to close.

Giving prostaglandin E1 is incorrect - this would be used to keep the duct open. Doing this would be useful if another congenital heart defect had been found on the echocardiogram, until after surgical repair. However, the question states that the echocardiogram was normal, apart from the PDA.

Routine and urgent surgical referrals are incorrect, for the reason above - no other defects were found and so first-line management should be indomethacin. In the small number of cases where this is unsuccessful, referral to surgery would then be warranted.

Monitoring and repeating echocardiograms is incorrect - as explained above, this defect requires medical intervention to prompt its closure. Monitoring alone, without intervention, is not sufficient.

Question:

A 54-year-old man attends his GP. He was started on fluoxetine eight weeks ago for depression and is now requesting to stop his medication as he feels so well. What should be recommended regarding his treatment?

A.It should be stopped straight away

B.It should be continued for at least 6 weeks

C.It should be continued for at least 3 months

D.It should be continued for at least 6 months

E.It should be continued for at least 12 months

Answer:It should be continued for at least 6 months

Explanation:

This greatly reduces the risk of relapse. Patients should be reassured that antidepressants are not addictive.

Question:

A 61-year-old man is admitted to the hospital with severe abdominal pain that is typically worst shortly after eating a meal. He admits to regularly drinking at least 25 units of alcohol per week for the last 30 years and has recently been diagnosed with type 2 diabetes mellitus by his GP. An abdominal CT scan shows calcification of his pancreas.

Given the likely diagnosis, which of the following tests can be used to assess this organ's exocrine function?

A.Faecal calprotectin

B.Faecal elastase

C.Serum amylase

D.Serum calcium

E.Serum lipase

Answer:Faecal elastase

Explanation:

Faecal elastase is a useful test of exocrine function in chronic pancreatits

Important for meLess important

The correct answer is 'faecal elastase'.

This patient is likely suffering from chronic pancreatitis due to his long-term alcohol consumption. Chronic pancreatitis can cause a number of complications, including diabetes (which this patient has been diagnosed with recently). As such, it is important to assess the function of the pancreas. Faecal elastase is the test used to assess the exocrine function of the pancreas.

Faecal calprotectin is used in the diagnosis of inflammatory bowel diseases such as Crohn's disease. It has no role in the assessment of chronic pancreatitis.

Serum amylase is used in the assessment of acute pancreatitis - a level more than 3 times the upper limit of normal is suggestive of acute disease. Patients with chronic pancreatitis may have a normal amylase due to loss of pancreatic function.

Serum calcium is not used in assessing the function of the pancreas in chronic pancreatitis. It is used as part of the Glasgow score in acute pancreatitis, in which low calcium is one of the scoring criteria.

Lipase is one of the enzymes that a patient may be deficient in if they have chronic pancreatitis, leading to loose, greasy stools (steatorrhoea). It is not normally tested to assess exocrine function.

Question:

A 67-year-old woman is evaluated for a one week history of acute lower back pain. The pain is in her lower back with no associated radiation, she grades it a 9/10 in severity and has not improved with paracetamol and ibuprofen. Past medical history includes stage 3 chronic kidney disease, hypertension, osteoporosis and hypercholesterolaemia. The patient has a 30-pack-year smoking history. Current medications are bendroflumethiazide, amlodipine, alendronic acid, vitamin d supplements, calcium tablets, omeprazole and atorvastatin.

On physical examination, vital signs include temperature of 37ºC, heart rate of 66 bpm, blood pressure of 130/80 mmHg, respiratory rate of 15 breaths per minute and oxygen saturation of 99% on air. Examination of the spine reveals; lumbar lordosis, decreased mobility and spasm of the paravertebral muscles and tenderness to palpation at L4-L5. A previous dual-energy x-ray absorptiometry (DEXA) scan taken 6 months ago shows a T-score of −3.0 in the lumbosacral spine and −3.2 in the left hip.

What is the first-line investigation?

A.CT spine

B.MRI spine

C.Repeat DEXA scan

D.Skeletal survey

E.X-ray spine

Answer:X-ray spine

Explanation:

X-ray of the spine is the first-line investigation for a suspected osteoporotic vertebral fracture

Important for meLess important

CT spine - incorrect - if an X-ray image reveals a spine compression fracture then a CT scan may be used to visualise the spine in more detail later on but initially X-ray of the spine is the first-line investigation.

MRI spine - incorrect as MRI is more used for looking at soft tissues rather than looking at bone.

Repeat DEXA scan - incorrect- the patient's previous DEXA scan was taken 6 months ago, it would be too soon to repeat the scan. According to the National Osteoporosis Foundation, healthcare providers will often recommend repeating a bone density scan one year after treatments start and every one to two years after that.

Skeletal survey - incorrect -we are aware that the patient's source of pain is her back so it is important to investigate that first. A skeletal survey is not indicated in this case.

X-ray spine - correct - X-ray of the spine is the first-line investigation for a suspected osteoporotic vertebral fracture.

Question:

A 43-year-old lady presents with severe chest pain. Investigations demonstrate a dissecting aneurysm of the ascending aorta which originates at the aortic valve. What is the optimal long term treatment?

A.Endovascular stent

B.Medical therapy with beta blockers

C.Medical therapy with ACE inhibitors

D.Sutured aortic repair

E.Aortic root replacement

Answer:Aortic root replacement

Explanation:

Proximal aortic dissections are generally managed with surgical aortic root replacement. The proximal origin of the dissection together with chest pain (which may occur in all types of aortic dissection) raises concerns about the possibility of coronary ostial involvement (which precludes stenting). There is no role for attempted suture repair in this situation.

Question:

A 64-year-old diabetic patient presents with fevers, fatigue and generally feeling unwell for the past 48 hours. On examination she has a raised well-defined red rash with sharp borders on her legs. It is tender and warm to touch.

Which is the most likely causative organism?

A.Clostridium perfringens

B.Herpes simplex virus (HSV)

C.Mycoplasma pneumoniae

D.Staphylococcus aureus

E.Streptococcus pyogenes

Answer:Streptococcus pyogenes

Explanation:

Erysipelas is localised skin infection caused by Streptococcus pyogenes

Important for meLess important

Erysipelas is a bacterial infection caused by Streptococcus pyogenes. It is differentiated from cellulitis due to its raised and well defined border.

Clostridium perfringens causes gas gangrene.

HSV is the most common trigger for erythema multiforme.

Mycoplasma pneumoniae is involved in the pathogenesis of multiple skin disorders including but not limited to; erythema multiforme and toxic epidermal necrolysis.

Infection with Staphylococcus aureus alongside Streptococcus pyogenes can lead to the development of cellulitis.

Question:

A 24-year-old male is brought into the emergency department after a road traffic accident where he sustained an injury to his cervical spine and his right tibia.

On assessment his airway is patent, his breathing is laboured but his chest is clear on auscultation with a respiratory rate of 18 breaths/min and oxygen saturation of 96% in air. He looks flushed and is warm to the touch. His heart rate is 60 beats/min and blood pressure is 75/45 mmHg.

Which of the following will treat the likely cause of his presentation?

A.Fresh frozen plasma (FFP)

B.IM adrenaline

C.IV fluid therapy

D.Packed red cells

E.Vasopressors

Answer:Vasopressors

Explanation:

Spinal cord transection after trauma can present with neurogenic shock

Important for meLess important

This presentation is consistent with neurogenic shock caused by a spinal cord transection at the cervical level. The patient has sustained an injury to his cervical spine which suggests that he could be at risk of neurogenic shock. Hypotension in these cases is caused by massive vasodilation due to either decreased sympathetic or increased parasympathetic tone. This also means he cannot produce a tachycardic response to the hypotension. He will need vasopressors to reverse this profound vasodilation and address the cause of his shock, making this the correct answer.

Whilst you would give IV fluids in the interim for this patient, this treatment does not address the cause of his presentation (decreased peripheral vascular resistance rather than loss of fluid) making it an incorrect answer.

The differential diagnosis here would be haemorrhagic shock, which you would treat initially with IV fluids whilst awaiting blood products. Then a combination of blood products would be used, primarily packed red cells, according to your hospital's major haemorrhage protocol. The reason this diagnosis is less likely, however, is the evidence of vasodilation (he is warm and flushed) and that he is not tachycardic. Therefore, packed red cells and FFP are not correct.

IM adrenaline would be an appropriate treatment for anaphylactic shock. This patient is not showing any specific signs that would indicate this as a diagnosis, making it an incorrect option.

Question:

A 27-year-old male attends the Emergency Department after sustaining a head injury whilst playing football. The patient thinks he lost consciousness approximately for 10 seconds at the time of injury. Which of the following, would be a definitive indication to perform a CT head scan?

A.One episode of vomiting

B.The patient experienced retrograde amnesia for approximately 1 minute prior to the injury

C.On initial assessment in the Emergency Department, 60 minutes after the injury, the patient had a Glasgow Coma Score of 14/15

D.A past medical history of Von Willebrand disease

E.The patient lost consciousness for approximately 10 seconds at the time of injury

Answer:A past medical history of Von Willebrand disease

Explanation:

Clinical judgement should always be used when determining whether a patient with a head injury requires a CT head.

Von Willebrand disease represents a coagulopathy. Under the NICE head injury guidelines, coagulopathy and some loss of consciousness/amnesia indicate a CT head should be performed within 8 hours.

Question:

A 45-year-old man presents with dizziness and right-sided hearing loss. Which one of the following tests would most likely indicate an acoustic neuroma?

A.Jerky nystagmus

B.Left homonymous hemianopia

C.Tongue deviated to the left

D.Fasciculation of the tongue

E.Absent corneal reflex

Answer:Absent corneal reflex

Explanation:

Loss of corneal reflex - think acoustic neuroma

Important for meLess important

Question:

A 34-year-old man was recently diagnosed with HIV. He was started on a drug regime that included ritonavir. He wanted to know how ritonavir can help to prevent progression to AIDS.

Which of the following best describes the mode of action of this drug?

A.Nucleoside reverse transcriptase inhibitors NRTI

B.Non-nucleoside reverse transcriptase inhibitors NNRTI

C.Integrase inhibitor

D.Protease inhibitor

E.Fusion inhibitor

Answer:Protease inhibitor

Explanation:

'Navir tease a pro' - HIV drugs that end with -navir are protease inhibitors

Important for meLess important

The different classes of HIV drugs and side effects are commonly tested in examinations. Here are some tips on how to remember them:

'Navir tease a pro': HIV drugs that end with -navir are protease inhibitors e.g. ritonavir. Note that due to tolerability issues, ritonavir is now more commonly used to boost the levels of other HIV drugs

'It's grave/great you integrate': HIV drugs that end with -gravir are integrase inhibitors e.g. raltegravir

view this 1.5min video for more tips: https://www.youtube.com/watch?v=VQLRbChcd3c

Question:

A 25-year-old man is injured in a road traffic accident. His right tibia is fractured and is managed by fasciotomies and application of an external fixator. Over the next 48 hours his serum creatinine rises and urine is sent for microscopy, muddy brown casts are identified. What is the most likely underlying diagnosis?

A.Acute interstitial nephritis

B.Acute tubular necrosis

C.Glomerulonephritis

D.IgA Nephropathy

E.Thin basement membrane disease

Answer:Acute tubular necrosis

Explanation:

This patient is likely to have had compartment syndrome (tibial fracture + fasciotomies) which may produce myoglobinuria. The presence of worsening renal function, together with muddy brown casts is strongly suggestive of acute tubular necrosis. Acute interstitial nephritis usually arises from drug toxicity and does not usually produce urinary muddy brown casts. Thin basement membrane disease is an autosomal dominant condition that causes persistent microscopic haematuria, but not worsening renal function.

Question:

As a final year medical student preparing to go abroad on your elective you have a talk at your medical school from the GMC. As part of their presentation they inform you of a list of situations, which if you find yourself in, you must report to the GMC. Which of the following do you have to report?

A.You receive an alcohol warning

B.You receive a speeding ticket

C.You witness a robbery

D.You are charged with a criminal offence

E.You are witness to a hit and run and give a police statement

Answer:You are charged with a criminal offence

Explanation:

The GMC have produced guidelines on reporting criminal and regulatory proceedings within and outside the UK. This states that you must tell the GMC, without delay, if anywhere in the world, you:

Are found guilty of a criminal offence

Are charged with a criminal offence

Formally admit to committing a criminal offence (for example, by accepting a caution)

Accept the option of paying a penalty notice for an ASBO

Receive a cannabis warning

Have had your registration restricted, or have been found guilty of an offence, by another medical or other professional regulatory body.

Your conduct (including as part of a management team) has directly contributed to an organisation that has entered into a deferred prosecution agreement.

Question:

A 21-year-old female with paranoid schizophrenia is currently being treated on an antipsychotic regimen under section 3 of the Mental Health Act as an inpatient. Recently she has started to complain of breast tenderness & enlargement. Given that the current antipsychotic regimen is not being tolerated well, what is the best anti-psychotic for her to be started on to reduce these side effects?

A.Risperidone

B.Chlorpromazine

C.Aripiprazole

D.Amisulpride

E.Haloperidol

Answer:Aripiprazole

Explanation:

Aripiprazole has the most tolerable side effect profile of the atypical antispsychotics, particularly for prolactin elevation

Important for meLess important

Nearly all typical and some atypical antipsychotics like risperidone & amisulpride cause hyperprolactinaemia. Effects of hyperprolactinemia can involve breast tenderness, breast enlargement and lactation. Aripiprazole is known for its having fewer side effects especially with respect to prolactin elevation.

Question:

A 42-year-old woman presents to the emergency department with a 3-hour history of intermittent right upper quadrant pain. She describes this as being worse after eating and radiating to her right shoulder blade. There is no evidence of jaundice or any pyrexia.

A diagnosis of biliary colic is expected. She is given analgesia and has blood taken.

What would be expected of her blood tests?

A.Normal ALP and γGT, normal AST and ALT, normal CRP

B.Normal ALP and γGT, normal AST and ALT, raised CRP

C.Raised ALP and γGT, normal AST and ALT, normal CRP

D.Raised ALP and γGT, normal AST and ALT, raised CRP

E.Raised ALP and γGT, raised AST and ALT, raised CRP

Answer:Normal ALP and γGT, normal AST and ALT, normal CRP

Explanation:

In contrast to other gallstone-related conditions, in biliary colic there is no fever and LFTs/inflammatory markers are normal

Important for meLess important

This woman presents with the classical picture of biliary colic. This is caused by a gallstone passing through the biliary tree, with intermittent pain being caused when the biliary tree contracts to try and move the stone along. The pain can last anywhere from a matter of minutes to a few hours. Referred pain is sometimes seen at the tip of the scapula. The lack of jaundice suggests this stone is not causing obstruction in the common bile duct. Therefore, liver enzymes are likely to be normal. Biliary colic is not an inflammatory condition, and therefore CRP will also be normal. The correct answer is normal ALP and γGT, normal AST and ALT, normal CRP.

Normal ALP and γGT, normal AST and ALT, raised CRP is incorrect. This may be seen in cholecystitis and is a possible complication of biliary colic. However, the pain would be more constant and not colicky like it is described here.

Raised ALP and γGT, normal AST and ALT, normal CRP is incorrect. This suggests an obstruction in the biliary tree causing cholestasis. Choledocholithiasis may cause this, or possibly an obstruction due to malignancy. However, it would also likely present with jaundice, which this woman does not have. CRP is more likely to be raised in cholestatic conditions but can be normal.

Raised ALP and γGT, normal AST and ALT, raised CRP is incorrect. This would also be explained by a cholestatic condition, as explained above.

Raised ALP and γGT, raised AST and ALT, raised CRP is incorrect. This gives the picture of a mixed cholestatic and hepatocellular picture. This could be caused by severe obstruction which caused a retrograde liver injury.

Question:

A 67-year-old man is reviewed in the neurology clinic due to concerns about increasing clumsiness. Examination reveals an ataxic gait and increased upper limb tone with cog-wheel rigidity. Blood pressure is 135/80 lying and 95/70 standing. What is the most likely diagnosis?

A.Motor neuron disease

B.Progressive supranuclear palsy

C.Parkinson's disease

D.Multiple sclerosis

E.Multiple system atrophy

Answer:Multiple system atrophy

Explanation:

Whilst postural hypotension may be seen in Parkinson's disease the ataxic gait point towards a diagnosis of multiple system atrophy

Question:

A 18-year-old male presents to his GP due to troubling hearing problems. He says he has recently been struggling to hear things around him. He also complains that he suffers from tinnitus and dizziness on occasion. On examination you notice Rinne’s test is positive in both ears (air conduction is better than bone conduction). Weber’s test localises centrally. The patient has several café-au-lait spots on his body.

What is the most likely underlying diagnosis?

A.Neurofibromatosis type I

B.Tuberous sclerosis

C.Alport syndrome

D.Neurofibromatosis type II

E.McCune-Albright disease

Answer:Neurofibromatosis type II

Explanation:

Neurofibromatosis type 2 is associated with bilateral vestibular schwannomas

Important for meLess important

The most likely diagnosis is neurofibromatosis type II (NF2). This typically presents with café-au-lait spots. Sensorineural hearing loss often develops in the late-teens or early 20’s. It is characterised by a positive Rinne’s test and a Weber’s test that localises contralaterally (if the hearing loss is unilateral) or centrally (if the hearing loss is equal and bilateral). NF2 often presents with bilateral acoustic neuromas. This can cause bilateral hearing loss. It may also causes tinnitus and vertigo.

Neurofibromatosis type I is not typically associated with hearing loss. It can cause, in addition to café-au-lait spots, axillary and/or inguinal freckling, optic gliomas, and the development of neurofibromas.

Although Alport syndrome is associated with hearing loss, it also cause a nephritic syndrome picture (haematuria with mild proteinuria).

Tuberous sclerosis causes numerous dermatological signs including ash-leaf spots, adenoma sebaceum and shagreen patches. It does not usually cause café-au-lait spots. Visual problems and epilepsy may also be manifest. Hearing problems are not common.

McCune-Albright disease may also cause café-au-lait spots. It is also associated with precocious puberty and short-stature.

Question:

A 20-year-old woman presents to her GP complaining of a persistent facial rash. On examination, you note erythema of the nose, cheeks and forehead. There are some scattered papules. She has not noticed any particular triggers but does think it is slightly worse in the summer.

Given the likely diagnosis, which of the following is the most appropriate first-line treatment?

A.Laser therapy

B.Oral isotretinoin

C.Oral lymecycline

D.Topical benzoyl peroxide

E.Topical ivermectin

Answer:Topical ivermectin

Explanation:

Rosacea: topical ivermectin is first-line for patients mild papules and/or pustules

Important for meLess important

The correct answer is 'topical ivermectin'.

The likely diagnosis in this case is acne rosacea. The patient has a typical history of an erythematous rash predominantly affecting the nose, cheeks and forehead. She has mild to moderate disease as there are only scattered papules present and no plaques. As such, the most appropriate treatment is topical ivermectin.

Laser therapy is a potential treatment for patients with acne rosacea. However, it would generally be considered after other treatments have been tried. Also, it is most appropriate for patients with prominent telangiectasia, which this patient does not currently have.

Oral isotretinoin is a specialist medication that can be initiated by dermatology for severe acne vulgaris. If the patient had acne vulgaris you would expect to find comedones and more papules and pustules on examination.

Oral lymecycline would be an appropriate treatment if this patient had severe acne rosacea. However, the minimal papules and lack of plaques mean she has mild to moderate disease and so can try topical therapy first.

Topical benzoyl peroxide would be an appropriate first-line treatment for acne vulgaris. However, acne rosacea is the likely diagnosis here, so this is not the most appropriate treatment.

Question:

A 72-year-old man presents to the emergency department with shortness of breath.

On examination, you note coarse crepitations to the mid zones bilaterally, a raised JVP, and pitting oedema to the knees.

Observations are as follows: heart rate 125bpm, blood pressure 175/95 mmHg, and SpO2 96% on 6L O2 via nasal canulae.

A chest x-ray demonstrates air space opacification classically in a batwing distribution.

An ECG is performed:

ECG 2nd-degree heart block

Which of the following medications should be stopped?

A.Bisoprolol

B.Furosemide

C.Isosorbide mononitrate

D.Losartan

E.Ramipril

Answer:Bisoprolol

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

Bisoprolol is the correct answer. The patient in the vignette has decompensated heart failure (dyspnoea, raised JVP, pitting peripheral oedema, batwing opacities on chest X-ray). Beta-blockers should only be stopped in acute heart failure if the patient has a heart rate < 50/min, second or third-degree AV block, or shock. Therefore bisoprolol should be stopped in this case as the ECG demonstrated second-degree heart block.

Furosemide is incorrect. Furosemide is a loop diuretic, a key treatment used in decompensated heart failure. The patient in the vignette should receive intravenous furosemide to help with diuresis. There is no indication to stop this drug in the vignette.

Isosorbide mononitrate is incorrect. This drug is a type of nitrate which reduces the load on the heart by venous and arterial dilatation and can have a direct vasodilatory effect on the coronary arteries. It is, therefore, a useful adjunctive therapy in congestive heart failure. There is no indication to stop this drug in the vignette.

Losartan is incorrect. Losartan is an angiotensin-receptor blocker (ARB) frequently used in treating heart failure. There is no indication to stop this drug in the vignette.

Ramipril is incorrect. Ramipril is a type of ACE inhibitor. ACE inhibition has been shown to slow, and sometimes even reverse, certain parameters of cardiac remodelling in heart failure patients. Although ACE inhibitors exert vasodilator effects, their benefit on long-term outcomes in heart failure relates to their neurohormonal inhibiting effects, which contribute to their favourable action on cardiac remodelling. There is no indication to stop this drug in the vignette.

Question:

A 49-year-old man is brought into ED after he was found on the side of the road unconscious. The paramedics give a history of alcohol abuse. You ask the nurse to perform a set of basic observations, capillary blood glucose (CBG) and an ECG.

His basic observations are: a temperature of 35.9ºC, blood pressure 190/110 mmHg, heart rate 51 beats/min, respiratory rate is 24 breaths/min (Cheyne-Stokes breathing), oxygen saturations 95% on air. His Glasgow coma scale is 4/15 (E1V1M2).

Capillary blood glucose comes back as 10.1.

The ECG shows T wave inversion in all leads and QT prolongation.

What is the most likely diagnosis?

A.Head injury

B.Hypothermia

C.Ischaemic stroke

D.Non-ST-elevation myocardial infarction (NSTEMI)

E.ST-elevation myocardial infarction (STEMI)

Answer:Head injury

Explanation:

'Global' T wave inversion (not fitting a coronary artery territory) - think non-cardiac cause of abnormal ECG

Important for meLess important

Head injury - given the scenario, it is very likely the patient in question has had a fall secondary to alcohol intoxication. His observations represent Cushing's triad (hypertensive, bradycardic, tachypnoeic with signs of Cheyne-Stokes breathing) and are a sign of brain herniation. This is also confirmed by the ECG showing widespread T wave inversion, also known as 'cerebral T waves'. QT prolongation is another finding on this ECG that is in keeping with the clinical picture.

Hypothermia - is defined as a core body temperature < 35ºC. An ECG would not show T wave changes but may show QT prolongation (along with other hypothermic changes).

Ischaemic stroke - ECG abnormalities secondary to ischaemic strokes are very unusual. A patient's clinical picture is the indicator through which investigation results need to be interpreted. However, massive ischaemic strokes (middle cerebral artery occlusion) causing cerebral oedema may result in these ECG findings (as a result of raised intracranial pressure).

NSTEMI - since we cannot obtain a history from this patient, it is reasonable to include NSTEMI amongst the preliminary differentials. However, the widespread nature not fitting a specific coronary region and the clinical picture should sway you away from this differential.

STEMI - there are no ST elevations on the ECG.

Question:

A 79-year-old male presents to his general practitioner with general malaise and a constant sense of fullness. It has been present for the last three months, accompanied by an unplanned weight loss. On examination, the patient looks malnourished, with pale conjunctivae, increased pulse, and massive splenomegaly. The doctor decides to order some blood tests that show the following:

Hb 115 g/L Male: (135-180) Female: (115 - 160)

Platelets 420 \* 109/L (150 - 400)

WBC 22.1 \* 109/L (4.0 - 11.0)

Neuts 14.2 \* 109/L (2.0 - 7.0)

Lymphs 3.3\* 109/L (1.0 - 3.5)

Mono 1.0 \* 109/L (0.2 - 0.8)

Eosin 0.6 \* 109/L (0.0 - 0.4)

Which one of the following is the most likely diagnosis?

A.Acute lymphocytic leukaemia (ALL)

B.Acute myeloid leukaemia (AML)

C.Chronic lymphocytic leukaemia (CLL)

D.Chronic myeloid leukaemia (CML)

E.Leukemoid reaction

Answer:Chronic myeloid leukaemia (CML)

Explanation:

CML may present with massive splenomegaly

Important for meLess important

The correct answer is chronic myeloid leukaemia (CML). This patient presents with signs and symptoms of anaemia (tiredness, pale conjunctivae and increased pulse), massive splenomegaly and erratic blood tests results. The sense of fullness is associated with a classical finding of CML, massive splenomegaly. The spleen is gonna compress the surrounding organs giving the patient a sense of constant satiety. CML is characterized by anaemia, splenomegaly and an increase in granulocytes at different stages of maturation, occasionally accompanied by thrombocytosis, that this patient has.

Acute lymphocytic leukaemia (ALL) is characteristic of the 2-5 years old group, making this diagnosis unlikely. It can present with anaemia and splenomegaly, but you would see an increase in the lymphocytes count, accompanied by neutropenia and thrombocytopenia in the blood tests. This patient instead has high neutrophils and platelets.

Acute myeloid leukaemia (AML) is a good differential, but it is characterised by neutropenia and thrombocytopenia, whilst this patient has both values high. Additionally, it has a much more acute presentation, whilst this patient had a slow and steady decline.

Chronic lymphocytic leukaemia (CLL) is usually picked up as an incidental finding of lymphocytosis, as it has no symptoms. In our case, the patient is presenting to his doctor because of some troublesome symptoms. Additionally, the patient has normal lymphocytes making this diagnosis unlikely.

A leukemoid reaction describes an increased white blood cell count which is a physiological response to stress or infection. In this case, the patient did not mention any previous infections.

Question:

A 17-year-old female with a history of epilepsy is admitted to the medical admissions unit. At shift change, she begins to fit. The F1 secures the airway and prescribes IV lorazepam. She has three doses of lorazepam, but the seizure fails to terminate. It is decided that IV phenytoin is the next treatment step. What else needs to be considered when starting phenytoin?

A.End tidal Carbon Dioxide

B.Cardiac monitoring

C.Echocardiogram

D.Electromyogram

E.Urea and electrolytes

Answer:Cardiac monitoring

Explanation:

When starting a phenytoin infusion cardiac monitoring is required due to the pro-arrhythmogenic effects it elicits.

Phenytoin has reasonably unpredictable pharmacokinetics; therefore levels are also required following initial loading of these patients.

Question:

A 52-year-old woman with established type 2 diabetes attends for her annual review. Her HbA1c has been stable on the maximal dose of metformin for the past few years and her BP has always been well controlled. She does not take any other regular medications. Her HbA1c result 1 year ago was 52 mmol/mol.

The results of her most recent review are as follows:

HbA1c 59 mmol/mol

eGFR 91 ml/min/1.73m² (>90 ml/min/1.73m²)

Urine albumin:creatinine ratio (ACR) 2 mg/mmol (<3 mg/mmol)

BMI 25 kg/m²

QRISK score 6.8%

Based on the NICE guidelines, what is the most appropriate next step in the management of her diabetes?

A.GLP-1 mimetic

B.Repaglinide

C.SGLT-2 inhibitor

D.Sulfonylurea

E.α-glucosidase inhibitor e.g. acarbose

Answer:Sulfonylurea

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

The correct answer is sulfonylurea which is an appropriate second-line option for a patient such as this who is otherwise well with a normal BMI, no history of established cardiovascular disease (CVD) or heart failure, and is not at increased risk of CVD based on her QRISK score.

GLP-1 mimetic would not be an appropriate second-line option but could be considered if triple therapy with metformin and two other oral hypoglycemic agents was not effective or tolerated (provided certain criteria are met).

Repaglinide is incorrect. This is a meglitinide which is sometimes used as initial treatment if metformin is contraindicated or not tolerated. However, its use tends to be limited partly because there is no licensed non-metformin-based combination containing repaglinide that can be offered if second-line treatment is needed.

SGLT-2 inhibitor would be an appropriate option if certain NICE criteria are met. In the absence of established cardiovascular disease (CVD), heart failure or an increased risk of CVD (based on her QRISK score), a DPP-4 inhibitor or pioglitazone or sulfonylurea can be offered as dual therapy with metformin in the first instance as there is no suggestion that these would be inappropriate from the history e.g. the patient has a normal BMI, no history of heart failure and nothing to suggest she is at significant risk of hypoglycaemia or its consequences.

α-glucosidase inhibitor e.g. acarbose is incorrect. This is not recommended in the current NICE guidelines for the management of type 2 diabetes.

Question:

A 79-year-old man attends a follow-up GP appointment. He is well-known to the GP due to his uncontrolled diabetes despite multiple antidiabetic medications being attempted. This is his six-monthly follow-up. You note that between appointments he was seen by cardiology and diagnosed with congestive cardiac failure.

His most recent HbA1c is 79mmol/mol and you note that he currently takes 2g metformin once daily and 160mg gliclazide twice daily. He has been trialled on sitagliptin and pioglitazone, both of which were stopped due to side effects.

What is the most appropriate change to his medications?

A.Add empagliflozin once daily

B.Encourage lifestyle modification

C.Increase dose of metformin

D.Stop metformin and gliclazide, and commence insulin on basal-bolus regime

E.Stop metformin, but continue gliclazide

Answer:Add empagliflozin once daily

Explanation:

In patients with T2DM, SGLT-2 should be introduced at any point they develop CVD, a high risk of CVD or chronic heart failure

Important for meLess important

The correct answer is add empagliflozin once daily . The patient's HbA1c is 79mmol/mol, with the target for diabetics being 48mmol/mol or less. This tells us that he needs an additional antidiabetic medication. Current NICE advice is that patients with type 2 diabetes who are at high risk of developing cardiovascular disease, those who do develop cardiovascular disease, and those with chronic heart failure, should receive an SGLT2 inhibitor.

Encourage lifestyle modification is incorrect. Although lifestyle advice should be reinforced at every review and consultation, doing this without changing the patient's medication would not be enough. It is unlikely to make a huge amount of difference to their diabetic control at this stage, and they require the addition of more medication.

Increase dose of metformin is incorrect. The maximum dose of metformin is 2g daily, which this patient is on. We should be adding another drug. Of note, gliclazide is also at maximum dose here.

Stop metformin and gliclazide, and commence insulin on basal-bolus regime is incorrect. Although this patient has pretty poor diabetic control and has tried multiple medications, insulin therapy should be used as a last resort. SGLT2 inhibitors have not been tried in this patient yet and may well make a great difference, negating the need for insulin use.

Stop metformin but continue gliclazide is incorrect. The patient's HbA1c is too high, and stopping one of the antidiabetic medications that we know they tolerate is a very bad idea.

Question:

Which one of the following is most likely to be seen in a patient with multiple endocrine neoplasia (MEN) type I?

A.Phaeochromocytoma

B.Insulinoma

C.Marfanoid body habitus

D.Medullary thyroid carcinoma

E.RET gene

Answer:Insulinoma

Explanation:

Question:

How often is the Depo Provera (medroxyprogesterone acetate) injectable contraceptive given?

A.Every 2 weeks

B.Every 4 weeks

C.Every 8 weeks

D.Every 12 weeks

E.Every 24 weeks

Answer:Every 12 weeks

Explanation:

Question:

A male child from a travelling community is diagnosed with measles. Which one of the following complications is he at risk from in the immediate aftermath of the initial infection?

A.Arthritis

B.Pancreatitis

C.Infertility

D.Subacute sclerosing panencephalitis

E.Pneumonia

Answer:Pneumonia

Explanation:

Measles complication - pneumonia

Important for meLess important

Subacute sclerosing panencephalitis is seen but develops 5-10 years following the illness. Pancreatitis and infertility may follow mumps infection

Question:

A 23-year-old man presents to his GP with a history of wheeze, shortness of breath and a dry cough at night. He has a strong family history of atopy and is a non-smoker.

The GP refers the patient for further testing.

What are the 'gold standard' investigations required to confirm this patient's diagnosis?

A.Chest X-ray

B.Fraction exhaled nitric oxide (FeNO) test

C.Fractional exhaled nitric oxide (FeNO) test + spirometry with bronchodilator reversibility

D.Peak flow measurement

E.Spirometry testing FEV1:FVC

Answer:Fractional exhaled nitric oxide (FeNO) test + spirometry with bronchodilator reversibility

Explanation:

Adults with suspected asthma should have both a FeNO test and spirometry with reversibility

Important for meLess important

This young man is displaying a typical clinical picture of asthma. A family history of atopy, combined with wheeze, shortness of breath and a dry cough at night presents a strong clinical suspicion for asthma. Based on the updated 2017 NICE guidelines, all adults with suspected asthma must have spirometry with bronchodilator reversibility and a fractional exhaled nitric oxide (FeNO) test before a diagnosis of asthma can be given.

The FeNO test measures the levels of inflammation within eosinophils, correlating with the severity of inflammation within the bronchioles.

In adults, reversibility of 12% FEV1 improvement is indicative of a diagnosis of asthma.

A chest X-ray will not be clinically helpful with a diagnosis of asthma. It can, however, be useful in excluding other causes of dry cough and wheeze such as idiopathic pulmonary fibrosis.

Peak flow measurement is an important tool for measuring the pattern and progress of asthma, particularly to monitor diurnal variation. Patients can be offered charts to complete at home to monitor their asthma. However, this test alone cannot be used for diagnostic purposes.

Spirometry still plays an important role in highlighting the presence of an obstructive lung condition such as asthma (FEV1:FVC <70) however in this scenario it is not the correct answer as a diagnostic factor of asthma is bronchodilator reversibility. Measuring the FEV1:FVC ratio without testing bronchodilator reversibility is not specific enough.

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Question:

A 36-year-old lady with a past history of Crohn's disease presents with painful bleeding per rectum. She tells you that the bleeding occurs after defaecation and it is bright red. What is the most likely cause of the bleeding?

A.Fissure in ano

B.Haemorrhoid

C.Haemorrhagic perianal abscess

D.Rectal cancer

E.Recto-uterine fistula

Answer:Fissure in ano

Explanation:

Pain on passing faeces accompanied by bleeding post-defaecation is suggestive of a diagnosis of fissure in ano. Thrombosed haemorrhoids may also present with painful PR bleeding but in this scenario a fissure is more likely. This young lady has a background of Crohn's disease and that patients with Crohn's disease are more susceptible to fissure formation.

Rectal cancer can present with rectal bleeding but would be unlikely in a 36-year-old. Recto-uterine fistulas typically cause faecal incontinence rather than bleeding. A perianal abscess would cause perianal pain and may be accompanied by pyrexia.

Question:

A 54-year-old female presents to the endocrinology clinic following referral from her GP. His referral letter gives a background of treatment resistant hypertension and polyuria, with additional symptoms of tingling in the fingertips and increasing fatigue. It is reported that routine bloods were deranged, but you are unable to find them on the system. An MRI scan performed as an outpatient shows a small suspected adenoma in the right adrenal gland and nil else of note. Which arterial blood gas would be consistent with the underlying condition?

A.pH 7.45, pO2 10.5 kPa, pCO2 5.0 KPa, BE 4 mmol/L HCO3- 27 mmol/L K+ 3.2 mmol/L Na+ 146 mmol/L

B.pH 7.29, pO2 9.6 kPa, pCO2 7.0 KPa, BE 7 mmol/L HCO3- 30 mmol/L K+ 3.7 mmol/L Na+ 142 mmol/L

C.pH 7.23, pO2 6.0 kPa, pCO2 3.8 KPa, BE -7 mmol/L HCO3- 14 mmol/L K+ 3.8 mmol/L Na+ 141 mmol/L

D.pH 7.51, pO2 13.0 kPa, pCO2 3.0 KPa, BE - 1 mmol/L HCO3- 21 mmol/L K+ 4.2 mmol/L Na+ 136 mmol/L

E.pH 7.32, pO2 12.0 kPa, pCO2 3.3 KPa, BE -6 mmol/L HCO3- 22 mmol/L K+ 5.7 mmol/L Na+ 139 mmol/L

Answer:pH 7.45, pO2 10.5 kPa, pCO2 5.0 KPa, BE 4 mmol/L HCO3- 27 mmol/L K+ 3.2 mmol/L Na+ 146 mmol/L

Explanation:

This patients history and examination findings give a diagnosis of hyperaldosteronism (Conn's syndrome). This can produce derangement of ABG results, specifically, giving a metabolic alkalosis that is also shows hypokalaemia. This would be contributing to the patients weakness and fatigue.

Question:

The risk of developing schizophrenia if one monozygotic twin is affected is approximately:

A.10%

B.20%

C.50%

D.75%

E.>95%

Answer:50%

Explanation:

Question:

A 14-year-old girl has dropped a heavy object on her right foot. Her 1st (great) toe is very painful and swollen.

An x-ray is performed which shows the following injury.

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What is the main finding on the x-ray?

A.Salter-Harris type 1 fracture

B.Salter-Harris type 2 fracture

C.Salter-Harris type 3 fracture

D.Salter-Harris type 4 fracture

E.Salter-Harris type 5 fracture

Answer:Salter-Harris type 3 fracture

Explanation:

This is a posteroanterior radiograph of the right foot. The main finding is a fracture of the proximal end of the proximal phalanx of the 1st (great) toe involving the physis and epiphysis. The fracture is intra-articular. This is a Salter-Harris type 3 fracture.

Salter-Harris type 3 fracture is correct.

Salter-Harris type 1 fracture is incorrect as this would involve the physis only.

Salter-Harris type 2 fracture is incorrect as this would involve the physis and metaphysis.

Salter-Harris type 4 fracture is incorrect as this would involve the physis, epiphysis, and metaphysis.

Salter-Harris type 5 fracture is incorrect as is a crush injury.

Question:

A 65-year-old man with type 2 diabetes mellitus presents to the GP for a routine check-up. As part of the routine check-up, he needs to be tested for diabetic nephropathy. He denies having any signs and symptoms of chronic kidney disease prior to his presentation and previous urine tests have been normal. There are no other underlying medical conditions and his diabetes is well controlled by metformin.

How should the patient be screened for diabetic nephropathy given the above information?

A.Measure protein : creatinine ratio (PCR) on a spot urine sample. If results abnormal, repeat with a first-pass morning urine specimen

B.Measure the urinary albumin/creatinine ratio (ACR) on a spot urine sample. If results abnormal, repeat with a first-pass morning urine specimen

C.Perform a urine dipstick test on a spot urine sample. No further tests required

D.Measure PCR on a spot urine sample. If results abnormal, repeat with a 24-hour urine specimen

E.Measure ACR on a spot urine sample. If results abnormal, repeat with a 24-hour urine specimen

Answer:Measure the urinary albumin/creatinine ratio (ACR) on a spot urine sample. If results abnormal, repeat with a first-pass morning urine specimen

Explanation:

Microalbuminuria is the first indicator of diabetic nephropathy. Management includes blood pressure and proteinuria control with an ACE-inhibitor or ARB

Important for meLess important

Microalbuminuria is the earliest, clinically detectable manifestation of classic diabetic kidney disease\*. It is defined by a rise in urinary albumin loss to between 30 and 300 mg a day. Timed urine collections may be inaccurate and therefore a urinary albumin/creatinine ratio (ACR)>2.5 mg/mmol in men and >3.5 mg/mmol in women is often used to define microalbuminuria\*.

ACR should be used to screen for diabetic kidney disease\* as it has greater sensitivity than PCR for low levels of proteinuria. PCR can be used as an alternative for quantification and monitoring of high levels of proteinuria (ACR 70 mg/mmol or more) [NICE 2019].

ACR may be measured on a spot sample if a first-pass sample is not provided (but should be repeated on a first-pass specimen if abnormal)\*. Microalbuminuria is confirmed if, in the absence of infection or overt proteinuria, two out of three specimens have an elevated ACR\*.

Conventional urine dipstick testing cannot reliably be used to diagnose the presence or absence of microalbuminuria\*.

\*Management of Diabetes. Scottish Intercollegiate Guidelines Network (SIGN 116). Updated November 2017.

Question:

A 23-year-old woman presents to her GP with troubling symptoms. Eight weeks ago, she was involved in a severe road traffic accident. Although physically well after the accident, she reports experiencing flashbacks since then, being overly vigilant when crossing the road, and generally having difficulty focusing at work.

Which of the following features would best support the likely diagnosis?

A.Delusional beliefs

B.Emotional detachment

C.Excessive sleep

D.Nystagmus

E.Paranoid ideation

Answer:Emotional detachment

Explanation:

Common features of PTSD

re-experiencing e.g. flashbacks, nightmares

avoidance e.g. avoiding people or situations

hyperarousal e.g.hypervigilance, sleep problems

Important for meLess important

The correct answer is emotional detachment. The diagnosis here is that of post-traumatic stress disorder (PTSD), with these symptoms being present for over 1 month following a traumatic experience. Patients are often emotionally numbed - demonstrating an inability to experience feelings fully, and generally feeling detached emotionally.

Delusional beliefs do not usually manifest in PTSD. If she were displaying signs of this, it would be prudent to consider an alternative diagnosis, as this is a psychotic feature.

Excessive sleep is not usually part of PTSD - the opposite is normally true. Patients have difficulty sleeping, often wake up during the night, and experience nightmares.

Nystagmus is not associated with PTSD. There is, however, a link between eyes and PTSD - the current conventional therapy for PTSD is eye movement desensitisation and reprocessing therapy.

Paranoid ideation is also not usually a feature of PTSD. If this were being displayed, alternative diagnoses should be considered.

Question:

A 77-year-old male presents to the haematology clinic after being referred by his general practitioner with general malaise and abnormal blood results. It has been present for the last three months, accompanied by an unplanned weight loss. On examination, the patient looks malnourished, with pale conjunctivae, increased pulse and splenomegaly. The doctor decides to order some blood tests that show the following:

Hb 120 g/L (135-180)

Platelets 418 \* 109/L (150 - 400)

WBC 23.5 \* 109/L (4.0 - 11.0)

Neutrophils 16.5 \* 109/L (2.0 - 7.0)

Lymphocytes 1.8\* 109/L (1.0 - 3.5)

Monocytes 1.1 \* 109/L (0.2 - 0.8)

Eosinophils 0.8 \* 109/L (0.0 - 0.4)

A blood film shows a leukoerythroblastic blood picture.

Which one of the following is the most appropriate treatment for this patient?

A.Adalimumab

B.Etanercept

C.Imatinib

D.Infliximab

E.Methotrexate

Answer:Imatinib

Explanation:

Chronic myeloid leukaemia - imatinib = tyrosine kinase inhibitor

Important for meLess important

The correct answer is imatinib, a tyrosine kinase inhibitor. The patient is suffering from chronic myeloid leukaemia (CML). CML is characterized by anaemia, splenomegaly, and an increase in granulocytes at different stages of maturation, occasionally accompanied by thrombocytosis (seen in this patient). The first-line management is imatinib.

Adalimumab is a monoclonal antibody used in the treatment of rheumatoid arthritis patients that had an inadequate response to at least two disease-modifying drugs including methotrexate. Rheumatoid arthritis would present with swollen, painful joints in the hands and feet and stiffness worse in the morning. This patient does not have these features making this diagnosis unlikely.

Etanercept is a recombinant human protein used in the treatment of rheumatoid arthritis patients that had an inadequate response to at least two disease-modifying drugs including methotrexate.

Infliximab is a monoclonal antibody used in the treatment of rheumatoid arthritis patients that had an inadequate response to at least two disease-modifying drugs including methotrexate. Rheumatoid arthritis would present with swollen, painful joints in the hands and feet and stiffness worse in the morning. This patient does not have these features making this diagnosis unlikely.

Methotrexate is an antimetabolite used as the first-line for the treatment of rheumatoid arthritis. Additionally, it can be used to treat acute lymphoblastic leukaemia (ALL), but this patient has chronic myeloid leukaemia. ALL peak incidence group is children between 2 and 5 years old, making this diagnosis unlikely. Additionally, there would be a steep increase in the lymphocytes on the blood tests results.

Question:

A 21-year-old female comes to the emergency department with palpitations. Her ECG shows first-degree heart block, tall P-waves and flattened T-waves. An arterial blood gas shows:

pH 7.55 7.35-7.45

HCO3- 30mmol/L 22-26mmol/L

pCO2 5.8kPa 4.5-6kPa

p02 11kPa 10-14kPa

Chloride 85mmol/L 95-108mmol/L

What is the underlying cause of this presentation?

A.Drug abuse

B.Bulimia nervosa

C.Gitelman syndrome

D.Anxiety

E.Bartter's syndrome

Answer:Bulimia nervosa

Explanation:

This patient's ECG shows features of hypokalaemia. This is likely the cause of the palpitations.

The ABG shows a metabolic alkalosis. The low chloride suggests the cause of this metabolic alkalosis is loss of hydrochloric acid from the stomach (through vomiting). Severe vomiting would also account for the hypokalaemia shown on ECG.

The lack of acute nausea and vomiting suggests that the vomiting may be a long standing issue and therefore bulimia nervosa is a likely diagnosis unless she has a past medical history of another condition which could account for persistent vomiting.

Gitelman and Bartter's syndromes are rare genetic kidney disorders that result in a metabolic alkalosis but these would present in a different manner.

Anxiety may cause palpitations but would cause a respiratory alkalosis rather than metabolic alkalosis.

Question:

Which one of the following conditions is not associated with obesity in children?

A.Down's syndrome

B.Hypothyroidism

C.Cushing's syndrome

D.Prader-Willi syndrome

E.Growth hormone excess

Answer:Growth hormone excess

Explanation:

Question:

A 39-year-old man presents to the GP with problems passing urine. When passing urine, the stream is weak and he often feels like he has incomplete bladder emptying. He notices that he has dribbling when he does not wish to pass urine and has not noticed any pattern in his symptoms, including any association with coughing or sneezing. His past medical history includes stable angina, a humeral fracture that was treated 8 years ago, and treatment for gonorrhoea 10 months ago.

His observations are normal.

Based on his features, what is the most likely underlying cause for his presentation?

A.Functional urinary incontinence

B.Prostatic hyperplasia

C.Stress urinary incontinence

D.Urethral stricture

E.Urge urinary incontinence

Answer:Urethral stricture

Explanation:

Urinary problems in a man with a history of gonorrhoea may be due to a urinary stricture

Important for meLess important

Urethral stricture is correct. Voiding symptoms (weak flow, terminal dribbling, and incomplete emptying) and a history of gonorrhoea in patients that are not the typical age for prostate problems (generally 65 years or older) should raise suspicion of this diagnosis. If the urethra is imagined to be similar to a hosepipe, a stricture would narrow a segment of the hose, leading to the voiding symptoms seen due to poor flow.

Functional urinary incontinence is incorrect as this describes urinary incontinence where the urinary system is intact, but other barriers cause the patient to become incontinent, such as poor mobility, sedation, and injuries leading to decreased ambulation, which do not apply to this patient.

Prostatic hyperplasia is incorrect as this patient is relatively young to have benign prostatic hyperplasia (BPH). Prostatic problems causing symptoms such as weak flow, terminal dribbling, and incomplete emptying tend to affect patients aged 65 years or older. Furthermore, his past medical history of gonorrhoea makes a urethral stricture more likely.

Stress urinary incontinence is incorrect as this patient has not noticed any patterns with his urinary symptoms, particularly passing urine when coughing or sneezing.

Urge urinary incontinence is incorrect as this patient does not have symptoms suggesting urgency, specifically a sudden need to urinate followed by uncontrollable leakage.

Question:

A 54-year-old woman presents to her GP with 3 weeks of lethargy and painful finger. She has also found a soft lump at the base of her right calf and asks for this to be reviewed. She denies any trauma, fever, or weight loss. She has a past medical history of systemic lupus erythematosus.

On examination, the right index finger proximal interphalangeal joint is erythematous and swollen. She can move the joint independently, but range of motion is limited by pain.

Arthrocentesis shows:

Appearance yellow fluid

Crystal formation negative

Gram stain negative

Leucocytes 40,000/μL

Cytology polymorphonuclear neutrophil predominance

What is the likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Rheumatoid arthritis

E.Septic arthritis

Answer:Rheumatoid arthritis

Explanation:

Joint aspirate in rheumatoid arthritis shows a high WBC count, predominantly PMNs. Appearance is typically yellow and cloudy with absence of crystals

Important for meLess important

This patient is presenting with new-onset monoarticular arthritis with no confirmed diagnosis of rheumatoid arthritis. Due to this, it would be appropriate to perform a joint aspiration. As rheumatoid arthritis is an inflammatory condition, synovial fluid will have the following characteristics:

Yellow colour

Increased opacity (as this is determined by the quantity of leucocytes present).

2,000 to 50,000 leukocytes per microlitre.

Negative gram stain.

Variable neutrophil count (usually there is a predominance of polymorphonuclear neutrophils (PMNs)).

No crystals (as this is not a crystalline pathology).

Despite this not being a typical history of rheumatoid arthritis, the arthrocentesis findings and the patient's history of constitutional symptoms, an Achilles tendon nodule and past medical history of systemic lupus erythematosus (SLE) all support the diagnosis of rheumatoid arthritis.

Gout is a form of microcrystal synovitis caused by the deposition of monosodium urate monohydrate in the synovium. It is caused by chronic hyperuricaemia (uric acid > 450 µmol/l). Despite the patient presenting with a single erythematous and swollen joint, it would be expected that the arthrocentesis findings would be different and the patient would be in greater pain if they had gout.

Osteoarthritis can cause erythema and swollen joints - however, most patients present with a more typical, insidious onset. It is typically seen as a slow, progressive painful and mobility-limiting joint pathology affecting the cervical and lumbar spine, hip, knee, proximal interphalangeal joints, first metatarsophalangeal joint, and first carpometacarpal joint. Arthrocentesis will show a clear synovial fluid with few inflammatory cells.

Pseudogout is caused by the deposition of calcium pyrophosphate crystals in the joint synovium. It most commonly affects the knee, wrist, and shoulders. Joint aspiration will show weakly-positively birefringent rhomboid-shaped crystals. As this patient does not have these features on arthrocentesis (and does not have any risk factors such as hyperparathyroidism, hypothyroidism, Wilson's disease, or acromegaly), this is incorrect.

Septic arthritis should always be suspected in a single erythematous, swollen joint - even if the patient does not report any trauma or pyrexia. It is most commonly caused by Staphylococcus aureus and is most common in the knee joint. As part of the work-up, a patient would have synovial fluid sampling, blood cultures and joint imaging. However, the synovial fluid result would be cloudy/opaque in appearance, contain > 50,000 leukocytes per microlitre, >90% neutrophils, and usually has a positive gram stain.

Question:

A 32-year-old Gravida 3 Para 3 just delivered a healthy baby girl. The baby's APGAR score was 9 at 1 minute and 10 at 5 and 10 minutes.

Unfortunately, the mother suffered a perineal tear during the delivery. The superficial and deep transverse perineal muscles are involved in the tear but the anal sphincter is intact.

What is the most appropriate management plan?

A.Conservative approach

B.Packing and healing by secondary intention

C.Refer to urogynaecology clinic for follow-up

D.Repair in theatre

E.Suturing on the ward

Answer:Suturing on the ward

Explanation:

Second degree perineal tears may be repaired on the ward by a suitably experienced midwife or clinician

Important for meLess important

The correct answer is suturing on the ward. This patient had a second-degree 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 primigravida women. Second-degree perineal tears involve the perineal muscle but do not include the anal sphincter, as in this case. They can be repaired on the ward by a suitably experienced midwife or clinician, as generally do not risk impairing contingency in the long term.

A conservative approach is appropriate for first-degree tears, which entail superficial damage with no muscle involvement, In this case, the superficial and deep transverse perineal muscles have been involved making this option incorrect.

Packing and healing by secondary intention is incorrect. This might be the treatment of choice for an abscess, which is defined as a collection of pus, rather than a tear. It is not caused by childbirth.

Refer to urogynaecology clinic for follow-up is an incorrect option. Perineal tears, especially of second, third and fourth-degree need to be repaired by a trained healthcare professional to prevent further damage.

Repair in theatre would be a suitable approach for third and fourth-degree tears. They are described as injuries to the perineum involving the anal sphincter complex and rectal mucosa. In this case, the anal sphincter has been spared, making this option incorrect.

Question:

A 34-year-old woman attends clinic feeling generally unwell. Her abdomen has become uncomfortable and distended over the last 2 days, and she is suffering from loose stools. She also feels dyspnoeic on exertion. On examination all observations are within normal range and there is generalised abdominal tenderness with no guarding. The patient is undergoing fertility treatment and the previous week was injected with gonadorelin analogue.

Given the above history, which of the following is the most likely diagnosis?

A.Appendicitis

B.Ectopic pregnancy

C.Ovarian cyst rupture

D.Ovarian hyperstimulation syndrome (OHSS)

E.Ovarian torsion

Answer:Ovarian hyperstimulation syndrome (OHSS)

Explanation:

Ovarian hyperstimulation syndrome is a potential side-effect of ovulation induction

Important for meLess important

Ovarian hyperstimulation syndrome (OHSS) is a potential side effect of ovulation induction. As with the above patient, OHSS often presents with gastrointestinal symptoms such as nausea, vomiting, abdominal pain, bloating, and diarrhoea. Other features of OHSS include shortness of breath, fever, oliguria, and peripheral oedema.

OHSS severity can range from mild to life-threatening, and can result in complications such as thromboembolism, dehydration, pulmonary oedema, and acute kidney injury (AKI). Life-threatening OHSS tends to have a more delayed onset than milder cases. In the above scenario, the patient was injected with gonadotropin-releasing hormone (GnRH) agonist in the past week (i.e. as opposed to a fortnight ago), implying that her symptoms are going to be less severe.

Question:

A 17-year-old male presents with a new skin condition which his mum noticed when they were on holiday in Spain. On examination, he has skin type V, with multiple small patches of depigmentation to the upper back. The patches appear mildly flaky but they are asymptomatic. He is usually well and has never had this condition before. Which of the following is the most likely diagnosis?

A.Pityriasis rosea

B.Atopic eczema

C.Vitiligo

D.Guttate psoriasis

E.Pityriasis versicolor

Answer:Pityriasis versicolor

Explanation:

This is a typical history of pityriasis versicolor, a skin condition caused by an overgrowth of Malassezia yeast. It is most common in young people, especially males. It causes multiple patches of skin discolouration, mainly to the trunk. The patches may appear pale brown, pink, or may appear depigmented especially in patients with dark skin. They may also be mildly flaky and itchy. The condition can often present after spending time in sunny, humid environments. It is treated with topical antifungals eg. ketoconazole shampoo.

Source: NICE CKS Pityriasis versicolor

http://cks.nice.org.uk/pityriasis-versicolor#!scenario

Question:

A 45-year-old woman presents with a 3-month history of low mood, fatigue, and weight gain. During this time, she has constantly felt cold. This is her first presentation with these symptoms and she has noticed them after starting a new medication for her atrial fibrillation.

She has a past medical history of atrial fibrillation and heart failure, and she takes apixaban, amiodarone, ramipril, bisoprolol, and spironolactone.

Investigations are performed:

Thyroid-stimulating hormone (TSH) 18.7 mU/L (0.5 - 5.5)

Free T4 2 pmol/L (9-18)

What is the most appropriate step in her management?

A.Add levothyroxine and change amiodarone to digoxin

B.Add levothyroxine and change amiodarone to dronedarone

C.Add levothyroxine and change amiodarone to flecainide

D.Add levothyroxine and continue amiodarone

E.Stop amiodarone and remeasure thyroid function

Answer:Add levothyroxine and continue amiodarone

Explanation:

In amiodarone induced hypothyroidism, amiodarone can be continued with levothyroxine

Important for meLess important

Add levothyroxine and continue amiodarone is correct. This patient has signs and symptoms of hypothyroidism characterised by her low mood, weight gain, fatigue, and cold intolerance. Around 1 in 6 patients taking amiodarone can develop thyroid dysfunction, either amiodarone-induced hypothyroidism or thyrotoxicosis. This patient has never had features of hypothyroidism before, therefore it is likely they have developed hypothyroidism secondary to their amiodarone use. Amiodarone has a high iodine content, and this can lead to inhibition of thyroxine production due to high iodine levels. In most cases, amiodarone can be continued alongside prescribing levothyroxine to counteract its effects. Given the risk of stroke associated with atrial fibrillation (AF), it would be in the patient's best interests to keep amiodarone if possible, particularly as it is currently effective at controlling her AF.

Add levothyroxine and change amiodarone to digoxin is incorrect. It would be inappropriate at this point to change amiodarone to digoxin, as it is currently effective in controlling this patient's AF. The period of re-titration and assessment after starting digoxin instead carries an increased risk of stroke due to the AF as it will take time to get treatment to the desired state.

Add levothyroxine and change amiodarone to dronedarone is incorrect. It would be inappropriate at this point to change amiodarone to dronedarone, as it is currently effective in controlling this patient's AF. Amiodarone is also preferred in patients with structural heart disease, as is the case with this patient's heart failure. The period of re-titration and assessment after starting dronedarone instead carries an increased risk of stroke due to the AF as it will take time to get treatment to the desired state.

Add levothyroxine and change amiodarone to flecainide is incorrect. It would be inappropriate at this point to change amiodarone to dronedarone, as it is currently effective in controlling this patient's AF. Amiodarone is also preferred in patients with structural heart disease, as is the case with this patient's heart failure. The period of re-titration and assessment after starting flecainide instead carries an increased risk of stroke due to the AF as it will take time to get treatment to the desired state.

Stop amiodarone and remeasure thyroid function is incorrect. It would be inappropriate to stop her amiodarone as there would be an unnecessarily increased risk of stroke. In amiodarone-induced hypothyroidism, amiodarone can be continued with levothyroxine to counteract its effects, therefore there is no need to stop her amiodarone.

Question:

A 33-year-old lady develops a thunderclap headache and collapses. A CT scan shows that she has developed a subarachnoid haemorrhage. She currently has no evidence of raised intracranial pressure. Which of the following drugs should be administered?

A.None

B.Atenotol

C.Labetolol

D.Nimodipine

E.Mannitol

Answer:Nimodipine

Explanation:

Nimodipine is used to prevent vasospasm in aneurysmal subarachnoid haemorrhages

Important for meLess important

Nimodipine is a calcium channel blocker. It reduces cerebral vasospasm and improves outcomes. It is administered to most cases of sub arachnoid haemorrhage.

Question:

A 22-year-old woman presents to the GP following an episode of unprotected sexual intercourse (UPSI) 2 days ago, seeking emergency contraception. The first day of her last menstrual period was 17 days ago; her cycles regularly last 28 days. She has no past medical history of note and is a non-smoker. Her BMI is 24 kg/m².

What is the single most appropriate intervention for the GP to offer?

A.Copper intrauterine device (IUD)

B.EllaOne (ulipristal)

C.Levonorgestrel

D.Mirena intrauterine system (IUS)

E.No treatment required

Answer:Copper intrauterine device (IUD)

Explanation:

The copper intrauterine device can be inserted for emergency contraception within 5 days after the first unprotected sexual intercourse in a cycle, or within 5 days of the earliest estimated date of ovulation, whichever is later

Important for meLess important

The copper IUD is the most appropriate option here, due to the likelihood that ovulation has already occurred (estimated as day 14, whereas now on day 17). It can be inserted as effective emergency contraception up to 5 days past the most likely ovulation date (typically day 14). The copper IUD is considered the single most effective form of emergency contraception, and should be offered to all patients unless contraindicated, particularly in cases where ovulation may have already occurred.

While the episode of UPSI took place only 48 hours ago and so falls within the window of use for both levonorgestrel and ulipristal, both hormonal contraceptives act primarily by inhibiting ovulation. Given that there's a good chance ovulation has already occurred in this case, they will be less effective than the copper IUD. If an IUD were contraindicated or the patients declines, one of the pill options would still be offered.

The Mirena IUS is a highly effective form of long term contraception, which should be recommended to sexually active young females, however, its delayed action means it is not effective as an emergency contraceptive and so is incorrect here.

Emergency contraception should be offered to all women who ask for it unless explicitly contraindicated, even if this falls outside of the window of use, so the option of no treatment is incorrect. In this case, patients should be warned that it may not be effective in preventing pregnancy.

Question:

Mary is a 75-year-old woman who presented to her GP with breathlessness and fatigue on a background of type 2 diabetes and chronic kidney disease.

After further investigation, she was found to have diabetic nephropathy and anaemia alongside this. Her anaemia was investigated and she was found to be iron deficient. Her blood tests showed the following:

Iron 7 umol/l (10-30)

Transferrin 6 g/l (2-4)

Ferritin 8 ug/l (15-200)

Which of the following would be the most appropriate course of action?

A.Refer for endoscopy and colonoscopy

B.Commence oral iron replacement alone

C.Erythropoietin injections

D.Refer for IV iron infusion

E.Watch and wait

Answer:Refer for endoscopy and colonoscopy

Explanation:

Iron deficiency can cause patients to fail to respond to erythropoietin therapy

Important for meLess important

Iron deficiency anaemia is a worrying sign in the older population. The most common cause is heavy menstrual bleeding however in patients who are no longer going through a menstrual cycle, they must be referred for endoscopic testing to rule out gastrointestinal cancer.

Erythropoietin injections are not effective in those who are iron deficient.

Oral iron replacement is not sufficient in this case and IV iron is reserved for those who cannot tolerate oral iron replacement and this must be done at a hospital.

A watch and wait approach would be dangerous.

Question:

Which one of the following is not part of the Apgar score for assessing the newborn?

A.Colour

B.Respiratory effort

C.Tone

D.Heart rate

E.Capillary refill time

Answer:Capillary refill time

Explanation:

Question:

You are a fast-bleeped to the urology ward by one of the nurses who is concerned about one of his patients. The patient was admitted 3 days ago for bladder outlet obstruction and urinary retention which was initially managed by catheterisation, however, they have now sustained a head injury following a fall when attempting to get out of bed. No investigations have been requested for this patient since their initial clerking.

Which investigation will help determine why this patient fell?

A.Full blood count

B.Urea and Electrolytes

C.D-dimer

D.Contrast-enhanced CT head

E.Pelvic radiograph (anteroposterior)

Answer:Urea and Electrolytes

Explanation:

Diuresis following relief of outlet flow obstruction requires daily monitoring

Important for meLess important

Following relief of urinary retention patients undergo a physiological diuresis (that which lasts up to 24hrs), with some patients going on to experience a pathological diuresis (typically lasting longer than 48hrs). During this polyuric state large volumes of salt and water are lost, with the risk of patients developing hypovolaemia, dehydration, and electrolyte imbalances.

Consequently, daily monitoring of urea and electrolytes is required to monitor patients, with this being the investigation of choice in this context given the patient's history. This patient likely fell due to a syncopal episode secondary to hypovolaemia.

A full blood count would be useful if there was a history of bleeding, with hypovolaemic shock arising secondary to blood loss. However, there is nothing in the history to suggest this has occurred.

A contrast-enhanced CT head may be indicated given the degree of damage incurred during the fall, or due to the patient's medication i.e. therapeutic anticoagulation.

The candidate is asked to investigate the cause of the fall. As such, a pelvic radiograph would be indicated to determine if the patient sustained a pathological fracture, which resulted in the fall. However, there is nothing in the history to suggest the patient is at risk of pathological fractures.

For further information: Halbgewachs C, Domes T. Postobstructive diuresis: Pay close attention to urinary retention. Canadian Family Physician. 2015;61(2):137-142.

Question:

A 73-year-old woman is seen by the dermatologist with a mole on her back. It measures 8mm in diameter, has irregular borders and is noted to have variation in colour. A biopsy taken confirms malignant melanoma with an invasive depth of 4mm, there is also ulceration present. The tumour is shown to carry a BRAF mutation and has a high mitotic rate. She has asked if she is likely to die from the illness.

Which is the worst prognostic factor in this case?

A.BRAF mutation

B.Depth of the lesion

C.Diameter of the lesion

D.Mitotic rate

E.Ulceration

Answer:Depth of the lesion

Explanation:

Melanoma: the invasion depth of the tumour is the single most important prognostic factor

Important for meLess important

The most important factor in determining prognosis in malignant melanoma is Breslow thickness, which is an indicator of the invasive depth of the tumour, 4mm represents a large thickness and is the most important poor prognosticator for this patient.

BRAF mutation is seen in 50% of malignant melanomas. Although it is not directly linked to a worse prognosis, its presence permits the use of the BRAF inhibitor, vemurafenib, which improves survival in late-stage disease.

8mm diameter is a red flag when assessing lesions using the 'ABCDEs' of melanoma, and although a large diameter increases the likelihood of increased invasive depth, prognostically it is not as important as the thickness of the lesion.

A high mitotic rate is a poor prognostic marker but is the second-most predictor of mortality after the invasive depth of a lesion.

Ulceration of the lesion is a poor prognostic marker, however, it is not as closely linked to mortality as invasive depth.

Question:

A 55-year-old woman is admitted to the acute medical unit with a one-week history of lethargy and feeling generally unwell. She has been vomiting for the last 24 hours. Her past medical history comprises well-controlled asthma and chronic back pain, for which she takes ibuprofen daily.

On examination, she has dry mucous membranes and reduced skin turgor. She is alert and orientated with a clear chest and soft, non-tender abdomen. Her weight is 80kg.

Her records show blood tests performed by her general practitioner two days ago:

Na+ 140 mmol/L 135-145 mmol/L

K+ 3.6 mmol/L 3.5 - 5.0 mmol/L

Urea 4.6 mmol/L 2.0-7.0 mmol/L

Creatinine 100 µmol/L 55-120 umol/L

She is admitted and repeat blood tests are sent.

Which finding on this admission would indicate that the patient has an acute kidney injury?

A.Creatinine 122 µmol/L

B.Potassium 6.2 mmol/L

C.Sodium 150 mmol/L

D.Urea 9.2 mmol/L

E.Urine output of 35mls/hour over 6 hours

Answer:Urine output of 35mls/hour over 6 hours

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 urine output of 35mls/hour over 6 hours. The patient has had urine output <0.5ml/kg/hr (40ml/kg/hr) for 6 hours.

Acute kidney injury (AKI) often presents with non-specific symptoms. The patient has been taking a potentially nephrotoxic medication (ibuprofen). Vomiting may lead to dehydration and AKI or may be a consequence of AKI.

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

The patient's creatinine rise is less than 26µmol/L in 48 hours. It is important to recognise that even though the creatinine value is higher than the normal range provided, it is not diagnostic of AKI unless the above criteria are met. This can be seen especially where the baseline kidney function is impaired to begin with. Creatinine rises may also lag behind changes in urine output.

While hyperkalaemia is important to recognise as a potential consequence of AKI, potassium is not used in the diagnosis of AKI.

Derangements in sodium (hypernatraemia and hyponatraemia) may be present in AKI, but sodium is also not used to diagnose AKI.

Urea is often elevated in AKI but is not used for diagnosis.

Question:

Which one of the following statements regarding warfarin is correct?

A.Warfarin can be used when breast-feeding

B.Hypothyroidism may develop in a small minority of patients

C.Aortic prosthetic valves generally require a higher INR than mitral valves

D.The target INR following a pulmonary embolism is 3.5

E.All patients with an INR of greater than 6.0 should be given vitamin K

Answer:Warfarin can be used when breast-feeding

Explanation:

Question:

A 70-year-old man presents to the emergency department with fevers, lethargy and dysuria. He has advanced dementia and lives in a care home. Initial investigations were pointing to a urinary-tract infection and he was commenced on an oral antibiotic.

Several days into his treatment he developed yellowing of his sclera and blood tests were performed.

Bilirubin 30 µmol/L (3 - 17)

ALP 300 u/L (30 - 100)

ALT 60 u/L (3 - 40)

γGT 80 u/L (8 - 60)

Albumin 30 g/L (35 - 50)

What antibiotic is the most likely to have been prescribed?

A.Albendazole

B.Amikacin

C.Co-amoxiclav

D.Doxycycline

E.Nitrofurantoin

Answer:Co-amoxiclav

Explanation:

Co-amoxiclav is a well recognised cause of cholestasis

Important for meLess important

Co-amoxiclav is a well recognised cause of cholestasis. Cholestatic jaundice can occur either during or shortly after the use of co-amoxiclav. Cholestatic jaundice is more common in people above the age of 65 years and in men. The pathogenesis behind amoxicillin/clavulanate liver injury requires more studies; however, it is believed that immune allergic mechanisms are involved.

Amikacin is a parenterally administered, broad-spectrum aminoglycoside antibiotic typically used for severe gram-negative infections. Despite widespread use, amikacin has not been associated with instances of acute liver injury.

Doxycycline induced liver injury is a rare phenomenon, with an unclear clinical course and mechanism. It would not typically be indicated in treatment for a urinary tract infection and there is an incorrect answer here.

Nitrofurantoin is a commonly prescribed antibiotic that can cause drug-induced liver injury, typically hepatocellular in nature. This scenario however shows a cholestatic picture in view of the raised alkaline phosphatase and jaundice.

Albendazole is an anthelmintic agent used predominantly in the treatment of echinococcosis, a parasitic worm that causes cysts in the liver and lung. Therefore this would not be suitable in this scenario making it an incorrect option. Albendazole therapy is commonly associated with mild and transient serum enzyme elevations and rarely can lead to clinically apparent acute liver injury.

Question:

A 23-year-old primigravida attends her 36-week gestation check-up with her midwife in the community. She has had an uncomplicated pregnancy so far and is feeling well in herself. Her birth plan is for a water birth at her local midwife-led birth centre. Her observations show a temperature of 36.7ºC, heart rate of 90 beats/min, blood pressure of 161/112 mmHg, oxygen saturation of 98% in room air with a respiratory rate of 21/min.

Urinalysis shows:

Leucocytes negative

Nitrites +

pH 6.0

Protein negative

Blood negative

What is the most appropriate management plan for this patient?

A.Admit to local maternity unit for observation and consideration of medication

B.Admit to local maternity unit for planning of urgent delivery of infant

C.Attend midwife check-up in 1 week for repeat urine dip and consideration of antibiotics

D.Antibiotic prescription and midwife follow-up at 38 weeks

E.Attend midwife check-up at 38 weeks for confirmation of birthing plan

Answer:Admit to local maternity unit for observation and consideration of medication

Explanation:

Pregnant women with blood pressure ≥ 160/110 mmHg are likely to be admitted and observed

Important for meLess important

This patient is hypertensive at 35 weeks gestation. Historically, pre-eclampsia has been defined as hypertension and proteinuria during pregnancy - however, the currently accepted diagnosis is with hypertension and any end-organ damage. As the patient feels well in herself, it is not strongly suspected that this patient has any end-organ damage, but she should be admitted to the local maternity unit for further investigation of this as her blood pressure exceeds 160/110 mmHg.

It would be inappropriate to arrange urgent delivery of the infant if the patient is only suffering from hypertension. At 35-weeks gestation, the infant would still be pre-term, and if possible delivery should not be the first option if the mother is stable and there is no fetal distress.

The urine dipstick shows the presence of nitrites and nothing else of note. There is no evidence of infection as leucocytes are negative and the patient is not complaining of dysuria. The concerning feature in the vignette is the patient's blood pressure and the student should not be misled by the positive nitrites finding. Leaving the patient to reattend a midwife appointment in one week for a repeat urine dip avoids the issue of hypertension and, as such, is an incorrect answer.

As aforementioned, an antibiotic prescription for a patient with positive nitrites on a urine dip who is asymptomatic and has no leucocyte presence in the urine is incorrect management and does not acknowledge the patient's hypertension.

The option of continuing with the midwife-led care in the community and leaving a patient with hypertension without further investigation for 2 weeks could lead to the development of pre-eclampsia, an eclamptic seizure (if there is some end-organ damaged building that is consistent with pre-eclampsia) and is dangerous for both mother and foetus.

Question:

You review a 10-year-old girl with increasing constipation over the past 4 years, having normal bowel habit beforehand. The rest of the history and examination are normal. She is on no medication at present.

What would be an appropriate next step in the management?

A.Stimulant laxative

B.Osmotic laxative

C.Bisacodyl suppository

D.Reassurance

E.Docusate rectal enema

Answer:Osmotic laxative

Explanation:

The most likely cause for constipation developing at this age is dietary. It would therefore be useful to provide dietary advice (e.g. increasing fibre and fluid intake). Other lifestyle advice such as increasing activity level should also be provided. A laxative would also be very useful, and would be indicated due to the progressively worsening constipation. An osmotic laxative should be prescribed initially as the stool is likely to be hard. A stimulant laxative may also be required, but only once the stools are soft.

Question:

A 17-year-old woman presents to general practice concerned that she has never had a menstrual period. On examination, she has minimal axillary or pubic hair and has underdeveloped breast tissue for her age. She is of normal height and weight. She has no noted past medical history. A beta-HCG test is negative.

The general practitioner orders some blood tests, as shown below.

FSH High

LH High

What is the most likely cause of her amenorrhoea?

A.Asherman syndrome

B.Gonadal dysgenesis

C.Imperforate hymen

D.Kallmann syndrome

E.Pregnancy

Answer:Gonadal dysgenesis

Explanation:

Raised FSH/LH in primary amenorrhoea - consider gonadal dysgenesis (e.g. Turner's syndrome)

Important for meLess important

The above scenario describes a young woman presenting with primary amenorrhoea (given that she has never had a menstrual period before), in addition to underdevelopment of secondary sexual characteristics. Given her raised FSH and LH levels, the most likely cause of her primary amenorrhoea is gonadal dysgenesis.

Gonadal dysgenesis is a congenital condition in which the gonads are atypically developed, and may be functionless. This can be seen in syndromes such as Turner's syndrome. Due to the abnormal gonads, androgens are not produced in response to FSH and LH from the anterior pituitary gland. This results in the underdevelopment of secondary sexual characteristics, and in females will cause primary amenorrhoea. FSH and LH levels will continue to remain high due to the absence of negative feedback from oestrogen on the hypothalamus.

Asherman syndrome is an incorrect answer. This is a condition in which scar tissue adhesions form within the uterus (often following uterine surgeries), causing amenorrhoea. This is an acquired form of amenorrhoea, and does not coincide with the patient's history of no past medical history or absence of secondary sexual characteristics.

Imperforate hymen is a cause of primary amenorrhoea. In this congenital condition, the hymen (a membrane within the vagina) does not have a hole in it, meaning that menstrual blood cannot pass. This can present with cyclical abdominal pain which feels like a menstrual period, but does not pass any blood. If untreated, complications such as peritonitis or endometriosis may arise due to retrograde bleeding. Unlike the given case, patients with imperforate hymen should develop normal secondary sexual characteristics, and FSH/LH levels should be normal.

Kallmann syndrome is an incorrect answer. Kallmann syndrome is a congenital form of hypogonadotropic hypogonadism, caused by an abnormally functioning hypothalamus. Patients with Kallmann syndrome may present similarly to the above case, but blood results would show low GnRH, FSH, and LH. Exam questions also often mention an absence of the sense of smell, which can be seen in Kallmann syndrome.

Given the chronic nature of this amenorrhoea and the absence of secondary sexual characteristics, pregnancy is an incorrect answer. This is confirmed by a negative beta-HCG test.

Question:

A 45-year-old-man presents to the emergency department with a 12-hour history of colicky abdominal pain, abdominal distension, constipation and an inability to pass flatus. He also complains of nausea but has not vomited.

Which of the following should be avoided in the management of this patient?

A.IV metoclopramide

B.IV mocoblemide

C.IV ondansetron

D.IV diamorphine

E.IV Hartmann's solution

Answer:IV metoclopramide

Explanation:

Avoid metoclopramide in bowel obstruction

Important for meLess important

Metoclopramide is the correct answer. The patient is presenting with bowel obstruction. Metoclopramide has prokinetic properties, which can stimulate peristalsis within the bowel. This can exacerbate mechanical bowel obstruction and precipitate perforation.

Mocoblemide is a monoamine oxidase inhibitor used to treat psychiatric disorders such as depression. It can cause gastrointestinal upset (i.e. nausea and vomiting) as a side-effect, but is not contraindicated in suspected bowel obstruction.

NG tube insertion, catheterisation and IV fluid resuscitation form the mainstay of conservative management for bowel obstruction.

Ondansetron is an antiemetic, and since the patient is nauseous, it is useful here. Ondansetron works peripherally and centrally: its peripheral action is particularly relevant as it blocks the 5HT3 receptor on visceral afferents from the gut.

Pethidine and diamorphine are both opioids. Opioid-based analgesia is useful in bowel obstruction. It may seem counter-intuitive due to its effects on reducing bowel motility, however since it is proven to be highly efficacious in relieving obstruction-related pain, it is commonly used.

Intravenous fluids such as Hartmann's solution are vital in the management of bowel obstruction. Hypersecretion of fluid into the obstructed bowel lumen leads to third spacing and subsequent hypovolemia - intravenous fluid therapy will counteract the hypovolemia.

Question:

A 67-year-old woman is about to undergo a left carotid endarterectomy after a carotid duplex scan showed a stenosis of 70% of the diameter. She recently had a stroke and is awaiting further investigation for the aetiology.

She has a past medical history of hypertension and type 2 diabetes mellitus, both well-controlled.

What nerve is at risk of injury during her procedure?

A.Accessory nerve

B.Ansa cervicalis

C.Facial nerve

D.Hypoglossal nerve

E.Long thoracic nerve

Answer:Hypoglossal nerve

Explanation:

The hypoglossal nerve may be damaged during a carotid endarterectomy

Important for meLess important

The correct answer is hypoglossal nerve. This nerve is the most likely to be damaged during carotid endarterectomy, a procedure undertaken to prevent ischaemic stroke. It involves an incision following the medial sternocleidomastoid muscle with dissection around it to reveal the internal jugular vein and the carotid artery which can be found underneath. The hypoglossal nerve comes down the neck together with the internal carotid artery, putting it at risk during the surgery, which happens in roughly 3% of them. It presents as ipsilateral tongue deviation on the protrusion.

Accessory nerve is an incorrect option. This nerve exits from the cranium through the jugular foramen and runs posterior and lateral to the sternocleidomastoid muscle, posterior to the facial vein. Hence, it is quite unlikely to be damaged in this procedure, which is focused on the anterior triangle of the neck.

Ansa cervicalis is an incorrect option. This nerve branches off the hypoglossal nerve to carry the fibres of the nerve roots C1 and C2. It runs inferior to the point where the incision is usually executed, making this answer incorrect.

Facial nerve is an incorrect option. This nerve exits the cranium via the stylomastoid foramen, running anterior to the outer ear. It is hence impossible to damage it during carotid endarterectomy, which focuses on the anterior triangle of the neck.

Long thoracic nerve is an incorrect option. This nerve is a branch of the brachial plexus originating from the cervical nerves C5-C7 that innervates the serratus anterior muscle. It originates posterior to the brachial plexus, and the axillary artery and vein, passing posterior to the clavicle. It is hence impossible to damage it during carotid endarterectomy, which focuses on the anterior triangle of the neck, as its course is inferior to it.

Question:

A 50-year-old woman presents to the emergency department with a 3-hour history of severe headache. She has taken paracetamol which has had no improvement to her symptoms. There are associated symptoms of photophobia, neck stiffness, and nausea.

Her medical history includes hypertension and polycystic kidney disease. She has a 25-year smoking pack history and drinks 2 standard drinks a night.

What would be the best initial investigation?

A.CRP

B.Contrast CT head

C.Lumbar puncture

D.MRI brain

E.Non-contrast CT head

Answer:Non-contrast CT head

Explanation:

SAH can present with signs of meningeal irritation

Important for meLess important

Non-contrast CT head is correct as it should be the initial investigation to exclude subarachnoid haemorrhage (SAH). Non-contrast CT is the gold standard for detecting intracranial haemorrhage. Blood is hyperdense because of its high electron density and therefore lights up on non-contrast CT. This presentation of severe headache (commonly presents as 'worst headache of my life') with meningeal irritation and risk factors including hypertension, smoking history and polycystic kidney disease is likely to be a SAH.

CRP is incorrect as an initial investigation. Due to her risk factors and severe headache, a SAH needs to be excluded.

Contrast CT head is incorrect as an initial investigation. Non-contrast CT is the gold standard for detecting intracranial haemorrhage. Blood is hyperdense because of its high electron density and therefore lights up on non-contrast CT.

Lumbar puncture is incorrect as an initial investigation as a negative CT scan would be followed up with lumbar puncture to exclude meningitis.

MRI brain is incorrect as an initial investigation as an MRI takes longer and is generally less available. Non-contrast CT is the gold standard for detecting intracranial haemorrhage.

Question:

A 73-year-old man presents with worsening cellulitis. The nurse takes his observations which are the following a respiratory rate of 28/min, heart rate 110/min, blood pressure 100/70 mmHg and a temperature of 39.5ºC. Blood cultures are taken and later reported as growing a gram positive, catalase and coagulase positive cocci.

Which is the most likely organism?

A.Streptococcus pyogenes

B.Streptococcus viridans

C.Staphylococcus aureus

D.Clostridium difficile

E.Staphylococcus epidermidis

Answer: Staphylococcus aureus

Explanation:

Staphylococcus aureus is a gram+ve bacterium, catalase +ve, coagulase +ve organism

Important for meLess important

Answers 1, 2, 3, 5 are all gram positive cocci, 4 is a rod and so incorrect. Streptococcus viridans and Streptococcus pyogenes are both catalase negative. Staphylococcus epidermidis is catalase positive but coagulase negative.

This therefore leaves Staphylococcus aureus as the answer.

Question:

A patient first noticed symptoms of a stroke when she woke up and presented to the emergency department 8 hours later. Immediate CT perfusion scan shows an anterior circulation ischaemic stroke with a limited infarct core.

What is the most suitable immediate treatment according to NICE guidelines?

A.Inferior vena cava filter

B.Nimodipine

C.Thrombectomy

D.Thrombolysis

E.Unfractionated heparin

Answer:Thrombectomy

Explanation:

For thrombectomy in acute ischaemic stroke, an extended target time of 6-24 hours may be considered if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume

Important for meLess important

NICE recommends to offer thrombectomy and thrombolysis to people who have had an ischaemic stroke with CT evidence within 6 hours of symptom onset. Though this patient is outside of that 6 hour window, NICE also specifies that if the CT perfusion scan shows a limited infarct core (with the potential to salvage affected brain tissue), they should be offered thrombectomy between 6-24 hours after the event.

Note that when a patient wakes up with symptoms of the stroke, the window is assumed to begin when the patient went to sleep. So, if a patient goes to bed at 23:00 and wakes up at 06:00 with symptoms of having a stroke, it is assumed the stroke happened at 23:00.

Anticoagulation is not recommended for the treatment of acute ischaemic stroke.

Atorvastatin would likely be prescribed for secondary prevention, but is not an immediate management option.

IVC filters are used in patients with recurrent DVTs, not for ischaemic strokes.

Streptokinase is a thrombolytic agent, but alteplase is the thrombolytic agent recommended by NICE for stroke. NICE recommends to consider thrombolysis outside the stroke window if there is a limited infarct core, but recommends thrombectomy regardless.

Question:

A 60-year-old man with a history of hypertension and type 2 diabetes has been brought to the emergency department by ambulance at 18:30 accompanied by his wife. His wife explains that she noticed this evening at around 18:00 that the left side of his face was drooping and his speech had become slurred. On examination power was reduced throughout his left arm and leg and he has difficulty responding to questions asked to him. He also displays left sided homonymous hemianopia. CT angiogram shows no sign of intracranial haemorrhage but does show evidence of proximal anterior circulation occlusion.

What is the most appropriate management target for this patient?

A.Thrombolysis within 4.5 hours

B.Thrombolysis within 4.5 hours and thrombectomy within 6 hours

C.Thrombolysis within 4.5 hours and thrombectomy within 24 hours

D.Thrombectomy within 6 hours

E.Thrombectomy within 24 hours

Answer:Thrombolysis within 4.5 hours and thrombectomy within 6 hours

Explanation:

The standard target time for thrombectomy in acute ischaemic stroke is 6 hours

Important for meLess important

This patient is experiencing an acute cerebrovascular event. The presentation would be classified as total anterior circulation stroke according to the Bamford stroke classification. The CT scan showed no evidence of haemorrhage, so the patient is a suitable for thrombolysis as there are no obvious contraindications. Patients with an ischaemic stroke should receive thrombolysis within 4.5 hours of symptom onset.

The CT angiogram also showed evidence of proximal anterior circulation occlusion. Recent guidance from the Royal College of Physicians recommends that patients with confirmed proximal anterior circulation occlusion should undergo thrombectomy within 6 hours. Therefore in this case the patient should have thrombolysis within 4.5 hours and thrombectomy within 6 hours.

Thrombectomy can be offered up to 24 hours after symptom onset if there is confirmed occlusion of the proximal anterior or posterior circulation demonstrated by CTA or MRA and if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume.

Question:

A 6-year-old girl presents to your general practice surgery with her father.

He describes that for the past year, she develops intermittent flares of red, itchy eyelids. This appears to bother her most in the mornings. These episodes normally self-resolve with no intervention, but this flare has been particularly protracted - lasting over a month - and he would like some advice. She has never experienced any visual changes.

On examination, she is playful and smiling. The eyelids appear slightly red bilaterally, and there is a small amount of foamy discharge on the lid margins, with matting of the eyelashes. The medial canthus on the superior lid of her left eye has a small, discrete, red lump which is mildly tender on palpation. The eye itself is not red, nor is it painful. Examination is otherwise normal, and she is apyrexial.

Which of the following is the single best initial management option for this girl?

A.Hot compresses to both eyes

B.Oral doxycycline

C.Topical chloramphenicol drops to both eyes

D.Topical dexamethasone drops to both eyes

E.Same-day referral to an ophthalmologist

Answer:Hot compresses to both eyes

Explanation:

1st line of treatment for blepharitis is hot compresses

Important for meLess important

Blepharitis is a common inflammatory condition which affects the eyelid margins.

Characteristic symptoms are often relaxing and remitting in nature, and include:

Burning, itching and/or crusting of the eyelids;

Worse in the mornings, exacerbated by makeup and/or wind;

Involvement of both eyelids;

Recurrent hordeolum (commonly called a 'stye'), which is a blockage of the sweat glands;

Intolerance to contact lenses

It is generally not possible to cure blepharitis. The first-line management for this is hot compresses and eyelid hygiene measures, twice daily. These should be continued to reduce the number and severity of relapses, even if the patient feels well.

Oral antibiotics are generally only used as an off-label option in patients for which hygiene measures have failed, and who have meibomian gland dysfunction and rosacea.

Topical antibiotics, such as chloramphenicol, can be offered if hygiene measures are ineffective.

Topical steroids such as dexamethasone drops are not recommended in blepharitis.

Same-day referral to an ophthalmologist is recommended if there is pain or blurred vision (suggesting corneal disease); visual loss; suspected cellulitis; or a painful, red eye. These are not true for this patient. There is no proptosis, the eye is not red, and she appears playful and in good spirits (an important sign in children), and is apyrexial.

Question:

A 67-year-old man presents to you with difficulty hearing in his left ear, that has occurred over the past month. He states that recently he has found it difficult to follow telephone conversations and frequently has to increase the volume on his television. He is otherwise well, with no significant past medical history.

Examination reveals a normal oropharynx with no cervical lymphadenopathy. Rinnes test shows bone conduction greater than air conduction left side. Weber's test lateralises to the left side. Otoscopy shows compacted earwax in the left external canal. Right tympanic membrane and canal appear normal.

Given the diagnosis, what is the appropriate first-line management?

A.Perform manual removal

B.Refer to ENT for manual removal

C.Referral to ENT for formal audiometry

D.Referral to audiology for hearing aids

E.1 week olive oil drops, then review

Answer:1 week olive oil drops, then review

Explanation:

Olive oil drops are a commonly used first-line treatment for impacted ear wax

Important for meLess important

Manual removal is not typically performed first-line and should be undertaken by an ENT specialist doctor.

Referral to ENT for manual removal is only indicated in complicated cases, where olive oil drops and ear syringing is contraindicated.

Referral to ENT for audiometry is not indicated in this case as the man's hearing is likely related to conductive hearing loss secondary to impacted wax.

Referral to audiology for hearing aids is not an appropriate first-line treatment for impacted wax.

Olive oil drops followed by ear syringing is commonly used as a first-line treatment for impacted ear wax.

Question:

A 55-year-old man visits his GP for a routine blood pressure (mmHg) check. After obtaining a reading the GP tells him he may have stage 1 hypertension and will need ambulatory blood pressure monitoring (ABPM).

What reading is the GP likely to have obtained?

A.85/55mmHg

B.134/89mmHg

C.139/86mmHg

D.148/92mmHg

E.195/110mmHg

Answer:148/92mmHg

Explanation:

Definition of stage 1 hypertension (Clinic reading) - 140/90 mmHg

Important for meLess important

148/92 - this is the correct answer. A clinic reading of 140/90 or above indicates hypertension and requires either ambulatory blood pressure monitoring (ABPM) or home blood pressure monitoring (HBPM).

85/55 - this is incorrect as this is a very low blood pressure reading. Any patient with such a low reading would need urgent admission to the emergency department for restoration of blood pressure, not ABPM.

134/89 - this is incorrect as this is a normal blood pressure result, not stage 1 hypertension. This reading wouldn't be actionable with ABPM or HBPM.

139/86 - this is incorrect as a clinic reading of this blood pressure would not constitute stage 1 hypertension. If the patient had home BP readings of 139/86 then this would constitute stage 1 hypertension.

195/110 - this is incorrect. A reading this high is stage 3 hypertension and could potentially be malignant hypertension if end-organ damage is present. With this reading, the GP would be considering specialist referral, not ABPM.

Question:

You are a final year medical student with 3 months left of your training and have already registered for GMC membership. When walking to placement you witness a road traffic accident. Having just completed your ILS training you want to help the injured parties. On arriving at the scene you introduce yourself as a new doctor and offer to help. Were your actions correct?

A.No, because you are not covered by insurance or GMC protection so you shouldn't have even stopped

B.No, because you cannot introduce yourself as a doctor until you have qualified but you did the right thing in stopping

C.Yes, by stopping and introducing yourself as a doctor, the casualties will have more faith and trust in you

D.No, as you haven't completed your training yet you have no duty to help in this situation

E.Yes, as you have completed ILS training, you have a duty to help and did the correct thing

Answer:No, because you cannot introduce yourself as a doctor until you have qualified but you did the right thing in stopping

Explanation:

In the GMC document, good medical practice the section about duties of a doctor states that you must 'be honest and open and act with integrity'. In addition, it also says that you must 'never abuse your patients' trust in you or the public's trust in the profession'.

You are reminded that 'you are personally accountable for your professional practice and must always be prepared to justify your decisions and actions'.

In addition the GMC document, tomorrow's doctors states that; 'students must be aware that: under Section 49 of the Medical Act 1983 it is an offence for a doctor to pretend to hold registration when they do not'. In addition. 'from the introduction of the licence to practise, it is an offence under Section 49A of the Act for a doctor to pretend to hold a licence when they do not'.

In this question, patient safety must come first. You must act within the boundaries of your ability. As you have passed your ILS and medical school so far you should stop to help. You have skills that could be of use and benefit the casualties. Thus any answer suggesting you shouldn't have stopped is wrong.

This leaves us with options 2, 3 and 5. There is another point in the question which says that you introduce yourself as a doctor. This is not true. You have not qualified and so cannot call yourself a doctor. Reflecting on the GMC guidance they say we should always act with honesty and integrity. By lying about your position this is against their guidance and may put you in a position you are not qualified to deal with. Thus any answer which says of implies that it is OK to call yourself a doctor is incorrect and puts patient safety at risk.

Question:

A 59-year-old patient with poorly controlled HIV presents to the outpatient clinic with a worsening generalised headache and double vision. The patient is known to take his HIV medication sporadically. He lives alone, drinks 20 units of alcohol per week, and does not smoke cigarettes.

On examination, cranial nerve testing demonstrates a 6th nerve palsy but is otherwise unremarkable. Investigations are performed, a CT scan demonstrates multiple ring-enhancing lesions. The thallium SPECT scan is negative.

What is the most likely diagnosis in this patient?

A.AIDS dementia

B.CNS lymphoma

C.CNS tuberculosis

D.Progressive multifocal leukoencephalopathy

E.Toxoplasmosis

Answer:Toxoplasmosis

Explanation:

HIV, neuro symptoms, multiple brain lesions with ring enhancement - toxoplasmosis

Important for meLess important

This is a difficult question and requires an advanced understanding of neurological complications in HIV. The correct answer is toxoplasmosis. Cerebral toxoplasmosis is an opportunistic infection caused by the parasite Toxoplasma gondii, which is found in the faeces of infected cats, and in infected meat. As discussed in the description above, it can cause headaches and double vision. Investigations may demonstrate a single or multiple ring-enhancing lesions on CT scan and a negative thallium SPECT scan.

AIDS dementia is incorrect; a CT scan in AIDS dementia is likely to show cortical and subcortical atrophy.

CNS lymphoma is incorrect, this would produce a single, homogenous-enhancing lesion and a positive (rather than negative) thallium SPECT scan. CNS lymphoma is a form of non-Hodgkin lymphoma.

A single enhancing lesion is typically seen on CT scan for those with CNS tuberculosis. CNS tuberculosis can result from either haematogenous spread from distant infection e.g. pulmonary tuberculosis, or from a direct extension of local infection e.g. tuberculosis of the mastoid. It is far less common than toxoplasmosis and for these reasons, is not the correct answer.

High-signal demyelinating white matter lesions are typically seen on MRI for those with progressive multifocal leukoencephalopathy. A CT scan, in contrast, may show single or multiple lesions.

Question:

A 51-year-old male with a history of tuberculosis presents to the Emergency Department with worsening dyspnoea over the past few weeks associated with mild central chest pain. He struggles to lie flat on the examination couch, and his pain is relieved by leaning forwards.

A chest x-rays shows pericardial calcification.

Given the likely diagnosis which jugular venous pressure (JVP) sign is most likely to be present?

A.JVP decreases with inspiration

B.Loud S2

C.JVP increases with inspiration

D.Cannon A wave

E.Irregularly irregular pulse

Answer:JVP increases with inspiration

Explanation:

The JVP increasing with inspiration is known as Kussmaul's sign and can be a feature of constrictive pericarditis. It is caused by impaired filling of the right ventricle due to a poorly compliant myocardium or pericardium. The JVP should fall with inspiration due to reducing pressure in the thoracic cavity. A cannon 'A' wave is caused by the ventricles contracting against a closed atrio-ventricular valve and sending a pressure wave up the jugular vein. This is seen in complete heart block and sometimes pulmonary embolism. A slow Y descent suggests slow emptying of the atrium into the ventricle e.g. in the case of tricuspid stenosis.

Question:

A 23-year-old basketball player presents to the emergency department following an injury to his knee. He explains he fell 'funny' on his right leg after jumping for the ball and felt a 'popping' sensation when he landed. The knee swelled immediately and he can no longer weight-bear. On examination, his knee is significantly swollen and is tender across the anterior joint line.

What test would most reliably diagnose this injury?

A.Empty can test

B.Lachman's test

C.McMurray's test

D.Posterior draw test

E.Sweep test

Answer:Lachman's test

Explanation:

Anterior cruciate ligament injuries: Lachman's test (knee at 20-30 degrees) is superior to the anterior draw test

Important for meLess important

Anterior cruciate ligaments (ACL) are typically caused by lateral blows to the knee or non-contact injuries such as sudden twisting or awkward landings. The mechanism of injury, in this case, is the latter. The presentation of a popping sensation, immediate swelling and immediate weight-bear are in keeping with an ACL injury.

Lachman's test is a special test used to identify ACL injuries. Lachman's test is more sensitive than the anterior draw test. Thus, this is the correct answer as the question asks what would most reliably diagnose the injury.

Empty can test is a special test used to assess the integrity of the supraspinatus muscle therefore performed in the shoulder examination, not the knee. Thus, this is an incorrect answer.

McMurray's test is a special test used to identify a meniscal tear in the knee. While a meniscal tear can present similar to an ACL injury, you can differentiate the two by the timing of the swelling. ACL injuries swell immediately due to haemarthrosis, meniscal tears typically swell over time. Therefore, this is incorrect.

Posterior draw test is a special test used to diagnose posterior cruciate ligament injuries (PCL). The mechanism of injury, in this case, is not in keeping with an injury to the PCL. PCL injuries are most commonly used by a sudden force to the front of the knee (e.g. dashboard injuries).

Sweep test is used to identify any effusions around the knee. However, it only identifies the presence of the effusion, not the cause. Thus, it would not diagnose an ACL injury and therefore is incorrect.

Question:

A 9-week primigravida woman attends the emergency department complaining of palpitations. She says that for the past day, she has felt sweaty, anxious, and as if her heart was racing in her chest. This has been accompanied by diarrhoea.

On examination, her pulse is 102bpm regular. An ECG shows sinus tachycardia. Subsequent blood tests are done, which reveal the following results.

Thyroid-stimulating hormone (TSH) 0.1 mU/L (0.5-5.5)

Free thyroxine (T4) 32 pmol/L (9.0 - 18)

Given the likely diagnosis, what is the most appropriate treatment for the underlying cause?

A.Carbimazole

B.Propranolol

C.Propylthiouracil

D.Radioiodine therapy

E.Thyroxine

Answer: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

Propylthiouracil is the correct answer. This woman has presented with the typical symptoms of hyperthyroidism, including palpitations, sweating, feeling anxious, and diarrhoea. She has tachycardia on examination, and blood tests demonstrate a low TSH and high T4 level. Graves' disease is the commonest cause of hyperthyroidism in pregnancy due to thyroid-stimulating immunoglobulins causing increased T4 release and negative feedback on TSH. HCG can also promote T4 release as it activates the thyroid gland's TSH receptor. Propylthiouracil is the antithyroid drug of choice in the first trimester. When the woman reaches 12 weeks (second trimester), so would be switched to Carbimazole, as Propylthiouracil can cause severe hepatic injury.

Carbimazole is incorrect. This is the antithyroid drug of choice in the second and third trimesters to treat hyperthyroidism in pregnant ladies. Carbimazole can cause an increased risk of congenital abnormalities, so it should be avoided in the first trimester.

Propranolol is incorrect. This is a beta-blocker that can be used to slow down the heart rate and reduce the symptoms of palpitations. It is safe to use during pregnancy; however, it does not address or correct the metabolic abnormality present. Therefore, it is not a treatment of hyperthyroidism itself, only a symptom prevention measure that does not treat the underlying cause.

Radioiodine therapy is incorrect. Whilst this can treat overactive thyroid glands, it is contraindicated in pregnancy and should never be used. Pregnancy should be avoided for 6-12 months following the therapy as it can lead to fetal hypothyroidism, mental retardation and increased malignancy risk in the infant.

Thyroxine is incorrect. This is a treatment for hypothyroidism. This woman has presented with symptoms of hyperthyroidism and her blood results support this diagnosis. Giving thyroxine would only further increase the T4 level.

Question:

You are on holiday in Greece and whilst intoxicated you do some minor damage to a property, the police are called and they give you a caution. What do you do?

A.Confide in your senior doctor before escalating the issue any higher

B.Keep a written record of the events as evidence in case anyone finds out

C.Inform the GMC immediately

D.Don't tell anyone about the caution

E.Wait until you are back from holiday to inform the GMC

Answer:Inform the GMC immediately

Explanation:

The GMC states: 'You must tell us without delay if, anywhere in the world:

you have accepted a caution from the police or been criticised by an official inquiry

you have been charged with or found guilty of a criminal offence

another professional body has made a finding against your registration as a result of fitness to practise procedures'

GMC ethical guidance: Openness and legal or disciplinary proceedings. Paragraph 75

http://www.gmc-uk.org/mobile/20464

Question:

A 59-year-old baker presents to his general practitioner complaining of tiredness that has been getting worse over the past 6 months. On examination, he is pale without jaundice, and there is a non-tender mass in the left upper quadrant. He has a past medical history of tuberculosis, for which he has been on treatment for 20 years. A blood test is performed which shows the following:

Haemoglobin 90 g/L 115 – 165 g/L

Mean cell volume 78 fl 80 – 100 fL

Ferritin 390 µµg/L 10 – 300 ng/mL

Transferrin saturation 4.9 g/L 2.0 – 3.6 g/L

Serum iron 20 µmol/L 4.6 – 30.4 μmol/L

A blood film is also taken, which shows basophilic stippling of the red blood cells.

What is the most likely diagnosis?

A.Anaemia of chronic disease

B.Iron deficiency anaemia

C.Lead poisoning

D.Sideroblastic anaemia

E.B12 deficiency

Answer:Sideroblastic anaemia

Explanation:

Sideroblastic anaemia:

hypochromic microcytic anaemia

high ferritin iron & transferrin saturation

- basophilic stippling of red blood cells

Important for meLess important

This is an example of an initial presentation of sideroblastic anaemia. It causes typical anaemia symptoms such as fatigue, pallor, and shortness of breath, alongside hepatosplenomegaly. It can be acquired or congenital, as explained in the background notes below. The cause in this scenario is long-term treatment with anti-tuberculosis medication. The blood count shows a microcytic anaemia with high ferritin and transferrin saturation. The typical finding on blood film is basophilic stippling of red blood cells.

Anaemia of chronic disease is an important differential. It can be caused by a wide variety of conditions including tuberculosis. However, it classically causes normocytic anaemia, is not associated with organomegaly, and would cause a low transferrin saturation.

Iron deficiency anaemia is a common cause of tiredness. It is important to detect in patients over the age of 50 as it can be the only presenting feature of malignancy, usually colorectal cancer. It causes microcytic anaemia. This patient does not have iron deficiency anaemia as his iron levels are within range.

Lead poisoning is uncommon in practice, but for exam purposes, it is important to be aware that it causes microcytic anaemia. Causes of lead poisoning include living in very old houses, occupations in battery production or heavy construction, and ingesting lead-contaminated water. Lead poisoning may be asymptomatic or abdominal pain, constipation, neuropathy, and in severe situations encephalopathy. Like sideroblastic anaemia, it can cause basophilic stippling of red blood cells on a blood film. However, it is the incorrect answer in this scenario as the patient has no risk factors has no symptoms of lead poisoning.

B12 deficiency is a cause of macrocytic anaemia. It can be caused by dietary inadequacy or problems with the gastrointestinal tract, such as pernicious anaemia. B12 deficiency presents with the typical symptoms of anaemia alongside peripheral neuropathy and mood disturbances. This diagnosis is ruled out in this scenario as it is microcytic anaemia.

Question:

A 67-year-old lady with a history of hypertension complains of feeling generally weak. As part of the work-up an ECG is ordered:

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

Which one of the following would explain the changes seen on the ECG?

A.Hypernatraemia

B.Hyperkalaemia

C.Hyponatraemia

D.Hypokalaemia

E.Hypercalcaemia

Answer:Hypokalaemia

Explanation:

This patient has U waves which are pathognomonic of hypokalaemia. There is also a borderline PR interval. It is possible that this lady is on a thiazide-like diuretic for hypertension which can cause hypokalaemia.

Question:

A 45-year-old male presents to his GP with a 12-day history of frontal facial pain that is exacerbated by leaning forward. His baseline observations (heart rate, respiratory rate and temperature) are all normal. The GP suspects a diagnosis of sinusitis. The patient has no relevant past medical history.

Given the duration of the patient's symptoms, and the absence of any relevant medical history, which of the following drugs may the GP begin today?

A.Amoxicillin

B.Intra-nasal corticosteroid

C.Oral corticosteroid

D.Phenoxymethylpenicillin

E.Steam inhalation

Answer:Intra-nasal corticosteroid

Explanation:

Intranasal steroids should only be considered for sinusitis if symptoms have persisted for 10 days or more

Important for meLess important

NICE guidelines only recommend treatment with intra-nasal corticosteroids if the symptoms of sinusitis are severe or have lasted for a period of 10 days or more.

Antibiotics are only advised if individuals are systemically unwell or have significant co-morbidities that pre-dispose them complications (for example chronic severe COPD). This explains why amoxicillin and phenoxymethylpenicillin are incorrect.

NICE suggest that the following treatments should NOT be offered for sinusitis:

Oral corticosteroids (option 3)

Steam inhalation (option 5)

Antihistamines (unless there is co-existing allergic rhinitis)

Complementary and alternative medicine

Mucolytics

https://cks.nice.org.uk/sinusitis#!scenario

Question:

A 68-year-old man undergoes an annual health review. He has type 2 diabetes, hypercholesterolaemia and hypertension, for which he is prescribed metformin, gliclazide, atorvastatin and ramipril.

His most recent test results are as follows:

Na+ 139 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Creatinine 90 µmol/L (55 - 120)

Estimated GFR 80 mL/min/1.73m² (>90)

HbA1c 59 mmol/mol (<42)

Urine albumin : creatinine ratio <3 mg/mmol (<3)

What is his recommended target clinic blood pressure (in mmHg)?

A.< 130/80

B.< 135/85

C.< 140/80

D.< 140/90

E.< 150/90

Answer:< 140/90

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

In patients with type 2 diabetes without chronic kidney disease (CKD), NICE guidance states that their blood pressure targets are the same as for patients without diabetes i.e. a clinic measurement of < 140/90 mmHg. While this patient's estimated GFR is below 90, this does not fulfil the diagnostic criteria for chronic kidney disease (CKD) as his eGFR is still above 60 with no evidence of microalbuminuria.

< 130/80 mmHg is incorrect. This is the recommended target clinic BP in patients with diabetic kidney disease, or if they have type 1 diabetes with 2 or more features of the metabolic syndrome.

< 135/85 mmHg is incorrect. This is the recommended target clinic BP in patients with type 1 diabetes who do not have albuminuria and fewer than 2 features of the metabolic syndrome.

< 140/80 mmHg is incorrect. This treatment target is not endorsed by NICE for any particular indication.

< 150/90 mmHg is incorrect. This is the recommended target clinic BP in patients aged 80 and above.

Question:

A 4-month-old boy is brought to the emergency department by his concerned mother. She says that she first noticed he had a mild fever and runny nose around 5 days ago, and over the last few days, he appears to have become more breathless and is grunting when he breathes. She is particularly concerned because she struggles to get him to feed and reports that his nappies are not as wet as normal. On examination, you notice chest recessions, wheeze and bilateral inspiratory crackles.

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

A.Admit for intravenous (IV) antibiotics

B.Admit for salbutamol nebulisers

C.Admit for supportive treatment

D.Discharge home with advice

E.Discharge home with oral antibiotics

Answer:Admit for supportive treatment

Explanation:

Bronchiolitis does not require antibiotics, children requires supportive management only

Important for meLess important

The correct answer is 'Admit for supportive treatment'.

This child is likely to have bronchiolitis. They have a typical history of increasing breathlessness, wheezing and reduced feeding, preceded by mild coryzal symptoms. Bronchiolitis is typically caused by a respiratory syncytial virus (RSV) and only requires supportive management. However, the presence of severe respiratory distress (chest recessions and grunting) and a significant reduction in feeding (as evidenced by the change in how wet his nappies are) mean that this patient should be admitted to the hospital for supportive care.

Admit for IV antibiotics is incorrect as the pathogen responsible for bronchiolitis is RSV. This might be appropriate if pneumonia or other bacterial infection was suspected.

Admit for salbutamol nebulisers is incorrect. Bronchodilators such as salbutamol do not typically help those who have bronchiolitis. The typical patient age group has not yet developed the receptors that they act on in the airways.

Discharging home with advice and discharging home with oral antibiotics are incorrect. This child shows signs of potentially serious illness - grunting, chest recessions, and a significant reduction in feeds. As such, they need to be admitted to the hospital for their treatment.

Question:

A 32-year-old man presents to a sexual health clinic with a single painless ulcer on the tongue.

On examination, the lesion is circular, 1cm in diameter, and has an indurated centre. Non-tender lymphadenopathy to the neck bilaterally is also noted.

The patient is bisexual and has had unprotected oral and penetrative anal and vaginal intercourse with three male and four female partners in the past three months.

What is the likely causative organism?

A.Haemophilus ducreyi

B.Herpes simplex virus (HSV)

C.Human immunodeficiency virus (HIV)

D.Neisseria gonorrhoea

E.Treponema pallidum

Answer:Treponema pallidum

Explanation:

Primary syphilis is associated with painless ulceration

Important for meLess important

The correct response is Treponema pallidum. The lesion described is consistent with a chancre (lesion characteristic of the primary stage of syphilis). Chancres are typically singular, painless, indurated genital ulcers. They are found at the transmission site, typically the anus, mouth, penis or vagina. Syphilis is caused by the bacteria Treponema pallidum. Men who have sex with men (MSM) and those who engage in unprotected sexual intercourse with multiple partners are at increased risk of developing syphilis.

Haemophilus ducreyi is incorrect. Haemophilus ducreyi is the causative organism for chancroid, which is uncommon in the Western world and typically results in painful lesions.

HSV is incorrect. HSV typically causes exquisitely painful genital blisters (genital herpes).

HIV is incorrect. Primary HIV infection and seroconversion are associated with dermatological features, but this is typically a generalised maculopapular eruption with systemic ‘flu-like’ features.

Neisseria gonorrhoea is incorrect. Gonorrhoea is a common sexually transmitted infection (STI) but does not typically cause skin lesions. Typical symptoms in men include urethral or anal discharge and dysuria.

Question:

A 25-year-old man presents to the Emergency Department with a two-day history of dyspnoea. His pulse is 84/min, respiratory rate is 18/min and oxygen saturations are 97% on room air. The trachea is central on examination. You review his chest x-ray:

© Image used on license from Radiopaedia

What is the most likely clinical diagnosis?

A.Left-sided pneumothorax (no tension)

B.Normal

C.Left-sided tension pneumothorax

D.Hyperexpansion secondary to severe asthma

E.Right middle lobe pneumonia

Answer:Left-sided pneumothorax (no tension)

Explanation:

A pneumothorax is seen on the left side but there is no significant mediastinal shift indicating that there is no underlying tension. The two-day history and unremarkable observations also point away from it being a tension pneumothorax.

Question:

Which one of the following features is not associated with an oculomotor nerve palsy?

A.Miosis

B.Ptosis

C.Eye is deviated 'down and out'

D.Pain if due to a posterior communicating artery aneurysm

E.Diplopia

Answer:Miosis

Explanation:

Ptosis + dilated pupil = third nerve palsy; ptosis + constricted pupil = Horner's

Important for meLess important

Oculomotor nerve palsy is typically associated with a dilated pupil

Question:

A 78-year-old man is admitted to the surgical assessment unit with abdominal distension and vomiting. He has had three days of absolute constipation and increasing abdominal distension prior to admission with nausea and vomiting the last day. His past medical history includes hypertension for which he takes ramipril.

On examination he has a soft but grossly distended abdomen which is tympanic to percussion and loud bowel sounds are audible. His heart rate is 87 bpm, blood pressure is 135/87 mmHg and his temperature is 36.8ºC. An abdominal x-ray performed demonstrates a 'coffee-bean' sign in keeping with a sigmoid volvulus.

What is the most appropriate first line management for this condition?

A.Emergency Hartmann's procedure

B.Conservative management with intravenous antibiotics

C.Conservative management with anti-muscarinic agents

D.Decompression via percutaneously inserted colostomy tube

E.Decompression via rigid sigmoidoscopy and flatus tube insertion

Answer:Decompression via rigid sigmoidoscopy and flatus tube insertion

Explanation:

Unruptured sigmoid volvulus is primarily managed by flatus tube insertion

Important for meLess important

Sigmoid volvulus is a common pathology in the elderly which can initially be managed non-operatively with flatus tube decompression, avoiding the need for surgery which is higher risk in this age group. Decompression this way usually results in resolution of the volvulus without recurrence. Second line treatment is insertion of a percutaneous colostomy tube to decompress the volvulus when flatus tube decompression has proven unsuccessful or recurrence has occurred despite multiple attempts.

Conservative management has no place in someone with absolute constipation as the volvulus will eventually become ischaemic and perforate and this is associated with a high mortality. Anti-muscarinic agents would be the treatment for pseudo-obstruction rather than volvulus. There is no evidence to suggest perforation so undergoing a Hartmann's procedure is unnecessary.

Question:

A 32-year-old woman attends the GP with a rash. She has a bright red rash over her nose and cheeks. She reports that drinking alcohol makes her rash worse and this is really embarrassing for her. She reports occasional pustules.

What is the most likely diagnosis?

A.Acne rosacea

B.Acne vulgaris

C.Erythema ab igne

D.Psoriasis

E.Systemic lupus erythematosus

Answer:Acne rosacea

Explanation:

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

This is a typical history of acne rosacea. Pustules point towards acne, and the erythematous nature of the rash suggests this is rosacea. Rosacea generally worsens with alcohol.

In acne vulgaris, you would expect to see comedones, papules, pustules, nodules, and/or cysts. It is generally less erythematous than rosacea.

Erythema ab igne is an erythematous rash caused by high levels of heat or infra-red radiation. Often you will see this being caused by hot water bottles or radiators.

Psoriasis typically presents with a silver-scale rash. It is an immune-mediated rash that typically presents on extensor surfaces (knees & elbows).

Although this description could fit with a butterfly rash, there is nothing in the history to suggest lupus.

Question:

A 28-year-old woman who is P1 G2 is 30 minutes post-partum of an uncomplicated delivery. She suddenly begins gasping for breath with a blood pressure of 83/65mmHg, heart rate of 120bpm and a respiratory rate of 33/min. She appears cyanosed. She becomes unresponsive. What is the most likely diagnosis?

A.Eclampsia

B.Intracranial haemorrhage

C.Amniotic fluid embolism

D.Normal labour

E.Drug toxicity

Answer:Amniotic fluid embolism

Explanation:

The time frame and symptoms in the question are key at pointing to an amniotic fluid embolism as they usually occur during or within 30 minutes of labour. Respiratory distress, hypoxia, and hypotension are also clear signs of an amniotic fluid embolism.

Intracranial haemorrhage is often preceded by a severe headache. When thinking about eclampsia and drug toxicity, convulsions are a key point.You would not expect the symptoms experienced by this patient during normal labour.

Hypoxia does not suggest drug toxicity.

Question:

A 63-year-old woman presents to her GP with several years of hand pains. She describes pains initially developing in both wrists several years ago, and more recently pains in several joints of the fingers. They tend to ache more after use and are relieved by resting. The affected joints feel stiff upon waking, but this lasts just a few minutes. Functionally, she does not describe any problems in completing tasks.

On examination, the patient describes tenderness at the carpometacarpal joints and several distal interphalangeal joints (DIPs) bilaterally. There are painless nodes palpable over several DIPs.

Given the findings, what is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Psoriatic arthritis

E.Rheumatoid arthritis

Answer:Osteoarthritis

Explanation:

Carpometacarpal and distal interphalangeal joint involvement is characteristic of hand osteoarthritis

Important for meLess important

The correct answer is osteoarthritis; carpometacarpal and distal interphalangeal (DIP) joint involvement is characteristic of hand osteoarthritis. The scenario also describes the findings of Heberden's nodes on examination (painless swellings of DIP joints).

Gout is incorrect - this would present much more acutely. It may mimic acute osteoarthritis but would present in a single joint rather than the gradual picture that is seen here. It commonly involves the feet, especially the first metatarsophalangeal joints.

Pseudogout is incorrect. As with gout, this would present much more acutely, over the space of hours. It often involves the wrist or knee, rather than hand joints. Gout and pseudogout may often co-exist in the same joint.

Psoriatic arthritis is incorrect. The features of this significantly overlap with rheumatoid arthritis. Psoriatic arthritis also classically affects the DIP joints, but asymmetrically. Inflammatory osteoarthritis can be difficult to distinguish from psoriatic arthritis, but the findings of Heberden's nodes in this scenario, as well as the lack of a psoriasis history, make it less likely.

Rheumatoid arthritis is incorrect - this would usually lead to symmetrical polyarthritis of several small joints, usually affecting metacarpophalangeal joints but sparing the DIPs. Morning stiffness would typically be much more prolonged than the few minutes mentioned in this scenario.

Question:

A 46-year-old woman has come into her GP. She is planning on becoming pregnant, and would like advice about simple lifestyle changes and medications she should be taking, and the GP mentions that the woman should be taking the high dose (5 mg) folic acid. Which of the following is a reason for taking high dose folic acid?

A.Age >30

B.BMI >30

C.Iron deficiency anaemia

D.Osteomalacia

E.Twin pregnancy

Answer:BMI >30

Explanation:

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

Important for meLess important

Folic acid is taken during pregnancy to reduce risk of neural tube defects (NTD). The only above reason for needing high dose folic acid is obesity. Other reasons include previous pregnancy with NTD or family history of NTD, as well as use of antiepileptic drugs, coeliac disease, diabetes, and thalassaemia trait.

Question:

A 31-year-old pregnant female presents to the emergency department with right-sided facial weakness. The patient presents with ipsilateral numbness around the ear and hypersensitivity to sound. They have unilateral sagging of the mouth and are drooling saliva. After carrying out further tests, you confirm a diagnosis of Bell’s palsy.

Given the underlying diagnosis, which of the following is correct?

A.The patient would have increased right-sided reflexes

B.The patient will have a reduced perioral sensation

C.The patient will be able to fully smile if asked to actively do so

D.The patient will have reduced hearing due to a non-functioning stapedius muscle

E.The patient will not be able to wrinkle their forehead properly

Answer:The patient will not be able to wrinkle their forehead properly

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

Bell’s palsy is a lower motor neuron defect (LMN) of the facial nerve (cranial nerve VII). Unlike upper motor neuron (UMN) defects of the face, an ipsilateral LMN defect causes complete paralysis on that side. UMN defects spare the forehead and above because the ganglia are innervated bilaterally.

A patient with Bell’s palsy will be unable to effectively wrinkle their forehead as the muscles to the forehead on the right side will not function.

Increased right-sided reflexes would indicate an UMN disease not a LMN disease.

Facial sensation is primarily mediated by the trigeminal nerve not the facial nerve.

Stapedius functions to reduce the volume of sound, not increase it. Therefore if this muscle isn't working, the volume of sound will appear to increase.

The patient will not be able to smile if asked to do so as the lower motor neurons are not functioning.

Question:

A 34 -year- old man with no significant past medical history is transferred to the emergency department following a motorbike accident. He has reduced consciousness and multiple facial injuries with oropharyngeal bleeding. He is unable to maintain his airway, and rapid sequence intubation is indicated.

What is the muscle relaxant of choice for rapid sequence intubation?

A.Vecuronium

B.Propofol

C.Atracurium

D.Suxamethonium

E.Etomidate

Answer:Suxamethonium

Explanation:

Suxamethonium is the muscle relaxant of choice for rapid sequence induction for intubation

Important for meLess important

Although propofol and etomidate may be used in rapid sequence intubation (RSI), they are not muscle relaxants. Propofol and etomidate are sedation agents. Suxamethonium is a short-acting depolarising muscle relaxant with a rapid onset of action, making it suitable for RSI. Vecuronium and atracurium are non-depolarising muscle relaxants with a slow onset of action and a longer duration of action. They are not recommended for RSI.

Question:

A 68-year-old patient presents to her GP with a 'rash' over her right deltoid. She got her COVID-19 vaccine last week and is concerned that she now has the disease. There was no bleeding from the injection site and she tolerated the vaccine well, with only mild fatigue for a few days.

She has a past medical history of anxiety, psoriasis and mild irritable bowel syndrome. On examination, she is systemically well but has a small, silvery plaque over her injection site.

What is the most likely diagnosis?

A.Cellulitis

B.Contact dermatitis to plaster

C.Dermatitis herpetiformis

D.Guttate psoriasis

E.Koebner phenomenon

Answer:Koebner phenomenon

Explanation:

Psoriasis commonly exhibits the Koebner phenomenon

Important for meLess important

The description of this patient's skin condition fits with psoriasis and, given the history of trauma the most likely answer is Koebner phenomenon.

Cellulitis would present as an area of hot, erythematous skin due to infection. In addition, you would expect the patient to be more systemically unwell (such as with a fever).

Contact dermatitis is a type IV-mediated hypersensitivity reaction, and therefore takes a few days to develop. This would fit with the time frame, however the patient probably didn't use a plaster, as she didn't bleed, and the resulting dermatitis would be more eczematous in nature, with features such as erythema, scaling or blistering.

Dermatitis herpetiformis classically presents as an itchy, symmetrical, vesicular rash appearing on the extensor surfaces and is associated with autoimmune conditions such as coeliac disease.

Guttate psoriasis is a psoriatic condition that classically occurs after infections, such as strep throat. It would present as widespread 'tear-drop' papules that are raised and scaly.

Question:

A 68-year-old woman presents with a 1-week history of frequent loose stools, left iliac fossa discomfort and fever without rectal bleeding.

Two months ago she was treated for confirmed Clostridium difficile infection with oral vancomycin, with a resolution of symptoms.

On examination, her heart rate is 88bpm, respiratory rate of 16 breaths/min, temperature 37.4ºC and blood pressure of 128/84 mmHg. Her abdomen is generally mildly tender, without guarding.

A repeat stool culture confirms Clostridium difficile infection.

What is the most appropriate treatment for this patient?

A.Bezlotoxumab

B.Faecal microbiota transplant

C.Oral fidaxomicin

D.Oral vancomycin AND IV metronidazole

E.Oral vancomycin for 10 days

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

Oral fidaxomicin should be used to treat recurrent infection within 12 weeks of symptom resolution.

Bezlotoxumab is a monoclonal antibody which targets Clostridium difficile toxin B. NICE do not currently support its use to prevent recurrences as it is not cost-effective.

Faecal microbiota transplant may be considered for patients who've had 2 or more previous episodes, not on the first recurrence.

Oral vancomycin AND IV metronidazole are used to treat life-threatening Clostridium difficile infection.

Oral vancomycin for 10 days should be used to treat the first episode of Clostridium difficile infection.

Question:

You are working on the paediatric ward and are called to see a child who the nurses have noticed is persistently 'floppy'. You assess the child and find no acute cause for concern and wonder whether there might be an underlying issue.

Which of the following is most likely to be the underlying cause of neonatal hypotonia in this case?

A.Pierre-Robin syndrome

B.Becker Muscular Dystrophy

C.Duchenne Muscular Dystrophy

D.Congenital Talipes Equinovarus

E.Prader-Willi syndrome

Answer:Prader-Willi syndrome

Explanation:

Neonatal hypotonia: associated with Prader-Willi

Important for meLess important

Hypotonia is associated with Prader-Willi, it is also associated with neonatal sepsis, spinal muscular atrophy and hypothyroidism.

Question:

Doreen is a 79-year-old woman who has presented with bilateral shoulder pain and stiffness. Her GP suspects polymyalgia rheumatica (PMR) and requests blood tests.

ESR - erythrocyte sedimentation rate

CRP - C-reactive protein

Anti-ccp - anti-cyclic citrullinated peptide

CK - creatine kinase

Which of the below would be most consistent with this diagnosis?

A.ESR normal , CRP normal, anti-CCP normal, CK normal

B.ESR normal , CRP normal, anti-CCP normal, CK ↑

C.ESR ↑ , CRP ↑, anti-CCP normal, CK normal

D.ESR ↑ , CRP ↑, anti-CCP normal, CK ↑

E.ESR ↑, CRP ↑, anti-CCP ↑, CK normal

Answer:ESR ↑ , CRP ↑, anti-CCP normal, CK normal

Explanation:

Creatine kinase is normal in polymyalgia rheumatica

Important for meLess important

At the time of diagnosis, most patients with polymyalgia rheumatica will have and elevated ESR and CRP.

A raised CK has many causes including polymyositis. Polymyositis is more likely to be associated with muscle weakness than polymyalgia rheumatica. CK is not raised in PMR.

A raised anti-CCP is associated with rheumatoid arthritis.

Question:

A 40-year-old woman presents to the GP complaining of erythematous, oedematous lesions above the lateral malleoli. She has recently been diagnosed with an anti-TSH receptor antibody positive autoimmune disease.

What is the term used to describe this uncommon yet specific feature of her illness?

A.Pretibial myxoedema

B.Exophthalmos

C.Thyroid acropachy

D.Pyoderma gangrenosum

E.Erythema nodosum

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

Pretibial myxoedema is an uncommon but specific feature in Grave's disease that is not seen in hyperthyroidism secondary to other causes. It is an infiltrative dermopathy caused by an accumulation of excess glycosaminoglycans in the dermis and subcutis of the skin. The main glycosaminoglycan in pretibial myxoedema is hyaluronic acid, which is made by cells called fibroblasts.

Lesions of thyroid dermopathy are usually asymptomatic and have only cosmetic importance. Pretibial myxoedema is diagnosed clinically and is managed by treating the underlying causative condition (Grave's disease).

Exophthalmos is another feature of Graves disease which is described as the bulging of the eye anteriorly out of the orbit.

Thyroid acropachy is another feature of Graves disease where there is clubbing of the fingernails.

Pyoderma gangrenosum is a condition where large, painful sores (ulcers) develop of the skin, typically on the legs. While this is believed to have an auto-immune origin, it is not a feature of Graves disease.

Erythema nodosum is an inflammatory condition characterised by inflammation of the fat cells under the skin, resulting in tender red nodules or lumps that are usually seen on both shins. This is most typically associated with inflammatory bowel disease.

Question:

A 17-year-old is admitted to a rehabilitation unit following a road traffic accident in which he sustained spinal cord injury at C2. He is stable and making good progress the first two days but then becomes acutely unwell on the third day and is found to be coughing profusely.

On examination his temperature is 36.7ºC, he is tachycardic at 127 bpm, his blood pressure is 117/76 mmHg and he is hypoxic with his oxygen saturations reading at 91% on air. Examination is unremarkable except he has a tracheostomy and nasogastric tube in situ and some reduced air entry at the right base. A chest x-ray is performed which demonstrates patchy consolidation of the right base.

What is the most likely cause of this man's pneumonia?

A.Community acquired Streptococcus pneumoniae infection

B.Community acquired Pseudomonas aeruginosa infection

C.Hospital acquired Streptococcus pneumoniae infection

D.Hospital acquired Pseudomonas aeruginosa infection

E.Aspiration of stomach contents

Answer:Aspiration of stomach contents

Explanation:

Aspiration is common in neurological injury

Important for meLess important

This man has a number of risks for aspiration including a neurological injury, supported feeding and a tracheostomy. The location of consolidation at the right base is characteristic of aspiration as the anatomy of the respiratory tract makes it more likely for foreign materials to fall down the straighter right main and then right inferior bronchi. The main feature which indicates the absence of an infective cause at present is the normal temperature despite signs of acute illness. Were he to be septic due to an infective pneumonia, either community or hospital acquired, you would expect some level of pyrexia. In addition, it would be impossible for this to be community acquired as by definition, all pneumonias occurring in patients in a hospital after 48-hours (or indeed within 48-hours of discharge) are classed as hospital acquired infections and he fits these criteria.

Question:

A 31-year-old male patient is being reviewed by his GP due to an on-going renal condition. This condition causes him to suffer from haematuria and loin pain. It has also caused his underlying anaemia. His condition was diagnosed on ultrasound and it showed numerous echogenic spaces within his kidneys. His mother suffered from the condition too and passed away from a stroke 2-years-ago.

Which of the following extra-renal complications will the patient most likely suffer from?

A.Deafness

B.Subarachnoid haemorrhage

C.Liver cysts

D.Pancreatic cysts

E.Cataracts

Answer:Liver cysts

Explanation:

Liver cysts are the commonest extra-renal manifestation of ADPKD

Important for meLess important

This patient most likely has autosomal dominant polycystic kidney disease. The most common extra-renal complication for patients to suffer from is liver cysts. By 30-years-old, 80% of patients have liver problems.

Pancreatic cysts and berry aneurysms are less common. The baseline incidence of berry aneurysms (which leads to subarachnoid haemorrhage) is around 8-12%. With a family history of berry aneurysms, the incidence in offspring is still only about 30%. Pancreatic cysts are seen in about 10% of patients.

Deafness and cataracts are potential complications of Alport syndrome, not ADPKD.

The anaemia of this patient is most likely due to chronic kidney disease that will have developed due to his underlying ADPKD.

Reference:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4837006/

Question:

A 53-year-old woman presents to her general practitioner for a routine smear test, the results of which show she is HPV positive. A subsequent cytology swab is taken which shows normal cells. The patient is recalled 12 months later for a second HPV swab, the results of which are negative.

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

A.Perform cytology swab

B.Routine referral to colposcopy

C.Repeat HPV test in 3 years

D.Repeat HPV test in 5 years

E.Repeat HPV test after a further 12 months

Answer:Repeat HPV test in 5 years

Explanation:

Cervical cancer screening: if 2nd repeat smear at 24 months is now hrHPV -ve → return to routine recall

Important for meLess important

As this patient is now HPV negative, they may return to routine recall. As this patient is over the age of 50, routine recall requires a smear test be taken every 5 years.

Perform cytology swab is incorrect as this would be indicated if HPV was still positive.

Routine referral to colposcopy is incorrect as a negative HPV swab is insufficient evidence to suggest cervical cancer is present.

Repeat HPV test in 3 years is incorrect as this is the routine recall protocol for patients aged 25-49.

Repeat HPV test after a further 12 months is incorrect as this would be the correct management if HPV was again positive and cytology was normal.

Question:

A 42-year-old man presents to the emergency department with chest pain that started 2 hours ago. He describes the pain as radiating to his left arm and jaw. He has no significant past medical history; he drinks alcohol occasionally and admits to sometimes using illegal drugs.

On examination, he appears sweaty and agitated. His limbs are mildly hypertonic and hyper-reflexive, and his pupils are dilated. His blood pressure is 175/82 mmHg. An ECG shows some QRS widening and QT prolongation, as well as ST depression and T wave inversion in several leads.

What should be given as part of the acute management?

A.Atorvastatin

B.Bisoprolol

C.Diazepam

D.Naloxone

E.Ramipril

Answer:Diazepam

Explanation:

Patients with MI secondary to cocaine use should be given IV benzodiazepines as part of acute (ACS) treatment

Important for meLess important

This patient's history and examination findings are suggestive of myocardial infarction (MI) secondary to cocaine use. For a cocaine-induced MI - whereby ischaemia is caused by coronary artery vasospasm - first-line management involves the use of benzodiazepines, such as diazepam, given intravenously. Nitrates should also be given for chest pain.

Atorvastatin, while used in the long-term management following an MI to reduce cholesterol levels and subsequent risk of another MI, does not play a role in the acute setting.

Bisoprolol is a beta-blocker. Under normal circumstances, this would be useful in the role of MI management. However, a lot of controversy surrounds their use in cocaine-related MI, as they may exacerbate coronary vasospasm. Of the options above, diazepam is a more appropriate choice.

Naloxone is used to reverse the effects of opioid overdose, which would include respiratory depression and pinpoint pupils. This patient does not display any of these signs and so this would be inappropriate. He is intoxicated with cocaine, not with opioids.

Ramipril is an ACE inhibitor. While part of long-term management following MIs, ACE inhibitors are not routinely given acutely.

Question:

A 68-year-old woman is brought into the emergency department with shortness of breath. She has a past medical history of left ventricular systolic dysfunction with an ejection fraction of 20%. A chest x-ray confirms acute pulmonary oedema which is treated immediately with high dose IV furosemide. Her repeat observations are oxygen saturation 94% on 15L oxygen, heart rate 124 beats per minute, respiratory rate of 28 breaths per minute and blood pressure 74/50 mmHg.

What management option should be considered next?

A.Biphasic positive airway pressure

B.Give IV fluid for her hypotension

C.Give an acute dose of bisoprolol

D.Inotropic support on the high dependency unit (HDU)

E.Start a rate-limiting calcium channel blocker

Answer:Inotropic support on the high dependency unit (HDU)

Explanation:

Acute heart failure with hypotension - inotropes be considered for patients with severe left ventricular dysfunction who have potentially reversible cardiogenic shock

Important for meLess important

Inotropic support on the high dependency unit (HDU) is the correct answer. In acute pulmonary oedema, the primary aim of management is diuresis to offload excess fluid. In patients who have cardiogenic shock, diuresis would lower blood pressure further and worsen the picture of shock. Inotropes should therefore be considered in this patient group to promote increased cardiac contractility and support blood pressure whilst diuresis is ongoing.

Biphasic positive airway pressure (BiPAP) is used as a method of non-invasive ventilation for patients who are hypoxic and hypercapnic. BiPAP is used primarily to aid in carbon dioxide elimination where retention has led to adverse physiological consequences such as acidosis. Pulmonary oedema does not typically lead to hypercapnia therefore BiPAP would not be an immediate consideration for this patient.

Giving IV fluid for her hypotension would not be appropriate. In this scenario, her hypotension is secondary to cardiogenic shock, not hypovolaemic shock. Giving further fluid in this scenario would worsen the condition of the patient by contributing to the fluid overload.

Bisoprolol is contraindicated in this scenario. In acute heart failure, there is a compensatory tachycardia to maintain cardiac output. Giving bisoprolol would suppress this mechanism and worsen the cardiogenic shock. Outside of an acute scenario, a patient can continue on their routine bisoprolol if they are already prescribed this for heart failure unless they are bradycardic.

Start a rate-limiting calcium channel blocker is also inappropriate for the same reasons as starting bisoprolol.

Question:

A 78-year-old man is investigated for headaches. A routine blood screen is normal other than an elevated ALP. A skull x-ray is ordered:

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What is the most likely diagnosis?

A.Myeloma

B.Cervical spondylosis

C.Pituitary tumour

D.Calcified temporal arteritis

E.Paget's disease of the bone

Answer:Paget's disease of the bone

Explanation:

This is a very stereotypical question - you should always think Paget's disease if shown a skull x-ray in an exam.

The radiograph demonstrates marked thickening of the calvarium. There are also ill-defined sclerotic and lucent areas throughout. These features are consistent with Paget's disease.

Question:

A 19-year-old female has presented to the emergency department due to a week-long history of diarrhoea. She reports no blood in her stool or infective contacts. The patient feels she is sleeping more and feels generally weak.

She has a past medical history of depression for which she was started on sertraline. Two weeks ago she stopped taking this drug as she said she had a much brighter outlook on life. Her mental state is reported as currently stable and you assess her as euthymic.

Her general examination reveals bilaterally dilated pupils which are noted on previous attendances as a child.

What feature in this patient is most likely due to cessation of her medication?

A.Diarrhoea

B.Euthymia

C.Generalised weakness

D.Hypersomnia

E.Mydriasis

Answer:Diarrhoea

Explanation:

Gastrointestinal side-effects such as diarrhoea are seen in SSRI discontinuation syndrome

Important for meLess important

Diarrhoea is the correct option as this young woman has stopped taking her sertraline two weeks prior to her presentation of protracted diarrhoea, which along with abdominal cramping and vomiting, are common symptoms seen in SSRI discontinuation syndrome. Furthermore, using Occam’s razor, given the timeline and the normal blood results and lack of infective contacts, it is more likely to be this syndrome compared to inflammatory bowel disease or gastroenteritis.

Euthymia is incorrect as the SSRI discontinuation syndrome more commonly results in increased mood change.

Hypersomnia is an incorrect option because insomnia changes to the sleep pattern are more commonly seen in SSRI discontinuation.

Generalised weakness is an incorrect option as this is more than likely due to diarrhoea and there is no focal neurology in the limbs to suggest anything different. Moreover, SSRI discontinuation syndrome can result in paraesthesias rather than a general feeling of fatigue and weakness.

Mydriasis is an incorrect option as SSRI discontinuation syndrome is not related to these pupillary changes; in fact, the serotonin syndrome caused by taking too much SSRI can result in this. The stem also clearly states these pupils have been dilated since a young age making congenital mydriasis the most likely diagnosis in this case.

Question:

A 18-year-old female presents to the emergency department with a 2 day history of lower abdominal pain. She also complains of nausea and vomiting, and has not opened her bowels for 24 hours. She has mild dysuria and her last menstrual period (LMP) was 21 days ago. She smokes 20 cigarettes a day and drinks 15 units of alcohol per week. On examination she is haemodynamically stable, with pain in the right iliac fossa. Urinary pregnancy and dipstick are both negative. Which one of the following is the most likely diagnosis?

A.Urinary tract infection

B.Ectopic pregnancy

C.Mittelschmerz

D.Appendicitis

E.Diverticulitis

Answer:Appendicitis

Explanation:

This is a fairly standard presentation of acute appendicitis (young age, site, associated symptoms)

The urinary investigations have excluded a urinary tract infection and ectopic pregnancy.

Mittelschmerz is also known as mid-cycle pain.

Diverticulitis usually presents at older ages and commonly localises to the left iliac fossa.

Question:

A 20-year-old university student is brought to the emergency department by her flatmates, with confusion and fever. Since yesterday, she had been complaining of a severe headache and neck stiffness. Her flatmates have also noticed what looks like bruising.

She appears acutely unwell, pyrexial and has nuchal rigidity upon examination. An extensive purpuric rash is noted, as well as general pallor and mottling.

Given the likely diagnosis, what should be offered to her flatmates?

A.Intramuscular benzylpenicillin now

B.Intravenous benzylpenicillin if they develop symptoms

C.Intravenous cefotaxime now

D.Oral ciprofloxacin if they develop any symptoms

E.Oral ciprofloxacin now

Answer:Oral ciprofloxacin now

Explanation:

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

Important for meLess important

The correct answer is oral ciprofloxacin. This patient has meningococcal meningitis, as evidenced by the headache, neck stiffness and widespread purpuric rash. Prophylaxis should be offered to household members and close contacts - ciprofloxacin or rifampicin may be used, but ciprofloxacin is the drug of choice.

Intramuscular benzylpenicillin is incorrect - this would not be used for prophylaxis. This is suitable in a pre-hospital setting to give to a patient with suspected meningococcal meningitis, as long as it does not delay transit to the hospital.

Intravenous benzylpenicillin if they develop symptoms is incorrect - intravenous benzylpenicillin is a potential treatment option for the patient themselves, not for contacts. Furthermore, it should be given immediately to the patient.

Intravenous cefotaxime is a treatment option for the patient - not a suitable prophylactic antibiotic to give to the close contacts.

Oral ciprofloxacin, if they develop symptoms, is not correct - whilst this is a suitable choice of antibiotic, it should be given now, not waiting until symptoms develop.

Question:

The phlebotomist in a GP surgery sustains a needlestick injury whilst taking blood from a patient who is known to be HIV positive. Following thorough washing of the wound what is the most appropriate management?

A.HIV test of phlebotomist in 3 months to determine treatment

B.Refer to GUM for immediate p24 HIV test of phlebotomist to determine treatment

C.Refer to Emergency Department + oral antiretroviral therapy for 4 weeks

D.Refer to Emergency Department + oral antiretroviral therapy for 3 months

E.Reassure low risk of transmission

Answer:Refer to Emergency Department + oral antiretroviral therapy for 4 weeks

Explanation:

Post-exposure prophylaxis for HIV: oral antiretroviral therapy for 4 weeks

Important for meLess important

Question:

A 64-year-old male presents with a 30-minute history of crushing central chest pain radiating down into his left arm and jaw. He has a past medical history of hypertension, type 2 diabetes mellitus, and hyperlipidaemia. He is currently taking metformin, ramipril, and atorvastatin. He denies any allergies. His ECG report shows ST elevation in leads II, III, and aVF. It is decided that he is amenable for percutaneous coronary intervention.

Which of the options below is the most appropriate medication to give prior to this procedure?

A.Alteplase

B.Aspirin

C.Aspirin and clopidogrel

D.Aspirin and prasugrel

E.Warfarin

Answer:Aspirin and prasugrel

Explanation:

STEMI management: if patient is having PCI then prasugrel is given in addition to aspirin. If patient is on an anticoagulant then clopidogrel used instead

Important for meLess important

Percutaneous coronary intervention (PCI) can be offered to this patient as he is presenting with an STEMI within 12 hours of onset of symptom onset. The preferred method of PCI is via radial access with a drug-eluting stent. Prior to PCI, the patient should be given dual antiplatelet therapy. As the patient is not on any current oral anticoagulation, he should be given aspirin and prasugrel.

Alteplase is a thrombolytic agent which is used if a patient is not amenable to PCI.

Aspirin is not sufficient antiplatelet therapy prior to PCI.

Aspirin and clopidogrel would be appropriate if the patient was already on an oral anticoagulant. As his only drug history is metformin, ramipril and atorvastatin, this is an incorrect answer.

Warfarin acts to deplete vitamin K reserves and reduce synthesis of active clotting factors. This would be inappropriate to administer in an acute setting for preparation for a PCI as it takes several days to reach therapeutic dose.

Question:

A 23-year-old man attends the emergency department after eating a cake containing a hazelnut chocolate spread. He is allergic to tree nuts and has previously been admitted following an anaphylactic reaction.

On examination, he has a widespread, erythematous urticarial rash which is confluent at flexor sites. He is speaking in full sentences and has no oral or peri-oral oedema. There is no audible wheeze.

His observations show a respiratory rate of 22 breaths/min, 98% oxygen saturation in room air, heart rate of 115 beats/min, and blood pressure of 97/68mmHg.

What is the most appropriate initial management for this patient?

A.IM adrenaline + IV chlorphenamine

B.IM adrenaline + IV chlorphenamine + IV hydrocortisone

C.IM adrenaline only

D.Oral chlorphenamine

E.Oral prednisolone

Answer:IM adrenaline only

Explanation:

IM adrenaline is the single most important drug in anaphylaxis. Hydrocortisone/chlorphenamine are no longer given

Important for meLess important

This patient has symptoms of anaphylaxis - he is tachycardic and hypotensive. Despite not having an airway or breathing problem (albeit a slightly increased respiratory rate), this patient has circulatory signs consistent with a diagnosis of anaphylaxis. The most important drug to give in anaphylaxis is IM adrenaline into the anterolateral aspect of the middle third of the thigh. Depending on how he responds to the first dose of adrenaline, he may be discharged after 2 hours of symptom resolution.

IV chlorphenamine is not used as part of the initial management for anaphylaxis. The resus council now recommend non-sedating oral anti-histamines to be used after initial management, where possible. IV chlorphenamine can be used later in management as an adjunct if IM adrenaline is inadequate. Furthermore, it can be continued orally or by injection for 24-48 hours to prevent relapse.

IV hydrocortisone was previously recommended as an adjuvant drug in the management of acute anaphylaxis. However, due to the poor evidence base and the delayed onset of action - it is no longer recommended in the initial management of anaphylaxis.

Oral chlorphenamine is not the first-line management for anaphylaxis. Due to its sedating properties, non-sedating oral antihistamines are preferred in the management of allergic reactions and in stabilised patients after acute anaphylaxis has resolved (2021 Resus Council Guidelines). If this patient's symptoms of urticaria persist, a non-sedating antihistamine (like cetirizine) may be prescribed.

Oral prednisolone is not the first-line management for anaphylaxis. It can be used as adjunctive therapy in the management of milder allergic reactions (alongside antihistamines), however has no role in the first-line drug management of anaphylaxis.

Question:

An 83-year-old lady is complaining of poor vision, which has been gradually progressing for the last few years. On examination, there are obvious cataracts in both eyes, but best corrected visual acuity is only slightly reduced at 6/9. She has no past ocular history.

What is the most appropriate management?

A.Urgent referral to ophthalmology

B.Reassure and monitor for progression

C.Referral for cataract surgery

D.Advise about spectacles

E.Prescribe corticosteroids

Answer:Referral for cataract surgery

Explanation:

Cataract removal operations should never be rationed on the basis of visual acuity

Important for meLess important

NICE guidance states that cataract surgery should not be rationed on the basis of visual acuity. To delay surgery is a false economy. Even a slight reduction in visual acuity increases the risk of falls and other complications, such that cataract surgery is one of the most cost-effective operations on the NHS.

Cataracts are not an acute problem so carry no urgency.

Corticosteroids are a cause, not treatment, of cataracts.

Question:

Paul is a 54-year-old man who comes to see you with a 4 month history of nasal congestion affecting his right nostril. He explains that he has also noticed his sense of smell has reduced on the right side. His symptoms have come on gradually and are now worsening. He is a smoker with a 15 pack-year history.

On examination, there is slight mucosal oedema but no significant nasal inflammation. There are no focal neurological signs.

What is the best option for initial management?

A.Lifestyle advice including stopping smoking and good dental hygiene

B.Nasal irrigation with saline solution

C.Routine referral to an ear, nose and throat specialist

D.Urgent referral to an ear, nose and throat specialist

E.A 6 week course of intranasal corticosteroids

Answer:Urgent referral to an ear, nose and throat specialist

Explanation:

Unilateral symptoms are a red flag for patients with chronic rhinosinusitis

Important for meLess important

NICE guidelines state:

If signs and symptoms are not typical of chronic sinusitis and the diagnosis is in doubt, refer to an ear, nose and throat specialist to rule out an alternative diagnosis.

Urgent referral for further investigation is required if there are unilateral symptoms, epistaxis, blood-stained discharge, crusting, orbital symptoms (such as diplopia or reduced visual acuity), or neurological symptoms or signs.

In this case, Paul has unilateral symptoms which have been present for over 3 months and are gradually worsening. Therefore in the first instance an urgent referral to an ENT specialist is warranted to exclude more sinister pathology such as malignancy.

Question:

A 45-year-old woman presents to the Rheumatology clinic for review. She reports a six-month history of arthralgia and swelling affecting the metacarpophalangeal (MCP) joints of both hands.

On examination, she has boggy swelling of the third, fourth and fifth MCP joints bilaterally, with erythema and mild tenderness to palpation. No gross deformities are noted in either hand, and she has a normal range of motion and motor function bilaterally.

Investigation results are shown below:

Anti-cyclic citrullinated peptide (CCP) antibody titre 48U (<20)

What is the most likely hand X-ray findings for this patient?

A.Joint subluxation

B.Juxta-articular osteopaenia

C.Peri-articular erosions

D.Subchondral cysts

E.Subchondral sclerosis

Answer:Juxta-articular osteopaenia

Explanation:

Juxta-articular osteoporosis/osteopenia is an early x-ray feature of rheumatoid arthritis

Important for meLess important

The correct answer is juxta-articular osteopaenia. This patient has a likely new diagnosis of rheumatoid arthritis. This is based on the symmetrical arthropathy affecting multiple joints in her hands, with a positive anti-CCP titre. Juxta-articular osteopenia is a common early X-ray feature of rheumatoid arthritis and is the most likely finding in this clinical scenario.

Joint subluxation is incorrect. Although this can be seen in patients with rheumatoid arthritis, it would be unlikely to be present on an initial X-ray at the point of diagnosis, and usually occurs in the context of progressive disease. In addition, the clinical examination findings do not suggest the presence of joint subluxation.

Peri-articular erosions is incorrect. These would also be seen in the context of progressive rheumatoid arthritis, and are not classically seen on initial diagnostic X-rays.

Subchondral cysts is incorrect. These tend to be seen on the X-rays of patients with osteoarthritis rather than rheumatoid arthritis.

Subchondral sclerosis is incorrect. These are also X-ray findings suggestive of osteoarthritis rather than rheumatoid arthritis.

Question:

A 19-year-old woman presents with hearing problems for the past six months. She initially thought it was due to wax but her hearing has not improved after ear syringing. You perform an examination of her auditory system including Rinne's and Weber's test:

Rinne's test: Left ear: air conduction > bone conduction

Right ear: air conduction > bone conduction

Weber's test: Lateralises to the left side

What do these tests imply?

A.Left sensorineural deafness

B.Right conductive deafness

C.Normal hearing

D.Right sensorineural deafness

E.Left conductive deafness

Answer:Right sensorineural deafness

Explanation:

In Weber's test if there is a sensorineural problem the sound is localised to the unaffected side (left) indicating a problem on the right side.

Question:

A 62-year-old man is brought to the doctors by his daughter. Four weeks ago his wife died from metastatic breast cancer. He reports being tearful every day but his daughter is concerned because he is constantly 'picking fights' with her over minor matters and issues relating to their family past. The daughter also reports that he has on occasion described hearing his wife talking to him and on one occasion he prepared a meal for her.

Despite this he has started going walking again with friends and says that he is determined to get 'back on track'.

What is the most likely diagnosis?

A.Atypical grief reaction

B.Depression without psychotic features

C.Delusional disorder

D.Depression with psychotic features

E.Normal grief reaction

Answer:Normal grief reaction

Explanation:

Question:

A 31-year-old G1P0 28 weeks pregnant caucasian woman attends her antenatal screening. Her BMI is 21kg/m², her BP is 139/86mmHg, her symphysis-fundal height is 30cm and her urine dipstick results can be seen below.

Test Results

Ketones negative

Blood negative

Protein negative

Glucose trace

Nitrites negative

Leukocytes negative

What is the next most appropriate step?

A.Arrange for a fasting glucose test

B.Prescribe labetalol

C.Prescribe metformin

D.Reassure and safety-net

E.Request an oral glucose tolerance test

Answer:Reassure and safety-net

Explanation:

Trace glycosuria is common in pregnancy due to the increased GFR and reduction in tubular reabsorption of filtered glucose

Important for meLess important

Reassure and safety-net is the correct answer. The patient urine dipstick shows a trace of glucose. Glycosuria is found at some point in about 50% of pregnant women. Hormonal changes during pregnancy allow for increased blood flow to the kidneys and altered autoregulation such that the glomerular filtration rate (GFR) increases, allowing for more filtering of the blood.

Note that the symphysis-fundal height is 30cm but still within the limit (gestational weeks ± 2), suggesting that the baby is not classified as macrosomic (a common complication of gestational diabetes). The asymptomatic presentation of the patient (no polyuria, polydipsia or nocturia) and lack of risk factors like high BMI or previous diabetes suggest that gestational diabetes is unlikely.

Arrange for a fasting glucose test is incorrect. Even if one does not consider the fact that a trace of glycosuria does not warrant investigations according to RCOG guidelines, fasting glucose is not the best option to diagnose or exclude gestational diabetes. OGTT is considered the gold standard and therefore should be chosen over the fasting glucose test when investigating gestational diabetes.

Prescribe labetalol is incorrect. This is an important part of the management of pre-eclampsia, however, the patient does not present with any worrying signs. She has not reported pain, visual disturbances or headaches, her BP is not above 140/90 and there is no evidence of proteinuria.

Prescribe metformin is incorrect. Metformin is safe to use in pregnancy but should be prescribed with a confirmed diagnosis of gestational diabetes. In this case, the patient has presented with asymptomatic glycosuria which is unlikely to be gestational diabetes. Unless confirmed with a glucose test, there is no indication for the patient to be started on medication for diabetes.

Request an oral glucose tolerance test is incorrect. Trace glycosuria is common in pregnancy due to hormonal changes leading to increased GFR and reduction in tubular reabsorption of filtered glucose. OGTT is indeed the gold standard for investigations regarding gestational diabetes. Nevertheless, the woman presentation indicates there is nothing to indicate further tests.

Question:

A 72-year-old woman is two days post-hemicolectomy for a colorectal carcinoma and is recovering on the surgical ward. She is currently nil-by-mouth. Approximately twelve hours after the operation her epidural fell out, leaving her in significant pain. The on-call anaesthetist was unable to attend for several hours, however, the epidural was eventually replaced.

You review her the following morning and while now pain free, she is complaining of shortness of breath. She has also developed a fever of 38.2º.

What is the most likely cause of her fever?

A.Anastomotic leak

B.Basal atelectasis

C.Surgical site infection

D.Urinary tract infection

E.Respiratory tract infection

Answer:Respiratory tract infection

Explanation:

Pneumonia can be a complication of poor post-operative pain management

Important for meLess important

Identification and management of post-operative fever is a common problem facing junior doctors on surgical wards. The following timeline can be used as a broad rule of thumb when determining the most likely cause of postoperative fever:

Day 1-2: 'Wind' - Pneumonia, aspiration, pulmonary embolism

Day 3-5: 'Water' - Urinary tract infection (especially if the patient was catheterised)

Day 5-7: 'Wound' - Infection at the surgical site or abscess formation

Day 5+: 'Walking' - Deep vein thrombosis or pulmonary embolism

Any time: Drugs, transfusion reactions, sepsis, line contamination.

In this scenario, the period of insufficient analgesia means this lady will have experienced a period of significant abdominal pain, which will restrict a patient to shallow breathing. Lack of deep breathing is a risk factor for both atelectasis and respiratory tract infections.

While textbooks will often ascribe post-operative fever to atelectasis, it is now recognised that there is no evidence that atelectasis causes fever. Atelectasis is a common post-operative finding, and as such the association with fever is now thought to be correlation, rather than causative (see Mavros et al, PMID: 21527508). As such, given her new symptoms, this is much more likely to be a respiratory tract infection.

Anastamotic leak is unlikely as this patient is still nil-by-mouth.

Surgical site infections are much more common from day 5 onwards, while this patient is still day 2-3 post-op and would not account for her shortness of breath in the absence of pain.

This patient is around the time period post-op where urinary tract infections are more likely, however this would not explain her shortness of breath.

Question:

A 48-year-old man is started on a course of chemotherapy for bladder cancer. Three days after his first dose of chemotherapy, he becomes unwell and is admitted to the hospital following a seizure. His blood result shows the following:

Na+ 136 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Calcium 2.1 mmol/L (2.1-2.6)

Phosphate 0.8 mmol/L (0.8-1.4)

Magnesium 0.21 mmol/L (0.7-1.0)

Uric acid 0.42 mmol/L (0.18 - 0.48)

Which of the following chemotherapy agent is most consistent with this presentation?

A.Cisplatin

B.Bleomycin

C.Doxorubicin

D.Cyclophosphamide

E.Vincristine

Answer:Cisplatin

Explanation:

Cisplatin is associated with hypomagnesaemia

Important for meLess important

The correct answer is cisplatin. This patient has a low magnesium level. This patient is likely to have developed a seizure secondary to hypomagnesaemia which is one of the side effects of this treatment. Other adverse effects include ototoxicity and peripheral neuropathy.

Both bleomycin and doxorubicin do not cause electrolyte disturbances. The most significant adverse effects of bleomycin is lung fibrosis, whilst for doxorubicin, it is cardiotoxicity.

Cyclophosphamide and vincristine can cause electrolyte disturbance in the form of hyponatraemia. This patient's sodium level is normal and therefore these are unlikely to be the cause of his presentation and biochemical findings.

The adverse effects of cyclophosphamide include hyponatraemia by causing SIADH, haemorrhagic cystitis and myelosuppression. This treatment is also carcinogenic and may increase the risk of developing transitional cell carcinoma of the bladder.

The adverse effects of vincristine include hyponatraemia, alopecia, peripheral neuropathy and constipation.

Question:

A 34-year-old contractor has fallen off some scaffolding at work onto his right arm and you suspect a mid-shaft humeral fracture. Which of the following would test the nerve most at risk in this situation?

A.Test sensation of the 5th finger

B.Extend the wrist

C.Extend the forearm at the elbow

D.Abduct the arm at the shoulder

E.Flex the fingers

Answer:Extend the wrist

Explanation:

Mid-shaft humeral fractures are associated with radial nerve injury. As such, the radial nerve needs to be tested. This may be achieved in a number of ways, but extending the wrist is the only one of the above options that will test radial nerve function (as the radial nerve supplies innervation to the extensor muscles). Palsy of the radial nerve is associated with 'wrist drop'.

Extending the elbow would test the radial nerve, but as the injury is at the shaft of the humerus, innervation of the triceps may arise proximal to a radial nerve injury. This would mean that a more distal injury could be missed. As such, while this will probably be performed, it is not going to give as much information as extension of the wrist.

References:

Shao YC, Harwood P, Grotz MR, et al. (2005). Radial nerve palsy associated with fractures of the shaft of the humerus: a systematic review. J Bone Joint Surg Br; 87(12):1647-52.

Question:

A 29-year-old man who is known to have ulcerative colitis is admitted to hospital with a flare of his disease. For the past three days he has been passing up to five bloody stools per day. Over the past 24 hours he has also developed abdominal pain and a low grade pyrexia. Bloods show the following:

Hb 13.9 g/dl

Platelets 422 \* 109/l

WBC 10.1 \* 109/l

ESR 88 mm/hr

CRP 198 mg/l

What is the most important next investigation to perform?

A.CT abdomen

B.Laparoscopy

C.Abdominal x-ray

D.Colonoscopy

E.TPMT activity

Answer:Abdominal x-ray

Explanation:

This patient may have developed a toxic megacolon, which is classically demonstrated by the transverse colon being > 6 cm in diameter in combination with signs of systemic upset. Patients identified as having a toxic megacolon are usually treated aggressively with medical therapy for 24-72 hours. If there is no sign of improvement during this time a colectomy is performed.

Question:

A 75-year-old man presents to the emergency department with sudden onset vertigo, vomiting, and deafness. He has a past medical history of hypertension and type 2 diabetes for which he takes ramipril and metformin.

On examination, he has left-sided facial paralysis and sensory neural deafness in the left ear, and right-sided loss of temperature sensation.

Given this presentation what is the most likely location of this patient's stroke?

A.Anterior cerebral artery

B.Anterior inferior cerebellar artery

C.Basilar artery

D.Midbrain

E.Posterior inferior cerebellar artery

Answer:Anterior inferior cerebellar artery

Explanation:

Sudden onset vertigo and vomiting, ipsilateral facial paralysis and deafness - anterior inferior cerebellar artery

Important for meLess important

The correct answer is anterior inferior cerebellar artery (AICA). The AICA supplies the medulla of the brainstem so a stroke in this location affects the vestibular nucleus and causes ipsilateral facial paralysis and deafness. AICA strokes are similar to posterior inferior cerebellar artery (PICA) strokes and it can be hard to differentiate the two as they both affect the medulla. 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, but PICA does not.

Posterior inferior cerebellar artery strokes cause lateral medullary syndrome. This syndrome causes ipsilateral facial pain and temperature loss as well as contralateral limb pain, temperature loss, ataxia, and nystagmus. This type of stroke affects the lateral of the medulla where the spinothalamic tracks descend causing contralateral pain and temperature loss. The lateral medulla contains the vestibular nuclei which cause the ataxia and nystagmus. However, this answer is incorrect because PICA does not cause sensorineural deafness.

Basilar artery strokes are easy to remember because they are one of the few types of strokes that cause bilateral symptoms. 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 and causes bilateral paralysis due to the inability of motor tracts to descend past the pons. Patients develop locked-in syndrome where they are only able to move their eyes.

Midbrain strokes are 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.

Anterior cerebral artery (ACA) strokes are a type of anterior circulation stroke. The ACA mostly supplies the anterior portion of the frontal lobe. 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. It does not cause vertigo or deafness like in the patient in this case.

Question:

A 55-year-old patient was admitted to the intensive care unit 5 days ago with severe COVID-19.

On assessment today he is dyspnoeic and the medical team suspects he may have developed acute respiratory distress syndrome (ARDS).

What finding on assessment would be consistent with this diagnosis?

A.Amylase three times the upper limit of normal

B.Chest x-ray showing bilateral infiltrates

C.Echocardiogram showing abnormal left ventricular systolic function

D.Raised BNP levels

E.Raised pulmonary capillary wedge pressure

Answer:Chest x-ray showing bilateral infiltrates

Explanation:

Diagnostic criteria for ARDS; Clinical + CXR + pO2/fiO2 < 40kPa (300 mmHg)

Important for meLess important

Chest x-ray showing bilateral infiltrates is correct. Chest x-ray with bilateral diffuse alveolar opacities is consistent with the Berlin criteria that are used to diagnose ARDS. Other criteria include an acute onset (within one week), a pO2/FiO2 ratio < 40kPa, and respiratory failure not fully explained by cardiac failure or fluid overload.

Amylase three times the upper limit of normal is a sign of pancreatitis, not ARDS. While pancreatitis is a cause of acute respiratory distress syndrome, in this patient the likely underlying cause is COVID-19.

Echocardiogram showing abnormal left ventricular systolic function is incorrect. Abnormal left ventricular systolic function is suggestive of cardiogenic pulmonary oedema rather than ARDS.

Raised BNP levels would suggest a cardiogenic cause of respiratory distress and thus make a diagnosis of ARDS less likely. Typically, BNP levels >500 nanograms make heart failure likely.

Raised pulmonary capillary wedge pressure is incorrect. ARDS is non-cardiogenic pulmonary oedema, however, a raised pulmonary wedge pressure is suggestive of a cardiac cause. In general, a pulmonary capillary wedge pressure less than 19mmHg would be suggestive of ARDS.

Question:

A 31-year-old woman has come to the optician because of gradually decreasing visual acuity. She says he can't see the TV properly and that colours have started to fade and become less vibrant. She feels it gets worse when she goes for a run.

On examination there is a relative afferent pupillary defect in the left eye, visual acuity is 6/12 bilaterally and there is reduced red-green colour vision bilaterally.

Given the patient's symptoms and examination findings, which of the following investigations would be most appropriate to diagnose her condition?

A.CT head with contrast

B.CT head without contrast

C.Carotid doppler

D.MRI head

E.Ocular ultrasound

Answer:MRI head

Explanation:

Optic neuritis can be a feature of multiple sclerosis

Important for meLess important

Reduced visual acuity after exercise = Uhthoff's phenomenon.

This patient has presented with features of optic neuritis, often the first sign of multiple sclerosis (MS). In this case, MRI is the gold standard for diagnosis.

CT is not used in MS as most findings are non-specific and can sometimes be normal with an abnormal MRI.

Carotid doppler is useful when investigation retinal artery occlusion, another cause of vision loss. Given the patient's age and the key finding of Uhthoff's phenomenon, this is less likely to be the cause.

Ocular ultrasound is useful if you suspect central serous chorioretinopathy, which can present in a similar manner, or retinal detachment. These, however, tend not to affect colour vision or get worse on exercise.

Question:

A 62-year-old man is investigated for increasing shortness-of-breath. A chest x-ray is ordered:

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What is the most likely diagnosis?

A.Chronic obstructive pulmonary disease

B.Lung cancer

C.Heart failure

D.Pulmonary arterial hypertension

E.Retrosternal goitre with tracheal compression

Answer:Chronic obstructive pulmonary disease

Explanation:

Chronic obstructive pulmonary disease requires spirometry to confirm the diagnosis but this chest x-ray is highly suggestive.

Features include:

hyperinflation

flattened hemidiaphragms

hyperlucent lung fields

Question:

A 35-year-old male is found to be in fast atrial fibrillation during a workup for an unwitnessed collapse. He undergoes electrical cardioversion and is started on amiodarone to maintain sinus rhythm.

Which one of the following adverse effects may be seen in patients taking amiodarone?

A.Tachycardia

B.Grey skin appearance

C.Lactic acidosis

D.Agranulocytosis

E.Diarrhoea

Answer:Grey skin appearance

Explanation:

Amiodarone can cause a grey skin appearance

Important for meLess important

Common side effects of amiodarone:

Bradycardia

Hyper/hypothyroidism

pulmonary fibrosis/pneumonitis

liver fibrosis/hepatitis

jaundice

taste disturbance

persistent slate grey skin discolouration

raised serum transaminases

nausea

constipation (particularly at the start of treatment)

Uncommon side effects:

arrhythmias

peripheral neuropathy

peripheral myopathy

Very rare side effects:

alopecia

aplastic anaemia

ataxia

benign intracranial hypertension

Lactic acidosis is a known adverse effect of metformin.

Clozapine and carbimazole are known to cause agranulocytosis.

Question:

A 55-year-old man presents to his GP with a gradual onset of back pain over the past 8 months. The back pain is worse on activity and walking causes bilateral pain and weakness in his calves. The back pain is relieved by sitting or leaning forward.

On examination, no neurological findings are present. He has no relevant past medical history, smokes socially and drinks a glass of wine with dinner each night. He is currently a builder and is concerned because his back is starting to interfere with his ability to work.

What is the most likely diagnosis?

A.Ankylosing spondylitis

B.Epidural abscess

C.Osteoarthritis of the hip

D.Peripheral vascular disease

E.Spinal stenosis

Answer:Spinal stenosis

Explanation:

Spinal stenosis is often relieved by sitting down or leaning forward

Important for meLess important

Ankylosing spondylitis is typically seen in younger men with onset at age 30 to 40. It typically presents with morning back stiffness, hip pain, and swelling that is not relieved with rest and improves with exercise.

Epidural abscesses may present non specifically and can develop from spread from osteodiscitis, haematogenous spread or from direct inoculation post-injection, surgery or penetrating trauma. Fever, malaise, and back pain are the most common early symptoms. There may be local tenderness with or without neurological deficit.

Osteoarthritis of the hip typically causes hip pain that may radiate to the lateral aspect of the thigh but rarely extends below the knee. Walking, exercise and lying on the affected side may exacerbate pain and rest may relieve it but leaning forward would not.

Peripheral vascular disease might present with intermittent claudication (IC), which also typically affects older patients. Leg pain is typically cramping, beginning distally and progressing proximally. There will be no improvement of symptoms with lumbar flexion.

Spinal stenosis typically presents with back pain that might radiate to the thigh and/ or calves. The pain is worse on exercise and is relieved by sitting down or leaning forward. Patients will often find walking uphill easier. It typically presents in older patients and risk factors include previous back surgery and manual labour.

Question:

A 56-year-old man presents to urgent care with a 3-week history of fatigue, painful knees, and malaise. He has not had any episodes of chest pain. His past medical history includes rheumatoid arthritis for which he takes methotrexate. He also noticed a circular rash on his legs around 3 weeks ago.

The patient is a recently retired school teacher and enjoys camping. He smokes 5 cigarettes daily and drinks around 10 units per week.

His heart rate is 50 bpm, his blood pressure is 110/75 mmHg and he is afebrile. An ECG is performed after:

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What is the most appropriate diagnostic investigation?

A.24-hour home ECG

B.Antibodies titres for streptolysin O

C.Antibody titres for Borrelia burgdorferi

D.Joint aspiration of knee

E.Polymerase chain reaction for Borrelia burgdorferi

Answer:Antibody titres for Borrelia burgdorferi

Explanation:

The ECG shows bradycardia, which can be estimated by counting the number of QRS complexes in lead II and multiplying by 6, which gives 8 x 6 = 48. It also shows broad QRS complexes (the QRS duration is over 100 ms). For example in V2, the first QRS complex is 10 small squares in length, giving a duration of around 400 ms (each small square is 40 ms). There is also a complete dissociation between P waves and QRS complexes, suggesting a complete heart block. The presence of heart block alongside malaise, arthralgia, and a recent circular rash suggests a diagnosis of Lyme disease. The initial stage of Lyme disease is characterised by erythema migrans (a circle-shaped target-like rash). If the infection is not cleared, it can become disseminated, particularly in immunosuppressed individuals. Early disseminated Lyme disease can cause arthritis (most commonly in the knees), carditis, and neurological problems such as facial nerve palsy.

Antibody titres for Borrelia burgdorferi is correct. This is the diagnostic test for Lyme disease and can confirm its presence.

24-hour home ECG is incorrect. Since this patient has a complete heart block on their ECG, this would not be safe to arrange at home. It is safer in an inpatient setting, however, this does not confirm the diagnosis of Lyme disease.

Antibodies titres for streptolysin O is incorrect as this is an investigation used to investigate infection with Streptococcus species. The organism implicated in Lyme disease is Borrelia burgdorferi, which this test would not pick up.

Joint aspiration of knee is incorrect. This would be appropriate if septic arthritis was suspected, which would present with severe, acute-onset joint pain, swelling, and fever, which is not seen here. In this patient, testing for Borrelia burgdorferi antibodies is diagnostic and does not require joint aspiration, which is relatively invasive and carries risks of bleeding and infection.

Polymerase chain reaction for Borrelia burgdorferi is incorrect. This is not widely available and requires taking a tissue biopsy, which requires specialist input. A more appropriate and widely-used investigation is antibody titres for Borrelia burgdorferi.

Question:

An 8-year-old boy presents to the paediatric emergency department after developing difficulties with his breathing. This developed suddenly while the boy was at a friend's birthday party. The child is in significant respiratory distress and is utilising accessory muscles when breathing. On examination of his chest, you see a widespread urticarial rash and on auscultation, there is a widespread wheeze.

What emergency treatment do you administer?

A.5 mg chlorphenamine IV

B.100 mg hydrocortisone IV

C.150 micrograms of 1:1000 adrenaline IM

D.300 micrograms of 1:1000 adrenaline IM

E.500 micrograms of 1:1000 adrenaline IM

Answer:300 micrograms of 1:1000 adrenaline IM

Explanation:

Anaphylaxis: A child aged 6-11 years should be administered adrenaline at a dose of 300 micrograms (0.3ml), repeated every 5 minutes if necessary

Important for meLess important

The correct answer is 300 micrograms of 1:1000 adrenaline IM. This is the appropriate dose for a child aged 6-12 years. Adrenaline is by far the most important drug in anaphylaxis and should be given as soon as possible.

5 mg chlorphenamine IV is the correct dose for a child aged 6-12 years, but in this scenario administration of adrenaline is more important initially.

100 mg hydrocortisone IV is the correct dose for a child aged 6-12 years, but again administration of adrenaline is more important initially.

150 micrograms of 1:1000 adrenaline IM is the correct dose for a child aged less than 6 years.

500 micrograms of 1:1000 adrenaline IM is the correct dose for an adult or a child above 12 years.

Question:

A patient with poorly controlled asthma is started on montelukast. What is the mechanism of action of this drug?

A.Beta-2 receptor antagonist

B.Beta-2 receptor agonist

C.Leukotriene receptor agonist

D.Leukotriene receptor antagonist

E.Phosphodiesterase type-4 inhibitor

Answer:Leukotriene receptor antagonist

Explanation:

Question:

Which one of the following is true regarding anti-tuberculous therapy?

A.Rifampicin is a potent liver enzyme inhibitor

B.Pyrazinamide should be added to therapy after 8 weeks

C.Major side-effects of pyrazinamide include peripheral neuropathy

D.Visual acuity should be checked before starting ethambutol

E.Ethambutol should only be added if drug-resistant tuberculosis is suspected

Answer:Visual acuity should be checked before starting ethambutol

Explanation:

Rifampicin is a potent liver enzyme inducer. Pyrazinamide should be given for the first two months of therapy - side-effects include hepatitis and gout. Peripheral neuropathy is a side-effect of isoniazid

Question:

A 23-year-old woman presents to her GP with a 4-month history of low mood, associated with disturbed sleep and a loss of interest and enjoyment in her usual activities. She has also found herself excessively worrying about the future.

She has a past medical history of dysmenorrhoea which is well controlled with mefenamic acid.

The GP refers her for cognitive behavioural therapy and prescribes sertraline.

Given the patient's medical history, what else should be prescribed?

A.Combined oral contraceptive pill

B.Duloxetine

C.Naproxen

D.Omeprazole

E.Pregabalin

Answer:Omeprazole

Explanation:

SSRI + NSAID = GI bleeding risk - give a PPI

Important for meLess important

The correct answer is omeprazole . Taking an SSRI alongside an NSAID such as mefenamic acid increases the risk of gastrointestinal bleeding, therefore a PPI should also be prescribed.

The combined oral contraceptive pill is incorrect. Although this is a treatment option for dysmenorrhoea, the patient is already taking mefenamic acid for this.

Duloxetine is incorrect. This is an example of an SNRI, which is the second-line pharmacological treatment option for depression if SSRIs are not tolerated or are ineffective. This patient has not yet trialled an SSRI, so it would be inappropriate to prescribe an SNRI at this stage.

Naproxen is incorrect. This is an NSAID, and so is a first-line pharmacological option for dysmenorrhoea. However, the patient is already taking another NSAID to manage this, called mefenamic acid.

Pregabalin is incorrect. This drug is sometimes used to treat generalised anxiety disorder (GAD). The patient has been experiencing excessive worry and so may have comorbid anxiety and depression. However, the first-line pharmacological treatment option for GAD, like depression, is an SSRI such as sertraline.

Question:

The cardiac arrest team is called to the bedside of a 67-year-old male patient, 2 days post-myocardial infarction. Two nurses are currently performing chest compressions and a manual defibrillator has just been attached. Chest compressions are paused briefly so that the rhythm can be analysed: pulseless electrical activity is observed.

Given the above, which of the following should happen in this scenario?

A.Adrenaline should be commenced after the first shock

B.Adrenaline should be commenced immediately

C.Adrenaline should be given after the third cycle

D.Amiodarone should be commenced after the first shock

E.Amiodarone should be commenced immediately

Answer:Adrenaline should be commenced immediately

Explanation:

ALS - give adrenaline in non-shockable rhythm as soon as possible

Important for meLess important

Adrenaline should be given immediately - the rhythm observed is non-shockable - as per ALS protocol, and then during alternate cycles.

If the rhythm were shockable, adrenaline should be given after the third shock, and then during alternate cycles.

Amiodarone should be given after the third shock, and another dose considered after five shocks.

The other options are therefore incorrect.

Question:

A 57-year-old man has a 2-year history of cough productive with copious thick yellow sputum and shortness of breath on exertion. During this time, he has also had fatigue. His cough has been intractable and he has been given multiple courses of antibiotics with no success.

On examination, low-pitched expiratory wheezes and crackles are heard in both lungs and fingernail clubbing is noted. A chest x-ray shows airway thickening.

He has a past medical history of tuberculosis as a child and has smoked 30 cigarettes daily for the past 25 years.

What is the most likely diagnosis?

A.Bronchiectasis

B.Chronic obstructive pulmonary disease

C.Idiopathic pulmonary fibrosis

D.Lung cancer

E.Tuberculosis

Answer:Bronchiectasis

Explanation:

Clubbing may be present in patients with bronchiectasis

Important for meLess important

Bronchiectasis is correct. This patient has presented with an intractable cough productive of thick yellow sputum, shortness of breath on exertion, and fatigue. Given the background of tuberculosis in his childhood, the likely diagnosis is bronchiectasis. The presence of crackles and low-pitched wheezing supports a diagnosis of bronchiectasis and the absence of any masses on the chest x-ray makes lung cancer less likely. The presence of airway thickening supports a diagnosis of bronchiectasis. Clubbing can occur in patients with bronchiectasis. Severe pulmonary infections such as pneumonia and tuberculosis in childhood can lead to an excessive inflammatory response leading to damage occurring to the airways and scarring, leading to impaired mucociliary clearance. This causes the cough productive of excessive sputum.

Chronic obstructive pulmonary disease is incorrect. Although chronic obstructive pulmonary disease (COPD) can present with wheezing and cough and is seen in patients who smoke, the presence of a cough productive of copious amounts of sputum with no discernible pattern (e.g. worse in winter) makes a diagnosis of bronchiectasis more likely. COPD does not tend to show any signs on an x-ray but may show lung hyper expansion, which is not seen here. The presence of thickened airways makes bronchiectasis more likely. Fingernail clubbing is also not seen in COPD. If a patient with COPD presents with clubbing, this should raise suspicion of lung cancer.

Idiopathic pulmonary fibrosis is incorrect. This usually presents with a dry cough and progressive shortness of breath on exertion. Although it can have fingernail clubbing, it is not associated with wheezing on examination. A chest x-ray does not tend to show any pathology but may show irregular peripheral opacities. This diagnosis would not explain the airway thickening seen.

Lung cancer is incorrect. Although shortness of breath on exertion, cough, fingernail clubbing, and fatigue can be present in lung cancer. The absence of haemoptysis and unexplained weight loss makes this less likely. The absence of a tumour or suspicious lesion on the chest x-ray further makes this diagnosis less likely. Further, bilateral, widespread findings on auscultation should draw suspicion away from lung cancer, which typically produces focal changes.

Tuberculosis is incorrect. Although this can cause fatigue, weight loss, haemoptysis, and fingernail clubbing, it is unlikely that this patient was untreated after having tuberculosis as a child, and it would be unlikely for them to have had tuberculosis for 2 years and survive or not be very unwell. This diagnosis would not explain the wheeze and crackles heard on auscultation, and a chest x-ray usually shows upper lobe cavitation if tuberculosis were to have reactivated.

Question:

A 26-year-old female is referred to the acute medical unit with chest pain. The pain is sharp, left-sided, worse on inspiration and worsened by lying flat. She has no significant past medical history and is on no regular medications except the combined oral contraceptive pill. She does not drink or smoke.

Her observations are heart rate 91 beats per minute, blood pressure 128/84 mmHg, respiratory rate 18/minute, oxygen saturations 98% on room air and temperature 37.4ºC.

Clinical examination is unremarkable.

An ECG demonstrates widespread ST elevation and PR depression in all leads.

Blood tests:

Hb 121 g/L Male: (135-180)

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 4.1 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 88 µmol/L (55 - 120)

CRP 7 mg/L (< 5)

Troponin 8ng/L (<14)

D-dimer 254ng/L (<500)

A transthoracic echocardiogram demonstrates a 0.9cm pericardial effusion.

What is the most appropriate immediate management?

A.Treatment dose anticoagulation

B.Non-steroidal anti-inflammatory (NSAID)

C.Non-steroidal anti-inflammatory (NSAID) and colchicine

D.Pericardiocentesis

E.Prednisolone

Answer:Non-steroidal anti-inflammatory (NSAID) and colchicine

Explanation:

First line management of acute pericarditis involves combination of NSAID and colchicine

Important for meLess important

Non-steroidal anti-inflammatory and colchicine combination is the correct answer. The addition of colchicine to an NSAID reduces symptom duration and frequency of recurrence in acute pericarditis. Treatment duration should be three months in acute pericarditis.

Treatment dose anticoagulation is incorrect. The diagnosis is acute pericarditis as evidenced by the pleuritic chest pain, worse on recumbency associated with typical ECG changes and pericardial effusion. While this woman presents with pleuritic chest pain and combined oral contraceptive pill use, there are no other features to suggest a pulmonary embolism and the d-dimer is negative.

Non-steroidal anti-inflammatory is incorrect. It is a suitable choice for the management of acute pericarditis but a combination with colchicine is more effective management.

Pericardiocentesis is incorrect. This patient has a small pericardial effusion and no clinical features of cardiac tamponade and therefore this intervention is not warranted.

Prednisolone is incorrect. This might be a suitable choice if NSAIDs or colchicine were contraindicated or have failed or when there is a specific indication such as an autoimmune disease. None of those criteria applies in this scenario and it is not first-line treatment.

Question:

A 31-year-old man attends the emergency department following a fight. He explains that he received a punch to the face which resulted in a nose bleed that has now stopped. He reports no loss of consciousness or memory loss.

On examination inside the nose, there is a bilateral swelling visible. All vital signs are normal with a heart rate of 78bpm, normal sinus rhythm, and blood pressure of 127/75mmHg.

Given the likely diagnosis, what is the most appropriate initial management?

A.Anterior packing

B.CT head

C.Cautery

D.Immediate ENT referral

E.Routine ENT referral

Answer:Immediate ENT referral

Explanation:

Nasal septal haematomas should be urgently referred to ENT for drainage

Important for meLess important

Immediate ENT referral is correct. The patient has a nasal septal haematoma. This is differentiated from a deviated nasal septum by the appearance of swelling in the nose. The 'bilateral swelling' in the stem points toward a nasal septal haematoma, whereas, a deviated nasal septum is unilateral. If this is untreated, septal necrosis can cause 'saddle nose’ deformity. This is because the overlying perichondrium carries the vascular supply to the septum. If this is disrupted by a haematoma, the septal cartilage receives no vascular supply, becomes ischaemic, and irreversible necrosis sets in. Therefore, this is an ENT emergency and requires an urgent referral.

Anterior packing is incorrect. This would be the appropriate response if the patient had acute epistaxis that's bleeding point could be visualised when looking into the nose. Since the patient is no longer bleeding, this is not required.

Cautery is incorrect. This would be appropriate if the patient had acute epistaxis and if the source of the bleeding is visible. Since the patient is no longer bleeding, this is not required.

CT head is incorrect. An ENT referral should not be delayed to allow for head imaging due to the risk of complications emerging from the nasal septal haematoma this patient has. Furthermore, the stem explains the patient has experienced no loss of consciousness or memory loss, meaning he does not fulfil the criteria for a head CT.

Routine ENT referral is incorrect. Although ENT needs to be involved in cases of nasal septal haematomas, they must be involved immediately, due to the risk of complications arising, particularly nasal septal necrosis.

Question:

This afternoon, a Cardiology patient underwent percutaneous coronary intervention (PCI) after presenting to the emergency department with severe chest pain secondary to an ST-elevation myocardial infarction (STEMI).

It has been four hours since the PCI, and the patient is now complaining of increasing, severe chest pain.

What is the single most appropriate treatment option?

A.Immediately start a nitrate infusion and observe hourly

B.Prescribe PRN morphine

C.Give another 300 mg dose of aspirin

D.Arrange for urgent Coronary Artery Bypass Grafting (CABG)

E.Urgently start the patient on low molecular weight heparin (LMWH)

Answer:Arrange for urgent Coronary Artery Bypass Grafting (CABG)

Explanation:

If patients treated with PCI for MI are experiencing pain or haemodynamic instability post PCI, urgent coronary artery bypass graft (CABG) is recommended

Important for meLess important

In this situation, escalating and severe chest pain a few hours post PCI suggest the procedure has failed and that myocardial ischaemia is ongoing.

If patients treated with PCI for MI are experiencing pain or haemodynamic instability post PCI, urgent coronary artery bypass graft (CABG) is recommended.

LMWH will have no benefit in the context of myocardial ischaemia.

300 more mg of aspirin will not treat the ischaemia.

A nitrate infusion or morphine administration may offer some pain relief but will not treat the ischaemia.

Question:

A 45-year-old woman presents to the emergency department short of breath with left-sided pleuritic chest pain. She is not aware of anyone in her family ever having had 'any clots' and has not had surgery within the preceding 4 weeks. She has two children, the youngest of which is 8. She does not take hormonal contraception and she still has regular periods. She is previously fit and well and does not see her GP regularly.

On examination her heart rate is 105 beats per minute and regular, her chest sounds clear. Her calves are both soft and non-tender. Her blood pressure is 134/89 mmHg.

Her blood results are all normal including her prothrombin time (PT) and activated partial thromboplastin time (APTT). A urinary pregnancy test is negative.

Her Wells' score is 4.5. An ECG shows sinus tachycardia and there are no features of right heart strain.

A CT pulmonary angiogram shows a left-sided pulmonary embolism (PE).

Which of the following management options is correct?

A.An urgent open pulmonary embolectomy

B.Lifelong oral anticoagulation

C.Oral anticoagulation for 3 months

D.Streptokinase for 24 hours

E.Oral anticoagulation for 6 months

Answer:Oral anticoagulation for 6 months

Explanation:

'Unprovoked' pulmonary embolisms are typically treated for 6 months

Important for meLess important

Open pulmonary embolectomies are very rarely performed in modern practice and this patient has no life-threatening adverse features that would necessitate removal of the embolus.

She does not need lifelong anticoagulation at this point. Lifelong anticoagulation is considered for people with recurrent thromboembolic events or if they have significant, life-threatening features.

A 3 month course of oral anticoagulation is the management for a provoked PE. A provoked PE is when there is an identifiable risk factor for the development of venous-thromboembolism (VTE) within the previous 3 months such as recent surgery, pregnancy, the puerperium (between giving birth and 6 weeks post-partum), lower limb immobility or someone who is taking hormonal contraception or hormone replacement therapy.

Thrombolysis is only considered if a patient has life-threatening adverse features of PE such as obstructive shock, signs of right heart strain or hypoxia despite high-flow oxygen.

This woman has had an unprovoked PE as there are no identifiable risk factors for the development of VTE on her history. The treatment for unprovoked PE is to treat with an oral anti-coagulation for 6 months.

The treatment for unprovoked PE is longer than for provoked PE because, for provoked PE, there is an identifiable, transient, risk factor that is thought to have significantly contributed to the development of the PE. Once the risk factor is removed then the patients risk of further VTE reduces. However, for unprovoked PE there is no identifiable risk factor and therefore the treatment is longer to try to reduce the risk of recurrence.

Question:

You are asked to see a 66-year-old man at your GP surgery. He was diagnosed with an abdominal aortic aneurysm (AAA) 12 months ago after he was invited to the national screening program. The aneurysm was initially measured at 4.2cm in diameter. He has recently attended his follow-up scan and was told that his aneurysm is now 5.3cm in diameter. The patient has no symptoms and feels well in himself.

What is the most appropriate management plan going forward?

A.Discharge from yearly ultrasound surveillance

B.Continue yearly ultrasound surveillance

C.Increase ultrasound surveillance to every 3 months

D.Two week wait referral to vascular surgery for repair

E.Emergency aneurysm repair

Answer:Two week wait referral to vascular surgery for repair

Explanation:

Rapidly enlarging aneurysms of any size should be repaired even if asymptomatic

Important for meLess important

This patient's AAA was detected through the one-off screening program for males at 65 years of age. Albeit the patient's aneurysm is still below the 5.5cm referral threshold, it has grown >1.0cm in one year and therefore the patient should be referred via the two-week wait pathway to vascular surgery for repair.

Discharging from yearly ultrasound surveillance is incorrect. Although the patient can choose to be removed from ultrasound surveillance, this is not advisable and not recommended.

Continuing yearly ultrasound is incorrect. This is appropriate for aneurysms 3 - 4.4 cm or if the aneurysm has grown

Increasing ultrasound surveillance to every 3 months is incorrect. This is appropriate for aneurysms 4.5 - 5.4cm. Although the size of this patient's aneurysm is within this range, it has grown >1.0cm in one year and therefore requires an urgent referral.

Although this patient's aneurysm has grown substantially, he is not displaying symptoms of aneurysm rupture, and therefore emergency repair is not appropriate.

Question:

A 38-year-old woman comes to the clinic. She is usually fit and well. Six months ago, she had significant weight gain around her midriff but no lifestyle changes. Her friends have noticed a hump on her upper back and increased transverse diameter of the face.

She is worried about reduced exercise tolerance and fatigue. Climbing stairs makes her 'thighs ache' and she struggles to get up from the sofa. She takes no regular medication.

Investigations:

9 am plasma ACTH 1ng/L (0 - 47)

9 am serum cortisol 865nmol/L (170 - 550)

24h urine cortisol 115mcg (3.5 - 45)

What is the most appropriate investigation to carry out next?

A.2-hour oral glucose tolerance test

B.Adrenal vein sampling

C.CT adrenal glands

D.Midnight cortisol levels

E.Short synacthen test

Answer:CT adrenal glands

Explanation:

CT adrenal glands is the most appropriate investigation for patients with increased urinary cortisol and low plasma ACTH levels

Important for meLess important

This patient presents with typically Cushingoid symptoms. She has proximal myopathy, central weight gain ('lemon on a stick' appearance), moon face, fatigue and 'buffalo hump'.

Cushing's syndrome is a result of increased plasma cortisol levels, the effects of which can include diabetes mellitus, hypertension and osteoporosis as well as the symptoms this patient presents with.

Raised urinary cortisol demonstrates increased excretion of the excess cortisol and is a more reliable test than plasma cortisol as it measures cortisol excretion over a 24-hour period. Plasma cortisol levels vary over the course of the day (highest in the morning and lowest at night) and are affected by stress, illness, sleep and many other factors.

Normally, cortisol release from the adrenal glands is mediated by adrenocorticotropic hormone (ACTH), which is released from the pituitary gland. Cortisol exerts negative feedback on ACTH production, thus reducing plasma cortisol levels.

However, in Cushing's syndrome, this negative feedback loop is dysregulated, leading to raised plasma cortisol levels. This may be due to a number of reasons:

Cushing's disease (ACTH-secreting pituitary adenoma)

Adrenal adenoma (usually unilateral)

Excess steroid use (can be iatrogenic)

Adrenal hyperplasia (usually bilateral)

CT adrenals is the most appropriate investigation to carry out next in this patient as it is non-invasive and quick to carry out. It is clinically evident and there are supporting investigations to satisfy that there is cortisol excess present in this patient. The next step, therefore, would be to try and identify a cause.

A 2-hour oral glucose tolerance test could be used to determine whether this woman is suffering from diabetes mellitus as a result of cortisol excess. However, it is unlikely to contribute much in terms of identifying a cause of the cortisol excess. This test is more often used for the diagnosis and surveillance of acromegaly.

Adrenal vein sampling may be useful, but at this stage, a CT of the adrenal glands would offer more useful information as it could help to visually identify an adrenal adenoma in a non-invasive way.

Adrenal vein sampling involves catheterisation of the vascular system to take blood samples from one or both adrenal veins. Cortisol levels in the adrenal veins are compared with cortisol levels in the peripheral blood. This investigation can be used to confirm that excess cortisol is coming from an identified tumour (many adrenal tumours are benign). Also, this can be used to identify if/whether excess cortisol is coming from one adrenal gland or both, in cases where it is unclear through other diagnostic tests.

Midnight cortisol would not contribute much to this case as there are already two investigations to suggest that this woman has high plasma cortisol levels.

Short synacthen test would be the wrong answer here as this is the test for Addison's disease (cortisol deficiency).

Question:

A couple attend the GP practice seeking advice as they are currently pregnant with their first son. The father suffers from haemophilia A and is worried about the risk of passing this disease onto his son. The mother is not a carrier and has no family history of any disorders. What is the percentage chance of the baby inheriting haemophilia A?

A.0%

B.25%

C.50%

D.75%

E.100%

Answer:0%

Explanation:

There is no male-to-male transmission in X-linked recessive conditions

Important for meLess important

X-linked recessive conditions are only passed on from mothers (carriers) to sons. In this case, the father can only pass on the gene to his daughters who will become carriers and he cannot pass on the gene to his sons as they inherit the Y-chromosome from him.

Question:

An incidental finding is reported on the otherwise normal chest X-ray of a 65-year-old priest. A small (1-2cm) calcified nodule is visible in the lateral area of the right mid zone. The patient has never smoked and has no family history of respiratory disease, but spent many years working in a rural hospital in South Africa.

What is this finding likely to represent?

A.Sarcoidosis

B.Miliary tuberculosis

C.Rheumatoid arthritis-associated lung disease

D.Small cell lung cancer

E.Latent tuberculosis

Answer:Latent tuberculosis

Explanation:

A calcified Ghon complex may be seen on the CXR of a patient with latent TB

Important for meLess important

This gentleman has potential exposure to tuberculosis through his work in rural South African hospitals, where there is a high prevalence of TB. The nodule described is a calcified Ghon focus. This indicates that he has had a primary TB infection in the past, which became contained in a granuloma (the Ghon focus) and over time has calcified. TB bacteria may still be present in the lesion and he could develop active disease, particularly if he becomes immunocompromised (see below).

Miliary TB would present with scattered, very fine nodules throughout the lungs (or other affected areas)

Sarcoidosis would typically involve bilateral lymphadenopathy, which would be symmetrical and seen in the hilar area.

As this gentleman has never smoked, small cell lung cancer is very unlikely.

Rheumatoid arthritis can lead to fibrotic lung disease but would not typically produce a single calcified nodule.

Question:

A 54-year-old woman visits her general practitioner with a painful right hip which has been bothering her for the last 10 months. Her pain control consists of codeine and paracetamol four times a day. There is no history of trauma or injury to her hip. She has a background of mild asthma, and she is in remission from breast cancer that was treated with a bilateral mastectomy and chemotherapy 3 years ago. She drinks 2 glasses of wine over the weekend and does not smoke.

On examination, there is no visible deformity of her right hip, but it is tender on palpation. She walks with a visible limp and appears to be in discomfort.

Pelvis X-ray: crescent sign.

Which of the following is the strongest risk factor for this patient's presentation?

A.Alcohol

B.Chemotherapy

C.Female sex

D.Inhaled corticosteroid steroid use

E.Age > 50

Answer:Chemotherapy

Explanation:

Previous chemotherapy is a significant risk factor for avascular necrosis

Important for meLess important

Avascular necrosis is the process of ischaemic-driven bone cell death. It most commonly presents between 30-50 years and is relatively equal between males and females. Chemotherapy is a risk factor for avascular necrosis. One explanation for this is that chemotherapy is often combined with high-dose corticosteroid therapy such as oral dexamethasone or prednisolone. Prolonged oral corticosteroid use is a major risk factor for avascular necrosis.

Avascular necrosis can present at any age but most commonly presents between 30-50 years, making age > 50 incorrect.

Alcohol is a risk factor for avascular necrosis. However, it is usually excess alcohol that is the highest risk. This patient reports drinking 2 glasses of wine on weekends, making alcohol less likely to be the most significant risk factor compared to chemotherapy.

As avascular necrosis is mostly equal in both men and women, the female sex is incorrect.

As already discussed, corticosteroid use is a significant risk factor for avascular necrosis. However, this is particularly true for oral corticosteroids rather than inhaled steroids which have a much lower dose. As this question asks about inhaled corticosteroids, it is less likely to be the most significant risk factor in this patient.

Question:

A 55-year-old male presents to the outpatient clinic with difficulty breathing and a cough for 2 months. He has a non-productive cough and his difficulty in breathing is exacerbated by exertion. Further history reveals that he has worked in an insulation factory for the last 15 years. On auscultation, there are bibasilar end-inspiratory crackles. Asbestosis is suspected and pulmonary function tests are performed.

Which of the following pattern is likely in this patient?

A.FEV1 – normal, FEV1/FVC – increased

B.FEV1 – normal, FEV1/FVC – decreased

C.FEV1 – normal, FEV1/FVC – normal

D.FEV1 – reduced, FEV1/FVC - increased

E.FEV1 – reduced, FEV1/FVC – decreased

Answer:FEV1 – reduced, FEV1/FVC - increased

Explanation:

Asbestosis gives a restrictive deficit on pulmonary function testing

Important for meLess important

Occupational exposure to asbestos occurs by working in factories related to insulation, flooring, and roofing. Asbestosis is a lung condition (inflammation and diffuse interstitial fibrosis) caused by long-term exposure to asbestos. It causes shortness of breath, coughing, and wheezing. Bibasilar crackle is an important finding during auscultation.

Pulmonary function testing measures: forced expiratory volume in one second (FEV1) and forced vital capacity (FVC). Asbestosis shows a restrictive deficit (FEV1 – reduced, FVC - significantly reduced, FEV1/FVC - normal or increased) on pulmonary function testing. FEV1 is reduced and FEV1/FVC ratio can be increased or normal.

FEV1 – normal, FEV1/FVC – normal is the normal finding in pulmonary function testing.

FEV1 – reduced, FEV1/FVC – decreased is seen in obstructive lung disease (asthma, chronic obstructive pulmonary disease).

Question:

A 64-year-old male presents to his GP practice with a few-month history of weakness. He reports that he first noticed having difficulty opening jars, which has now progressed to difficulty getting dressed. He has also noticed that he is tripping up around the house. His wife who has attended with him says that she feels his speech has become slurred on occasion.

On examination of the upper limbs you find:

Fasciculations

Wasting of small muscles of the hands bilaterally

Increased tone bilaterally

Power 3/5 in most limb movements

Brisk reflexes

Sensation normal

Given the most likely diagnosis, which of the following muscles are typically spared?

A.Facial muscles

B.Respiratory muscles

C.Small muscles of the hands

D.Ocular muscles

E.Tibialis anterior

Answer:Ocular muscles

Explanation:

Eye movements are typically spared in motor neurone disease

Important for meLess important

The correct answer is ocular muscles. Eye movements are typically spared in motor neurone disease (MND).

Slurred speech and difficulty swallowing are common in MND as muscles of the face, the tongue, and the throat are often affected.

Respiratory muscles are commonly affected, leading to shortness of breath and sometimes a requirement for ventilation.

Wasting of small hand muscles and the tibialis anterior are common in MND and these can be common examination findings.

Question:

A patient with a history of depression presents for review. Which one of the following suggests an increased risk of suicide?

A.Being 25-years-old

B.History of arm cutting

C.Being married

D.Female sex

E.Having a busy job

Answer:History of arm cutting

Explanation:

Whilst arm cutting may sometimes be characterised as attention-seeking or 'releasing the pain' studies show that any history of deliberate self harm significantly increases the risk of suicide. Employment is a protective factor

Question:

A 67-year-old female is referred to the acute medical unit with an infective exacerbation of COPD. Despite maximal medical therapy the arterial blood gases continue to show type II respiratory failure. You are asked to consider non-invasive ventilation. At what pH is the patient most likely to receive benefit from non-invasive ventilation?

A.pH 7.07

B.pH 7.13

C.pH 7.19

D.pH 7.29

E.pH 7.37

Answer:pH 7.29

Explanation:

The evidence surrounding the use of NIV in COPD shows that patients with a pH in the range of 7.25-7.35 achieve the most benefit. If the pH is < 7.25 then invasive ventilation should be considered if appropriate

Question:

A 33-year-old man is admitted to the medical unit with a severe sudden-onset headache associated with vomiting and neck stiffness. He has a history of recurrent migraine, chronic kidney disease (CKD) stage 4, autosomal-dominant polycystic kidney disease and early-onset hypertension. His observations and bloods are currently stable. He has a CT Head which is reported by the radiologist.

CT Head Hyper-attenuated areas surrounding the circle of Willis and interpeduncular fossa. No obvious skull fracture or parenchymal haemorrhage. Ventricles are normal-sized and there is no midline shift.

What is the most likely diagnosis?

A.Migraine

B.Cortical venous thrombosis

C.Meningitis

D.Subarachnoid haemorrhage (SAH)

E.Encephalitis

Answer:Subarachnoid haemorrhage (SAH)

Explanation:

ADPKD is associated with berry aneurysms (rupture can cause SAH)

Important for meLess important

The features of the headache (sudden, severe) meningitic features (vomiting, neck stiffness), past medical history (risk of berry aneurysm) and CT Head report (blood appears as white in the cisterns and fissures of the sub-arachnoid space) all point towards SAH.

An LP could be performed to confirm xanthochromia if there was any doubt of diagnosis of SAH (which there isn't due to the positive CT head and history) as it has been >12 hours (less chance of bloody tap) as long as there are no signs of raised ICP on CT head.

Question:

A 35-year-old woman is found at her dating ultrasound scan to be pregnant with monochorionic twins. Her midwife explains that she will need regular scans throughout her pregnancy. For this pregnancy, what is the main pathology that ultrasound monitoring performed between 16 and 24 weeks gestation aims to detect?

A.Twin-to-twin transfusion syndrome

B.Down's syndrome

C.Fetal growth restriction

D.Placenta praevia

E.Cardiac malformation

Answer:Twin-to-twin transfusion syndrome

Explanation:

Twin-to-twin transfusion syndrome (TTTS) is a relatively common complication of monochorionic twin pregnancies. The two fetuses share a single placenta, meaning that blood can flow between the twins. In TTTS, one fetus, the 'donor' receives a lesser share of the placenta's blood flow than the other twin, the 'recipient'. This is due to abnormalities in the network of placental blood vessels. The recipient may become fluid-overloaded whilst the donor can become anaemic. One fetus may have oligohydramnios and the other may have polyhydramnios as a result of differences in urine production, causing additional problems. In severe cases, TTTS can be fatal for one or both fetuses.

TTTS usually occurs in early or mid-pregnancy, thus ultrasound examinations performed between 16 and 24 weeks focus on detecting this condition. After 24 weeks the main purpose of ultrasound examinations is to detect fetal growth restriction.

(RCOG Green-top Guideline No. 51)

Question:

A 70-year-old man attends his GP with loss of mobility in his ring and little finger of his left hand. On examination, there is thickening of the palm and an inability to full extend the metacarpophalangeal joints. You make a diagnosis of Dupuytren's contracture.

The patient's past medical history includes psoriasis, epilepsy, heart failure and type 2 diabetes mellitus.

Which of the patient's prescribed medications is most associated with the development of this condition?

A.Atorvastatin

B.Bisoprolol

C.Metformin

D.Methotrexate

E.Phenytoin

Answer:Phenytoin

Explanation:

Dupuytren's contracture can be a side effect of phenytoin treatment

Important for meLess important

Phenytoin is the drug most likely to cause Dupuytren's contracture from this list.

Diabetes mellitus is a risk factor for Dupuytren's contracture, and is related to fasting blood glucose levels. Therefore, metformin would relatively reduce the risk of Dupuytren's contracture in patients with diabetes.

Bisoprolol, methotrexate and statins are not associated with increased risk of Dupuytren's contracture.

Question:

A 28-year-old male presents to the emergency room with severe pain in the right knee following an injury during a football match. He states that he was tackled from behind, and then felt a 'pop' and severe pain which was followed by rapid swelling of the joint. On examination there is a right sided knee effusion and a positive Lachman test.

What is the most likely diagnosis?

A.Medial collateral ligament (MCL) rupture

B.Lateral collateral ligament (LCL) rupture

C.Anterior cruciate ligament (ACL) rupture

D.Posterior cruciate ligament (PCL) rupture

E.Meniscal tear

Answer:Anterior cruciate ligament (ACL) rupture

Explanation:

Rapid joint swelling is suggestive of haemoarthrosis which can occur due to ACL or PCL rupture. The mechanism of injury suggests rupture of the ACL. A positive Lachman tests is also very suggestive of an ACL injury.

An LCL injury most commonly occurs due to direct blows to the medial aspect of the leg which puts strain on the LCL ligament. The classical symptoms would be a slow developing joint effusion and lateral joint line tenderness.

Similarly, an MCL injury most commonly occurs due to direct blows to the lateral aspect of the leg which results in strain on the MCL ligament. The classical symptoms would be a slow developing joint effusion and medial joint line tenderness.

Meniscal tears often occur due to twisting injuries. They are associated with delayed knee swelling and joint locking.

Question:

A 62-year-old man with a history of diabetes mellitus presents with a heavy feeling in his chest for the past 2 hours. An ECG is taken:

What is the most likely diagnosis?

A.Posterior myocardial infarction

B.Anterolateral myocardial infarction

C.Incorrectly placed ECG leads

D.Acute pericarditis

E.Inferior myocardial infarction

Answer:Inferior myocardial infarction

Explanation:

Ischaemic changes in leads II, III, aVF - right coronary

Important for meLess important

Question:

A 24-year-old woman presents for advice. Over the past few months she has been having increasing problems with migraine around the time of menstruation. Her current migraine started around 6 hours ago and has not responded to a combination of paracetamol and aspirin. What is the most appropriate next step to relieve her headache?

A.Codeine

B.Ergotamine

C.Sumatriptan

D.Venlafaxine

E.Norethisterone

Answer:Sumatriptan

Explanation:

Oral mefanamic acid would also be a suitable alternative.

Question:

Which one of the following side-effects is least associated with the use of levodopa?

A.Psychosis

B.'On-off' effect

C.Postural hypotension

D.Cardiac arrhythmias

E.Galactorrhoea

Answer:Galactorrhoea

Explanation:

Question:

A 53-year-old woman with ulcerative colitis and primary sclerosing cholangitis presents to her general practitioner with a 3-month history of pruritus and colicky abdominal pain. She reports that ursodeoxycholic acid has successfully managed her pruritus in the past, though in recent months the itching has persisted even with this.

On further questioning, the patient reports 5kg of unintentional weight loss in over two months.

On examination, the patient appears mildly jaundiced. A mass is palpable in the right hypochondrium.

What investigation may be used to screen for the likely malignancy?

A.Beta-hCG

B.CA 125

C.CA 19-9

D.CA15-3

E.Carcinoembryonic antigen (CEA)

Answer:CA 19-9

Explanation:

Raised CA 19-9 levels may be seen in patients with cholangiocarcinoma - may be useful for patients with PSC

Important for meLess important

CA 19-9 is the correct answer. CA 19-9 is a tumour marker that may be used to screen for cholangiocarcinoma in patients with primary sclerosing cholangitis. Primary sclerosing cholangitis is a significant risk factor for cholangiocarcinoma, and as jaundice is a common symptom, CA 19-9 levels may support additional investigations for underlying malignancy. The patient's features of cholangiocarcinoma include her history of primary sclerosing cholangitis, colicky abdominal pain, and pruritus refractory to ursodeoxycholic acid.

Beta-hCG is incorrect, as this is cannot be used to screen for cholangiocarcinoma in patients with primary sclerosing cholangitis. Beta-hCG may be used to screen for testicular or ovarian germ cell tumours and gestational trophoblastic disease.

CA 125 is incorrect, as this cannot be used to screen for cholangiocarcinoma in patients with primary sclerosing cholangitis. CA 125 is a tumour marker for ovarian cancer, although it is often elevated in liver disease, endometriosis, and menstruation.

CA15-3 is incorrect, as this cannot be used to screen for cholangiocarcinoma in patients with primary sclerosing cholangitis. CA15-3 may be used to monitor treatment of confirmed breast cancer or watch for disease recurrence.

Carcinoembryonic antigen (CEA) is incorrect, as this cannot be used to screen for cholangiocarcinoma in patients with primary sclerosing cholangitis. CEA is commonly used to monitor the treatment of bowel cancer, although it may also be monitored in lung cancer, pancreatic cancer, and ovarian cancer.

Question:

A 24-year-old woman presents with visual disturbance. On examination, you swing the penlight from eye to eye quickly and note that the right pupil and left pupil dilate when light is shone into the right eye.

Where is the most likely site of the lesion?

A.CN III

B.CN IV

C.Left retina or optic nerve

D.Right retina or optic nerve

E.Sympathetic nerve fibers

Answer:Right retina or optic nerve

Explanation:

A relative afferent pupillary defect is when the affected and normal eye appears to dilate when light is shone on the affected eye

Important for meLess important

Right retina or optic nerve is correct, During the 'swinging light test' the right and left pupil dilate when shining light into the right eye. This indicates a problem with the right-sided afferent pathway (e.g. right sided retina or optic nerve).

CN III is incorrect, In compressive CN III palsy, the pupil becomes fixed and dilated due to paralysis of sphincter pupillae.

CN IV is incorrect, This cranial nerve plays no role in pupil physiology.

Left retina or optic nerve is incorrect, A left-sided RAPD would be characterised by bilateral pupil dilation when shining light into the left eye.

Sympathetic nerve fibres is incorrect, Horner syndrome is caused by damage to a certain pathway in the sympathetic nervous system. The sympathetic nervous system acts to dilate the pupils, and thus lesions of this pathway are characterised by pupil constriction.

Question:

A 23-year-old woman presents one week after being prescribed a combined antibiotic and steroid spray for otitis externa. There has been no improvement in her symptoms and the erythema seems to have extended to the ear itself. What is the most appropriate treatment?

A.Topical clotrimazole

B.Oral flucloxacillin

C.Topical ciprofloxacin

D.Oral fluconazole

E.Oral ciprofloxacin

Answer:Oral flucloxacillin

Explanation:

The spreading erythema is an indication for oral antibiotics. Flucloxacillin is first-line.

Question:

A 6-week old baby has been brought in to the hospital. Her Dad is worried because she has had problems retaining feeds. He says that soon after being fed she vomits up uncurdled milk quite forcefully. He is worried because she does not appear to be gaining weight. Given the likely diagnosis, which metabolic abnormality would the patient most likely present with?

A.Hyperchloremic hyperkalemic metabolic acidosis

B.Hyperchloremic hypokalemic metabolic acidosis

C.Hyperchloremic hyperkalemic metabolic alkalosis

D.Hypochloremic hypokalemic metabolic alkalosis

E.Hypochloremic hyperkalemic metabolic alkalosis

Answer:Hypochloremic hypokalemic metabolic alkalosis

Explanation:

Non-bilious vomiting in first few weeks of life is consistent with pyloric stenosis

Important for meLess important

The most likely diagnosis here is pyloric stenosis. Due to vomiting up stomach contents which is acidic (hydrogen chloride - HCl), the patient will be hypochloraemic. Potassium is also lost in the vomitus.

The loss of hydrogen ions due to the vomiting up of stomach acid is the cause of the metabolic alkalosis.

Question:

A 55-year-old woman reports ongoing bilateral shoulder and hip pain for 3 weeks. The pain is worse in the mornings. She has been feeling fatigued with this pain. Bloods show an ESR of 50 mm/hr.

Given the likely diagnosis, which one of the following treatments is most appropriate?

A.Ibuprofen

B.Hydroxychloroquine

C.Sulfasalazine

D.Codeine

E.Prednisolone

Answer:Prednisolone

Explanation:

This patient has the classic symptoms of polymyalgia rheumatica which should show a dramatic response to treatment with steroids.

Ibuprofen and codeine may provide some relief. Hydroxychloroquine is an antimalarial used in the treatment of systemic lupus erythematosus and sulfasalazine is a disease modifying anti-rheumatic drug (DMARD) which is used in rheumatoid arthritis and psoriasis.

Question:

An 8-year-old girl is investigated for anaemia. She has appeared pale and lethargic recently with no recent illness or dietary changes noted. A full blood count is taken:

Hb 100g/L (115 - 160)

MCV 60fL (80-100)

Platelets 245\*109/L (150 - 400)

WBC 8.0\*109/L (4.0 - 11.0)

Serum iron 21µmol/L (11-38)

Ferritin 123µg/L (41-400)

What is the most likely diagnosis?

A.Beta thalassaemia major

B.Beta thalassaemia trait

C.Folate deficiency

D.Iron deficiency

E.Sickle cell disease

Answer:Beta thalassaemia trait

Explanation:

Disproportionate microcytic anaemia - think beta-thalassaemia trait

Important for meLess important

This patient is symptomatic of anaemia, with a haemoglobin level of 100. The rest of her blood results demonstrate a significant microcytosis, shown by the very low MCV. Other cell lineages are unaffected. The key finding here is a severe microcytosis that is disproportionately lower than the haemoglobin level; this is suggestive of either beta- or alpha thalassaemia trait. Although there is no standardised index for the severity of microcytosis, generally, <70fL is considered profound, whereas the patient's anaemia is only mild, this is what is meant by disproportionate microcytic anaemia. Compare this to beta thalassaemia major, where in addition to significant microcytosis, the anaemia is also severe. Hb in trait rarely drops below 90g/L.

Beta thalassaemia major would also cause a significant microcytosis, however, the anaemia would be profound with haemoglobin levels often below 60g/L, requiring frequent blood transfusions.

Folate deficiency is a cause of anaemia, however, the MCV is typically high; macrocytic anaemia is expected.

Iron deficiency is a cause of microcytic anaemia and is commonly seen in children with poor dietary intake of meat and vegetables. However, as the name suggests, iron studies would be abnormal, with a low iron and reduced ferritin.

Sickle cell disease is an example of a haemolytic anaemia. This would typically cause a normocytic anaemia, and other findings such as raised reticulocytes and the presence of sickle cells on the blood film.

Question:

A 23-year-old woman presents to the emergency department with a 3 day history of progressively worsening spiking fevers, flank pain and dysuria. Her urinary culture indicates E. coli infection, so she is admitted and treated for pyelonpehritis.

She is started on a 14 day course of co-trimoxazole and shows gradual clinical improvement, and resolution of her symptoms. On day 9 she begins to develop malaise and a low-grade fever. This is accompanied by a diffuse maculopapular rash and widespread arthralgia. She was not oliguric.

Urinalysis reveals a sterile pyuria with eosinophils and white cell casts. There was no detectable haematuria.

Blood tests reveal:

WBC 10.2 \* 109/L (4.0 - 11.0)

Neuts 6.7 \* 109/L (2.0 - 7.0)

Lymphs 2.5 \* 109/L (1.0 - 3.5)

Mono 0.5 \* 109/L (0.2 - 0.8)

Eosin 0.5 \* 109/L (0.0 - 0.4)

Urea 13 mmol/L (2.0 - 7.0)

Creatinine 298 µmol/L (55 - 120)

What is the likely cause of this reaction?

A.IgA nephropathy

B.Acute interstitial nephritis

C.Acute tubular necrosis

D.Obstructive uropathy

E.Renal atherothombus

Answer:Acute interstitial nephritis

Explanation:

Sterile pyuria and white cell casts in the setting of rash and fever should raise the suspicion of acute interstitial nephritis, which is commonly due to antibiotic therapy

Important for meLess important

Acute interstitial nephritis (AIN) typically arises following drug therapy in the majority of cases (~75%), with infections and systemic vasculitides forming the rest. The most common drug causes include: non steroidal anti-inflammatories (NSAIDs), penicillins, sulphur-based medications, proton pump inhibitors (PPIs), ciprofloxacin and allopurinol.

Definitive diagnosis is done by renal biopsy, which is typically reserved for when the diagnosis is unclear or if another aetiology is suspected to occur concurrently/in equal likelihood. Management involves stopping the offending agent, with severe cases requiring steroids and potentially dialysis.

Option 1: incorrect - IgA nephropathy is caused by mesangial IgA deposition secondary to immune hypersensitivity towards infection, usually a viral upper respiratory tract infection. It is associated with haematuria (usually gross) and some degree of proteinuria. Here the patient is not haematuric, and has many features of AIN.

Option 2: correct - AIN is characterised by a triad of rash, fever and eosinophilia. While it is rare for all 3 to be present at the same time, it is important to consider the differential of AIN with any of the three, especially in the setting of arthralgia, sterile pyuria and white cell casts. White cell casts are caused by an acute inflammatory state, either by active infection such as pyelonephritis or an immune nephritic process, which involves cells sloughing in the tubular lumen.

Option 3: incorrect - acute tubular necrosis (ATN) occurs with prolonged renal ischaemia secondary to either continuing pre-renal injury or by direct toxicity secondary to sepsis or nephrotoxins. It is characterised by granular casts as opposed to white cell casts and would have occurred earlier in this patient's history. It typically would not have a rash, eosinophilia or eosinophiluria.

Option 4: incorrect - obstructive uropathy may occur with pyelonephritis if caused by a renal calculus, and would cause an acute kidney injury. However this would have occurred earlier, as opposed to on day 9, and would be accompanied by ongoing extreme pain with likely haematuria. There would not be features of AIN.

Option 5: incorrect - while a renal atherothrombus is an excellent thought, as it can cause eosinophilia/eosinophiluria as well as skin pathology, the skin pathology is commonly livedo reticularis with a reticular purple mottling as opposed to a maculopapular rash in AIN. Patients with renal atherothrombi are usually older with existing cardiovascular disease, with the mechanism of injury occurring over a longer period of time.

Question:

A 21-year-old man presents with halitosis and mouth pain. Examination reveals very poor dental hygiene with bleeding gums and widespread gingival ulceration. He has a temperature of 38.0ºC. You advise him to see a dentist. What other treatment options should be offered?

A.Paracetamol + oral phenoxymethylpenicillin

B.Paracetamol + oral phenoxymethylpenicillin + chlorhexidine mouthwash

C.Paracetamol + chlorhexidine mouthwash

D.Paracetamol + oral metronidazole + chlorhexidine mouthwash

E.Paracetamol + oral metronidazole

Answer:Paracetamol + oral metronidazole + chlorhexidine mouthwash

Explanation:

This man has acute necrotizing ulcerative gingivitis with systemic upset. Treatment should be commenced whilst he is awaiting to see a dentist.

Question:

A 44-year-old man attends for counselling with regards to a vasectomy. Which one of the following statements is true regarding vasectomy?

A.Vasectomy is effective immediately

B.Female sterilisation is more effective

C.It cannot be performed on patients with a history of mumps-related orchitis

D.Chronic testicular pain is seen in more than 5% of patients

E.Sexual intercourse should be avoided for one month to reduce the chance of a sperm granuloma

Answer:Chronic testicular pain is seen in more than 5% of patients

Explanation:

Question:

A 22-year-old man with sickle cell anaemia presents with pallor, lethargy and a headache. Blood results are as follows:

Hb 66 g/L

Reticulocytes 0.8%

Infection with a parvovirus is suspected.

What is the likely diagnosis?

A.Thrombotic crisis

B.Sequestration crisis

C.Transformation to myelodysplasia

D.Haemolytic crisis

E.Aplastic crisis

Answer:Aplastic crisis

Explanation:

The sudden fall in haemoglobin without an appropriate reticulocytosis is typical of an aplastic crisis, usually secondary to parvovirus infection

Question:

A 2-month-old baby girl is admitted to hospital with suspected meningitis. Her parents describe her becoming pyrexial and drowsy over the past 24 hours. On examination her temperature is 39.2ºC, heart rate is 160/min and respiratory rate is 50.min. Her anterior fontanelle is bulging. No petechial rash is seen. In addition to cefotaxime, what antibiotic should be given intravenously?

A.Rifampicin

B.Flucloxacillin

C.Amoxicillin

D.Clarithromycin

E.Gentamicin

Answer:Amoxicillin

Explanation:

Meningitis in children < 3 months: give IV amoxicillin in addition to cefotaxime to cover for Listeria

Important for meLess important

Question:

A 34-year-old woman presents to the Emergency Department with a headache at the back of her head. It had a gradual onset and has been getting worse over the last two days. She is systemically well, but when questioned about bladder and bowel symptoms, she states the headache is worse when she has strained to open her bowels.

She has a history of type 1 diabetes mellitus and migraine without aura. She takes the combined oral contraceptive pill and insulin.

What is the most appropriate next step?

A.CT cerebral venography

B.Cerebrospinal fluid culture

C.No investigation required as migraine is a clinical diagnosis

D.Non-contrast CT head

E.Paired serum and cerebrospinal fluid glucose, protein and white cell count

Answer:Non-contrast CT head

Explanation:

Headache linked to Valsalva manoeuvres = raised ICP until proven otherwise so LP is contraindicated

Important for meLess important

This patient is presenting with a headache that is worsened by straining to open her bowels which is a surrogate for the Valsalva manoeuvre. This can indicate raised intracranial pressure (ICP) and requires investigation with a non-contrast CT head. In cases of suspected raised ICP, a lumbar puncture (LP) would be contraindicated. This is because it is thought that if there is a space-occupying lesion in the brain, removing cerebrospinal fluid from the spinal column may cause brain tissue to herniate through the foramen magnum, causing brain stem compression. A CT head is therefore required to rule out a space-occupying lesion before an LP is performed if indicated.

CT cerebral venography would be the investigation of choice to diagnose a venous sinus thrombosis after performing a non-contrast CT head. A venous sinus thrombosis is a blood clot in one of the major veins in the head. It can present with a headache and signs of raised ICP. This is not the correct answer because irrespective of whether the patient has a venous sinus thrombosis, a non-contrast CT head would be performed initially. This may show hyperdensity within the sinus, also known as the empty delta sign.

Cerebrospinal fluid culture is an investigation used in the workup for meningitis. Other than a headache, this patient does not have symptoms of meningitis, which include fever, photophobia, neck stiffness and malaise. This investigation requires an LP to be performed to take a sample of cerebrospinal fluid. An LP would be contraindicated until a CT head has been performed, due to the suspicion of raised ICP.

No investigation required as migraine is a clinical diagnosis would not be the correct approach in this scenario. Although the patient has a history of migraines, this headache is accompanied by signs of raised intracranial pressure, indicated by the worsening when straining to open her bowels. It, therefore, needs investigating. If there were no red-flag headache features, and the history was consistent with migraine, it could be diagnosed clinically, once other possible dangerous causes of headache had been ruled out.

Paired serum and cerebrospinal fluid glucose, protein and white cell count is incorrect in this scenario as it is an investigation for meningitis that requires an LP to collect the samples of cerebrospinal fluid. An LP would be contraindicated due to the risk of brain herniation with raised intracranial pressure.

Question:

An 18-month-old boy presents to the GP with his mother, who is concerned about a new rash. His mother reports that the rash came on suddenly 1 day ago. His mother recalls he had a cold with a high fever two weeks ago, but this appears to have settled now. Otherwise he is normally fit and well.

On examination, there is an erythematous rash across the child's trunk and limbs. The rash does not appear itchy and blanches with pressure.

What is the most likely diagnosis?

A.Measles

B.Parvovirus B19

C.Roseola infantum

D.Rubella

E.Scarlet fever

Answer:Roseola infantum

Explanation:

Roseola infantum

common 6 months - 2 years

fever followed later by rash

febrile seizures common

Important for meLess important

This question tests knowledge of the five red rashes of childhood.

A coryzal illness with associated high fever that resolves and is followed 1-2 weeks later by an erythematous rash across the trunk and limbs is a classical history of roseola infantum.

Measles typically presents with an erythematous rash that classically starts behind the ears and then spreads to the rest of the body. It is associated with fever, conjunctivitis, coryzal symptoms and white koplik spots on the inside of the mouth.

Parvovirus B19 is also known as slapped cheek disease because the rash first appears on the cheeks, before spreading to the trunk and arms. It is usually preceded by 2-5 days of mild fever and non-specific viral symptoms.

Rubella presents with an erythematous rash starting on the face before spreading to the rest of the body. It is associated with mild fever, sore throat and lymphadenopathy.

Scarlet fever is caused by group A streptococcal bacteria and usually begins as tonsillitis. It is a red-pink rash that begins on the trunk. It is associated with fever, a strawberry appearance of the tongue, and cervical lymphadenopathy.

Question:

An 82-year-old man is seen by his general practitioner for troubling urinary symptoms. He describes having a weak flow and needing to strain in order to get out urine. This is causing an incisional hernia on his abdomen to be in more pain than usual. He also describes significant dribbling after urinating, for which he needs to wear incontinence pads.

On examination, his prostate is significantly enlarged, however is smooth and there is a clear median sulcus. A urine dipstick is unremarkable.

A blood test taken is as follows:

Prostate-specific antigen 1 ng/mL (<4 ng/mL)

What is the most appropriate treatment?

A.Duloxetine and finasteride

B.Refer for multiparametric MRI of prostate

C.Refer to urology

D.Solifenacin and tamsulosin

E.Tamsulosin and finasteride

Answer:Tamsulosin and finasteride

Explanation:

Combination therapy (alpha-1 antagonist + 5 alpha-reductase inhibitor) is indicated if a man has bothersome moderate-to-severe voiding symptoms and prostatic enlargement

Important for meLess important

This man is presenting with the classical symptoms of benign prostatic hyperplasia. This is very common in men of his age group and is confirmed by findings on examination, and negative prostate-specific antigen. He has both troubling urinary symptoms, which appear to be having a big impact on his quality of life, as well as a significantly enlarged prostate on examination. The optimal treatment is going to be a combination treatment with tamsulosin and finasteride. Tamsulosin is an alpha-1 antagonist which decreases smooth muscle tone of the prostate and bladder and is indicated where there is moderate to severe voiding symptoms. Finasteride is a 5-alpha reductase inhibitor that blocks the conversion of testosterone to dihydrotestosterone, therefore preventing further enlargement of the prostate. Finasteride is indicated when there is a significantly enlarged prostate.

Duloxetine and finasteride is incorrect. Whilst finasteride would be appropriate given his significantly enlarged prostate, duloxetine should only be used for stress incontinence in women, not for urinary symptoms in men.

Referral multiparametric MRI of prostate is incorrect. This is only indicated when prostate cancer is suspected. This man has no features on examination suggesting prostate cancer, and his PSA result is low, therefore this investigation would be unnecessary.

Referral to urology is incorrect. There is nothing in his history that suggests a more sinister cause, and benign prostatic hyperplasia can be dealt with by a general practitioner.

Solifenacin and tamsulosin is incorrect. Whilst tamsulosin would be appropriate given his significant urinary symptoms, solifenacin is not indicated here. Solifenacin is used to treat an overactive bladder, which is more likely to present with urgency and frequency, rather than voiding symptoms.

Question:

A newborn baby is noted to have bilateral clubfoot. What is the treatment of choice?

A.Manipulation and progressive casting starting after 3 months

B.Surgical correction at 1 year

C.Surgical correction at 6 months

D.Manipulation and progressive casting starting soon after birth

E.Surgical correction at 3 months

Answer:Manipulation and progressive casting starting soon after birth

Explanation:

Question:

A 72-year-old woman presents to the emergency department. Bystanders tell you she was walking down the street and suddenly collapsed. A fast assessment reveals airway patent, and bilateral lung sounds are heard. Her heart rate is 130bpm and regular, her blood pressure is 180/110 mmHg, her GCS is E2V2M1 and she has pinpoint pupils, her blood glucose is 5.0, and her temperature of 37.4 ºC. There are no signs of trauma.

You call for an urgent CT head.

What is the most likely cause of this patient's condition?

A.Epileptic seizure

B.Idiopathic intracranial hypertension

C.Middle cerebral artery stroke

D.Pituitary apoplexy

E.Pontine haemorrhage

Answer:Pontine haemorrhage

Explanation:

Pontine haemorrhage commonly presents with reduced GCS, paralysis and bilateral pin point pupils

Important for meLess important

Pontine haemorrhage is the correct answer. Pontine arteries radiate from the basilar artery on the brain stem and supply the pons. In the pons, there are motor tracts that descend to supply the limbs, a hemorrhage here causes bilateral paralysis. Pinpoint pupils are a classic sign of pontine hemorrhage and are thought to be caused by irritation and stimulation of parasympathetic pathways in the pons. Paralysis, low GCS, and bilateral pinpoint pupils are characteristic of pontine hemorrhage.

Pituitary apoplexy is incorrect. Pituitary apoplexy has a similar presentation to pontine hemorrhage as it also presents with sudden onset collapse. However, apoplexy does not present with pinpoint pupils making it an unlikely diagnosis.

Middle cerebral artery (MCA) is incorrect. MCA strokes are a type of anterior circulation stroke. That only affects one side of the brain. The MCA perfuses the majority of the surface of the cerebrum. This area contains the motor and sensory strips supplying the upper limbs and face as well as Broca's and Wernicke's areas. However, it does not cause any changes to the pupil and will not significantly reduce GCS.

Idiopathic intracranial hypertension is incorrect. This is a condition that usually causes headaches, nausea, and vomiting. These symptoms get worse over time but never cause collapse or pinpoint pupils.

Epileptic seizures are incorrect. Epileptic seizures are always worth considering in a collapsed patient, but the GCS of this patient doesn't fit with epilepsy. After a seizure, the GCS will drop to 3 and then quickly recover to the low teens with motor function returning very quickly. Epilepsy also does not cause pinpoint pupils.

Question:

A 60-year-old woman attends the emergency department with meningitis. She currently has a GCS of 14, and there is a generalised erythematous maculopapular rash across her torso that is rapidly evolving.

Observations show a heart rate of 95bpm, blood pressure of 120/80mmHg, a temperature of 39ºC, oxygen saturation of 96% and respiratory rate of 20/min.

Blood tests show:

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

Female: (115 - 160)

Platelets 450 \* 109/L (150 - 400)

WBC 12.2 \* 109/L (4.0 - 11.0)

A venous blood gas shows:

pH 7. 3 (7.35-7.45)

pCO2 5 kPa (4.5-6)

pO2 5 kPa (10-13)

Lactate 1mmol/L (1-4)

What factor in her presentation is a reason to delay a lumbar puncture?

A.GCS of 14

B.Her observations

C.Rapidly evolving rash

D.Thrombophilia

E.Venous blood gas results

Answer:Rapidly evolving rash

Explanation:

Suspected bacterial meningitis: an LP should not be done if there signs of severe sepsis or a rapidly evolving rash

Important for meLess important

Rapidly evolving rash is the correct answer. This patient is presenting with meningitis and evidence of a generalised erythematous maculopapular rash across her torso. A lumbar puncture should not be performed in cases when there is a rapidly evolving rash because of the risk of DIC. In these situations, it would be appropriate to initiate antibiotic therapy straight away.

GCS of 14 is incorrect. A GCS of 12 or less would be a reason to delay a lumbar puncture as it highlights decreasing consciousness and the risk of further deterioration. The administration of definitive treatment such as IV antibiotics would be more important than conducting investigations in this case.

Her observations is incorrect. Her observations at the moment do not show haemodynamic compromise or signs of severe sepsis. A heart rate of more than 130bpm, respiratory rate of more than 25, oxygen saturation below 92% and systolic less than 90mmHg are features of red flag sepsis.

Thrombophilia is incorrect. Thrombocytopenia would be an indication to delay a lumbar puncture as this suggests an increased bleeding risk. Platelets are a marker of inflammation and can often rise in cases of severe infection.

Venous blood gas results is incorrect. The venous blood gas results show a slightly reduced pH however lactate is in the normal range. Lactate equal to and above 2 is a feature of severe sepsis hence this would not warrant a lumbar puncture to be delayed.

Question:

A 72-year-old man is brought to the emergency department by ambulance, following a suspected stroke. On examination, his speech is non-fluent, although his comprehension is normal. When asked to repeat a phrase, he struggles to do this.

Where is the most likely site of the lesion?

A.Cerebellum

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Frontal lobe

Explanation:

Broca's dysphasia: speech non-fluent, comprehension normal, repetition impaired

Important for meLess important

This is a 2-stage question, with the first part being establishing the type of speech abnormality that the patient has and then followed by identifying the most likely lesion site. Firstly, the above scenario describes a patient with non-fluent speech, normal comprehension, and impaired repetition. This is most likely Broca's dysphasia, which is associated with a frontal lobe lesion affecting Broca's area.

When replying to a conversation, we can imagine how Wernicke's and Broca's areas may interact:

Spoken word is heard at the ear. This passes to Wernicke's area in the temporal lobe (near the ear) to comprehend what was said. Once understood, the signal passes along the arcuate fasciculus, before reaching Broca's area. The Broca's area in the frontal lobe (near the mouth) then generates a signal to coordinate the mouth to speak what is thought (fluent speech).

The cerebellum is incorrect. A lesion in the cerebellum will likely cause cerebellar symptoms, which can be remembered using DANISH: dysdiadochokinesia, ataxia, nystagmus, intention tremor, slurred speech, and hypotonia. The above scenario better describes Broca's dysphasia, rather than simply slurred speech.

The occipital lobe is not correct. The occipital lobe plays a vital role in the processing of signals from the eyes, allowing vision. A lesion here would instead cause symptoms such as homonymous hemianopia.

The parietal lobe is incorrect. The parietal lobe plays roles in language and processing somatosensory information (such as awareness of the body in space). It would not be associated with Broca's dysphasia, as described above.

The temporal lobe is not correct. Whilst a lesion in the temporal lobe could cause dysphasia, this would instead be a Wernicke's dysphasia due to Wernicke's area being affected. This Wernicke's dysphasia would instead present with fluent speech but no comprehension.

Question:

A baby is 12 hours old and was born at term. The mother had gestational diabetes during her pregnancy. The mother has chosen to formula feed exclusively. The baby is currently comfortable on the postnatal ward, and her latest capillary blood glucose reading is 2.3mmol/L. The examination is normal.

What would be the next step in management?

A.Encourage breastfeeding

B.Encourage formula feeding

C.Refer to lactation consultant

D.Use glucose gel alongside normal feeding method

E.Admit to neonatal unit and start 10% dextrose

Answer:Encourage formula feeding

Explanation:

Neonatal hypoglycaemia: if asymptomatic then encourage normal feeds and monitor glucose

Important for meLess important

Encouraging formula feeding is the correct answer - the question states that the mother has chosen to formula feed exclusively. The baby has asymptomatic hypoglycemia (a risk factor being maternal gestational diabetes), so the regular feeding method should be encouraged and capillary blood glucose to be repeated after.

You would not encourage breastfeeding or refer to a lactation consultant here as the mother's choice is to formula feed.

Use of glucose adjuncts such as 10% dextrose intravenously or glucose gel would only be required if there was persistent hypoglycaemia despite the regular feeding method, or if the baby was symptomatic, so these answers are incorrect.

Question:

A 65-year-old woman with a history of Parkinson's disease presents to their general practitioner with a pruritic facial rash.

On examination, the patient has scaly erythematous lesions affecting the nasolabial folds and glabella.

What is the most likely diagnosis?

A.Actinic keratoses

B.Atopic dermatitis

C.Lichen planus

D.Seborrhoeic psoriasis

E.Seborrhoeic dermatitis

Answer:Seborrhoeic dermatitis

Explanation:

An itchy rash affecting the face and scalp distribution is commonly caused by seborrhoeic dermatitis

Important for meLess important

Seborrhoeic dermatitis commonly causes erythematous, greasy, pruritic lesions affecting the scalp, glabella, nasolabial folds, posterior auricular skin, and anterior chest. Although the aetiology is debated, it is thought to be a link with over-proliferation of the Malassezia furfur fungus. Seborrhoeic dermatitis is linked to various conditions including Parkinson's disease and HIV.

Seborrhoeic psoriasis is not a type of psoriasis.

Lichen planus typically presents with violaceous lesions and is also less commonly associated with Parkinson's disease.

Actinic keratoses are crusted lesions found on sun-exposed sites such as balding scalps.

Atopic dermatitis is more commonly found on flexural surfaces and is not associated with Parkinson's disease.

Question:

A 6-year-old boy is brought into the hospital after collapsing at home. His father reports that his son has had diarrhoea for 4-days and that this has been bloody for the last 2-days. Today, he is lethargic and has not passed urine for 10 hours, despite good fluid intake.

On examination, the child is pale. He has multiple bruises on his limbs and torso and his hands and feet are noted to be puffy.

There is no significant medical history. Shortly prior to the development of symptoms, the child ate a hamburger from a street food stall.

What is the likely causative organism?

A.Bacillus cereus

B.Campylobacter jejuni

C.Escherichia coli

D.Salmonella enterica

E.Salmonella typhi

Answer:Escherichia coli

Explanation:

Haemolytic uraemic syndrome - classically caused by E coli 0157:H7

Important for meLess important

This child has a diarrhoeal illness (probably due to eating undercooked meat from a street food stall). An important differential in children with diarrhoea is haemolytic uraemic syndrome, which presents with a triad of anaemia, thrombocytopenia and acute renal failure. This child has symptoms of all three - pallor, bruising, reduced urine output (despite good fluid intake) and peripheral oedema. The majority of cases of HUS occur in children and the treatment is supportive. The most common cause of HUS is the Escherichia coliO157:H7

Bacillus cereus in examinations is typically associated with vomiting developing shortly after eating reheated rice. However, it can also cause a diarrhoeal illness due to toxin production after an 8-16 hour incubation period. However, symptoms are usually mild and bloody diarrhoea is not common. Furthermore, the symptoms of renal failure, anaemia and thrombocytopenia point to a diagnosis beyond simple gastroenteritis, and are in keeping with HUS. Bacillus cereus is not associated with HUS.

Campylobacter jejuni is another common cause of acute food poisoning, and can cause bloody diarrhoea. However, it typically causes a mild illness and is only rarely associated with HUS.

Salmonella enterica species are the main cause of food-bourne salmonellosis. Whilst this also presents with diarrhoea, this is usually non-bloody. Salmonella species may result in HUS, but far less commonly than Escherichia coli.

Salmonella typhi causes typhoid fever, which has specific symptoms that differ from those of gastroenteritis, including prolonged fever, constipation, relative bradycardia and 'rose spots'. This brief is not in keeping with typhoid fever. Furthermore, typhoid fever is only rarely associated with HUS.

Question:

You are an F1 doctor working on the medical admissions unit when a pharmacist comes up to you and says that you have made a mistake prescribing flucloxacillin for a penicillin-allergic patient. The patient has already received the first dose 3 hours ago at 12.00pm and is quite an anxious lady. You go and assess the patient. Her observations are stable and she appears perfectly well. You stop the flucloxacillin and prescribe an alternative medication. What is the best response to this error?

A.Make an entry into your clinical logbook reflecting on the error

B.Say nothing to the patient as she hasn't suffered any harm and it may cause distress

C.Explain to the patient what has happened and apologise

D.Inform the patient's consultant of the error

E.Monitor the patient closely, and explain what has happened if the patient's condition deteriorates

Answer:Explain to the patient what has happened and apologise

Explanation:

Option 3 is right as you should be honest and open with patients when things go wrong. Option 1 is a good idea in terms of self-improvement but it not the best response in terms of patient care.

The consultant should probably be informed but it is not the most pressing matter if the patient is well and hasn't suffered any apparent harm. You would monitor the patient closely anyway but this shouldn't determine when you explain your error and apologise to the patient.

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

George is 92-years-old and has been admitted to hospital for being 'off-legs'. He is usually fit and well, walking 5 miles a day. His only past medical history is of osteoarthritis in his hands for which he takes regular ibuprofen with omeprazole for gastro-protection. George's son reports that George has become gradually more confused over the preceding weeks. He has a NEWs (national early warning score) of 0. His U&Es are reported back as:

Na+ 132mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Mg 2+ 0.4 mmol/L (0.85 - 1.10)

His renal function is at his baseline.

What is the most appropriate initial management plan?

A.Electrolyte replacement with oral potassium chloride and initiate cardiac monitoring

B.Fluid challenge of 500ml normal saline

C.Treat for a probable urosepsis according to local guidance

D.Withhold regular medications and begin electrolyte replacement with a magnesium infusion

E.Withhold regular medications and begin slow fluid replacement with 500ml NaCl over 12 hours

Answer:Withhold regular medications and begin electrolyte replacement with a magnesium infusion

Explanation:

Proton pump inhibitors are a common cause of hypomagnesaemia

Important for meLess important

The most important thing to do initially is to stop the cause of the electrolyte imbalance. In this case it is most likely to be the PPI. This leaves us with the option of slow fluid replacement of a magnesium infusion. While it is common for old people to present to hospital dehydrated there is no reason to suspect it in this case with normal renal function and a NEWs of 0. This leaves magnesium replacement as the correct answer.

Potassium replacement would be appropriate and cardiac monitoring could be considered. However giving this orally and before the magnesium has been replaced would be unlikely to be effective in correcting this patients electrolyte derangement. There is also no mention of stopping the patients regular medications that are likely to be the underlying cause of the electrolyte disturbance.

A fluid challenge of 500ml is appropriate for fluid resuscitation in a patient with shock. There is no signs of this with George. It would also be appropriate to consider a smaller fluid challenge given Georges age.

Urosepsis is a common cause of confusion in the elderly, however George has no symptoms of a UTI (odour, pain on passing, increased frequency) and has a NEWs of 0. It is more likely that the electrolyte disturbance is the cause for the increased confusion.

A magnesium infusion is necessary and should be given before potassium replacement. This is because magnesium deficiency can exacerbate the loss of potassium.

Holding his medications is appropriate but fluid replacement does not seem necessary. Also giving the fluid over 12 hours seems extreme for somebody with no known cardiac or renal disease.

Question:

A 72-year-old female has presented to your clinic with a cough and breathlessness. She has a background of COPD with a long-standing non-productive cough, however she now produces thick yellow sputum. This is the fourth episode this year where she has been to your clinic with these symptoms, two of which resulted in hospital admission.

Her past medical history includes hypertension and chronic kidney disease stage 3, and has been an ex-smoker for 7 years now. She is currently maximised on inhaled therapies for her COPD and is very compliant with these inhalers.

Which of the following should be offered for prophylaxis of these episodes?

A.Amoxicillin

B.Azithromycin

C.Clarithromycin

D.Doxycycline

E.Theophylline

Answer:Azithromycin

Explanation:

Azithromycin prophylaxis is recommended in COPD patients who meet certain criteria and who continue to have exacerbations

Important for meLess important

Azithromycin is the standard antibiotic prophylaxis in patients with COPD. According to the most recent NICE guidelines, you should consider azithromycin (usually 250 mg 3 times a week) for people with COPD if they do not smoke, have optimised non-pharmacological management and inhaled therapies, relevant vaccinations and (if appropriate) have been referred for pulmonary rehabilitation and experience frequent (typically 4 or more per year) exacerbations with sputum production.

Amoxicillin is usually the first-line antibiotic in the management of infective exacerbations of COPD. Doxycycline and clarithromycin are also first-line antimicrobials, however none of these are used for prophylaxis of exacerbations.

Theophylline is recommend as being used for patients with COPD, however this drug is not used to to prevent occurrence of infective exacerbations. Theophylline is instead used to improve symptoms, activities of daily living, exercise capacity and lung function in those with stable COPD.

Question:

A 52-year-old man presents to his GP with a long-standing red, scaly rash mainly affecting the scalp, periorbital, auricular and nasolabial folds. The rash is itchy and the skin appears red and inflamed.

A diagnosis of seborrheic dermatitis is suspected and the patient was prescribed several topical agents with a plan to follow up with a dermatologist if no improvement is achieved.

What chronic condition is most associated with this patient’s skin condition?

A.Chronic kidney disease

B.Eczema

C.HIV

D.Hyperthyroidism

E.Sarcoidosis

Answer:HIV

Explanation:

HIV is associated with seborrhoeic dermatitis

Important for meLess important

Seborrheic dermatitis, which is believed to be due to several factors including an inflammatory response to the fungus Malassezia furfur, commonly affects areas of the body high in oil-producing glands such as the scalp, face and chest. Although the condition affects approximately 2-5% of the general population it is significantly associated with immunocompromise and can affect 85-95% of patients with HIV. Although the exact mechanism is not fully understood it is likely that immunocompromised patients are at increased risk due to the overgrowth of the Malassezia yeast.

Patients with chronic kidney disease (CKD), particularly end-stage renal disease, can develop a pruritic, dry rash often referred to as “renal rash”. It is believed to be secondary to increased serum levels of substances normally filtered by the kidneys such as urea. Although some patients with CKD are immunocompromised and therefore are at potentially higher risk of seborrheic dermatitis, a clear association between the conditions has not been established.

The cause of eczema is multifactorial and believed to be due to a combination of genetic and environmental stimuli promoting inflammation of the skin. It is a separate condition from seborrheic dermatitis and there is no clear association between the two.

Hyperthyroidism is commonly associated with thinning of the skin and Grave’s disease, the commonest cause of hyperthyroidism, can cause a condition known as pretibial myxoedema seen as a waxy, discoloured induration of the skin (normally of the lower legs). Seborrheic dermatitis is however not associated with hyperthyroidism.

The skin is the second-most affected body organ in sarcoidosis after the lungs. Sarcoidosis is associated with diagnoses including erythema nodosum, subcutaneous nodules, and lupus pernio. Seborrheic dermatitis is however not associated with sarcoidosis.

Question:

What is the most appropriate antibiotic to treat uncomplicated Chlamydia infection in a 21-year-old female who is not pregnant?

A.Erythromycin

B.Ciprofloxacin

C.Metronidazole

D.Doxycycline

E.Azithromycin

Answer:Doxycycline

Explanation:

Chlamydia - treat with doxycycline

Important for meLess important

Question:

A 68-year-old man has presented to the emergency department with a 2-day history of fever, severe abdominal pain and fresh rectal bleeding. He also reports a number of painful mouth ulcers in the past few weeks.

He has a history of angina pectoris and was recently switched to a new anti-anginal medication due to troublesome side-effects with other drug classes, but cannot remember the name. His other medications include aspirin and sublingual glyceryl trinitrate.

His vital signs are as follows: temperature 38.3ºC, pulse rate 104/min, blood pressure 112/60 mmHg, respiratory rate 24/min and oxygen saturation 98% on room air.

Abdominal examination reveals a markedly tender left iliac fossa with localised peritonism. Subsequent imaging and endoscopy confirm the diagnosis as a perforated ulcer in the sigmoid colon.

Which drug is likely to account for this acute presentation?

A.Bisoprolol

B.Diltiazem

C.Isosorbide mononitrate

D.Nicorandil

E.Ranolazine

Answer:Nicorandil

Explanation:

Nicorandil may cause ulceration anywhere in the gastrointestinal tract

Important for meLess important

Nicorandil is a second-line drug treatment for angina pectoris if first-line drugs (beta-blockers or calcium channel blockers) are contraindicated or not tolerated.

However, it has been associated with gastrointestinal ulceration, which can occur in different locations in the same patient, ranging from aphthous ulcers in the mouth down to anal ulcers.

These ulcers can develop at any time after initiating the drug and may be refractory to treatment. If they develop, nicorandil should be rapidly and permanently discontinued.

Ulceration can lead to further complications such as perforation, gastrointestinal haemorrhage, fistula or abscess formation. Patients with existing diverticular disease may be at particular risk of fistula formation or bowel perforation when taking nicorandil.

Bisoprolol (a beta-blocker) can be associated with gastrointestinal disturbances (such as nausea, constipation and diarrhoea), but an acute severe complication as described in this scenario is highly improbable.

Diltiazem (a calcium-channel blocker) tends to cause different gastrointestinal and mucosal side-effects such as dyspepsia, constipation and gingival hyperplasia. Lower gastrointestinal bleeding is not reported in the product literature.

Isosorbide mononitrate is not commonly associated with gastrointestinal symptoms, besides mild nausea.

Erosive duodenitis is listed as a rare side-effect of ranolazine treatment, but this description of gastrointestinal ulceration occurring in both the oral mucosa as well as the colon is much more likely due to nicorandil.

Question:

A 44-year-old woman with a known history of asthma presents to the emergency department with sudden onset shortness of breath and pain on inspiration. Her heart rate is 110 beats per minute, her respiratory rate is 23 per minute, her saturations are 93% on air, and her temperature is 36.4 ºC. On examination, she appears to be in respiratory distress but is able to speak in full sentences. On auscultation, air entry is equal bilaterally and there are no added sounds.

What is the most likely diagnosis?

A.Anxiety

B.Life-threatening exacerbation of asthma

C.Moderate exacerbation of asthma

D.Pulmonary embolism (PE)

E.Severe exacerbation of asthma

Answer:Pulmonary embolism (PE)

Explanation:

Breathing problems with clear chest, think pulmonary embolism

Important for meLess important

The most likely diagnosis out of the options given here is a PE. This is supported by the typical symptoms of sudden onset shortness of breath and pain on inspiration. Patients with a PE will also generally have a clear chest on auscultation, be tachycardic and tachypnoeic and may have reduced oxygen saturations.

Anxiety is not likely to be the cause of this patient's symptoms. While anxiety may cause shortness of breath and chest discomfort with a clear chest, it generally would not cause pain on inspiration. Additionally, while patients with anxiety may be tachycardic and tachypnoeic they should not be hypoxic on room air - which this patient is.

While this patient has a known history of asthma, a life-threatening exacerbation of asthma is not likely to be the cause of her symptoms. Patients experiencing a life-threatening asthma exacerbation can often present with reduced air entry or a silent chest rather than a wheeze, however, in this patient air entry is equal bilaterally and there is no wheeze present. Asthma also would not generally cause pain on inspiration.

For similar reasons to above a moderate exacerbation of asthma is also less likely than a PE. Asthma tends to present with shortness of breath, cough, chest tightness and/or wheeze. Whereas a PE would generally present with sudden onset shortness of breath, pain on inspiration and a clear chest on auscultation.

Much like the above options, a severe exacerbation of asthma is unlikely to be the cause of the patient's symptoms. In addition to the other factors already mentioned regarding her presentation, patients with a severe asthma exacerbation will often have some difficulty speaking in full sentences, but this patient is able to talk and give a history despite her shortness of breath.

Question:

A 77-year-old woman presents to her general practitioner for a diabetic review. She was diagnosed with type 2 diabetes mellitus seven years ago, and she's been on metformin monotherapy since then.

She is compliant with her therapy and she didn't have any side effects. Today, she feels well and her urine dipstick results are normal. Her most recent HbA1c is 47 mmol/mol. She recently suffered from an anterior myocardial infarction, treated with percutaneous intervention.

What is the next most appropriate step in her management?

A.Book another appointment in six months

B.Prescribe alogliptin

C.Prescribe dapagliflozin

D.Prescribe gliclazide

E.Prescribe pioglitazone

Answer:Prescribe dapagliflozin

Explanation:

In patients with T2DM, SGLT-2 should be introduced at any point they develop CVD, a high risk of CVD or chronic heart failure

Important for meLess important

The correct answer is prescribe dapagliflozin. This is a patient with a diagnosis of type 2 diabetes mellitus who is already on metformin monotherapy, with a well-controlled HbA1c. However, as she has recently undergone a percutaneous coronary intervention, indicating established cardiovascular disease, an SGLT2 should be introduced, as per NICE guidelines. Her diabetes is controlled at the moment, as she does not have symptoms or signs of end-organ damage and her HbA1c is 47 mmol/mol.

The NICE guidelines suggest that all patients with chronic heart failure or established atherosclerotic cardiovascular disease, such as stable angina, in this case, should be offered an SGLT2 inhibitor ('flozin') as a second agent, as soon as those develop. This class of drugs has been shown to have a clear cardiovascular benefit for those with these conditions. Hence, dapagliflozin is the right option.

Book another appointment in six months is an incorrect option. This patient has developed cardiovascular disease, hence an SGLT-2 should be introduced now, rather than in six months, as delaying treatment can increase the risk of microvascular and macrovascular complications.

Prescribe alogliptin is incorrect. The NICE guidelines suggest that a DPP-4 inhibitor such as this medication could be prescribed if metformin monotherapy was not enough in controlling her diabetes, which is not happening in this case. The issue here is that has an established atherosclerotic cardiovascular disease rather than an abnormal HbA1c. In this situation, the guidelines suggest that an SGLT-2 inhibitor such as dapagliflozin should be prescribed.

Prescribe gliclazide is incorrect. The NICE guidelines suggest that a sulfonylurea such as this medication could be prescribed if metformin monotherapy was not enough in controlling her diabetes, which is not happening in this case. The issue here is that has an established atherosclerotic cardiovascular disease rather than an abnormal HbA1c. In this situation, the guidelines suggest that an SGLT-2 inhibitor such as dapagliflozin should be prescribed.

Prescribe pioglitazone is incorrect. The NICE guidelines suggest that this medication could be prescribed if metformin monotherapy was not enough in controlling her diabetes, which is not happening in this case. The issue here is that has an established atherosclerotic cardiovascular disease rather than an abnormal HbA1c. In this situation, the guidelines suggest that an SGLT-2 inhibitor such as dapagliflozin should be prescribed.

Question:

A 22-year-old woman attends the Emergency Department following an exacerbation of asthma. She currently only uses a salbutamol inhaler 2 puffs prn. Her symptoms settle quickly with a salbutamol nebuliser. You give the patient standard advice on inhaler technique and what to do if her symptoms return.

What is the most appropriate further action?

A.Prescribe a 7 day course of amoxicillin 500mg tds

B.Prescribe a salmetrol inhaler 50mcg bd

C.Prescribe a beclometasone inhaler 200mcg bd

D.Prescribe prednisolone 40mg od for 5 days (with a stat dose now) + a beclometasone inhaler 200mcg bd

E.Prescribe prednisolone 30mg od for 14 days (with a stat dose now)

Answer:Prescribe prednisolone 40mg od for 5 days (with a stat dose now) + a beclometasone inhaler 200mcg bd

Explanation:

The most appropriate initial treatment is a short course of oral prednisolone (the BNF recommend 40-50mg od) to settle her exacerbation. It would also be appropriate to start an inhaled corticosteroid as her asthma is clearly not well controlled at the moment.

Question:

A 63-year-old man attends his GP due to increasing shortness of breath over the last 2 weeks. He reports that he now feels short of breath with walking up the stairs, and has developed a new persistent cough.

On examination, the patient has scattered bilateral crepitations on auscultation and has a low-grade temperature. There is no peripheral oedema. Past medical history includes hypertension, nasal polyp, rheumatoid arthritis, and type 2 diabetes mellitus. It is suspected that the patient is having a drug reaction.

What is the most likely causative agent?

A.Amlodipine

B.Empagliflozin

C.Fluticasone nasal spray

D.Methotrexate

E.Ramipril

Answer:Methotrexate

Explanation:

Methotrexate may cause pneumonitis - typically presents with cough, dyspnoea and fever

Important for meLess important

This scenario describes a 63-year-old man who has presented with a new onset of dyspnoea, cough, scattered crepitations, and low-grade fever. Whilst this is a relatively broad presentation with numerous possible differential diagnoses, the clinical stem guided towards a drug-induced reaction cause. This would lean us towards a diagnosis of pneumonitis. Pneumonitis is inflammation of the lung tissue and can be associated with medications, such as methotrexate.

Amlodipine is not correct. Whilst dyspnoea is listed as a potential side effect of amlodipine, the above presentation is more suggestive of pneumonitis, which is not typically reported with amlodipine.

Empagliflozin is not typically reported as being associated with pneumonitis. Empagliflozin is an SGLT-2 inhibitor - given the mechanism of action of this medication class, important side effects to remember can include urine disorders and urosepsis. It is important to note that diabetic ketoacidosis has also been reported in patients taking SGLT-2 inhibitors.

Fluticasone nasal spray is incorrect. Fluticasone nasal spray can be used for nasal polyps and can be associated with topical side effects, including nasal septal perforation, epistaxis, and an altered sense of smell. It is not typically associated with pneumonitis.

Ramipril is not correct. Ramipril is an ACE inhibitor which can be associated with a dry cough, however the described stem of pneumonitis is not typically described.

Question:

A 54-year-old woman presents to her general practitioner with a 2 week history of heat intolerance and a sore neck. She underwent menopause four years ago and is adamant that this is different to menopausal hot flushes. She has no relevant past medical or family history. Five weeks ago she had a mild upper respiratory tract infection which resolved in 3 days.

On examination she has a mildly enlarged and tender thyroid gland. There are no discreet nodules. She has a temperature of 38.2ºC and a heart rate of 108/min. She has a fine tremor in bilateral hands and is noticeably diaphoretic. There are no eye, hair, skin or nail changes.

The general practitioner decides to order some blood tests and a thyroid scintigraphy scan.

What blood results would be expected in this patient?

A.↑ T4, ↑ Erythrocyte sedimentation rate, ↑ Uptake of iodine-131

B.↑ T4, ↑ Erythrocyte sedimentation rate, ↓ Uptake of iodine-131

C.↑ T4, ↓ Erythrocyte sedimentation rate, ↑ Uptake of iodine-131

D.↑ T4, ↓ Erythrocyte sedimentation rate, ↓ Uptake of iodine-131

E.↓ T4, ↑ Erythrocyte sedimentation rate, ↓ Uptake of iodine-131

Answer:↑ T4, ↑ Erythrocyte sedimentation rate, ↓ Uptake of iodine-131

Explanation:

De Quervain's thyroiditis: initial hyperthyroidism, painful goitre and globally reduced uptake of iodine-131

Important for meLess important

This presentation of hyperthyroidism and painful goitre following an upper respiratory tract infection is typical of De Quervain's thyroiditis.

De Quervain's thyroiditis has an initial period of hyperthyroidism and is often followed by a period of hypothyroidism before self resolving.

Investigation results expected in De Quervain's thyroiditis include:

Raised erythrocyte sedimentation rate (ESR) and C reactive protein (CRP)

Raised T3 and T4

Reduced TSH - Eventually resulting in hypothyroid period

Normal thyroid autoantibodies

Mild leukocytosis

Diffusely reduced uptake of radioactive iodine-131

Thyroid scintigraphy scans show globally decreased uptake of iodine-131 in patients with thyroiditis. Globally increased uptake is suggestive of Graves disease, while locally increased uptake is indicative of a thyroid nodule. Therefore, options indicating uptake is increased is incorrect.

ESR is raised in De Quervain's thyroiditis due to the increased inflammatory state. Therefore, options indicated ESR is lowered are incorrect.

T4 is raised in De Quervain's thyroiditis due to excessive activity of the thyroid gland. T4 can be lowered in later phases of De Quervain's thyroiditis, however the acute time period and symptoms of hyperthyroidism indicate the initial phase in this patient. Therefore, options indicating T4 is lowered are incorrect.

Question:

A 30-year-old primigravida lady is 41 weeks pregnant. At her 41 week antenatal visit, she was offered a vaginal examination and a membrane sweeping hoping that she would go into labour. However, to no avail, she does not go into labour even after 6 hours. On examination her cervix is firm, 1cm dilated, 1.5cm in length and in the middle position. Fetal head station is -3. She is otherwise healthy and there were no problems with the pregnancy.

What would be the appropriate next course of action?

A.Amniotomy

B.IV Syntocinon

C.Vaginal prostaglandin gel

D.Oral NSAID

E.Caesarian section

Answer:Vaginal prostaglandin gel

Explanation:

Vaginal PGE2 or oral misoprostol is the preferred method of induction of labour if the Bishop score is ≤ 6

Important for meLess important

From this scenario, the Bishop score was <5. This means that labour is unlikely unless induction ensues.

Some may even consider repeating membrane sweep. But the best answer to this case is a vaginal prostaglandin gel.

Question:

You are called to attend a 44-year-old patient on the general surgical ward. He is awaiting an elective procedure later today and is therefore nil by mouth (NBM) but has an intravenous (IV) line attached which is administering Hartmann's solution. His only medical history is schizophrenia, currently treated with olanzapine.

On examination, the patient is confused, rigid and tremulous, with a temperature of 39.6°C. His pulse rate is 110 beats per minute and blood pressure is 84/50mmHg. Blood tests reveal the following:

Na+ 140 mmol/L (135 - 145)

K+ 5.3 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 14.6 mmol/L (2.0 - 7.0)

Creatinine 354 µmol/L (55 - 120)

What is the most likely cause of these blood results?

A.Acute sepsis

B.Neuroleptic malignant syndrome

C.Acute dehydration

D.Intravenous line site infection

E.Hypovolaemic shock

Answer:Neuroleptic malignant syndrome

Explanation:

Neuroleptic malignant syndrome can cause acute kidney injury and thus deranged U&Es

Important for meLess important

The patient is exhibiting the four main features of neuroleptic malignant syndrome: rigidity, hyperthermia, autonomic instability (hypotension, tachycardia) and altered mental status (confusion). He also takes olanzapine for schizophrenia and it is possible that he double-dosed before becoming nil by mouth. Neuroleptic malignant syndrome is a known cause of acute kidney injury and thus the blood results seen in this case.

Acute sepsis should be suspected in this case due to the apparent fever, tachycardia and blood pressure in a patient who is obviously unwell. However, his drug history and presence of rigidity, tremor and confusion makes neuroleptic malignant syndrome the most likely cause.

Acute dehydration is a common cause of deranged U&Es, especially in surgical patients, however the scenario states that he has an intravenous (IV) fluid line in situ and one may assume he is adequately hydrated before surgery.

An intravenous line site infection is a common cause of fever amongst adult inpatients. However, the massively deranged U&Es make this a less likely cause.

Hypovolaemic shock is an important cause of pre-renal acute kidney injury and should be suspected based on the patients blood pressure and pulse rate. However, the patient is also pyretic, already has an IV line in situ and is exhibiting four features of neuroleptic malignant syndrome.

Question:

You are asked to review a patient with generalised anxiety disorder (GAD) who has been taking sertraline for the last 6 months. They have previously tried citalopram with little benefit. The patient reports that they are still struggling with anxiety, chest tightness and palpitations on a regular basis and would like to try a new medication.

What would be the most appropriate medication to prescribe?

A.Citalopram

B.Clomipramine

C.Diazepam

D.Duloxetine

E.Mirtazapine

Answer: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 duloxetine.

As this patient has already tried two selective serotonin reuptake inhibitors (SSRIs) with little benefit the next medication of choice would be a serotonin-norepinephrine reuptake inhibitor (SNRI) such as duloxetine.

They have already tried citalopram with little benefit, so it would not be appropriate to prescribe this again.

Clomipramine is a tricyclic antidepressant (TCA) and not typically recommended in the management of GAD.

Diazepam is a benzodiazepine and not recommended in the treatment of GAD. It can cause tolerance and addiction.

Mirtazapine is an antidepressant with multiple effects, it is often described as a noradrenergic and specific serotonergic antidepressant (NaSSA). It is typically only used under specialist care in the treatment of GAD.

Question:

A 45-year-old male presents to the general practitioner with a 1-month history of generalised weakness and headaches. Observations show:

Respiratory rate 14 breaths/min

Heart rate 79 beats/min

Blood pressure 174/130mmHg

Temperature 36.9ºC

Oxygen saturations 97% on room air

An ECG is performed which shows T wave inversion, QTc prolongation and U waves. Blood results include:

Na+ 163 mmol/L (135 - 145)

K+ 2.8 mmol/L (3.5 - 5.0)

Bicarbonate 32 mmol/L (22 - 29)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 61 µmol/L (55 - 120)

What is the first-line investigation for this patient's likely diagnosis?

A.Dexamethasone suppression test

B.Long synacthen test

C.Plasma aldosterone/renin ratio

D.Short synacthen test

E.24-hour urinary metanephrine

Answer:Plasma aldosterone/renin ratio

Explanation:

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

Important for meLess important

This patient is presenting with symptoms of lethargy and headache, accompanied by hypertension, hypokalaemia (suggested by ECG findings and blood results), hypernatraemia and high serum bicarbonate (caused by metabolic alkalosis). This is a classical presentation of primary hyperaldosteronism, otherwise known as Conn's syndrome. The first-line investigation of this condition is with an aldosterone/renin ratio, which will show high aldosterone but low renin. An abdominal CT scan can then be used to provide further insight as to the cause of excess aldosterone production.

Dexamethasone suppression test is incorrect as this is used to diagnose Cushing's syndrome. This condition is caused by excess cortisol and would typically present with central obesity, abdominal striae, hypertension and hyperglycaemia.

Long synacthen test is incorrect as this is used to differentiate adrenal from pituitary causes of Addison's disease.

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.

24-hour urinary metanephrine is incorrect as this is used to diagnose a pheochromocytoma, an adrenal tumour that presents with episodic hypertension, sweating, anxiety and palpitations.

Question:

A 20-year-old man presents with acute gingivitis associated with oral ulceration. A diagnosis of primary herpes simplex infection is suspected.

Which one of the following types of rash is he most likely to go on to develop?

A.Erythema ab igne

B.Erythema nodosum

C.Erythema chronicum migrans

D.Erythema marginatum

E.Erythema multiforme

Answer:Erythema multiforme

Explanation:

Question:

A 32-year-old man is brought in to the emergency department by his girlfriend. She describes him as behaving very unusually towards her over the past two days, being increasingly confused and disorientated. His girlfriend also noticed some jerking movements which she believes were seizures. He has no past medical history of note and is not taking any medications. His observations are as follows:

Temperature: 39ºC

Blood pressure 124/76mmHg

Heart rate 103/min

Respiratory rate 13/min

There is no rash, neck stiffness or focal neurology present. He has not had any foreign travel recently. CSF analysis reveals a high protein, normal glucose, and a predominance of mononuclear cells.

Which of the following is the most likely causative organism for this presentation?

A.Neisseria meningitidis

B.Herpes simplex virus

C.Enterovirus

D.Plasmodium falciparum

E.Varicella zoster virus

Answer:Herpes simplex virus

Explanation:

Herpes simplex virus is the commonest cause of viral encephalitis in the adult population

Important for meLess important

This gentleman has presented with a sudden change in behaviour and a fever, which is highly suggestive of encephalitis. The possible seizures are also consistent with this. Given the absence of neck stiffness or headache the CSF results, this presentation is consistent with a viral encephalitis. Of the options, only three are viral causes of encephalitis. Although enterovirus and Varicella zoster virus can cause encephalitis, Herpes simplex is by far the most common.

Question:

A 32-year-old Caucasian woman who is 25 weeks pregnant with her first child presents to antenatal clinic. She had been invited to attend screening for gestational diabetes on account of her booking BMI, which was 33kg/m². Prior to her pregnancy, she had been fit and well, and had no personal or family history of diabetes mellitus. She does not take any regular medications, and has no known allergies.

She undergoes an oral glucose tolerance test (OGTT), the results of which are as follows:

Fasting glucose 6.8mmol/L

2-hour glucose 7.6mmol/L

An ultrasound scan does not show any fetal abnormalities or hydramnios. She is given advice about diet and exercise, and undergoes a repeat OGTT two weeks later, at which point she is started on metformin due to persistent impaired fasting glucose.

After taking metformin for two weeks, she undergoes another OGTT, with results shown below:

Fasting glucose 5.9mmol/L

2-hour glucose 7.1mmol/L

Which of the following is the most appropriate next step in the management of her glycaemic control?

A.No changes to current treatment

B.Switch metformin to modified-release metformin

C.Stop metformin, add insulin

D.Add insulin

E.Add a sulfonylurea

Answer:Add insulin

Explanation:

In gestational diabetes, if blood glucose targets are not met with diet/metformin then insulin should be added

Important for meLess important

This patient fulfilled the criteria for a diagnosis of gestational diabetes on her original OGTT at 25 weeks, due to a fasting glucose > 5.6mmol/L. Her glycaemic control has been refractory to lifestyle modifications, and, most recently, the addition of metformin, as her fasting glucose has remained above 5.6mmol/L. At this stage, NICE advise that short-acting insulin should be added to her existing treatment.

Although the patient's fasting glucose has improved slightly with the addition of metformin, her fasting glucose reading is still above the target range. As such, it would not be appropriate to continue with her current treatment, and risk the fetal and maternal complications of gestational diabetes.

Changing metformin to modified-release metformin can be helpful in patients who do not tolerate metformin due to side-effects such as gastrointestinal upset, but would not have a role in improving glycaemic control in this patient.

NICE advise that in the instance of persistent impaired glycaemic control, insulin should be added in conjunction with metformin, rather than substituted for it.

Sulfonylureas such as glibenclamide should only be offered for patients who cannot tolerate metformin, or as an adjunct for patients who decline insulin treatment, and would not be the most appropriate next drug for this patient.

Question:

A 61-year-old presents to the GP with a 2-year history of urinary incontinence. She describes several episodes per week where she develops a sudden urge to urinate, quickly followed by the uncontrollable passing of urine, ranging from a few drops to complete bladder emptying. The patient also reports increased urinary frequency, including nocturia two times per night.

The patient denies any dysuria or haematuria. She has never passed urine involuntarily on exertion or when sneezing and coughing.

An examination is declined by the patient due to embarrassment.

What is the most appropriate management?

A.Give advice about reducing fluid intake and using continence products

B.Refer for bladder re-training exercises

C.Refer for pelvic floor muscle training

D.Trial treatment with duloxetine

E.Trial treatment with oxybutynin

Answer:Refer for bladder re-training exercises

Explanation:

Overactive bladder: the urge to urinate is quickly followed by uncontrollable leakage ranging from a few drops to complete bladder emptying

Important for meLess important

Refer for bladder training is the correct management of urgency urinary incontinence (UUI). UUI is associated with an overactive bladder (which produces symptoms such as nocturia and increased urinary frequency) and presents with uncontrollable bladder leakage which comes on shortly after the patient develops a sudden urge to urinate.

Give advice about reducing fluid intake and using continence products is incorrect. Although lifestyle measures are important in managing continence, this is not appropriate lifestyle advice. Both too much and too little fluid can cause lower urinary tract symptoms; patients should be advised to avoid fluid restriction or excess. Continence products should only be used if required whilst awaiting assessment and treatment, as they mask rather than treat the problem. Caffeine reduction, weight loss and smoking cessation are also important.

Refer for pelvic floor muscle training is the management for stress incontinence. Stress incontinence causes leaking of urine on exertion or on sneezing or coughing. The patient specifically denies these symptoms.

Trial treatment with duloxetine would be indicated in patients with stress incontinence if conservative management had been unsuccessful and they did not wish to explore surgical management.

Trial treatment with oxybutynin or another anticholinergic would be indicated if the patient's UUI does not improve with conservative management (such as caffeine reduction and weight loss) and pelvic floor muscle training.

Question:

A 19-year-old man attends your surgery for an appointment which was arranged by his mum, as she is concerned that he is not getting enough sleep.

On discussing this with the patient, he states he does not feel tired or need to sleep more than 2-3 hours anymore. He is talkative and explains he has been staying up late starting an online business which will make him a lot of money. He is irritated that people are questioning him, especially as he usually feels low in mood but now finally feels much better. No delusions or hallucinations are reported.

What is the most likely diagnosis?

A.Hypomanic phase of bipolar disorder

B.Insomnia

C.Manic phase of bipolar disorder

D.Psychosis

E.Resolution of depression

Answer:Hypomanic phase of bipolar disorder

Explanation:

Mania/ hypomania are associated with a decreased need for sleep, without feeling tired

Important for meLess important

The patient in this scenario has drastically reduced sleep but doesn't feel tired. This, in combination with other factors such as being overly talkative and irritable, overconfidence in his business, and history of likely depression point to probable hypomanic phase of bipolar disorder.

Patients who have insomnia are likely to report feeling tired and wanting to sleep even though they can't, making this option less likely given this patient doesn't feel the need to sleep or feel tired.

There are no delusions or hallucinations which makes 'psychosis' an incorrect answer.

A manic phase of bipolar disorder is also incorrect as the patient in this scenario does not have any delusions or hallucinations, meaning hypomania better fits his collection of symptoms.

The clinical information in this case (reduced need for sleep, talkativeness, irritability, overconfidence) suggest there is more going on here than simply a resolution of depression.

Question:

A 50-year-old man presents to the GP with a 2-month history of unexplained weight loss associated with abdominal pain, night sweats, fever and bloody diarrhoea. His past medical history includes coeliac disease and type 2 diabetes.

What is the most likely diagnosis?

A.B cell lymphoma

B.Chronic lymphocytic leukaemia

C.Chronic myeloid leukaemia

D.Multiple myeloma

E.T cell lymphoma

Answer:T cell lymphoma

Explanation:

Coeliac disease increases the risk of developing enteropathy-associated T cell lymphoma

Important for meLess important

Coeliac disease increases the risk of developing enteropathy-associated T cell lymphoma. This is due to the neoplastic transformation of intraepithelial T lymphocytes in coeliac patients. Risk factors include poor adherence to a gluten-free diet and late diagnosis of coeliac disease.

B cell lymphoma is a type of non-Hodgkin lymphoma which is not associated with coeliac disease. B cell lymphoma is associated with Sjogren's disease, however.

Chronic lymphocytic leukaemia (CLL) is the most common leukaemia in the western world. Even though CLL can also present with B symptoms, the presence of diarrhoea and previous history of coeliac disease makes T cell lymphoma more likely.

Chronic myeloid leukaemia is rare and is often found incidentally on blood test results. It typically presents with non-specific symptoms such as anorexia, weight loss, bloating and early satiety.

Multiple myeloma often presents with signs of hypercalcemia, bone pain and anaemia, rather than the signs mentioned in this scenario.

Question:

A 34-year-old male with no previous medical history presents to general practice with difficulty breathing, fatigue, and dark urine.

Blood tests are ordered, which show:

Hb 118 g/L Male: (135-180)

MCV 98 fL (77-95)

Fibrinogen 5.2 g/L (2 - 4)

Ferritin 274 ng/mL (20 - 230)

Vitamin B12 648 ng/L (200 - 900)

Folate 4.6 nmol/L (> 3.0)

Reticulocytes 3.6 % (0.5 - 1.5)

Bilirubin 29.6 µmol/L (3-17 µmol/L)

Conjugated bilirubin 24.2 µmol/L

Lactate dehydrogenase (LDH) 560 IU/L (200-450 IU/L)

Haptoglobin 0.17 g/L (0.32-1.97 g/L)

Which of the following is the most likely diagnosis?

A.Sickle-cell anaemia

B.Drug-induced haemolytic anaemia

C.Autoimmune idiopathic haemolytic anaemia

D.β thalassaemia major

E.Malaria

Answer:Autoimmune idiopathic haemolytic anaemia

Explanation:

A decrease in haptoglobin levels can be seen in intravascular haemolysis

Important for meLess important

Intravascular haemolysis occurs when red blood cells rupture in the vessels and are bound to haptoglobin to be excreted in urine (extravascular haemolysis refers to the phagocytosis of red blood cells). Low haptoglobin levels are seen in intravascular haemolysis, as well as raised urine haemoglobin and haemosiderin. Reticulocytes are raised causing slightly increased MCV. Examples of causes of intravascular haemolysis include G6PD, autoimmune haemolytic anaemia and HELLP syndrome (Haemolysis, Elevated Liver enzymes and Low Platelet count). As this patient has no past medical history, the diagnosis is likely to be autoimmune idiopathic haemolytic anaemia.

Sickle cell anaemia causes extravascular haemolysis, with very low Hb (60-90 g/L). It is also more likely to present in childhood.

Drug-induced haemolytic anaemia is unlikely as this patient has likely not taken any medications recently. Drugs that can cause haemolytic anaemia include cephalosporins and quinine.

β thalassaemia major presents with failure to thrive and severe anaemia within the first year of life.

Malaria is a cause of haemolytic anaemia, but there is no mention of recent travel and there would likely be additional symptoms such as myalgia and fever.

Question:

A 52-year-old woman presents with fever, sweats and persistent dyspepsia despite omeprazole. She has also lost 5kg in weight over the last 1 year. Prior to this she is normally fit and well with no other past medical or drug history.

She works as a bus driver and her only recent foreign travel was to Ibiza on holiday.

She undergoes an endoscopy which reveals a tumour in the antrum of the stomach.

Which of the following is most likely to have been causative?

A.Epstein Barr virus

B.Helicobacter pylori

C.Coeliac disease

D.Schistosoma haematobium

E.Human T-lymphotropic virus 1

Answer:Helicobacter pylori

Explanation:

Helicobacter pylori infection can lead to gastric lymphoma (MALT)

Important for meLess important

Helicobacter pylori infection can lead to gastric lymphoma (MALT). These are typically arise in the antrum of the stomach and can present with systemic features such as fevers and night sweats.

While coeliac disease can predispose to gastrointestinal (GI) tumours, this is rare. Furthermore, coeliac is associated with enteropathy-associated T-cell lymphoma, a disease of the small intestine.

Epstein Barr Virus (EBV) predisposes to nasopharyngeal cancer and Hodgkin's lymphoma.

Schistosoma haematobium predisposes to bladder tumours.

HTLV1 predisposes to adult T-cell leukaemia/lymphoma.

Question:

A 4-year-old boy is brought into the Emergency Department. His mum is worried as he has developed a limp in the last 48 hours. He has had a cold recently, but is otherwise well and has had no trauma. Developmental milestones are being met, and there were no complications during pregnancy or birth.

What is the most likely cause of his presentation?

A.Juvenile idiopathic arthritis

B.Osgood-Schlatter disease

C.Reactive arthritis

D.Slipped upper femoral epiphysis

E.Transient synovitis

Answer:Transient synovitis

Explanation:

Transient synovitis is most commonly seen in children aged 3-8 years

Important for meLess important

Transient synovitis is the most likely diagnosis as the child is well, afebrile, and has had the symptoms for less than 72 hours. Recent viral infection is also a risk factor. NICE guidelines recommend, if the patient is ‘aged 3–9 years, well, afebrile, mobile but limping, and has had the symptoms for less than 72 hours, consider a working diagnosis of transient synovitis.’ It should be managed with simple analgesia, good safety net advice, and follow-up to ensure resolution of symptoms.

Juvenile idiopathic arthritis is incorrect. It is a group of chronic inflammatory arthritides characterised by the presence of arthritis in one or more joints for at least 6 weeks, so is not in keeping with the acute presentation in this case.

Osgood-Schlatter disease is an overuse injury that is a common cause of anterior knee pain in adolescents, so is not in keeping with this case.

Reactive arthritis is incorrect. It occurs mainly in adults, and tends to be seen 1 to 4 weeks following a genitourinary or gastrointestinal infection. The classic triad of symptoms is conjunctivitis, urethritis and arthritis ('can't see, can't pee, can't climb a tree') - this is not always seen clinically, but is useful to remember for exams.

Slipped upper femoral epiphysis is the displacement of the proximal femoral epiphysis from the metaphysis. It should be considered in children aged 10-19 years presenting with a limp. It is therefore not the most likely diagnosis here.

Question:

A 38-year-old female is being discharged from the cardiology ward on amiodarone, as a result of the recent discovery of her having atrial fibrillation.

Which of the following is a side effect of this medication you should counsel her on?

A.Nephrotoxicity

B.Diarrhoea

C.Oligomenorrhoea

D.Medication-induced phaeochromocytoma

E.Pulmonary fibrosis

Answer:Pulmonary fibrosis

Explanation:

Amiodarone - associated with pulmonary fibrosis

Important for meLess important

Amiodarone is a class III anti-arrhythmic agent which is indicated in the management of numerous arrhythmias. It is a key drug and its side effects are often tested in medical student finals.

It is associated with a range of side effects, classically including: pulmonary fibrosis; thyroid disturbances (rather than phaeochromocytoma); a slate-grey appearance of the skin; and further arrhythmias.

It is not believed to be routinely associated with diarrhoea, oligomenorrhoea nor nephrotoxicity (though it can cause hepatotoxicity).

Question:

A 35-year-old man presents to the haematology clinic. He has recently been diagnosed with haemochromatosis and has been undergoing weekly venesection.

What blood tests should be performed alongside FBC to monitor his treatment?

A.Total iron binding capacity (TIBC) + serum ferritin

B.Total iron binding capacity (TIBC) + serum iron

C.Total iron binding capacity (TIBC) + transferrin saturation

D.Transferrin saturation + serum ferritin

E.Transferrin saturation + serum iron

Answer:Transferrin saturation + serum ferritin

Explanation:

Ferritin and transferrin saturation are used to monitor treatment in haemochromatosis

Important for meLess important

All patients diagnosed with haemochromatosis undergoing venesection should have monitoring of their transferrin saturation and serum ferritin until these are within range. Transferrin saturation measures the amount of iron bound to a protein (transferrin) in the blood. This is the first marker to rise in haemochromatosis and levels above 45% are considered too high. Serum ferritin concentration reflects iron stores in the body and is a useful prognostic test for predicting cirrhosis risk. It is important to monitor for a complication of phlebotomy known as iron avidity. This is where patients are overtreated and have low or normal serum ferritin, with elevated transferrin saturation. This is treated with iron supplementation or monitored until serum ferritin levels return to normal.

TIBC is not monitored during haemochromatosis treatment. Hence the answer total iron-binding capacity + serum ferritin is incorrect.

Serum iron is also not monitored during haemochromatosis treatment. Hence the answer total iron-binding capacity + serum iron is incorrect.

As above, TIBC is not monitored during haemochromatosis. Hence the answer total iron-binding capacity (TIBC) + transferrin saturation is incorrect.

As above, serum iron is not monitored during haemochromatosis treatment. Hence the answer transferrin saturation + serum iron is incorrect.

Question:

A 67-year-old woman presents to the emergency department after landing on her hip after falling out of bed and now complains of severe pain left hip pain. An X-ray shows an extracapsular fracture of the neck of the femur.

She has a past medical history of breast cancer, asthma, high blood pressure, and hypothyroidism. She currently takes amlodipine, atorvastatin, levothyroxine, anastrozole, salbutamol inhaler, and beclometasone inhaler.

Which of her medications most likely contributed to her fracture?

A.Amlodipine

B.Anastrozole

C.Atorvastatin

D.Beclometasone inhaler

E.Levothyroxine

Answer:Anastrozole

Explanation:

Aromatase inhibitors (e.g. anastrozole) may cause osteoporosis

Important for meLess important

This patient has presented with a hip fracture after falling out of bed.

She is currently taking anastrozole for breast cancer treatment which increases the risk of osteoporosis, and therefore her risk of fractures.

Amlodipine is a calcium channel blocker. Common side effects include ankle swelling and facial flushing. There is some evidence to suggest this drug is protective against osteoporosis.

Atorvastatin is a statin that can cause muscle pains and gastrointestinal side effects. It can also cause deranged liver function tests, however, it does not impact bone health.

Beclometasone inhalers are used in asthma to prevent symptoms and reduce airway inflammation. While systemic steroids may cause osteoporosis, inhaled steroids have a much lower systemic effect and are unlikely to have contributed to her fracture.

Levothyroxine is used in hypothyroidism to replace low thyroid hormone levels. It can also increase the risk of osteoporosis, especially if it is over-replaced and so should be used with caution in the elderly. However, anastrozole carries more risk of osteoporosis and therefore is the correct answer here.

Question:

A 67-year-old man presents in general practice with a new itchy rash that he has had for a 'couple of weeks'. On examination, the rash is purple, raised, and has fine white lines on the surface. Inside the mouth, the patient has white striae on the oral mucosa which you identify as Wickham striae.

Given the likely diagnosis, what medication is the first-line management for this?

A.Dithranol

B.Quinine

C.Topical steroids

D.Topical emollient

E.Topical vitamin D analogue

Answer:Topical steroids

Explanation:

Potent topical steroids are the first-line treatment for lichen planus

Important for meLess important

This patient has lichen planus. This can be differentiated from psoriasis by the presence of Wickham striae on the oral mucosa. Topical potent steroids are first-line for lichen planus.

Dithranol is used in the management of psoriasis.

Quinine is a cause of lichen planus.

Topical emollients are ineffective in lichen planus but are used in psoriasis to reduce scale.

Topical vitamin D analogues are used in psoriasis.

Question:

You are a medical student on the ward learning to insert a nasogastric (NG) tube. You have never inserted one before. You have set up and are about to perform the NG insertion under the supervision of an F2 when the F2 is bleeped away urgently. The ward is busy and the F2 tells you to finish the procedure while they attend to the bleep. what is the most appropriate course of action?

A.Explain the situation to the patient, if they give consent, carry out the procedure

B.After the F2 leaves, apologise to the patient for the F2's behaviour, don't carry out the procedure

C.Tell the F2 that you don't feel is safe to perform the procedure unsupervised

D.Don't inform the patient so they remain calm and comfortable, carry out the procedure

E.After the F2 leaves explain to the patient you don't feel comfortable performing the procedure

Answer:Tell the F2 that you don't feel is safe to perform the procedure unsupervised

Explanation:

This question focuses on two key areas of professionalism highlighted in the GMC- Good medical practice guidelines. Domain 1:14. 'You must recognise and work within the limits of your competence'

and working collaboratively with colleagues and building trust.'You must be aware of how your behaviour may influence others within and outside the team'

In this case, the most appropriate thing would be to inform the F2 immediately that this is outside you capabilities at that time. You are responsible for working within the limits of your own competency.

It would be unprofessional to discuss/disparage the F2 once they have left the room.

Question:

A 75-year-old female presents to her general practitioner with muscle weakness that has become progressively worse over the last year. She can no longer walk or stand for a long period of time. She also has a purple rash on her eyelids, red lumps on her knees and elbows and cracked painful skin on her fingers. What autoantibody is most likely to be causing these symptoms?

A.Anti-cyclic citrullinated peptide (anti-CCP)

B.Anti-double-stranded DNA (anti-dsDNA)

C.Antinuclear (ANA)

D.Anti-topoisomerase (anti-Scl-70)

E.Anti-mitochondrial (AMA)

Answer:Antinuclear (ANA)

Explanation:

This patient has the inflammatory condition, dermatomyositis. Dermatomyositis is associated with ANA. It presents with symptoms/signs such as proximal muscle weakness, a macular rash over back/shoulders, a violet periorbital rash and red papules over extensor surfaces of the fingers.

Anti-CCP antibodies are associated with rheumatoid arthritis. Rheumatoid arthritis typically presents with joint pain.

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-Scl-70 antibodies are associated with diffuse systemic sclerosis. This would present with proximal limb or trunk scleroderma.

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 24-year-old primigravida patient presents to the emergency department with a 2-day history of light per-vaginal spotting. According to her last menstrual period date, she is 8 and a half weeks gestation and has not yet had any scans.

She denies any abdominal pain or flooding episodes. She has no past medical history. A transvaginal ultrasound scan shows a closed cervical os with a single intrauterine gestational sac, a 2mm yolk sac, and a crown-rump length measuring 7.8mm, with no cardiac activity.

What is the most likely diagnosis for this patient?

A.Complete miscarriage

B.Inevitable miscarriage

C.Missed miscarriage

D.Partial miscarriage

E.Threatened miscarriage

Answer:Missed miscarriage

Explanation:

A transvaginal ultrasound demonstrating a crown-rump length greater than 7mm with no cardiac activity is diagnostic of a miscarriage

Important for meLess important

This is a missed miscarriage. The patient has had an early pregnancy scan that shows an intrauterine foetus of a size in keeping with around 6 weeks gestation, with no cardiac activity. Given that cardiac activity begins around week 5 of gestation, these results indicate that the foetus has died. With the history of spotting and the closed cervical os, this is a missed miscarriage. 'Missed' refers to the fact that the os remains closed and the gestational sac remains within the uterus.

A complete miscarriage is not correct here. This diagnosis is used if a patient has had a previous ultrasound confirming a viable intrauterine pregnancy, then vaginal bleeding, and then a subsequent ultrasound indicating no evidence of retained products of conception or a gestational sac once bleeding has stopped. As the vignette shows a gestational sac and products of conception in the uterus, this is not the correct answer.

An inevitable miscarriage is diagnosed if the cervical os is open and there is heavy vaginal bleeding. The use of 'inevitable' means that nothing can be done to stop the miscarriage from occurring, as the os is open.

A partial miscarriage does not exist as a formal definition.

Threatened miscarriage is a confusing term and can be concerning for women presenting with vaginal bleeding. It is used when patients present with vaginal bleeding but have a viable intrauterine pregnancy with cardiac activity on ultrasound. As the vignette shows an absence of cardiac activity, this is an incorrect answer.

Question:

A 26-year-old woman is diagnosed with coeliac disease after a 1 year history of weight loss and diarrhoea. Tissue transglutaminases are positive and she is commenced on a gluten free diet.

As part of her investigations she is noted to have a low haemoglobin and ferritin levels and a blood film is sent.

Which of the following blood film findings would be suggestive of hyposplenism?

A.Basophilic stippling and cabot rings

B.Rouleaux formation

C.Schistocytes and eosinophilia

D.Howell-Jolly bodies and siderocytes

E.Toxic granulation and Döhle bodies

Answer:Howell-Jolly bodies and siderocytes

Explanation:

Howell-Jolly bodies and siderocytes are typical blood film findings of hyposplenism

Important for meLess important

Hyposplenism is a feature of coeliac disease. Blood film findings include Howell-Jolly bodies and siderocytes.

Basophilic stippling and cabot rings are features of lead poisoning.

Rouleaux formation are chronic inflammation and myeloma.

Schistocytes are a feature of haemolytic anaemia.

Toxic granulation and Döhle bodies are a neutrophil response to infection.

Question:

You are reviewing the blood results of a 67-year-old man who has recently been diagnosed as having hypertension. A HbA1c level was requested as part of the routine work-up. Which one of the following HbA1c ranges is most consistent with a diagnosis of prediabetes?

A.31-36 mmol/mol (5.0-5.4%)

B.37-41 mmol/mol (5.5-5.9%)

C.42-47 mmol/mol (6.0-6.4%)

D.48-52 mmol/mol (6.5-6.9%)

E.53-58 mmol/mol (7.0-7.5%)

Answer:42-47 mmol/mol (6.0-6.4%)

Explanation:

Prediabetes is defined by a HbA1c of 42-47 mmol/mol (6.0-6.4%)

Important for meLess important

Question:

A 24-year-old woman is recovering from a renal transplant. Less than 24 hours after the procedure she reports worsening pain at the transplant site. On examination she is febrile, tender over the transplant and has been anuric since the procedure. Her creatinine has risen markedly over the last 24h.

What is the basic underlying mechanism of her rejection?

A.Pre-existing antibodies against ABO or HLA antigens

B.Cytomegalovirus (CMV) sepsis secondary to immunosuppression

C.Lupus nephritis

D.IgA nephropathy

E.Cell-mediated (cytotoxic T cell) induced rejection

Answer:Pre-existing antibodies against ABO or HLA antigens

Explanation:

Hyperacute transplant rejection is caused by pre-existing antibodies against ABO or HLA antigens

Important for meLess important

Signs of rejection within the immediate (24-48h) post-transplant period should always raise suspicions of hyperacute rejection, the rapidity of which is caused by pre-existing of antibodies against a donor's ABO/HLA antigens.

CMV status is an important consideration in transplant surgery as hyper-immunosuppression can lead to CMV viraemia and colitis in CMV negative recipients who receive a CMV positive organ. However, it would not manifest this early post operatively.

Although lupus nephritis can be a cause of renal failure, there is no indication that this patient has lupus and it would not manifest so early post operatively. This also applies to IgA nephropathy.

Cell-mediated (cytotoxic T-cell) mediated rejection is a cause of acute rejection but usually manifests within the first 6 months as oppose to the first 24h.

Question:

An 89-year-old woman is brought into the Emergency Department by ambulance with sudden-onset one-sided weakness and sensory changes.

She is triaged as a potential stroke and is quickly reviewed by a doctor who notes the following examination findings:

Left Right

Upper limb power 5/5 2/5

Lower limb power 5/5 0/5

Upper limb sensation normal reduced++

Lower limb sensation normal absent

No other neurological findings.

What artery was most likely affected?

A.Left anterior cerebral artery

B.Left anterior inferior cerebellar artery

C.Left middle cerebral artery

D.Right anterior cerebral artery

E.Right middle cerebral artery

Answer:Left anterior cerebral artery

Explanation:

Contralateral hemiparesis and sensory loss with the lower extremity being more affected than the upper - anterior cerebral artery

Important for meLess important

Left anterior cerebral artery (ACA) strokes are characterised by contralateral hemiparesis and sensory loss with the lower extremity being more affected than the upper. As this patient's right side has been affected, they have had a left-sided ACA stroke.

Left anterior inferior cerebellar artery (AICA) strokes often present with sudden-onset vertigo and vomiting, ipsilateral facial paralysis, and deafness. No facial involvement or deafness is noted making this much less likely.

Left and right middle cerebral artery (MCA) strokes are the most common, but they would typically present with contralateral hemiparesis and sensory loss with the upper extremity being more affected than the lower, contralateral homonymous hemianopia, and aphasia. In this patient, the lower extremity is more affected and there are no visual changes or aphasia.

Right anterior cerebral artery (ACA) is incorrect. ACA strokes are characterised by contralateral hemiparesis and sensory loss with the lower extremity being more affected than the upper. As this patient's right side has been affected, they have had a left-sided ACA stroke.

Question:

A 78-year-old man presents to the Emergency Department having had a 4 hour incident of right facial weakness with forehead sparing.

His medical history includes polymyalgia rheumatica and haemophilia B. The only regular medication he takes is low dose prednisolone. He has smoked 20 cigarettes a day for the past 20 years.

On examination, he no longer has any neurological signs or symptoms, which he states resolved 20 minutes ago.

What is the most appropriate initial management?

A.Admit and arrange a CT head

B.Give aspirin immediately

C.Reassure and manage as an outpatient

D.Thrombectomy

E.Thrombolysis

Answer:Admit and arrange a CT head

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

This history is suspicious of a transient ischaemic attack (TIA) given the acute onset of stroke-like non-permanent neurological symptoms. His age being greater than 55, his bleeding disorder, his sex, and his smoking history are all risk factors for a TIA. The past medical history of polymyalgia rheumatica and its management of low dose prednisolone are distractors, will not cause his symptoms, and should not change the likely diagnosis of TIA or the management plan.

Admit and arrange a CT head. This patient has a history of haemophilia B, which greatly increases his risk of a haemorrhagic causes of stroke-like neurological deficit (as indicated by the forehead sparing, an upper motor neuron sign). This would also be done if the patient were on an anticoagulant such as apixaban.

Give aspirin immediately. 300mg of aspirin is the management of a TIA in a patient who is neither on anticoagulants nor has a bleeding disorder. As this patient has haemophilia B, it is vital to rule out a haemorrhagic cause, because aspirin will only worsen the bleeding due to its antiplatelet properties.

Reassure and manage as an outpatient. This is the wrong management for both haemorrhagic and ischaemic causes of TIA, either of which is possible in this man's case (hence needing a CT head for differentiation).

Thrombectomy. This is the management of ischaemic stroke presenting within 6 hours of symptom onset (or generally within 24 hours if there is imaging evidence of salvageable, viable brain tissue). This man is at high risk of a haemorrhagic stroke, however, so imaging is needed to rule a bleed out.

Thrombolysis. This is the management of an ischaemic stroke presenting within 4.5 hours of symptom onset. Again, a haemorrhagic stroke in this man must be ruled out with imaging.

Question:

A 45-year-old woman presents to the emergency department with palpitations and chest pain. She has a past medical history of hypertension and takes nifedipine.

Her heart rate is 140 bpm, her blood pressure is 128/75 mmHg, and her oxygen saturations are 97%. An ECG demonstrates an irregularly irregular rhythm with absent p-waves. The episode self-terminates, and after monitoring with a Holter device for 3 days, she has no more episodes.

What is the most appropriate step in her management?

A.Offer lifelong aspirin

B.Offer lifelong enoxaparin

C.Offer lifelong rivaroxaban

D.Offer lifelong warfarin

E.Treatment is not necessary

Answer:Offer lifelong rivaroxaban

Explanation:

Patients with chest pain and palpitations should have an ECG performed to screen for arrhythmia alongside Holter monitoring (ambulatory ECG monitoring). The ECG findings in the vignette are consistent with atrial fibrillation (AF; irregularly irregular rhythm with absent p-waves).

Any patient with current AF or a history of AF (even if the episode has resolved) should be considered for anticoagulation due to the associated stroke risk. The scoring system of choice is CHA2DS2-VASc, and this patient's score is 2 (1 point for being female, 1 point for a history of hypertension, even if it is treated).

Offer lifelong rivaroxaban is the correct answer. NICE recommends that direct oral anticoagulants (DOACs, including rivaroxaban) should be given as anticoagulation first-line for life in the absence of contraindications. Given that this patient's CHA2DS2-VASc score is 2, this is the most appropriate step.

Offer lifelong aspirin is incorrect. Although anticoagulation is indicated in this patient, aspirin is not recommended for use in AF as it is not as efficacious as DOACs or warfarin in preventing stroke and the risks outweigh the benefits.

Treatment is not necessary is incorrect. Treatment is considered in all patients with current AF or a history of AF, as it may recur in the future, and the patient may not be aware. It would be inappropriate not to treat this patient as AF carries a significantly increased risk of stroke.

Offer lifelong enoxaparin is incorrect. Enoxaparin is a low molecular weight heparin (LMWH), not offered as a form of anticoagulation in AF. Instead, DOACs such as rivaroxaban are used first-line. Even if DOACs are contraindicated, the drug of choice would be warfarin, not LMWH.

Offer lifelong warfarin is incorrect. Warfarin would be appropriate if DOACs such as rivaroxaban were contraindicated. There is nothing in this question to suggest that DOACs are contraindicated; therefore, they are more appropriate. DOACs are used in preference where possible because they require less monitoring and are more cost-effective yet efficacious.

Question:

A 30-year-old male has been diagnosed with multiple sclerosis 3 years ago. He experienced symptoms such as increasing difficulty in walking, muscle fatigue and stiffness, losing balance, and numbness in his peripheries. The first episode of worsening symptoms had lasted about 3 months, followed by 7 months free of symptoms. The next episode was a longer period of 6 months of symptoms followed by only 1 month free of symptoms. He is currently experiencing symptoms again for the past 2 months.

What classification of multiple sclerosis is being described?

A.Atypical

B.Primary progressive

C.Relapse-regressing

D.Relapse-remitting

E.Secondary progressive

Answer:Relapse-remitting

Explanation:

The most common pattern for progression of multiple sclerosis is relapsing-remitting

Important for meLess important

Relapse-remitting is the most common pattern of multiple sclerosis, making up about 85% of patients with MS. Patients experience relapses of new or worsening symptoms. These vary in duration and often come without warning. Patients then tend to have periods of remission between attacks where there are no worsening symptoms. These periods of remission can last up to years.

There is no classification of MS as atypical MS.

There is also no classification of MS as primary MS.

Primary progressive MS is a much less common pattern in MS, it accounts for about 10% of patients. It is when a patient experiences worsening symptoms gradually since its onset and do not experience periods of remission in between. This is more common in the elderly population.

Secondary progressive MS is when patients who have relapse-remitting MS deteriorate and develop gradual worsening of symptoms without obvious flares or attacks. About 65% of patients with the relapsing-remitting disease will develop secondary progressive disease within 15 years of their diagnosis.

Question:

A 7-year-old girl is brought to her GP by her mother. She is conscious but clearly struggling to breathe and has an urticarial rash on her body. The mother states that she saw another GP at the practice that morning and was prescribed a course of antibiotics for impetigo. The GP suspects she is having an anaphylactic reaction to the antibiotic. What dose of IM adrenaline should she administer?

A.500 micrograms

B.600 micrograms

C.150 micrograms

D.450 micrograms

E.300 micrograms

Answer:300 micrograms

Explanation:

Anaphylaxis: A child aged 6-11 years should be administered adrenaline at a dose of 300 micrograms (0.3ml), repeated every 5 minutes if necessary

Important for meLess important

This child is clearly having an anaphylactic reaction to the antibiotic she has taken. The dose of adrenaline in paediatric anaphylaxis depends on the age of the child. This patient falls into the 6-12 year age bracket so the correct dose for her would be 300 micrograms.

Question:

A 75-year-old woman presents to the emergency department with new-onset changes in her vision. She was gardening when she suddenly realised she was not able to see the flowers on her right side.

On examination, she looks alert and comfortable. A neurological examination reveals that she is not able to visualise the right field in both eyes, but her central vision is intact. When asked to copy a drawing she can do it well but fails to be able to name the copied object.

Given the most likely diagnosis, where is the lesion?

A.Left middle cerebral artery

B.Left posterior cerebral artery

C.Right middle cerebral artery

D.Right ophthalmic artery

E.Right posterior cerebral artery

Answer:Left posterior cerebral artery

Explanation:

Contralateral homonymous hemianopia with macular sparing and visual agnosia - posterior cerebral artery

Important for meLess important

Left posterior cerebral artery is correct. This patient is presenting with right homonymous hemianopia with macular sparing, as indicated by the fact that she is not able to see both of her right fields but has a normal central vision. Additionally, she is presenting with agnosia, described as the impairment in recognition of visually presented objects. She is able to draw them, but not name them.

The contralateral homonymous hemianopia with macular sparing is caused by the fact that the posterior cerebral artery supplies the lower optic radiations and the occipital lobe, before the decussation of the visual pathway, so its damage would result in contralateral hemianopia. 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 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, rather than agnosia, interfering with the blood supply to the language areas.

Right middle cerebral artery is incorrect. Damage to this vessel would cause left 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, rather than agnosia, interfering with the blood supply to the language areas.

Right ophthalmic artery is incorrect. Damage here would cause a pattern called 'amaurosis fugax'. This is described as a painless black curtain coming down vertically into the field of vision in one eye, which is not described here.

Right posterior cerebral artery is incorrect. Damage to this vessel would cause the symptoms described in this vignette, but the visual defect would be on the left side, as the damage occurs before the decussation of the visual pathway.

Question:

A 67-year-old man presents to his GP for an annual 'check-up' appointment. He has no new complaints or symptoms of concern. A urine dip and some routine blood tests are taken which show the following:

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

Platelets 198 \* 109/L (150 - 400)

WBC 12.3 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 6.9 mmol/L (2.0 - 7.0)

Creatinine 103 µmol/L (55 - 120)

CRP 4 mg/L (< 5)

Urine Appearance Clear

Blood +++

Protein -

Nitrites -

Leucocytes +

What is the most appropriate next step that the GP should take for this patient?

A.2-week wait referral using the suspected cancer pathway

B.Prescribe treatment for a urinary tract infection

C.Repeat U&Es in 4 weeks

D.Screen for diabetes

E.Send a urine sample away for microscopy, culture and sensitivity

Answer:2-week wait referral using the suspected cancer pathway

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

2-week wait referral using the suspected cancer pathway is the correct answer. 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. This patient has non-visible haematuria and raised WCC, therefore he needs to be referred.

Prescribe treatment for a urinary tract infection is incorrect. The patient has no symptoms of urinary tract infection, his CRP is normal and his nitrites are negative on urine dip. There is a greater risk that the findings are associated with urinary tract malignancy than urinary tract infection, therefore this answer is not as appropriate as the 2-week wait referral.

Repeat U&Es in 4 weeks is incorrect as his U&Es are normal and there is no indication for monitoring them.

Screen for diabetes is incorrect. If he had glycosuria then this may be indicated, but at present, there are no symptoms to suggest diabetes.

Send a urine sample away for microscopy, culture and sensitivity is incorrect. This may be indicated if the patient was showing symptoms of urinary tract infection to ensure that appropriate antibiotics are prescribed.

Question:

Susan is a 30-year-old woman with a body mass index of 32kg/m² who has presented with a recurrence of boils in her axilla. She has had this numerous times before requiring antibiotics and has even had an incision and drainage on one occasion. She also described one episode of such boils on her vulva a few years ago. On this occasion, you notice large red lumps in her right axilla. There is some scarring of the skin and you also notice a little hole with pus discharging out of it.

What is the most likely diagnosis?

A.Pilonidal sinus

B.Carbuncles

C.Sebaceous cysts

D.Folliculitis

E.Hidradenitis suppurativa

Answer:Hidradenitis suppurativa

Explanation:

Sinus tracts and fistulas may develop as a complication of hidradenitis suppurativa

Important for meLess important

Hidradenitis suppurativa is a painful skin condition which causes multiple abscesses in areas which contain apocrine sweat glands. Common areas involved are the armpits and groin region. Obesity is a risk factor. In the later stages, it can lead to fistula and sinus tract formation which discharge pus.

Although folliculitis can lead to boils in the skin due to blocked hair follicles, the recurrence of the symptoms in specific locations makes it more likely to be hidradenitis suppurativa.

A pilonidal sinus is a sinus tract formation under the skin. It commonly develops in the skin cleft between the buttocks.

A carbuncle is a dome shaped cluster of boils.

Sebaceous cyst ( also called epidermoid or pilar cysts) are filled with keratin and can occur in many parts of the body, but most commonly are found on the scalp and back.

Question:

A 25-year-old man attends with a 3-month history of numbness in his right hand. On examination, you note the loss of sensation to the palmar and dorsal aspect of the 5th digit. Sensation of the forearm is preserved.

What is the most likely diagnosis?

A.Axillary nerve neuropathy

B.C8/T1 radiculopathy

C.Carpal tunnel syndrome

D.Cubital tunnel syndrome

E.Radial nerve neuropathy

Answer:Cubital tunnel syndrome

Explanation:

Ulnar nerve supplies sensory innervation to the palmar and dorsal aspects of 1 and 1/2 fingers medially

Important for meLess important

Cubital tunnel syndrome is correct. This is a classical description of ulnar nerve neuropathy. The ulnar nerve supplies sensory innervation to the palmar and dorsal aspects of 1.5 fingers medially. It has a motor component which can result in wasting and paralysis of intrinsic hand muscles (except lateral two lumbricals) and the hypothenar muscles. Froment's test can be used to test the function of the adductor pollicis muscle which is often weak in ulnar neuropathy.

Axillary nerve neuropathy is incorrect. The axillary nerve has both a motor and a sensory distribution of innervation. It has motor fibres that innervate the deltoid muscle, acting as an abductor, flexor and extensor at the shoulder joint, as well as the teres minor muscle, allowing lateral rotation of the glenohumeral joint. Its sensory function is from the superior lateral cutaneous nerve of arm, which sweeps around the posterior border of the deltoid and supplies the skin over the lower two-thirds of the posterior part of this muscle, as well as that covering the long head of the triceps brachii.

C8/T1 radiculopathy is incorrect. C8/T1 radiculopathy can mimic ulnar nerve neuropathy. In this case, the preserved sensation of the forearm favours a diagnosis of cubital tunnel syndrome. The ulnar nerve does not provide sensation to the medial forearm, which is innervated by the medial antebrachial cutaneous nerve (C8 and T1).

Carpal tunnel syndrome is incorrect. Median nerve dysfunction results in carpal tunnel syndrome characterised by sensory loss over the lateral 3.5 digits, and loss of motor function to the flexor muscles of the forearm and hand as well as those muscles responsible for flexion, abduction, opposition, and extension of the thumb.

Radial nerve neuropathy is incorrect. The radial nerve innervates the muscles located in the posterior arm and posterior forearm. Dysfunction, therefore, results in loss of elbow and wrist extension. It also supplies sensation to the postero-lateral aspect of the hand.

Question:

A 55-year-old female is recovering on the surgical ward two days post-open inguinal hernia repair. She has no other past medical history of note.

She has not opened her bowels or passed wind for the last 48 hours. Her abdomen is diffusely distended and tender. There is no rebound tenderness. There are no bowel sounds on auscultation. She is currently nil by mouth with a nasogastric tube placed.

Her observations are as follows:

Respiratory rate 20 breaths per minute

Heart rate 110 beats per minute

Blood pressure 100/60mmHg

Temperature 37.3ºC

Which of the following investigations is most likely to identify factors which are contributing to this patient's post-operative complication?

A.Colonoscopy

B.ECG

C.Endoscopy

D.LFTs

E.U&Es

Answer:U&Es

Explanation:

It is important to check and replace electrolytes in post operative ileus

Important for meLess important

This patient has postoperative paralytic ileus, as demonstrated by her inability to pass wind, her lack of bowel opening, and the absence of bowel sounds on abdominal auscultation.

There are numerous variables that may cause a post-operative patient to develop an ileus including but not limited to manual handling of the bowel during surgery, inflammation of the intra-abdominal organs, medications used intra- and post-operatively, and intra-abdominal sepsis. In the majority of cases it is likely a myriad of interacting causal variables that result in the condition.

In this patient, there is no indication that she is suffering from intra-abdominal sepsis such as a temperature, hypotension, or signs of peritonitis on physical examination. There is no mention of medications prescribed, or any underlying comorbidities that may suggest other causes.

It is likely that handling of the bowel has contributed to an ileus but it is important to also identify and rule out additional causal and confounding variables, such as electrolyte derangement. Current guidance states that patients with paralytic ileus should have daily U&Es and any abnormalities corrected.

There are no diagnostic or therapeutic indications for colonoscopy or endoscopy in this patient. Additional imaging such as an abdominal radiograph or a CT abdomen may identify additional complications of the surgery and help evaluate the severity of any bowel distention present, however, this was not provided as one of the answer options.

An ECG would be an appropriate investigation due to the tachycardia, however, this is likely a consequence rather than a cause of the post-operative ileus. The question asked specifically about investigations which may help identify causal variables.

There is no indication of prior liver disease or any identified clinical aspects of the case that suggest that hepatic pathology may be contributing to the patient's presentation.

Question:

A 45-year-old woman was commenced on treatment for a tuberculosis infection, 3 months ago. She has since developed a burning sensation at the base of her feet.

Which of the following medications may have caused this new 'burning sensation'?

A.Rifampicin

B.Isoniazid

C.Pyrazinamide

D.Ethambutol

E.Amoxicillin

Answer:Isoniazid

Explanation:

Isoniazid therapy can cause a vitamin B6 deficiency causing peripheral neuropathy

Important for meLess important

TB drugs have a variety of side effects, many of which are widely tested in medical school examinations. This patient is reporting evidence of a peripheral neuropathy which can be caused by the vitamin b6 deficiency that can result with Isoniazid therapy. Usually, prophylactic pyridoxine hydrochloride is prescribed at the same time as Isoniazid to prevent the peripheral neuropathy.

Question:

A 67-year-old gentleman presents with the blurring of his vision. This was sudden in onset and associated with this was shortness of breath and headache which came on gradually following the blurry vision. His past medical history includes treatment of squamous cell carcinoma of the lung which has failed to shrink despite the chemotherapy. On examination, he is short of breath with bulging veins on his forehead. Fundoscopic examination reveals papilloedema. His face appears swollen. Pemberton sign is positive. You administer oxygen and called for help. What is the next immediate step in managing this?

A.Administer dexamethasone

B.IM adrenaline

C.Topical latanoprost

D.Full blood count

E.Mannitol

Answer:Administer dexamethasone

Explanation:

SVC obstruction can cause visual disturbances such as blurred vision

Important for meLess important

This is superior vena cava obstruction. Due to the malignancy present, the superior vena cava has been compressed by a tumour. This is confirmed by the bulging of the veins on the forehead (back pressure due to compression), the papilloedema which is a sign of raised intracranial pressure and Pemberton sign. This is when you ask a patient to raise their arms until they touch the side of their face. If they develop cyanosis or worsening of their shortness of breath or facial congestion, it is said to be positive. The next best step would be a steroid to dampen the inflammatory response to a tumour and swelling. Then either a stent or radiotherapy/ chemotherapy would be given.

IM adrenaline would be useful if this was anaphylaxis. It would not be appropriate here.

Latanoprost is a treatment for glaucoma. It is a prostaglandin analogue and serves to reduce ocular pressure. This would not be the next immediate treatment in this condition.

A full blood count will be taken, but it is not the main priority.

Mannitol would not be suitable here. It is given to reduce intracranial pressure. However, dexamethasone is more effective.

Question:

A 60-year-old man is referred to haematology by his GP. He presented with a 6-week history of painless swellings in the armpit and groin, night sweats, weight loss and persistent itchy skin.

After blood tests and a chest X-ray, he undergoes a lymph node biopsy and is diagnosed with non-Hodgkin lymphoma.

What is the most likely diagnosis in this patient?

A.Diffuse large B cell lymphoma

B.Burkitt lymphoma

C.Mantle cell lymphoma

D.Follicular lymphoma

E.Cutaneous T-cell lymphoma

Answer:Diffuse large B cell lymphoma

Explanation:

Diffuse large B cell lymphoma is by far the most common form of lymphoma in the UK

Important for meLess important

Diffuse large B cell lymphoma is by far the most common form of non-Hodgkin lymphoma (NHL) in the UK. It comprises around 40% of the total lymphoma cases. It is a high-grade tumour (i.e. aggressive) but typically responds better to treatment than some of the more indolent lymphomas.

Burkitt lymphoma typically affects young or immunosuppressed patients.

Mantle cell lymphoma is rare and constitutes less than 1% of NHL in the UK.

Follicular lymphoma is a fairly common subtype of NHL (16% of cases) however it is low grade and usually very slow growing with symptoms developing over months to years.

As the name suggests, cutaneous T-cell lymphoma presents with skin changes and and is quite rare accounting for less than 5% of NHL cases.

Question:

A 23-year-old female is admitted to the Emergency Department with a three-day history of abdominal pain and diarrhoea. She has a past medical history of Crohn's disease, which was diagnosed 4-years ago. After a series of investigations, the cause of her symptoms is determined to be an acute flare of Crohn's disease.

What medication(s) would be used first-line to induce remission of this patient's symptoms?

A.Azathioprine and sulfasalazine

B.Azathioprine only

C.Glucocorticoids and sulfasalazine

D.Glucocorticoids only

E.Sulfasalazine and infliximab

Answer:Glucocorticoids only

Explanation:

Glucocorticoids (oral, topical or intravenous) are generally used to induce remission of Crohn's disease

Important for meLess important

The correct answer is glucocorticoids only.

The first-line management strategy for the induction of remission in Crohn's disease is glucocorticoids (which may be given via oral, topical or intravenous routes), which may also be combined with an elemental (liquid) diet.

Azathioprine and sulfasalazine is incorrect, as these drugs are used as third-and second-line management strategies.

Azathioprine only is incorrect as this should never be used as monotherapy for induction of remission in Crohn's disease.

Glucocorticoids and sulfasalazine is incorrect. The addition of sulfasalazine may however be considered second-line.

Sulfasalazine and infliximab is incorrect as sulfasalazine is commonly used second-line and infliximab fourth-line.

Question:

A 62-year-old male presents to the emergency department with tearing chest pain that is radiating to his back. He has a past medical history of hypertension for which he takes amlodipine. On examination, the patient has weak radial pulse. On auscultation of the heart, you hear a high-pitched, blowing early diastolic murmur at the 2nd intercostal space right sternal boarder. It is loudest when the patient sits up, leans forward and breathes out.

What is the most likely management for this patient?

A.Discharge with pain medication

B.IV labetalol and surgery

C.IV labetalol only

D.Surgical management only

E.Watch and wait

Answer:IV labetalol and surgery

Explanation:

Aortic dissection

type A - ascending aorta - control BP (IV labetalol) + surgery

type B - descending aorta - control BP(IV labetalol)

Important for meLess important

This patient has a type A aortic dissection as he presented with weak pulses and aortic regurgitation. Type A aortic dissections involve the ascending aorta and can propagate to the aortic arch and descending aorta whilst type B only involves the descending aorta.

The patient's blood pressure must be controlled within 100 -120 mmHg (systolic) whilst awaiting surgical intervention, therefore IV labetalol must be given.

You cannot discharge or observe the patient as this is a medical emergency and intervention must occur.

Type B aortic dissection can be managed surgically if leaking or compromising blood supply to vital organs but is usually managed with IV labetalol.

Question:

You are an FY1 on a paediatric ward undertaking the ward round of post-operative patients. One child, a 2-year-old male who is recovering from surgery performed 6 hours previously, is unable to tolerate oral fluids. You are asked by the consultant to write a prescription for his maintenance fluids for the next 24 hours, to be reviewed the following day. The child weighs 13.5 kg and is not clinically dehydrated. Assuming no ongoing losses, what is the correct volume of fluid to be prescribed over the next 24 hours?

A.1225 mL

B.1100 mL

C.1450 mL

D.1175 mL

E.990 mL

Answer:1175 mL

Explanation:

This question is testing the paediatric fluid requirements for non-neonates. This is calculated as 100mL/24 hours for every kilogram from 0-10 kg (1000 mL in this case) and then 50 mL/24 hours for every kilo from 11-20 and then 20 mL per every kilo there after. In this case, this gives 1000 + 3.5\*50 = 1175 mL over 24 hours.

As there is no ongoing losses or deficit assumed, this would therefore be the correct volume.

The detailed NICE guidelines can be found here:

https://www.nice.org.uk/guidance/ng29/chapter/recommendations#algorithms-for-iv-fluid-therapy-in-children-and-young-people-in-hospital

Question:

A 27-year-old woman has just given birth on the labour ward.

After the birth, an attempt is made to assess the extent of blood loss to document this in her records.

She is documented as having had a primary postpartum haemorrhage.

What is the correct definition of primary postpartum haemorrhage (PPH)?

A.The loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby

B.The loss of 1000 ml or more of blood from the genital tract within 24 hours of the birth of a baby

C.The loss of 500 ml or more of blood from the genital tract within 24 hours after delivery of the placenta

D.The loss of 1000 ml or more of blood from the genital tract within 24 hours after delivery of the placenta

E.The loss of 500 ml or more of blood from the genital tract from the onset of labour

Answer:The loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby

Explanation:

Postpartum haemorrhage is defined as blood loss of 500 ml after a vaginal delivery

Important for meLess important

Obstetric haemorrhage remains one of the major causes of maternal death worldwide.

Postpartum haemorrhage is defined as blood loss after the birth of a baby rather than delivery of the placenta.

Postpartum haemorrhage estimated over 1000mls of blood loss is classified as major postpartum haemorrhage.

It is paramount to assess the severity of the bleeding and escalate to appropriate management (see below).

Question:

A young woman at 30 weeks gestation, presents with painless bright red vaginal bleeding, she reports two previous scanty episodes of painless vaginal bleeding, but feels that this episode has been much more severe.

What is the most likely diagnosis?

A.Placenta praevia

B.Placental abruption

C.Vasa praevia

D.Cervicitis

E.Cervical polyp

Answer:Placenta praevia

Explanation:

The bleeding associated with placenta praevia is painless and usually bright red. Meanwhile the bleeding associated with placental abruption is associated with pain and is usually dark red. The pattern of previous bleeding also favours placenta praevia. Though vasa praevia can also present with painless vaginal bleeding other expected features would include fetal bradycardia and membrane rupture.

Question:

A 32-year-old man presents to his GP complaining of poor memory.

He works in a consulting company and got into trouble at work after missing a flight to a client in Bangkok.

He has trouble falling asleep and wakes up feeling tired. He sometimes wakes up in the middle of the night screaming. When awake, he cannot relax and he's been told he appears 'on-edge'.

He has a past medical history of attention-deficit hyperactivity disorder as a child and one major depressive episode when at university but he didn't have any mental health related complaints since.

He drinks one bottle of wine on a Saturday with his wife and admits to occasional past cocaine use. He tells you he stopped using cocaine after he was ambushed and stabbed when dealing with a dealer during his last holidays in Thailand two months ago. Patient admits that his wife complained that he appears emotionally unavailable as of recent.

Physical examination is grossly normal. Mental state examination reveals low mood and increased startle response.

What is the most likely diagnosis?

A.Acute stress disorder

B.Drug induced psychosis

C.Generalized anxiety disorder

D.Major depressive disorder

E.Post-traumatic stress disorder

Answer:Post-traumatic stress disorder

Explanation:

Common features of PTSD

re-experiencing e.g. flashbacks, nightmares

avoidance e.g. avoiding people or situations

hyperarousal e.g.hypervigilance, sleep problems

Important for meLess important

This man has PTSD (post-traumatic stress disorder). He is re-experiencing the traumatic event via nightmares. He avoids re-visiting the location of the traumatic event. He is hypervigilant with increased startle response and difficulty falling asleep.

This is not an acute stress disorder as the event happened over 1 month ago.

He doesn't have any psychotic symptoms and he ceased cocaine use 2 months ago.

Anxiety can be a symptom of PTSD but this is not a generalised anxiety disorder nor a major depressive episode.

Question:

A 45-year-old female presents to general practice with a 6 month history of bodily changes. Her facial features have become coarse, her voice has deepened and her joints ache more than usual. She is also unable to stop gaining weight despite lifestyle changes. CT head reveals a large pituitary mass.

What is the most appropriate first-line management of this patient?

A.Dopamine agonists

B.Growth hormone antagonists

C.Chemotherapy

D.Trans-sphenoidal surgery

E.Watchful waiting

Answer:Trans-sphenoidal surgery

Explanation:

First line treatment for most patients with a pituitary tumour causing acromegaly: Trans-sphenoidal surgery

Important for meLess important

The patient is presenting with symptoms of acromegaly secondary to a pituitary adenoma. This is best managed with resection of the tumour through the sphenoid sinus.

In patients where surgery isn't successful, dopamine agonists can be used to reduce the tumour size of pituitary adenomas.

Similarly, growth hormone antagonists are used to reduce the symptoms of tumours where surgery is unsuccessful.

Most pituitary adenomas are benign and therefore do not respond to chemotherapy. If the lesion becomes malignant, chemotherapy may be used. There is no evidence of malignancy in this patient.

If asymptomatic, microadenomas can be managed expectantly without . Pharmacological and surgical treatments carry risks which may outweigh the benefits, in which case watchful waiting is in the patient’s best interest.

Question:

A 43-year-old man presents to his general practitioner for increasing fatigue and shortness of breath on exertion. He describes increasing breathlessness walking up flights of stairs that has now begun to limit his abilities to complete activities of daily living, alongside increasing fatigue present throughout the day.

He has been managing hypertension and dyslipidaemia for several years but his past medical history is otherwise unremarkable. His social history is significant for past intravenous drug use in his early 20s, although he has been sober for 15 years. Prior to immigrating to the UK 10 years ago, he lived in a remote community in central Australia for all of his childhood and adolescent years.

On examination, he appears well and you do not note any breathlessness as he enters the room or at rest. His vital signs are unremarkable. Cardiovascular examination is significant for a 2/6 diastolic murmur; an opening snap followed by a low-pitched rumble. The GP suspects this murmur maybe contributing to this patient's symptoms.

What is the most likely underlying factor contributing to development of this patient's murmur?

A.Calcium deposition

B.Congenital malformation

C.Intravenous drug use

D.Myocardial infarction

E.Rheumatic fever

Answer:Rheumatic fever

Explanation:

Rheumatic fever is the most common cause of mitral stenosis

Important for meLess important

This patient is likely suffering from rheumatic heart disease, and has developed mitral stenosis - the most common valvular defect of rheumatic heart disease. Additionally, rheumatic fever is the most common cause of mitral stenosis.

Rheumatic fever is caused by group A Streptococcus species (GAS). While typically associated with bacterial pharyngitis, GAS can cause ongoing complications, such as rheumatic fever and later rheumatic heart disease, as well as post-streptococcal glomerulonephritis. The incidence of rheumatic fever is increased if antibiotic treatment is not adequate. Rheumatic fever is rare in the developed world, but patients from indigenous populations in central Australia, such as this patient, remain at increased risk.

Mitral stenosis is a diastolic murmur, characterised by opening snap and a low-pitched rumble. It is most commonly caused by rheumatic fever, but can also be due to calcium deposition and more rarely congenital malformation or as a sequelae of infective endocarditis from intravenous drug use.

Calcium deposition can cause mitral stenosis, but is not as common as rheumatic fever.

Congenital malformations causing mitral stenosis are rare; rheumatic fever is a far more common cause.

Intravenous drug use, and later infective endocarditis, can cause mitral stenosis. However, the tricuspid valve is more commonly affected by stenosis first, and regarding mitral stenosis, rheumatic fever is a more common cause.

Myocardial infarction is more commonly associated with mitral valve prolapse due to damage to the chordae tendineae.

Question:

A 6-year-old child is brought to the emergency department by his mother. A couple of hours ago, he started crying uncontrollably and shaking his hands, complaining about how painful they are. He has recently come off with a flu-like illness, but a COVID swab is negative. He is otherwise well and up-to-date with all of his vaccinations. His family history is unknown as he is adopted, but he is of Afro-Caribbean descent.

Which one of the following is the gold standard investigation to confirm the likely underlying diagnosis?

A.Blood film

B.Bone marrow biopsy

C.Haemoglobin electrophoresis

D.Serum-free light chain assay

E.JAK2 mutation panel

Answer:Haemoglobin electrophoresis

Explanation:

Definitive diagnosis of sickle cell disease is by haemoglobin electrophoresis

Important for meLess important

The correct answer is haemoglobin electrophoresis. This patient is presenting with a history of thrombotic crises, typical of sickle cell anaemia. During these crises, the sickle-shaped red blood cells occlude the vessels causing momentary ischemia. The treatment is supportive, with analgesia and abundant fluids. These crises are usually triggered by infection, dehydration or deoxygenation. In this case, the child has come off with a flu-like illness, probably exacerbating the crisis. A formal diagnosis of sickle cell disease is executed by haemoglobin electrophoresis, which will show the presence of two HbSS.

A blood film is used to visualise the shape of red blood cells. This can be helpful in the diagnosis of sickle cell disease, as the cells will have a classical 'target' appearance. But the definitive diagnosis of sickle cell disease can only be done by haemoglobin electrophoresis.

Bone marrow biopsy is diagnostic for multiple conditions affecting the bone marrow such as myelofibrosis. Usually, these conditions cause bone marrow failure, resulting in leukopenia, thrombocytopenia and anaemia. This patient does not complain of any of these features.

Serum-free light chain assay is used to diagnose multiple myeloma. This condition is characteristic of the 6th decade of life and presents with bone disease, infection, hypercalcaemia and renal failure, making the diagnosis unlikely.

A JAK2 mutation panel is used to diagnose polycythaemia vera, a myeloproliferative disorder caused by clonal proliferation of a marrow stem cell leading to an increase in red cell volume. This causes hyperviscosity that can cause pruritus and arterial occlusion. But this condition is usually seen in older patients and does not usually have such acute crisis, making this diagnosis unlikely.

Question:

A 55-year-old man with a history of gallstone disease presents with a two day history of pain in the right upper quadrant. He feels 'like I have flu' and his wife reports he has had a fever for the past day. On examination his temperature is 38.1ºC, blood pressure 100/60 mmHg, pulse 102/min and he is tender in the right upper quadrant. His sclera have a yellow-tinge. What is the most likely diagnosis?

A.Pancreatic cancer

B.Biliary colic

C.Ascending cholangitis

D.Acute cholecystitis

E.Acute viral hepatitis

Answer:Ascending cholangitis

Explanation:

Charcot's cholangitis triad: fever, jaundice and right upper quadrant pain

Important for meLess important

This patient has Charcot's triad (right upper quadrant pain, fever and jaundice), which is classically linked to ascending cholangitis. The systemic upset and jaundice are less typical of acute cholecystitis.

Question:

A 45-year-old woman presented to the emergency department. She complained of a sudden-onset chest pain that radiated down her left arm. This started when she was cleaning the house. She denied any other symptoms such as nausea, sweating, vomiting, or shortness of breath. Cardiovascular examination was unremarkable. Her point of care troponin was raised. Upon seeing her ECG, the on-call cardiologist decided to offer her immediate invasive coronary angiogram. The invasive coronary angiogram confirmed a critical stenosis of the left anterior descending artery. Which of the following ECG findings is compatible with the scenario?

A.Widespread saddle-shaped ST elevation with PR segment depression

B.Q waves in lead II, III, aVF

C.Downsloping ST depression ('reverse tick' sign) with bradycardia

D.Peak T waves with PR prolongation

E.Deep T wave inversion or biphasic T waves in V2-3

Answer:Deep T wave inversion or biphasic T waves in V2-3

Explanation:

ECG finding of deeply inverted or biphasic waves in V2-3 in a person with the previous history of angina is characteristic of Wellen's syndrome. This is highly specific for a critical stenosis of the left anterior descending artery

Important for meLess important

Widespread saddle-shaped ST elevation with PR segment depression indicates pericarditis

Q waves in lead II, III, aVF indicates previous inferior MI (caused by obstruction of the dominant right coronary artery in 80% of cases).

Downsloping ST depression ('reverse tick' sign) indicates digoxin toxicity

Peak T waves with PR prolongation indicates hyperkalaemia

Deep T wave inversion or biphasic T waves in V2-V3 is highly specific for critical stenosis of LAD. This is indicative of Wellen syndrome. Please note that patients with Wellen syndrome may be pain-free by the time the ECG is taken.

Question:

A 4-year-old boy presents to the emergency department with a suspected fractured femur. He has had several visits over the past few months. On examination, his teeth appear abnormal and he is very skinny. His father is also concerned about the boys hearing.

What is the most likely diagnosis?

A.Non accidental injury

B.Osteogenesis imperfecta

C.McCune Albright syndrome

D.Osteopetrosis

E.Hypophosphatasia

Answer:Osteogenesis imperfecta

Explanation:

Osteogenesis imperfecta characteristically presents in childhood with features such as bone fractures and deformities, blue sclera and hearing/visual problems

Important for meLess important

Osteogenesis imperfecta, also known as brittle bone disease, is a group of disorders of collagen metabolism, resulting in bone frailty and fractures. The most common form is type 1, which is a mild form. Presenting features include fractures following minor trauma, blue sclera, deafness secondary to otosclerosis and dental imperfection.

Non accidental injury is always an important diagnosis to consider. Fractures relating to this include spiral humeral fractures, digital fractures in non-ambulant children and bilateral fractures with fractures of differing ages. This would not explain the hearing and teeth abnormalities.

Osteopetrosis is an autosomal recessive condition, in which bones become harder and more dense. It is most common in young adults.

McCune-Albright syndrome is a rare genetic conditions. Symptoms include abnormal bone development, café au lait spots, premature puberty, and thyroid disorders.

Hypophosphatasia is a rare genetic condition that affects the development of the bones and teeth, due to defective mineralisation.

Question:

A 23-year-old female attends the emergency department complaining of a 2-hour history of weakness in her left leg. She denies any facial or upper limb weakness, and her speech is not slurred. She has no past medical history and does not take any regular medication.

After further investigation, the emergency doctor suspects a non-organic cause. With the patient in the supine position, he asks her to raise her right leg against resistance whilst keeping it straight. He places his hand under the left heel as she does this, and feels pressure under his hand.

What is the name of this clinical sign/test?

A.Babinski's sign

B.Brudziński's sign

C.Glabellar tap test

D.Hoover's sign

E.Straight leg raise

Answer:Hoover's sign

Explanation:

Hoover's sign is a quick and useful clinical tool to differentiate organic from non-organic leg paresis. In non-organic paresis, pressure is felt under the paretic leg when lifting the non-paretic leg against pressure, this is due to involuntary contralateral hip extension

Important for meLess important

The likely diagnosis in this scenario is a conversion disorder, due to loss of motor function of the leg in the absence of an organic cause. As Hoover's sign is positive in this case, this supports this diagnosis.

Babinski's sign is the dorsiflexion of the big toe on plantar stimulation and is indicative of an upper motor neurone lesion of the corticospinal tract.

Brudziński's sign describes the reflex flexion of the hips with forced flexion of the neck. It is typically associated with meningitis but can also be present in patients with subarachnoid haemorrhage and encephalitis.

Glabellar tap sign is also known as Myerson's sign. The area above the nose and between the eyebrows (glabella) is tapped repetitively. Healthy patients usually blink in response to the first 2-3 taps, but if a patient is unable to resist blinking beyond this, this can be indicative of early Parkinson's disease.

The straight leg raise test is also known as Lasègue's sign. If a straight leg raise reproduces radiating leg pain, this is positive and indicates a likely lumbar disc herniation.

Question:

A 64-year-old man presents with a 4-month history of toenail thickening and lifting with discolouration on 3 of his 5 toes on his right foot. He is systemically well and has no other medical problems. He is keen to have treatment as it is becoming uncomfortable when he walks.

After the examination, you feel he has an evident fungal toenail infection on his 1st, 3rd and 4th toenails of his right foot and as such you take some nail clippings.

A week later you get the mycology results which has identified Trichophyton rubrum.

What is the most appropriate treatment?

A.Griseofulvin

B.No treatment

C.Oral itraconazole

D.Oral terbinafine

E.Amorolfine 5% nail lacquer

Answer:Oral terbinafine

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Trichophyton rubrum is one of the most common dermatophyte nail infection organisms. For dermatophyte nail infections, oral terbinafine is the first line.

No treatment is not correct here as he is symptomatic (pain on walking) and is keen on treatment.

Oral itraconazole would be more suitable for Candida infections, or second line for dermatophyte infections.

Amorolfine nail lacquer is not suitable here as per NICE CKS guidelines, as there are more than 2 nails affected.

Question:

A 34-year-old male comes to see his GP complaining of rectal bleeding and black stool. This has occurred on more than half a dozen occasions over the last 4 months. He denies any additional symptoms such as weight loss, abdominal pain or change in bowel habits. On examination his abdomen and rectum have no masses or obvious causes of bleeding, however you notice some red spots on his lips and tongue. When you point these out, the patient tells you that this is nothing and that everyone in the family has them.

What is the most likely cause of the bleeding?

A.Colon cancer

B.Rectal cancer

C.Louis-Bar syndrome

D.Crohn's disease

E.Hereditary haemorrhagic telangiectasia

Answer:Hereditary haemorrhagic telangiectasia

Explanation:

There are many causes of rectal bleeding and it is important to distinguish between them as the treatments vary widely and prognosis can be life-threatening.

You can use the signs and examination to find the answer by a process of elimination. With no masses, weight loss or change in bowel habit, rectal or colon cancer is less likely. Similarly, with no change in bowel habit, abdominal pain or weight loss, Crohn's disease is less likely.

This leaves Louis-Bar syndrome and hereditary haemorrhagic telangiectasia. Louis-Bar syndrome is a rare neurodegenerative disorder otherwise known as ataxia telangiectasia which usually presents in early childhood with severe ataxia and other neurological symptoms.

Hereditary haemorrhagic telangiectasia often presents with multiple telangiectasia and bleeding from the rectum or more commonly, the nose. One of the criteria for diagnosis is the presence of the disease in a first degree relative, which the patient alludes to when the telangiectasia on their lips and tongue is noted.

Question:

A 65-year-old man presents to his GP with a 4-week history of painless abdominal swelling. He has loss of appetite, constipation and anorexia.

On examination there is protrusion of the umbilicus with a small hard swelling palpable lateral to this.

What is the most likely diagnosis?

A.Erythema ab igne

B.Gastric carcinoma

C.Hepatocellular carcinoma

D.Inguinal hernia

E.Umbilical hernia

Answer:Gastric carcinoma

Explanation:

Sister Mary Joseph nodule – sign of metastasis to periumbilical lymph nodes, classically from gastric cancer primary

Important for meLess important

The small hard swelling lateral to the umbilicus is suggestive of a periumbilical lymph node. This is known as a Sister Mary Joseph nodule and is classically associated with gastric carcinoma. Umbilical protrusion is a common finding with this nodule. Loss of appetite is common with gastric carcinoma and this often leads to constipation and anorexia.

A strangulated umbilical hernia may well lead to constipation. However, this would be painful and would not explain the loss of appetite. A hernia is more likely to be a fluctuant swelling initially.

Erythema ab igne is a red rash due to the use of warm products. Typically a hot water bottle. This is not present here.

Hepatocellular carcinoma would explain the loss of appetite, constipation and anorexia but not the periumbilical swelling. Caput medusa is a more common finding with decompensated liver failure and this would present as engorged periumbilical veins rather than a hard swelling.

Inguinal hernias would be present over the inguinal ligament, not at the umbilicus.

Question:

A 54-year-old man presents to the emergency department with a 1 day history of a painful swollen knee. On examination, his right knee is erythematous, diffusely swollen, and warm to touch. Flexion and extension are limited by pain and there is pain on both active and passive movement.

His observation are as follows: respiratory rate 18 breaths per minute, oxygen saturations 99%, blood pressure 131/86mmHg, heart rate 68 beats per minute, temperature 38.1ºC.

Blood tests (including cultures) have been sent off and you're currently awaiting the results.

Given the diagnosis, what is the most likely causative organism?

A.Neisseria gonorrhoeae

B.Salmonella typhimurium

C.Staphylococcus aureus

D.Staphylococcus epidermidis

E.Streptococcus pyogenes

Answer:Staphylococcus aureus

Explanation:

Septic arthritis - most common organism: Staphylococcus aureus

Important for meLess important

A red, hot, swollen joint is septic arthritis until proven otherwise.

Neisseria gonorrhoeae is the most common cause of septic arthritis in young sexually active adults, but in a 54-year-old it's much less likely.

Salmonella typhimurium is a very rare cause, however patients with sickle cell disease are at increased risk of Salmonella spp septic arthritis.

Staphylococcus aureus is the commonest cause of septic arthritis in most age groups and is therefore the right answer.

Staphylococcus epidermidis is a common cause in patients with a new prosthetic joint.

Streptococcus pyogenes is a common cause in young children.

Question:

An 8-week-old boy is brought to see his general practitioner as his parents are worried that one of his testes remains undescended.

His parents report an uncomplicated pregnancy and birth, with the patient being born at term. He has been well since birth.

Examination reveals that the left testicle is absent from the scrotal sac, unretractile and impalpable in the abdomen. The right testicle has fully descended.

Based on the above information, what is the most appropriate next stage in this patient's management?

A.Reassurance without further follow-up

B.Routine referral to paediatric surgery

C.Urgent referral to paediatric surgery

D.Review at 1 year of age

E.Review in 1 month

Answer:Review in 1 month

Explanation:

Unilateral undescended testicle - review at 3 months - if persistent refer

Important for meLess important

Testes should descend in a male child by 3 months of age and should prompt referral if not descended by this age. Therefore, the most appropriate course of action in a unilateral undescended testicle in a 2-month-old child is to review again in 1 month. Undescended testes increase a male's risk of testicular cancer and infertility and should be surgically repaired at 6-18 months of age.

Reassurance without follow-up would be inappropriate in this case. Although there is a reasonable chance this child's testicle will still descend on its own, there is an increased risk of testicular cancer and infertility if the testicle remains undescended and is left untreated. Therefore, this child should be monitored to ensure descend.

A routine referral would be the appropriate step in this case if the child were over 3 months of age. Surgeons will review the child with the aim of orchidopexy by 18 months of age. However, the child in this scenario is only 2 months old.

An urgent referral would not be appropriate in the context of an undescended testicle at 2 months of age.

Waiting until the child is 1 year old to review the case would be inappropriate. For the reasons mentioned above, if the testicle remained undescended by 3 months of age, the child should be referred to paediatric surgery.

Question:

A 45-year-old man is seen in the Emergency Department with nausea, pallor and lethargy. He has no past medical history of note. A cannula is inserted and bloods show the following

Na+ 140 mmol/l

K+ 6.7 mmol/l

Bicarbonate 14 mmol/l

Urea 18.2 mmol/l

Creatinine 230 µmol/l

The ECG is shown below:

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

What is the most appropriate initial management?

A.Nebulised salbutamol

B.Intravenous bicarbonate

C.Haemodialysis

D.Insulin/dextrose infusion

E.Intravenous calcium gluconate

Answer:Intravenous calcium gluconate

Explanation:

This patient is hyperkalaemic and has associated ECG changes (peaked T waves in the anterior leads and bradycardia). Bradycardia in such patients is a worrying sign as asystole may occur. The first priority in this patient is to stabilise the myocardium with intravenous calcium gluconate.

Question:

A 66-year-old woman comes to the GP surgery complaining of a droop in the left side of her face for the past 3 days. This is associated with dizziness and deafness. She has also noticed that her eyes and mouth are very dry.

On examination, you note a left sided facial droop and red spots in her left ear. Which one of the following is the most likely diagnosis?

A.Right sided stroke

B.Meniere's disease

C.Bell's palsy

D.Ramsay-Hunt syndrome

E.Left sided stroke

Answer:Ramsay-Hunt syndrome

Explanation:

Ramsay-Hunt syndrome is shingles affecting the facial nerve. This results in ear pain, vesicles in the external ear canal associated with vertigo and deafness.

Meniere's disease is a disorder of the inner ear that results in vertigo, tinnitus and deafness.

Bell's palsy is a condition that affects the facial nerve and causes temporary weakness of the muscles on one side of the face.

Strokes would cause facial droop, however, are more likely to present with more rapidly progressing symptoms over hours rather than days.

Question:

A neonate is delivered via category II emergency caesarean section at 37+3 weeks for failure to progress in labour at 5cm dilatation.

At delivery, the obstetrician notes the baby is delivered with the cord wrapped around its neck and appears floppy and 'blue'. She immediately hands the baby to the neonatal team who begin resuscitation.

Initial APGAR score is 3 which is repeated at 10 minutes and is 5 (due to cyanosis, heart rate of 120 bpm, minimal response to stimulation, poor tone, slow and irregular respiratory effort with a respiratory rate of 12/min).

What is the most appropriate management of this neonate to reduce hypoxic ischemic encephalopathy (HIE)?

A.Central line insertion for administration of IV antibiotics

B.IV adrenaline (0.01 - 0.03mg/kg)

C.Sedation and intubation

D.Therapeutic cooling

E.IV sodium bicarbonate (1 - 2 mmol/kg)

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 most appropriate option here. This involves cooling the neonate to around 33.5 - 34.5ºC for 72 hours within a six hour window of the hypoxia inducing event/birth. The neonate will be placed in a cooling blanket (for whole body cooling) or cooling cap (for selective brain cooling).

Lowering core body temperature will slow the metabolic rate and allow cells more time to recover from the hypoxic insult. It has been shown to positively impact nitric oxide production, cerebral metabolism and perfusion, cerebral energy, and apoptosis in infants with HIE.

Central line insertion is not a priority currently as peripheral access should be attempted first and insertion of a central line will delay other more urgent treatment.

Adrenaline would be appropriate if the infant was bradycardic with a heart rate <60bpm however the vignette shows a neonate with a heart rate of 120bpm.

Intubation may be required, however as this is an emergency situation at the time of delivery in the process of resuscitation, sedation would be very unlikely to be used.

Sodium bicarbonate would be appropriate to give in a resuscitation situation if there was a lactic acidosis, however you have not been given any blood results and, as such, this would be an inappropriate answer.

Question:

A 55-year-old man has been experiencing difficulty swallowing and reading due to double vision and drooping eyelids for a few months. He also has a 2-month history of increasing shortness of breath. During a GP consultation, the doctor orders a chest x-ray and a chest CT with contrast.

What condition is the GP considering and thus decided to order these two investigations?

A.Lamber-Eaton myasthenic syndrome

B.Malignant mediastinal germ cell tumour: non-seminoma

C.Malignant mediastinal germ cell tumour: seminoma

D.Polymyositis

E.Thymoma

Answer:Thymoma

Explanation:

Myasthenia gravis is associated with thymomas

Important for meLess important

Thymoma is correct. This patient is suffering from myasthenia gravis (MG), as all his symptoms (dysphagia, diplopia, ptosis) are typical of early MG. This condition is associated with thymomas, as 10-15% of MG patients also have a thymoma, which is a malignant tumour of the thymus gland. Thymomas may be seen in a chest x-ray and can be diagnosed with a chest CT scan with contrast. They are usually found incidentally unless the patient also has MG, and they can cause, among other symptoms, cough and dyspnoea if they are large.

Lamber-Eaton myasthenic syndrome (LEMS) is incorrect. LEMS is associated with small cell lung cancer (SCLC) and usually precedes it. Dyspnoea is a possible symptom of SCLC and the dysphagia, diplopia and ptosis could possibly point towards the diagnosis of LEMS. However, the three latter symptoms are more often seen in MG compared to LEMS. In addition, a chest x-ray and chest CT scan could be useful for diagnosing SCLC, but the option, in this case, is LEMS and not SCLC. For this condition, other investigations would be conducted, such as electrophysiological studies and antibodies investigation.

Malignant mediastinal germ cell tumour: non-seminoma is wrong. This condition could be supported by the symptoms of dyspnoea and dysphagia and would be evident in a chest CT scan, but the diplopia and muscle fatigue cannot be explained by this diagnosis. This tumour also usually presents in people aged 20 to 40 years old and causes hoarseness and chest pain.

Malignant mediastinal germ cell tumour: seminoma is wrong. This condition could cause dyspnoea, as this patient is experiencing, and would be evident in a chest CT scan. However, the rest of the information in the case scenario, such as diplopia and ptosis, is not common in this condition. Instead, the typical patient is a young male with systemic symptoms such as fever, weight loss and fatigue.

Polymyositis is wrong. This inflammatory condition causes progressive muscle weakness. Weakness of the oropharynx and the thoracic muscles can cause dysphagia and dyspnoea respectively, but the information that likely points towards an alternative diagnosis is the use of the chest x-ray and the chest CT with contrast. These tests are not really useful for diagnosing this condition, with creatine kinase and antibodies investigation being examples of relevant tests.

Question:

A 28-year-old woman with multiple sclerosis presents to the emergency department with new onset vision loss affecting her left eye, associated with pain when moving her eyes. She has no other past medical history.

Neurological examination of the limbs is normal.

What imaging is recommended?

A.CT head

B.CT head with contrast

C.MRI brain and orbits with contrast

D.MRI brain and orbits without contrast

E.Retinal photography

Answer:MRI brain and orbits with contrast

Explanation:

Suspected optic neuritis: MRI of the brain and orbits with gadolinium contrast is the investigation of choice

Important for meLess important

This woman has presented with clinical symptoms of optic neuritis. Risk is higher in individuals with multiple sclerosis, and may be the first clinical sign of MS or occur later in the disease process.

The correct answer is MRI brain and orbits with contrast. Contrast is injected intravenously and highlights areas of tissue where there is more leaking from blood vessels, for example in areas of inflammation or tumours.

CT head without contrast and CT head with contrast are incorrect. CT is often used first line to screen for abnormalities as it is fast and has fewer exclusion criteria. However, it is not as good at the visualisation of soft tissues as MRI and therefore not recommended for the diagnosis of MS plaques.

MRI brain and orbits without contrast is incorrect, as this patient requires a scan with contrast. MRI brain without contrast may be recommended for the investigation of seizures or suspected strokes. This woman's presentation does not suggest either of these diagnoses, as she has no history of weakness, speech disturbance, abnormal movement or change in consciousness.

Retinal photography is incorrect. This would be indicated if there was concern about raised intracranial pressure to see swelling of the optic disc. Raised intracranial pressure would present with bilateral headache and nausea. It is not associated with pain on eye movement.

Question:

An 8-year-old boy is rushed into the emergency department with a diffuse raised rash which appeared within minutes of eating a peanut bar. He was treated with intramuscular adrenaline by the ambulance crew prior to his arrival. On examination, he has widespread urticaria across his face, torso and arms bilaterally. His heart rate is 140bpm with a blood pressure of 85/50mmHg. During the examination, he develops auditory stridor and has difficulty in breathing.

What is the next step in this patient’s immediate management?

A.Nebulised adrenaline

B.Intravenous chlorphenamine 10mg

C.Intravenous hydrocortisone 100mg

D.Intramuscular adrenaline 300 micrograms

E.Intramuscular adrenaline 500 micrograms

Answer:Intramuscular adrenaline 300 micrograms

Explanation:

Anaphylaxis: A child aged 6-11 years should be administered adrenaline at a dose of 300 micrograms (0.3ml), repeated every 5 minutes if necessary

Important for meLess important

This child is having anaphylaxis, most likely from consuming peanuts. Features of anaphylaxis include stridor with airway compromise and circulatory collapse. In an 8-year-old boy, the immediate treatment should include intramuscular (IM) adrenaline 300 micrograms, intravenous (IV) hydrocortisone 100mg and IV chlorphenamine 5mg. A second dose of IM adrenaline can be given 5 minutes after the first dose in a patient with anaphylaxis. Although the dose of hydrocortisone given is correct, a further dose of IM adrenaline is the priority before initiating hydrocortisone and chlorphenamine.

IM adrenaline 500 micrograms is the adult dose of adrenaline to be administered in anaphylaxis in those above 12 years of age. It should be given with IV hydrocortisone 200mg and IV chlorphenamine 10mg.

Nebulised adrenaline can be given in cases of severe airway obstruction. However, it is not the initial drug of choice in the anaphylaxis treatment algorithm.

Question:

A 21-year-old man reports a 6-month history of low back pain and stiffness, which tends to last 30 minutes in the morning. He finds that his pain eases with exercise and ibuprofen. He denies any rashes, gastrointestinal or genitourinary symptoms.

On examination, he is noted to have restricted lumbar flexion as measured by Schober's test.

An x-ray of his lumbar spine and sacroiliac joints has been arranged.

Which finding is likely to be seen on plain radiography?

A.Lytic bone lesions

B.Osteophytes

C.Scoliosis

D.Spondylolisthesis

E.Syndesmophytes

Answer:Syndesmophytes

Explanation:

Syndesmophytes (ossification of outer fibres of annulus fibrosus) are a feature of ankylosing spondylitis

Important for meLess important

This man has the typical clinical features of ankylosing spondylitis, a type of axial spondyloarthritis.

While plain radiographs may be normal in the early stages of the disease, classic radiographic features include syndesmophytes - bony growths originating from inside a spinal ligament or of the annulus fibrosus.

Other features may include erosions and sclerosis of the sacroiliac joints, vertebral body squaring, bone fusion and eventually, the appearance of a 'bamboo spine'.

Lytic bone lesions in the spine are caused by bone destruction, usually secondary to malignancies such as myeloma.

Osteophytes are similar pathological processes to syndesmophytes but are bony projections that form at joint margins, typically seen in osteoarthritis.

Ankylosing spondylitis tends to cause reduced lumbar lordosis and thoracic kyphosis, but scoliosis is not an associated feature.

Spondylolisthesis describes the displacement of one spinal vertebra over the other. It is not associated with ankylosing spondylitis.

Question:

A 38-year-old man presents to the GP clinic following a health check-up 3 months after being diagnosed with HIV. He was initiated on a combined antiretroviral therapy upon his recent diagnosis. He is currently asymptomatic, is sexually active with casual male partners and uses barrier protection. His vaccination records reveal that he has recently had his annual influenza vaccination and that he only had a hepatitis B vaccination as a child.

On examination, he appears well and his vital signs are stable. A routine HIV laboratory blood test was performed which shows a CD4+ T lymphocyte cell count of 160/mm³.

Which of the following is the most appropriate healthcare recommendation for this patient?

A.Varicella vaccination

B.Measles, mumps and rubella (MMR) vaccination

C.Bacillus Calmette–guérin (BCG) vaccination

D.Prescribe co-trimoxazole

E.Prescribe corticosteroids

Answer:Prescribe co-trimoxazole

Explanation:

All patients with a CD4 count lower than 200/mm3 should receive prophylaxis against Pneumocystis jiroveci pneumonia

Important for meLess important

Patients with HIV and a CD4+ T lymphocyte cell count <200/mm³ indicates immunodeficiency. This suggests that the patient is highly susceptible to opportunistic infection such as pneumocystis jiroveci pneumonia (PCP). Antimicrobial prophylaxis is indicated in patients with CD4+ count <200/mm³, as it significantly reduces the risk of developing PCP. The antimicrobial prophylaxis regimen of choice is co-trimoxazole (trimethoprim with sulfamethoxazole).

Appropriate vaccination should be administered given the higher risk of opportunistic infections with a low CD4+ count. However, the varicella vaccine is a live attenuated vaccine and it should be avoided in immunocompromised individuals with a CD4+ count less than 200/mm³.

MMR vaccine is also a live attenuated vaccine and it should be avoided in immunocompromised individuals.

Immunocompromised individuals are at higher risk of tuberculosis. The BCG vaccine provides protection against tuberculosis. However, it is a live vaccine and it should be avoided in this patient.

Corticosteroids are used in conjunction with anti-pneumocystis therapy in patients with PCP to decrease the incidence of respiratory failure. However, this patient is asymptomatic and does not have PCP.

Question:

A 62-year-old man has a witnessed cardiac arrest whilst on the high dependency unit.

The scribe has made the following notes:

Time Event Rhythm

7:01 am Rhythm check Asystole

7:01 am Precordial thump given

7:01 am CPR commenced

7:02 am Rhythm check Asystole

7:02 am 1 mg of adrenaline given

7:02 am CPR continued

7:04 am Rhythm check Asystole

7:04 am CPR continued

7:06 am Rhythm check Pulseless electrical activity

What is the most immediate next step?

A.Administer 3 shocks then continue CPR

B.Continue CPR for further 2 minutes

C.Give 1 mg adrenaline and 300 mg amiodarone then continue CPR

D.Give 1 mg adrenaline then continue CPR

E.Give 300 mg amiodarone then continue CPR

Answer:Give 1 mg adrenaline then continue CPR

Explanation:

In ALS, once adrenaline has been initially given it should be repeated every 3-5 minutes whilst ALS continues

Important for meLess important

This man is currently in a non-shockable rhythm and has had advanced life support protocols followed so far. His recent rhythm check showed pulseless electrical activity which is a non-shockable rhythm. Adrenaline was last given 4 minutes ago, therefore the correct response is to give 1 mg adrenaline then continue CPR. Adrenaline should be given every 3-5 minutes, or roughly after every second rhythm check/cycle of CPR.

Administering 3 shocks then continuing CPR is incorrect. This would be appropriate if he had converted to a shockable rhythm, however, he has not.

Continuing CPR for further 2 minutes is incorrect. This would be expected following the administration of 1 mg adrenaline but the immediate priority should be to give the appropriate resuscitation drugs.

Giving 1 mg adrenaline and 300 mg amiodarone then continuing CPR is incorrect. Whilst it is correct to give adrenaline, it is not appropriate to give amiodarone as this is a drug given to treat arrhythmias such as ventricular fibrillation or tachycardia (i.e. the shockable rhythms).

Giving 300 mg amiodarone then continuing CPR is incorrect. He is not within a shockable rhythm currently and therefore is not suitable for amiodarone.

Question:

A 77-year-old man is scheduled for an elective hip replacement on the next day. He has type 2 diabetes mellitus and is first on tomorrow's list for surgery. He has been advised that he can continue taking a once-daily dose of metformin and his new anti-diabetic medication on the day of his operation. His general practitioner had recently changed the tablet he takes for his diabetes after he suffered from hypoglycaemic episodes with the previous medication.

Which of the following is most likely to be his new anti-diabetic medication?

A.Empagliflozin

B.Sitagliptin

C.Gliclazide

D.Dapagliflozin

E.Glibenclamide

Answer:Sitagliptin

Explanation:

Surgery / diabetes: DPP IV inhibitors (-gliptins) and GLP-1 analogues (-tides) can be continued on the day of surgery

Important for meLess important

According to NICE BNF, dipeptidyl peptidase-4 inhibitors (-gliptins) and glucagon-like peptide-1 analogues (-tides) can be taken as normal during the whole perioperative period. Sitagliptin is a DPP-4 inhibitor and can therefore be taken as normal on the day of surgery.

Empagliflozin is a sodium-glucose transporter-2 (SGLT-2) blocker. During periods of dehydration and acute illness, they can increase the risk of a patient getting diabetic ketoacidosis. These drugs should be omitted on the day of surgery.

Gliclazide is a sulphonylurea, which can cause hypoglycaemia in patients who are in a fasted state. Therefore, these drugs should be omitted until the patient is eating and drinking again. The case scenario also suggests the patient may have been taking sulphonylurea in the past, as hypoglycaemia is a common side effect of this class of drug. Since his GP discontinued this medication due to side effects, gliclazide and glibenclamide are unlikely to be part of his current treatment regimen.

Dapagliflozin belongs to the same drug class as empagliflozin and is an SGLT-2 blocker. Similarly, it is omitted before surgery, due to the increased risk of DKA.

Glibenclamide is also an example of a sulphonylurea, that can cause hypoglycaemia in the fasted and should be omitted while a patient is nil by mouth for surgery.

Question:

You are doing the annual review of a 50-year-old woman who has rheumatoid arthritis. Which one of the following complications is most likely to occur as a result of her disease?

A.Chronic lymphocytic leukaemia

B.Hypertension

C.Colorectal cancer

D.Type 2 diabetes mellitus

E.Ischaemic heart disease

Answer:Ischaemic heart disease

Explanation:

Rheumatoid arthritis: patients have an increased risk of IHD

Important for meLess important

Question:

You review a 62-year-old man three days after he had been admitted with an acute coronary syndrome. His past medical history includes myasthenia gravis for which he takes long-term prednisolone. Since admission his symptoms of myasthenia have become markedly worse. In particular you notice bilateral ptosis and slurring of speech. Which of the following recently started medications is most likely to be responsible?

A.Clopidogrel

B.Atorvastatin

C.Ramipril

D.Aspirin

E.Bisoprolol

Answer:Bisoprolol

Explanation:

Beta-blockers such as bisoprolol are common precipitants of myasthenic crises.

Question:

A paediatrician is called to review a 1-day-old neonate born at 37+2 weeks by spontaneous vaginal delivery. The neonate's birth weight is within the normal range and his mother is recovering well after delivery. He has been sick several times in the 24 hours, and his mother described these episodes as 'projectile vomiting'.

On examination, his abdomen is moderately distended and he does not appear jaundiced. The child appears dehydrated and lethargic, and you note that the vomit bowl contains a bright green liquid.

Given this information, what is the most likely diagnosis?

A.Jejunal atresia

B.Necrotising enterocolitis

C.Oesophageal atresia

D.Pyloric stenosis

E.Tracheoesophageal fistula

Answer:Jejunal atresia

Explanation:

Bilious vomiting on the first day is likely due to intestinal atresia

Important for meLess important

The correct answer is jejunal atresia. Bilious vomiting within 24 hours of birth is most commonly caused by intestinal atresia, which can be subdivided into duodenal atresia, jejunal atresia, or ileal atresia. Bilious vomiting is classically caused by obstruction beyond the sphincter of Oddi, where the common bile duct enters the duodenum. Given the neonate's age, term-birth, and bilious vomiting, intestinal atresia is the most likely diagnosis.

Necrotising enterocolitis is incorrect, as although this can cause bilious vomiting, this is less likely than intestinal atresia in a baby born at term. This neonate has no risk factors for necrotising enterocolitis.

Oesophageal atresia is incorrect, as this would not cause bilious vomiting. The obstruction is proximal to the sphincter of Oddi, so bile could not be present in the vomitus of neonates with oesophageal atresia.

Pyloric stenosis is incorrect, as it usually begins between 3-5 weeks of life and is not associated with bilious vomiting. As the obstruction in pyloric stenosis is proximal to the sphincter of Oddi, bile cannot enter the stomach and is not present in the vomitus of patients with pyloric stenosis.

Tracheoesophageal fistula is incorrect, as this does not cause bilious vomiting. Tracheoesophageal fistulae are rare and are associated with coughing, gagging, and respiratory distress.

Question:

A 73-year-old man presents to his general practitioner due to troublesome breast growth. He reports gradual bilateral enlargement of breast tissue over the last year, stating that it is beginning to cause him embarrassment in social situations. He denies any discharge.

His past medical history is significant for hypertension, type 2 diabetes mellitus, prostate cancer, and Parkinson's disease, with regular medications including metformin, sitagliptin, indapamide, doxazosin, goserelin, co-beneldopa and cabergoline.

Given this information, what drug is most likely to be causing his symptoms?

A.Cabergoline

B.Doxazosin

C.Goserelin

D.Indapamide

E.Sitagliptin

Answer:Goserelin

Explanation:

GnRH agonists (e.g. goserelin) used in the management of prostate cancer may result in gynaecomastia

Important for meLess important

Gynaecomastia is caused by a decrease in the concentration of serum androgens or an increase in the aromatisation of serum androgens to oestrogens. Breast tissue proliferates when the concentration of serum androgens falls or serum oestrogens increase, leading to gynaecomastia.

The correct answer is goserelin, as this is the only drug that decreases the concentration of serum androgens. Goserelin is a GnRH agonist, inhibiting the release of luteinising hormone and follicle-stimulating hormone from the anterior pituitary gland, which in turn decreases the release of androgens from the testes.

Cabergoline is incorrect, as it is not associated with gynaecomastia. Cabergoline is a dopamine agonist that is used to lower serum prolactin in conditions such as pituitary adenomas, as well as in Parkinson's disease. As cabergoline lowers serum prolactin, it would be very unlikely to have caused this patient's gynaecomastia.

Doxazosin is incorrect, as it is not associated with gynaecomastia. Doxazosin inhibits post-synaptic alpha1-adrenergic receptors, relaxing the smooth muscle of the bladder and prostate gland to treat symptoms of benign prostatic hyperplasia. Doxazosin is not known to affect the concentration of serum androgens.

Indapamide is incorrect, as it is not associated with gynaecomastia. Indapamide is a thiazide-like diuretic used in the management of hypertension. Indapamide is associated with erectile dysfunction, though it is not known to affect the concentration of serum androgens.

Sitagliptin is incorrect, as it is not associated with gynaecomastia. Sitagliptin is a DPP-4 inhibitor used in the treatment of type 2 diabetes mellitus that cannot be controlled with metformin monotherapy. Sitagliptin is not known to affect the concentration of serum androgens.

Question:

You are an F1 working in the emergency department. One morning a 14-year-old girl is admitted from her secondary school with nausea and abdominal pain. On examination, she is found to be septic and can only provide a brief history before becoming drowsy. The surgical team believes she has an appendicitis which may have perforated requiring emergency surgery. Her parents are not contactable with the numbers given by the school. The patient is not alert enough to consent to the operation herself. What is the most appropriate action?

A.Keep trying her parents until they answer

B.Ask the member of staff from the school to consent on the patient's behalf

C.Consult the named doctor for safeguarding children for consent on the patient's behalf

D.Take the patient to surgery immediately

E.Seek an urgent court order to gain consent on the patient's behalf

Answer:Take the patient to surgery immediately

Explanation:

Option 4 is the correct answer in line with GMC 0-18 years guidance as it states 'You can provide emergency treatment without consent to save the life of, or prevent serious deterioration in the health of, a child or young person'. Therefore it is not necessary to wait until their parents answer the phone, gain consent from anyone else or acquire a court order.

GMC 0-18 years: Guidance for all doctors

http://www.gmc-uk.org/guidance/ethicalguidance/childrenguidanceindex.asp

Question:

A 24-year-old male presents to the emergency department with an acutely painful red eye, which is associated with photophobia, lacrimation and reduced visual acuity. He has a past medical history of ankylosing spondylitis. Examination identifies a small, irregularly shaped pupil.

Which is the most appropriate management of this patient's presenting condition?

A.Acetazolamide and cycloplegic (mydriatic) eye drops

B.Acetazolamide and pilocarpine eye drops

C.Chloramphenicol eye drops

D.Oral steroids and pilocarpine eye drops

E.Steroid and cycloplegic (mydriatic) eye drops

Answer:Steroid and cycloplegic (mydriatic) 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 and cycloplegic (mydriatic) eye drops.

This patient is presenting with an acutely painful red eye associated with photophobia, lacrimation and reduced visual acuity. This, along with his past medical history of ankylosing spondylitis (associated with HLA B27) and examination findings of a small, irregularly shaped pupil suggests a diagnosis of anterior uveitis, a condition characterised by inflammation of the anterior portion of the uvea (middle layer of the eye). Management of anterior uveitis is with steroid and cycloplegic (mydriatic) eye drops.

Acetazolamide and cycloplegic (mydriatic) eye drops is incorrect. Acetazolamide is a carbonic anhydrase inhibitor and is used to reduce aqueous secretions in acute angle-closure glaucoma.

Acetazolamide and pilocarpine (causes pupillary constriction) eye drops is incorrect as this is the management of acute angle-closure glaucoma.

Chloramphenicol eye drops is incorrect as this is the management of infective conjunctivitis.

Oral steroids and pilocarpine eye drops is incorrect as topical, rather than oral steroids are used in the management of anterior uveitis and pilocarpine induces pupil constriction and will therefore have a negative effect in anterior uveitis.

Question:

A 54-year-old woman presents to the GP with low mood and poor sleep. She reports feelings of guilt and hopelessness but denies suicidal ideation or self-harm. On further questioning, she reveals that she has had nausea, constipation and back pain for the last few months. Her past medical history includes hypertension and depression treated with perindopril and sertraline respectively.

Her blood results are as follows:

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 115 µmol/L (55 - 120)

Calcium 3.4 mmol/L (2.1-2.6)

Phosphate 0.4 mmol/L (0.8-1.4)

What is the most likely cause of this woman's symptoms?

A.A relapse of her depression

B.A solitary parathyroid adenoma

C.An adverse effect of perindopril

D.Hypertensive nephropathy

E.Parathyroid hyperplasia

Answer:A solitary parathyroid adenoma

Explanation:

Depression, nausea, constipation, bone pain → ?primary hyperparathyroidism

Important for meLess important

A solitary parathyroid adenoma is the most likely cause of this woman's symptoms because this is the most common cause of primary hyperparathyroidism. Hyperparathyroidism causes increased bone resorption resulting in hypercalcaemia. Depression, sleep disturbance, constipation and bone pain are all symptoms of hypercalcemia. Her serum phosphate is low because hyperparathyroidism reduces renal phosphorus reabsorption.

This is unlikely to solely be a relapse of her depression since she has symptoms of hypercalcaemia. She may need a referral to psychiatry if her depressive symptoms do not resolve once her hyperparathyroidism is treated.

An adverse effect of perindopril is incorrect. Perindopril is an ACE inhibitor that reduces angiotensin II formation, resulting in decreased production of aldosterone. Reduced aldosterone decreases renal potassium excretion, thereby causing hyperkalaemia. Perindopril can therefore cause hyperkalaemia, not hypercalcemia. Other common adverse effects of perindopril include hypotension, headache, dizziness, cough and renal impairment.

Hypertensive nephropathy is incorrect because she has normal urea and creatinine and her BP is normal, suggesting that her hypertension is well-controlled with perindopril. Chronic kidney disease is a cause of secondary or tertiary hyperparathyroidism due to decreased vitamin D and autonomous PTH secretion respectively.

While parathyroid hyperplasia is a relatively common cause of primary hyperparathyroidism, it is not the most common. A parathyroid adenoma would be more likely.

Question:

A 9-month-old girl is generally unwell with a low-grade pyrexia, oral ulcers and the following appearance of her feet:

© Image used on license from DermNet NZ

Which one of the following is most likely to be responsible for this presentation?

A.Measles

B.Human herpesvirus 8 (HHV-8)

C.Parvovirus B19

D.Vasculitis

E.Coxsackie A16

Answer:Coxsackie A16

Explanation:

Hand, foot and mouth disease is most commonly caused by coxsackie A16 and enterovirus

Important for meLess important

Question:

A 6 year-old boy from Sierra Leone presents with a 1 week history of painful left arm. He is homozygous for sickle cell disease. On examination the child is pyrexial at 40.2ºC and there is bony tenderness over the left humeral shaft. Investigations are:

Hb 7.1 g/dL

Blood culture Gram negative rods

X-ray left humerus: Osteomyelitis - destruction of bony cortex with periosteal reaction.

What is the most likely responsible pathogen?

A.Escherichia coli

B.Non-typhi Salmonella

C.Pseudomonas aeruginosa

D.Staphylococcus Aureus

E.Parvovirus B19

Answer:Non-typhi Salmonella

Explanation:

Blood and bone infections caused by non-typhi salmonella (NTS) are typically associated with malaria and homozygous sickle cell disease, especially in children. The reason for this perceived susceptibility is not fully understood - but it may be in part due to the haemolysis and subsequent iron availability to the bacteria, which is 'siderophilic' in nature.

E.coli and P. aeruginosa are not typically linked to sickle cell disease and Staphylococcus aureus is a gram positive coccus.

The haemoglobin level is normal for a child homozygous for sickle cell disease. Therefore 'aplastic anaemia' should not be considered and parvovirus can be ruled out. Parvovirus does not cause osteomyeltitis.

Question:

A 52-year-old woman presents to general practice with a left-sided 'eye problem', that has developed gradually over the course of a few weeks. She describes no pain or itchiness in the affected area. On examination, she has left-sided ptosis and miosis. When the lights are dimmed the right pupil dilates however the left does not. She has a 10 year pack history.

What is the most likely diagnosis?

A.Bell's palsy

B.Chalazion

C.Ischaemic stroke

D.Multiple sclerosis

E.Squamous cell carcinoma of the lung

Answer:Squamous cell carcinoma of the lung

Explanation:

Ptosis + dilated pupil = third nerve palsy; ptosis + constricted pupil = Horner's

Important for meLess important

The correct answer is Squamous cell carcinoma of the lung. The tumour has occurred at the apex of the lung or in a position close to the mediastinum, compressing the cervical sympathetic ganglia and causing Horner's syndrome. Horner's syndrome is characterised by miosis, ptosis and anhidrosis.

A chalazion can cause ptosis, however, there is likely to be visible inflammation on inspection.

An ischaemic stroke may cause a CN III palsy, which would present with a dilated pupil (mydriasis) as opposed to a constricted one (miosis). A stroke would also have a very acute onset as opposed to the gradual onset stated in the question and would be uncommon in a person of this age with no vascular risk factors.

Multiple sclerosis commonly causes CN III palsy, which would lead to a 'down and out' eye, ptosis and a dilated pupil.

Bell's palsy is incorrect as it would generally present with a total left sided facial droop. There would also not be any pupil involvement.

Question:

A 9-week-old infant is brought to the Emergency department by her father. She has been very unsettled for the past 24 hours, high pitched crying and poorly feeding. On examination her temperature is 38.1C and her right tympanic membrane appears red and inflamed. A diagnosis of acute otitis media without effusion is made. Which one of the following is the most appropriate management in the emergency department?

A.Treat pain and fever with alternating paracetamol and Ibuprofen and observe for the next 4 hours

B.Treat pain and fever with paracetamol and observe for the next 4 hours

C.Prescribe a 5 day course of amoxicillin and discharge home

D.Admit for immediate paediatric assessment

E.Treat pain and fever with ibuprofen and observe for the next 4 hours

Answer:Admit for immediate paediatric assessment

Explanation:

This question focuses on the management of the acutely unwell child. The key to this question is being able to recognise whether this is a low, medium or high risk situation. According to the guidelines, this child has one medium risk factor (poor feeding) and two high risk factors (high pitched cry, temperature greater than 38C in an infant under 3-month-old). Any child with a high risk factor should be referred urgently to the paediatric team for assessment.

There are some situations in which a child may have a high risk factor but the diagnosis suggests a less serious outcome. In cases like this, the guidelines should be observed but clinical judgement can determine the next step in management.

Despite the child in this scenario having a diagnosis of acute otitis media without an effusion, she is very young with multiple risk factors and so the best management would be a paediatric referral.

Question:

Which one of the following statements regarding metformin is true?

A.Should be stopped in a patient admitted with a myocardial infarction

B.Hypoglycaemia is a recognised adverse effect

C.May cause a metabolic alkalosis

D.May aggravate necrobiosis lipoidica diabeticorum

E.Increases vitamin B12 absorption

Answer:Should be stopped in a patient admitted with a myocardial infarction

Explanation:

Metformin should be stopped following a myocardial infarction due to the risk of lactic acidosis. It may be introduced at a later date. Diabetic control may be achieved through the use of a insulin/dextrose infusion (e.g. the DIGAMI regime)

Question:

A couple in their 20s come into their GP after failing to conceive despite having regular sexual intercourse for 6 months, and ask you for advice. What is the most appropriate course of action for you to take?

A.Provide basal body temperature kit

B.Order 21 day progesterone level

C.Wait until they have been having regular intercourse for 12 months

D.Wait until they have been having regular intercourse for 24 months

E.Refer immediately to a specialist in infertility

Answer:Wait until they have been having regular intercourse for 12 months

Explanation:

It is recommended in this case that couples should have regular sexual intercourse for a period of 12 months. Regular sexual intercourse is defined as intercourse every 2-3 days.

Referral to a specialist is warranted after the couple have been having intercourse regularly for 12 months

Fertility testing in the couple is recommended after 12 months, and consists of semen analysis in the man and mid-luteal progesterone level in the female to confirm ovulation.

Basal body temperature kits have been shown to increase anxiety and have not been shown to be effective

Early referral should be considered when:

Female Male

Age above 35 Previous surgery on genitalia

Amenorrhoea Previous STI

Previous pelvic surgery Varicocele

Previous STI Significant systemic illness

Abnormal genital examination Abnormal genital examination

NICE CKS

Question:

A patient presenting to the emergency department undergoes a CT head scan. The report describes a hypodense collection around the convexity of the brain that is not limited to suture lines.

What is the most likely radiological diagnosis?

A.Subarachnoid haemorrhage

B.Extradural haematoma

C.Acute subdural haematoma

D.Chronic subdural haematoma

E.Intracerebral haematoma

Answer:Chronic subdural haematoma

Explanation:

On CT imaging, a chronic subdural haematoma will appear as a hypodense (dark), crescentic collection around the convexity of the brain

Important for meLess important

On CT imaging, acute haematomas appear bright (hyperdense) whereas chronic haematomas appear dark (hypodense). Extradural haematomas are limited by suture lines whereas subdural haematomas are not. Intraparenchymal haematomas arise within the brain substance. Subarachnoid haemorrhage are typically seen as hyperdensity within the basal cisterns and sulci of the subarachnoid space.

Question:

A 19-year-old woman with homozygous sickle cell disease is admitted with an acute painful crisis. Her pain control fails to improve with oral medication and she is started on patient-controlled analgesia (PCA) using morphine. Her regular medications include paracetamol, ibuprofen, dihydrocodeine, phenoxymethylpenicillin, and lactulose.

Which of her regular medications should be stopped?

A.Dihydrocodeine

B.Ibuprofen

C.Lactulose

D.Paracetamol

E.Phenoxymethylpenicillin

Answer:Dihydrocodeine

Explanation:

Concomitant oral opioids should not be prescribed whilst a patient is using an opioid PCA

Important for meLess important

The correct answer is 'dihydrocodeine'.

Dihydrocodeine is an oral opioid medication. As such, it should be stopped while this patient is using an opioid PCA. Once her pain improves and her PCA is no longer required it can be restarted.

Ibuprofen is a non-steroidal anti-inflammatory drug (NSAID). It should be continued alongside her PCA to aid pain control.

Lactulose is a laxative that should be continued while this patient is using opioid-based painkillers, as constipation is a common side effect.

Paracetamol is another painkiller that should be continued alongside her PCA to aid pain control.

Phenoxymethylpenicillin is an antibiotic commonly prescribed as prophylaxis in patients with sickle cell disease as they are functionally hyposplenic. It should only be stopped if a patient has an acute infection and requires a different antibiotic as treatment. As this patient does not have signs of infection it should be continued.

Question:

A 7-year-old boy is diagnosed with Attention Deficit Hyperactivity Disorder. What is the most appropriate dietary advice to give to his parents?

A.Eat a normal balanced diet + avoid artificial colourings

B.Eat a normal balanced diet + avoid all sugar containing products

C.Eat a normal balanced diet

D.Eat a normal balanced diet + take a fatty acid supplement unless having three portion of oily fish per week

E.Eat a normal balanced diet + take a multivitamin tablet

Answer:Eat a normal balanced diet

Explanation:

NICE recommend a normal balanced diet unless a food diary has demonstrated a link between behaviour and certain foods.

Question:

You review a 42-year-old woman six weeks following a renal transplant for focal segmental glomerulosclerosis. Following the procedure she was discharged on a combination of tacrolimus, mycophenolate, and prednisolone. She has now presented with a five day history of feeling generally unwell with anorexia, fatigue and arthralgia. On examination her sclera are jaundiced and she has widespread lymphadenopathy with hepatomegaly. What is the most likely diagnosis?

A.Hepatitis C

B.Epstein-Barr virus

C.HIV

D.Hepatitis B

E.Cytomegalovirus

Answer:Cytomegalovirus

Explanation:

Cytomegalovirus is the most common and important viral infection in solid organ transplant recipients

Important for meLess important

Ganciclovir is the treatment of choice in such patients.

Question:

A 67-year-old man presents to his GP surgery. He has a past history of hypertension. He complains of gradually increasing shortness-of-breath on exertion and orthopnoea over the past few months. Clinical examination is unremarkable. A full blood count, urea and electrolytes and CRP are normal. Spirometry and a chest x-ray are also normal. You suspect the patient may have heart failure. What is the most appropriate next test to perform?

A.Troponin I

B.B-type natriuretic peptide

C.Myocardial perfusion scan

D.Echocardiogram

E.Coronary angiography

Answer:B-type natriuretic peptide

Explanation:

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

Important for meLess important

NICE state the following:

Measure serum natriuretic peptides (B-type natriuretic peptide [BNP] or N-terminal pro-B-type natriuretic peptide [NTproBNP]) in patients with suspected heart failure without previous MI.

It would also be prudent to obtain an ECG.

Question:

A 61-year-old presents for review. She has been having atypical lower back pain for the past two months. An x-ray of her lumbar spine reported raised the possibility of spinal metastases but there is no current evidence of a primary tumour. A series of tumour markers were sent and a referral to oncology was made. Which one of the following is most associated with raised levels of CA 15-3?

A.Pancreatic cancer

B.Lung cancer

C.Breast cancer

D.Ovarian cancer

E.Hepatocellular carcinoma

Answer:Breast cancer

Explanation:

CA 15-3 is a tumour marker in breast cancers

Important for meLess important

Question:

A 3-week-old child is brought into the emergency department. His mother reports that he was initially well, but over the last few days, she has noticed that he has become significantly more breathless and is particularly breathless, pale and sweaty when feeding. He was born at term with no complications. On examination, his growth chart shows poor growth and he is tachypnoeic and using his accessory muscles to breath. On auscultation of his heart, he has a pansystolic murmur at his lower left sternal edge and a loud P2.

Which of the following is the likely cause of this presentation?

A.Tetralogy of Fallot

B.Ventricular septal defect

C.Ebstein's anomaly

D.Coarctation of the aorta

E.Mitral regurgitation

Answer:Ventricular septal defect

Explanation:

Ventricular septal defect: Heart failure after a few weeks or asymptomatic, pansystolic murmur at lower left sternal edge and louder P2

Important for meLess important

This child has presented with typical features of heart failure (breathlessness, difficulty feeding, poor growth) at 3 weeks of age. Examination reveals a pansystolic murmur at the lower left sternal edge (blood rushing across the septum from the left to the right ventricle) and a louder P2 (due to increased blood flow into the pulmonary artery. This is a typical presentation of VSD. Mitral regurgitation would usually be a systolic murmur at the apex and would not have a loud P2. The other conditions listed would not present in this way.

Question:

A 35-year-old woman presents to her GP with hearing loss which has slowly progressed over the last year. She also reports tinnitus that has worsened over the same time period. She is otherwise well and has no significant medical history. Her father also suffered from hearing loss at a young age.

Her neurological examination reveals mild bilateral conductive hearing loss but is otherwise normal. On inspection, the tympanic membrane appears normal.

What is the likely cause of this patient's symptoms?

A.Presbycusis

B.Otosclerosis

C.Meniere's disease

D.Acoustic neuroma

E.Otitis media with effusion

Answer:Otosclerosis

Explanation:

Otosclerosis is an autosomal dominant cause of deafness affecting young adults

Important for meLess important

This presentation (slowly progressive bilateral conductive hearing loss in a young patient with a positive family history) is most consistent with otosclerosis.

Presbyacusis is high-frequency loss associated with ageing so unlikely to appear in a young woman. Acoustic neuroma causes sensorineural hearing loss. Meniere's disease presents with episodic vertigo. Otitis media with effusion (also known as glue ear) would be visible on inspection of the tympanic membrane.

Question:

A 44-year-old man presents with a 24-hour history of weakness and double vision. He has a history of intravenous drug abuse. On examination, you note a flaccid paralysis of all 4 limbs (MRC grade 3/5). He also has a complex ophthalmoplegia in both eyes. Observations are as follows: heart rate 80 beats per minute, respiratory rate 18 breaths per minute, blood pressure 145/90 mmHg, temperature 37.2ºC, and oxygen saturation 96% on air.

What treatment is indicated?

A.Botulism antitoxin

B.Intubation and ventilation

C.Metronidazole

D.Pyridostigmine and prednisolone

E.Tetanus antitoxin

Answer:Botulism antitoxin

Explanation:

The treatment of botulism - supportive care and botulism antitoxin

Important for meLess important

Botulism antitoxin is correct. The presence of flaccid paralysis and complex ophthalmoplegia in a patient who is an intravenous drug user favours the diagnosis of botulism. This disease is caused by toxins produced by the bacteria Clostridium botulinum. The patient, therefore, needs immediate treatment with the botulism antitoxin. Botulinum antitoxin is effective in reducing the severity of symptoms if administered early in the course of the disease.

Intubation and ventilation is incorrect. Severe botulism may result in respiratory muscle weakness resulting in respiratory failure necessitating the need for intubation and mechanical ventilation. However at the current time, the patient remains stable, and with early administration of the antitoxin, this would hopefully be avoided.

Metronidazole is incorrect. C. botulinum is sensitive to benzylpenicillin and metronidazole. In cases of wound infection, antimicrobial therapy and surgical debridement should reduce the organism load and therefore toxin production, but circulating toxins can only be neutralised by the early administration of antitoxin.

Pyridostigmine and prednisolone is incorrect. Whilst myasthenia gravis remains within the differential diagnosis, the rapid onset and progression in an intravenous drug user favours the diagnosis of botulism.

Tetanus antitoxin is incorrect. The presence of flaccid paralysis favours a diagnosis of botulism in this case. Common initial signs of tetanus are headache and muscular stiffness in the jaw (e.g. lockjaw), followed by neck stiffness, difficulty swallowing, and generalised spastic paresis.

Question:

A 33-year-old lady presents for pre-op assessment 4 weeks before elective ankle surgery. She will be immobilised for a minimum of 10 days following her surgery. What is the correct information to tell the patient regarding her combined oral contraceptive pill prior to surgery?

A.Stop in 2 weeks and use barrier contraception

B.Stop in 2 weeks and use progestogen-only pill (POP)

C.Stop immediately and switch to progestogen-only pill (POP)

D.Continue throughout surgery

E.Stop 2 days before surgery and use progestogen-only pill (POP)

Answer:Stop immediately and switch to progestogen-only pill (POP)

Explanation:

Oestrogen-containing contraceptives should preferably be discontinued 4 weeks before major elective surgery and all surgery to the legs or surgery which involves prolonged immobilisation of a lower limb. A progestogen-only contraceptive may be offered as an alternative and the oestrogen-containing contraceptive restarted after mobilisation.

These recommendations do not apply to minor surgery with short duration of anaesthesia, e.g. laparoscopic sterilisation or tooth extraction, or to women using oestrogen-free hormonal contraceptives.

Question:

A 34-year-old male immigrant from India is tested for latent TB. Both the Mantoux skin test and interferon release gamma assay indicated that the patient has latent TB.

What is the most likely treatment option available to the patient?

A.No treatment required

B.Isoniazid alone for 3 months

C.Isoniazid with pyridoxine for 6 months

D.Rifampicin alone for 3 months

E.Isoniazid + rifampicin + ethambutol + pyrazinamide + pyridoxine for 6 months

Answer:Isoniazid with pyridoxine for 6 months

Explanation:

Latent tuberculosis treatment options:

3 months of isoniazid (with pyridoxine) and rifampicin, or

6 months of isoniazid (with pyridoxine)

Important for meLess important

This patient is high-risk for latent TB, due to the high prevalence of the condition in India. Therefore, they should be tested for latent TB, initially with a Mantoux test (also called a tuberculin skin test), followed by an interferon release gamma assay.

As the patient has confirmed latent TB, they require some form of treatment. Not treating the patient leaves them at risk of developing active TB which is also a risk to others.

Isoniazid alone for 3 months is unlikely to be an effective dosing regimen. Isoniazid also predisposes to peripheral neuropathy due to vitamin B6 deficiency, so it should always be taken with pyridoxine.

Isoniazid with pyridoxine for 6 months is one of the treatment options for latent TB. The other option is dual therapy with isoniazid (with pyridoxine) + rifampicin for 3 months.

Rifampicin alone for 3 months is not an effective treatment regime for latent TB.

Isoniazid + rifampicin + ethambutol + pyrazinamide + pyridoxine for 6 months is the treatment of choice for active TB. As this is latent TB, quadruple therapy would be overtreatment.

Question:

A 75-year-old man is admitted to the Emergency Department with dyspnoea. A chest x-ray is performed upon arrival:

© Image used on license from Radiopaedia

What is the main finding on the film?

A.Bronchiectasis

B.Right sided pleural effusion

C.Right upper lobe consolidation

D.Pulmonary oedema

E.Right middle lobe collapse

Answer:Right upper lobe consolidation

Explanation:

This film demonstrates classical signs of right upper lobe consolidation - abnormal opacity within the right upper lobe abutting the horizontal fissure.

Question:

Which of the following is not known to cause acute pancreatitis?

A.Hypocalcaemia

B.Hypothermia

C.Mumps

D.Hypertriglyceridaemia

E.Steroids

Answer:Hypocalcaemia

Explanation:

Hypercalcaemia, not hypocalcaemia is a recognised cause of acute pancreatitis

Question:

A 75-year-old woman presents with an 8-hour history of palpitations and shortness of breath. This is the first time she has had palpitations. On examination, she has peripheral oedema and a displaced apex beat. Her pulse is irregularly irregular at a rate of 110 bpm, her respiratory rate is 25 /min, her blood pressure is 105/67 mmHg, and a third heart sound and a pansystolic murmur are heard on auscultation. An ECG demonstrates absent p waves.

She has a past medical history of ischaemic heart disease and heart failure and takes ramipril, bisoprolol and furosemide.

What is the most appropriate management option?

A.Prescribe amiodarone

B.Prescribe amlodipine

C.Prescribe digoxin

D.Prescribe diltiazem

E.Prescribe flecainide

Answer:Prescribe amiodarone

Explanation:

Use rhythm control to treat AF if there is coexistent heart failure, first onset AF or an obvious reversible cause

Important for meLess important

Prescribe amiodarone is correct. This patient has signs and symptoms of new-onset atrial fibrillation (AF), characterised by palpitations, shortness of breath, and an irregularly irregular pulse. The absence of p waves on an ECG confirms this. She also has chronic heart failure with left ventricular dysfunction as demonstrated by the displaced apex beat, S3 heart sound, and peripheral oedema. The likely cause of this may be a valvular problem (likely mitral regurgitation) due to the pansystolic murmur. In the management of patients with AF, either rate or rhythm control options can be used. Since this patient's presentation is <48 hours and she has coexistent heart failure, rhythm control would be more appropriate. Of the options listed, amiodarone would be most appropriate as it is favoured over flecainide in patients with structural heart disease, as she has a valvular problem.

Prescribe amlodipine is incorrect. This is not used in the management of atrial fibrillation as it is not a rate-limiting calcium channel blocker (such as verapamil or diltiazem). Rate-limiting calcium channel blockers are contraindicated in heart failure as they can precipitate pulmonary oedema and shock. They are also contraindicated if the patient already takes beta-blockers (which this patient already does) as this can lead to severe bradycardia.

Prescribe digoxin is incorrect. This is may be used as a rate control method in patients with AF if beta-blockers or rate-limiting calcium channel blockers are ineffective. This patient has new-onset AF and associated heart failure, therefore, it is more appropriate to offer rhythm control.

Prescribe diltiazem is incorrect. This is a rate-limiting calcium channel blocker used in the rate control of AF. It is contraindicated in heart failure as it can precipitate pulmonary oedema and shock. It is also contraindicated if the patient already takes beta-blockers (which this patient already does) as this can lead to severe bradycardia. This patient has new-onset AF and associated heart failure, therefore, it is more appropriate to offer rhythm control.

Prescribe flecainide is incorrect. Although this is a rhythm control drug, this patient has heart failure and ischaemic heart disease (i.e. structural heart disease), meaning amiodarone should be given instead, as it is more effective in patients with structural heart disease. Flecainide is also contraindicated in left ventricular dysfunction as it may be pro-arrhythmic.

Question:

A 56-year-old man has presented to his GP. He complains of having a headache that has been bothering him since yesterday. This headache is worse when he leans forwards. He also mentions that his vision has blurred on occasions over he past few days. On fundoscopy, the GP notes the presence bilaterally of retinal haemorrhages and papilloedema. The GP measures his blood pressure, which is 190/120 mmHg.

What is the next appropriate step?

A.Admit for specialist assessment

B.Arrange ambulatory blood pressure monitoring

C.Commence amlodipine

D.Commence enalapril

E.Repeat blood pressure measurement in 7 days

Answer:Admit for specialist assessment

Explanation:

If new BP >= 180/120 mmHg + retinal haemorrhage or papilloedema then admit for specialist assessment

Important for meLess important

This patient is experiencing severe hypertension with evidence of end-organ damage. Therefore he requires urgent admission and further specialist assessment.

Arranging ambulatory blood pressure monitoring is usually appropriate in patients with hypertension identified at a clinic blood pressure measurement. However for a patient with BP > = 180/120 mmHg with features of end-organ damage this is not required before specialist assessment and starting antihypertensive treatment.

Amlodipine or enalapril are appropriate antihypertensive medications to consider in this patient, however the patient would need admission to hospital for specialist assessment before starting antihypertensive medications as they have severe hypertension with evidence of end-organ damage.

If a patient has severe hypertension without features of end-organ damage they must have urgent investigations to rule out end organ damage. Only in the absence of evidence for end-organ damage is it appropriate for BP be re-checked after 7 days.

Question:

A 59-year-old woman attends the emergency department with a 1-week history of reduced appetite, nausea and fatigue. Her past medical history includes ulcerative colitis and hypothyroidism.

Her observations are recorded within normal limits. On examination, she appears jaundiced and there are multiple excoriations over her skin. Her chest is clear and her heart sounds are normal. There is a palpable fullness in the right upper quadrant which is non-tender.

Laboratory tests:

Hb 110 g/L (115 - 160)

Platelets 235 \* 109/L (150 - 400)

WBC 10.9 \* 109/L (4.0 - 11.0)

Na+ 136 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 6.1 mmol/L (2.0 - 7.0)

Creatinine 90 µmol/L (55 - 120)

Bilirubin 51 µmol/L (3 - 17)

ALP 155 u/L (30 - 100)

ALT 32 u/L (3 - 40)

CRP 50 mg/L (< 5)

What is the most likely diagnosis?

A.Ascending cholangitis

B.Biliary colic

C.Cholecystitis

D.Pancreatic malignancy

E.Primary biliary cholangitis

Answer:Pancreatic malignancy

Explanation:

Courvoisier's law states that in the presence of painless obstructive jaundice, a palpable gallbladder is unlikely to be due to gallstones

Important for meLess important

This patient has signs of obstructive jaundice with yellowing of the skin and raised bilirubin and ALP levels. The presentation of a painless, palpable mass in combination with anorexia and fatigue makes malignancy a likely diagnosis. Courvoisier's law states that the presence of a palpable gallbladder in a patient with painless obstructive jaundice is most likely to be due to malignancy, particularly pancreatic malignancy.

Ascending cholangitis is inflammation of the bile ducts most commonly secondary to infection and presents as a triad of jaundice, fever and right upper quadrant tenderness. Although the CRP is elevated, this could well be secondary to malignancy and the normal WBC and lack of fever or abdominal pain make the diagnosis of ascending cholangitis less likely.

Biliary colic is the term given to the sharp pain caused by contraction of the gallbladder against gallstones, usually after a fatty meal. The pain can persist for a few hours before resolving spontaneously or after analgesia. Biliary colic does not cause jaundice and abdominal examination tends to cause discomfort.

Cholecystitis is the inflammation of the gallbladder with common symptoms including right upper quadrant pain and fever. In acute cholecystitis, the gallbladder is inflamed and tender and would cause pain on palpation. A common surgical sign is to test for Murphy's sign (severe pain on deep inspiration due to the diaphragm pushing down on the gallbladder into the edge of the examiner's hand). The absence of pain is more concerning of malignancy.

Primary biliary cholangitis (or primary biliary cirrhosis) is a chronic liver disorder most commonly affecting middle-aged women. It is an autoimmune condition characterised by chronic inflammation of the interlobular bile ducts causing obstructive jaundice and liver cirrhosis. However, primary biliary cholangitis does not account for the palpable fullness in the right upper quadrant.

Question:

Mr Smith has been admitted to hospital with chest pain and is being treated for a suspected myocardial infarction. While he is being reviewed by the admitting team, he suddenly gets very short of breath. On examination, he had bilateral crackles throughout the entire lung fields, his oxygen saturations have dropped to 92% and his blood pressure is low at 90/50 mmHg.

What is the most likely cause of Mr Smith's deterioration?

A.Community acquired pneumonia

B.Pulmonary oedema secondary to the myocardial infarction

C.Pulmonary embolism secondary to the myocardial infarction

D.Anxiety due to being treated for a myocardial infarction

E.Anaphylaxis to the initial medication given

Answer:Pulmonary oedema secondary to the myocardial infarction

Explanation:

Flash pulmonary oedema can occur after acute mitral valve regurgitation due to myocardial infarction

Important for meLess important

Myocardial infarction can cause acute mitral valve regurgitation due to rupture of the tendinous cords that usually hold the valve in place. Regurgitation then causes backflow of blood from the left ventricle (LV) into the left atrium (LA) during systole. This causes increased pressures in the LA and LV, which prevent the pulmonary veins (low pressure) from draining into the LA. This, in turn, causes pulmonary congestion, which causes pulmonary oedema.

Community-acquired pneumonia would not cause such a rapid deterioration and would present with more respiratory signs.

Anaphylaxis could cause shortness of breath and hypotension but it would not present with new-onset crackles in the chest, which are indicative of pulmonary oedema in this case.

Pulmonary embolism is not usually a consequence of myocardial infarction.

Anxiety could cause shortness of breath but would normally present with tachycardia and hypertension rather than hypotension.

Question:

You review a 67-year-old who is a type two diabetic with his recent HbA1c. He has no other health issues at present and no significant past medical history. He is currently treated with metformin 1g bd.

His HbA1c six months ago was 56 mmol/mol, his most recent test from last week shows a HbA1c of 59 mmol/mol.

Which of the following is the single best course of action to take?

A.Repeat HbA1c in 3 months

B.Refer to secondary care diabetic services

C.Repeat HbA1c in 6 months

D.Add additional oral agent to metformin

E.Commence insulin therapy

Answer:Add additional oral agent to metformin

Explanation:

A second drug should be added in type 2 diabetes mellitus if the HbA1c is > 58 mmol/mol

Important for meLess important

In a patient taking maximum dose metformin who has a HbA1c of 58 or greater current guidelines recommend the addition of a second agent.

The patient will require additional monitoring and a repeat HbA1c at 3-6months until HbA1c is stable on unchanging therapy. However at this stage it is important to intensify his treatment.

Referral to secondary care would not be appropriate in this scenario, and currently his management should be managed by the primary care team.

Insulin therapy would not be considered at this stage as guidelines suggest the next step would be addition of a further oral agent. Insulin could be considered if addition of a second agent fails to reduce his HbA1c, however triple therapy is likely to be tried on this patient if the second agent fails.

It is good practice to give lifestyle advice and management at each review.

Question:

A 34-year-old female presents to a Family Planning clinic. She is interested in having a Nexplanon inserted. What is the main adverse effect she should be counselled about?

A.Increased risk of cervical cancer

B.Increased risk of venous thromboembolism

C.Irregular menstrual bleeding

D.Increased risk of stroke

E.Increased risk of endometrial cancer

Answer:Irregular menstrual bleeding

Explanation:

Question:

A 19-year-old woman has a positive pregnancy test and is found to have an ectopic pregnancy after an intrauterine pregnancy is excluded. She has no pain or other symptoms at this time. Her serum beta-human chorionic gonadotropin (B-hCG) level is 877 IU/L. A transvaginal ultrasound reveals a 24mm adnexal mass but no heartbeat. There is no free fluid in the abdomen. She is given the option of expectant management but declines this.

What is the first line treatment?

A.Methotrexate

B.Urgent laparoscopic salpingectomy

C.Methotrexate + urgent laparoscopic salpingectomy

D.Misoprostol

E.Mifepristone

Answer:Methotrexate

Explanation:

The National Institute for Health and Care Excellence (NICE) states that if a woman has a small (<35mm) unruptured ectopic pregnancy with no visible heartbeat, a serum B-hCG level of <1500 IU/L, no intrauterine pregnancy and no pain, then first line treatment should be with methotrexate as long as the patient is willing to attend for follow-up.

Expectant management is an option for a small number of women with a low B-hCG, no symptoms and tubal ectopic pregnancy measuring less than 35 mm with no heartbeat. However, this woman has declined this option.

Methotrexate is an antimetabolite chemotherapeutic drug. It interferes with DNA synthesis and disrupts cell multiplication thus preventing the pregnancy from developing.

The other treatment option is laparoscopic salpingectomy (or salpingotomy where there is risk of infertility). This should be offered where the ectopic is larger than 35mm, is causing severe pain or if the B-hCG level is >1500. There is a risk of infertility if a problem arises with the remaining Fallopian tube in the future.

Misoprostol and mifepristone are not used in the management of ectopic pregnancy.

Question:

The presence of anti-cyclic citrullinated peptide antibody is suggestive of which one of the following conditions?

A.Systemic lupus erythematous

B.Rheumatoid arthritis

C.Type 1 diabetes mellitus

D.Addison's disease

E.Dermatomyositis

Answer:Rheumatoid arthritis

Explanation:

Anti-cyclic citrullinated peptide antibodies are associated with rheumatoid arthritis

Important for meLess important

Anti-cyclic citrullinated peptide antibody may be detectable up to 10 years before the development of rheumatoid arthritis. It may therefore play a key role in the future of rheumatoid arthritis, allowing early detection of patients suitable for aggressive anti-TNF therapy. It has a sensitivity similar to rheumatoid factor (70-80%, see below) with a much higher specificity of 90-95%.

NICE recommends that patients with suspected rheumatoid arthritis who are rheumatoid factor negative should be test for anti-CCP antibodies.

Question:

You are a junior doctor working in rheumatology. Whilst providing care for a 51-year-old you begin to feel increasingly uncomfortable with comments made about you and towards you. You have asked them to stop these comments and inappropriate behaviour or else you will have to end the professional relationship. However, despite this, they haven't stopped. What should you do now?

A.End the relationship and suggest they seek help from their GP

B.Contact the hospital director to inform them, and end the professional relationship

C.End the relationship and inform their GP of the inappropriate behaviour

D.Contact the GMC to inform them, and end the professional relationship

E.Discuss the situation with a senior and end the professional relationship

Answer:Discuss the situation with a senior and end the professional relationship

Explanation:

The GMC guidelines contain information on ending your professional relationship with a patient. They state that;

You must only end a professional relationship with a patient when the breakdown of trust means you cannot provide good clinical care. This includes the patient being being violent, threatening you or being abusive or the patient having stolen from you or the premises. It also includes the patient persistently acted inconsiderately or unreasonably or if they have made a sexual advance to you.

You should not end a relationship due to a complaint or due to resource implications.

Before you end the relationship you must warn the patient you are considering ending it and do what you can to restore the relationship. If this fails you must explore alternatives to ending it and discuss the situation with an experienced colleague or your employer.

When you end a relationship you must be satisfied that your reason is fair and does not discriminate. Then make sure the patient is told this is happening, and why. If practical do this in writing.

Question:

An 82-year-old man presents with low mood, lack of energy and a loss of interest in activities. His sleep has been poor for 3 weeks and he has not been interested in food. His doctor starts him on mirtazapine. What class of drugs does mirtazapine belong to?

A.Selective serotonin reuptake inhibitors

B.Serotonin-noradrenaline reuptake inhibitors

C.Monoamine oxidase inhibitors

D.Noradrenergic and specific serotonergic antidepressants

E.Tricyclic antidepressants

Answer:Noradrenergic and specific serotonergic antidepressants

Explanation:

Mirtazapine is a noradrenergic and specific serotonergic antidepressant which increases release of neurotramsitters by blocking alpha2 adrenoreceptors

Important for meLess important

Question:

A 70-year-old man presents to the Emergency Department with a 4-hour history of palpitations and collapse.

On examination, he has swollen ankles and cool peripheries. His observations are as follows:

Pulse rate 46 beats per minute, irregularly irregular and thready

Blood pressure unrecordable despite three attempts

Respiratory rate 26 breaths per minute

Oxygen saturations 91% on air

He was previously well with no history of any structural or ischaemic heart disease. ECG shows no P waves. What is the most appropriate initial management?

A.Immediate electrical (DC) cardioversion followed by thromboprophylaxis

B.Pharmacological cardioversion with amiodarone intravenously

C.Pharmacological cardioversion with flecainide intravenously

D.Thromboprophylaxis with heparin for three weeks followed by DC cardioversion

E.Trans-oesophageal echocardiogram followed by intravenous amiodarone

Answer:Immediate electrical (DC) cardioversion followed by thromboprophylaxis

Explanation:

As this gentleman is presenting with atrial fibrillation (as seen by palpitations and absent P waves on ECG), the options for management include rate or rhythm control, with the possibility of thromboprophylaxis.

However, as he has an unmeasurable BP and signs of haemodynamic instability, he is acutely unwell and so his arrhythmia must be treated as soon as possible with DC cardioversion without delaying for thromboprophylaxis. Anticoagulation should be continued for 4 weeks after cardioversion however.

If he was clinically stable and had atrial fibrillation of over 48 hours duration, the risk of stroke would mean parenteral anticoagulation would take precedence over cardioversion.

(source: NICE, https://www.nice.org.uk/guidance/cg180)

Question:

A 50-year-old man is admitted to the emergency department with sudden onset of abdominal pain. There is no recent history of travel. Past medical history is significant for polycythaemia vera.

On examination, you note marked tense ascites and tender hepatomegaly.

Liver function tests reveal:

Bilirubin 55 µmol/L (3 - 17)

ALP 150 u/L (30 - 100)

ALT 70 u/L (3 - 40)

What is the most likely diagnosis?

A.Portal vein thrombosis

B.Hepatitis B

C.Gallstones

D.Budd-Chiari syndrome

E.Gilbert's syndrome

Answer:Budd-Chiari syndrome

Explanation:

Budd-Chiari syndrome presents with the triad of sudden onset abdominal pain, ascites, and tender hepatomegaly

Important for meLess important

Polycythaemia vera can predispose to clot formation in the hepatic vein - leading to Budd Chiari syndrome which presents with sudden onset abdominal pain, ascites and tender hepatomegaly.

Hepatitis B would cause a greater rise in ALT (ALT >> ALP). It would explain the hepatomegaly but not the ascites.

Gallstones are likely to cause a greater increase in ALP and would not explain the ascites.

Gilbert's syndrome causes a rise in bilirubin after an acute stress on the body eg: illness or fasting. It does not cause high ALP and is asymptomatic.

Question:

A 75-year-old man has been on warfarin for 3 years following a diagnosis of paroxysmal atrial fibrillation. After a discussion with his cardiologist, he elected to undergo DC cardioversion. It was successful and he is now in sinus rhythm. His CHAD-VASC score is 4.

Presuming he does not revert to atrial fibrillation, what is the most appropriate action for his anticoagulation?

A.Continue anticoagulation for four weeks then stop

B.Continue anticoagulation for six months then stop

C.Continue anticoagulation lifelong

D.One week of low molecular weight heparin

E.Stop all anticoagulation today

Answer:Continue anticoagulation lifelong

Explanation:

Following elective DC cardioversion for AF, anticoagulation should be continued even if sinus rhythm is maintained

Important for meLess important

Following elective DC cardioversion, in patients at high risk of stroke, anticoagulation should be continued long-term, even if they remain in sinus rhythm. Therefore, the correct answer is continue anticoagulation lifelong. This would need to be regularly evaluated against bleeding risk.

Continue anticoagulation for 4 weeks then stop is incorrect in this case. This may be an appropriate strategy in low-risk patients undergoing DC cardioversion. An anticoagulant is initiated pre-procedure and continued post-procedure for four weeks to prevent embolic events. The patient is at high risk for stroke, as shown by their high CHAD-VASC score, therefore anticoagulation should be continued lifelong (with regular consideration of risks and benefits).

Continue anticoagulation for six months then stop is incorrect. This patient is at high risk for stroke, therefore anticoagulation should be continued lifelong (with regular consideration of risks and benefits).

One week of low molecular weight heparin is not the correct answer here but this may be used for thromboprophylaxis in some post-surgical patients.

Stop all anticoagulation today is incorrect. This patient is at high risk for stroke, therefore anticoagulation should be continued lifelong (with regular consideration of risks and benefits).

Question:

A 25-year-old woman is reviewed in clinic after experiencing 3 unprovoked episodes of sudden bilateral upper and lower limb limpness and falling. Each episode lasts for 10 seconds and she does not lose consciousness. She denies any incontinence and is able to carry on her activity after a few minutes.

She has no past medical history and denies any head trauma. Her mother had similar problems in the past.

Given the likely diagnosis, what is this patient most likely to be started on?

A.Carbamazepine

B.Ethosuximide

C.Lamotrigine

D.Levetiracetam

E.Topiramate

Answer:Lamotrigine

Explanation:

Tonic or atonic seizures: lamotrigine is first-line for females

Important for meLess important

Lamotrigine is correct. This patient is likely to have atonic seizures due to experiencing 3 unprovoked episodes of muscle limpness (atony) and falling. Atonic seizures usually last for a few seconds and many patients do not lose consciousness and can return to their activities shortly after. The first-line management for managing atonic seizures in women of childbearing potential is the use of lamotrigine as high-quality evidence has demonstrated its efficacy. For men, the first line is sodium valproate. Sodium valproate must be avoided in women of childbearing potential due to its associations with the development of congenital malformations, therefore, lamotrigine is used in preference for women of childbearing potential.

Carbamazepine is incorrect. This is a second-line option for managing focal seizures and does not play a role in the management of atonic seizures. If this patient's limpness occurred in a focal region, such as in one limb, then a focal seizure may be possible, but since this patient's features are bilateral and affect the upper and lower limbs, a focal seizure is unlikely.

Ethosuximide is incorrect. This is first-line in absence seizures, which are another form of generalised seizure characterised by episodes of staring into space and stopping an activity for 5-10 seconds and is more commonly seen in young children. These features do not apply to this patient.

Levetiracetam is incorrect. The NICE guidelines do not recommend the use of levetiracetam in the management of atonic seizures. It may be used first-line for women of childbearing potential experiencing generalised tonic-clonic seizures, but this would instead present with muscle stiffening (increased tonus), and jerking (myoclonus), which are not seen here.

Topiramate is incorrect. This is a second-line option for the management of atonic seizures in women of childbearing potential and is considered if lamotrigine is unsuccessful. Since this patient has not yet tried any treatment, lamotrigine should be tried first as high-quality evidence demonstrates it is efficacious as a first-line option.

Question:

A 65-year-old man with advanced lung cancer is admitted to hospital via his GP following an abnormal blood test which showed the following:

Na 118 mmol/l

Which type of lung cancer can cause this specific electrolyte disturbance?

A.Adenocarcinoma

B.Squamous cell carcinoma

C.Small cell cancer

D.Bronchial adenoma

E.Large cell cancer

Answer:Small cell cancer

Explanation:

SIADH is a paraneoplastic feature of small-cell lung cancer

Important for meLess important

Small cell lung cancer is associated with syndrome of inappropriate ADH production (SiADH) which can cause euvolaemic hyponatraemia. This is one of several paraneoplastic syndromes caused by small cell lung cancer (oat cells have neuroendocrine differentiation and release ectopic neuroendocrine hormones), others including ACTH production (ectopic Cushing's syndrome) and Lambert-Eaton syndrome.

(1) Adenocarcinoma of the lung causes gynaecomastia but other paraneoplastic features are rare

(2) Squamous cell carcinoma of the lung causes several paraneoplastic syndromes including hypercalcaemia (release of PTH-related peptide), hyperthyroidism (release of TSH), clubbing and hypertrophic pulmonary osteoarthropathy (HPOA)

(4) Bronchial adenoma is usually a carcinoid tumour (release of 5-HT)

(5) Large cell cancer of the lung may cause beta-HCG release but other paraneoplastic features are rare

Question:

A 53-year-old gentleman presents to the GP surgery with constipation which has been ongoing for many years. He reports not having opened his bowels for ten days. He has a past medical history of atrial fibrillation, type II diabetes mellitus, gastro-oesophageal reflux disease and paranoid schizophrenia. His medication includes apixaban, clozapine, digoxin, metformin and lansoprazole. On examination, he has a firm, non-tender abdomen, and is fecally impacted on PR examination. Which of the above medication is likely to be contributing to his chronic constipation?

A.Apixaban

B.Clozapine

C.Digoxin

D.Metformin

E.Lansoprazole

Answer:Clozapine

Explanation:

One of the most common side effects of clozapine is constipation/intestinal obstruction

Important for meLess important

One of the most common side effects of clozapine is constipation. This can lead to potentially serious side effects. Indeed studies show that there is a higher mortality from GI side effects (such as bowel obstruction and perforation) than from agranulocytosis. Regarding the other medication - digoxin, metformin and lansoprazole can all cause diarrhoea. Apixaban is not known to cause constipation.

Question:

A 41-year-old male has been on olanzapine for the past 2 years. He has recently looked up the side-effects of the drugs after suffering from an episode of tardive dyskinesia.

Which biochemical side-effect would this patient most likely suffer from?

A.Hypernatraemia

B.Hypercholesterolaemia

C.Hyperkalaemia

D.Hypoprolactineamia

E.Hyperparathyroidism

Answer:Hypercholesterolaemia

Explanation:

Metabolic side effects of antipsychotics include dysglycaemia, dyslipidaemia, and diabetes mellitus

Important for meLess important

Olanzapine (and other antipsychotics) causes metabolic side-effects primarily including hyperlipidemia, hypercholesterolemia, hyperglycemia and weight gain.

Anti-psychotics are dopamine antagonists so would cause hyperprolactinemia as dopamine is a prolactin antagonist.

They do not affect the parathyroid hormones or electrolytes.

Question:

A 27-year-old man attends the general practitioner (GP) complaining of 'spots' around the head of his penis. He reports that they have always been there and that they have not changed at all. The patient reports that he is not sexually active and has not had any sexual partners in the past.

On examination there are multiple flesh coloured papules on the corona of the penis. The GP explains that these are pearly penile papules.

What is the single best advice the GP can give the patient?

A.Pearly penile papules are benign and do not need to be investigated

B.Pearly penile papules are caused by the herpes simplex virus and a viral swab should be undertaken

C.Pearly penile papules are caused by the human papilloma virus and the patient should receive the Gardasil vaccination

D.Given the examination findings, testing for Gonorrhoea, Chlamydia and syphilis should be undertaken

E.Given the examination findings, testing for HIV and Mycoplasma genitalium should be undertaken

Answer:Pearly penile papules are benign and do not need to be investigated

Explanation:

Pearly penile papules are not a cause for concern and do not require intervention

Important for meLess important

Pearly penile papules are a normal variant of the glans. They are approximately 1-2mm in size and are distributed around the corona of the penis. They are asymptomatic and are often a cause of concern for patients, who should be reassured that no intervention is required.

They are not caused by any form of virus and therefore sexual health screening should only be conducted on the grounds of genuine concern. Most initiatives for investigating common sexually transmitted infections cover an age range of 18 to 25-year-olds.

Question:

An 87-year-old female presents to the emergency department with shivering and confusion. On examination, she has a heart rate of 92/min, a respiratory rate of 20/min, a blood pressure of 124/72mmHg, and a temperature of 32.7ºC.

A blood test shows:

Hb 165 g/L Male: (135-180)

Female: (115 - 160)

Platelets 134 \* 109/L (150 - 400)

WBC 3.2 \* 109/L (4.0 - 11.0)

An ECG is also performed.

Which of the following is the ECG most likely to show?

A.ST elevation

B.Left bundle branch block (LBBB)

C.Reverse tick sign

D.T-wave inversion

E.J waves

Answer:J waves

Explanation:

Hypothermia causes J waves on ECG

Important for meLess important

This patient has hypothermia, considering her symptoms and the temperature of 32.7ºC. Hypothermia can also present with tachycardia and tachypnoea, with respiratory distress and bradycardia more likely at temperatures below 32ºC. Bloods can show high haemoglobin due to haemoconcentration, and low platelets and WCC due to splenic sequestration.

An ECG in a patient with hypothermia can show prolongation of all the ECG intervals. There may also be an elevation of the J point, producing a J, or Osborn, wave.

J waves have been mistaken for ST elevation leading to unnecessary cardiac catheterisation.

LBBB is not caused by hypothermia but can be caused by myocardial infarction and aortic stenosis.

The reverse tick sign is seen on the ECG of a patient with digoxin toxicity.

T-wave inversion is mainly caused by myocardial ischaemia.

Question:

A 40-year-old man has come to the emergency department with severe pain in his left eye, especially when looking at light, along with blurred vision. He has a history of Crohn's disease which is currently controlled by azathioprine. On examination there is conjunctival injection at the junction of the cornea and sclera with increased lacrimation. The pupil also appears smaller on his left eye compared to his right.

What treatment is required for this patient?

A.Antibiotic drops

B.Antihistamine drops

C.NSAID drops

D.Pilocarpine and β-blocker drops

E.Steroid and cycloplegic drops

Answer:Steroid and cycloplegic drops

Explanation:

Anterior uveitis is most likely to be treated with a steroid + cycloplegic (mydriatic) drops

Important for meLess important

This patient has features consistent with anterior uveitis. The history of Crohn's disease is associated with risk for developing acute uveitis. Steroid drops are required to reduce inflammation. Cycloplegic drops are required to prevent adhesions between the lens and iris, and to relieve spasms of the ciliary body.

Antibiotic drops would be indicated for the treatment of bacterial conjunctivitis and not anterior uveitis.

Antihistamine drops would be used for the treatment of allergic conjunctivitis.

Topical NSAID drops are used in the treatment of episcleritis.

Pilocarpine and β-blocker drops are used as part of the treatment for acute closed angle glaucoma.

Question:

A 72-year-old man has been recently diagnosed with active tuberculosis by respiratory specialists and has been commenced on the initial phase of antibiotic treatment. He has a background of chronic kidney disease stage 4 and atrial fibrillation for which he takes warfarin. An INR taken 3 days after commencing treatment comes back at 8.2.

What antibiotic is most likely to be responsible for this finding?

A.Erythromycin

B.Isoniazid

C.Levofloxacin

D.Pyridoxine

E.Rifampicin

Answer:Isoniazid

Explanation:

Isoniazid inhibits the P450 system

Important for meLess important

Isoniazid inhibits the cytochrome p450 system. This inhibition reduces the metabolism of warfarin causing a prolongation of its effects which subsequently increases the INR.

Erythromycin is an antibiotic that is metabolised by the cytochrome p450 system but is not used in the initial phase of anti-tuberculosis treatment.

Levofloxacin is not used in the initial phase of anti-tuberculosis treatment but is occasionally used alongside other agents when standard treatment is stopped due to hepatotoxicity.

Pyridoxine is vitamin B6 and is not used in the treatment of tuberculosis.

Rifampicin is a potent cytochrome p450 system inducer. This would cause an increase in the metabolism of warfarin and a subsequent reduction in its effects, causing a decrease in the INR.

Question:

A 47-year-old female presents to her general practitioner with eczematous lesions with flakes on the ears and nose. The lesions began appearing 3 months ago, however, she is now growing increasingly anxious as she can no longer hide them with make-up due to increased dryness. She is otherwise healthy and never experienced anything similar before.

Which one of the following is the most appropriate management?

A.Dapsone

B.Fluconazole

C.Ketoconazole

D.Metronidazole

E.Prednisolone

Answer:Ketoconazole

Explanation:

Seborrhoeic dermatitis - first-line treatment is topical ketoconazole

Important for meLess important

The correct answer is ketoconazole. This patient is suffering from seborrhoeic dermatitis, a very common chronic dermatitis, caused by an inflammatory reaction to a proliferation of a normal skin inhabitant, a fungus called Malassezia furfur. The classic symptoms are dandruff and eczematous lesions with flakes on the periorbital, auricular and nasolabial folds. The first-line management for the face and body lesions is ketoconazole, an antifungal, used to decrease the presence of Malassezia furfur.

Dapsone is an antibiotic used in the management of dermatitis herpetiformis, an autoimmune blistering skin disorder associated with coeliac disease. In this case, the patient has no vesicles that would indicate this diagnosis.

Fluconazole is an antifungal medication used for the treatment of tinea corporis or the so-called ringworm. This would present as well-defined annular, erythematous lesions with pustules and papules that this patient does not have.

Metronidazole is an antibiotic used in gynaecological conditions. It has no role n the management of seborrhoeic dermatitis.

Prednisolone is not indicated for the treatment of seborrhoeic dermatitis. Topical steroids can be used as second-line treatment, but not oral medications.

Question:

You review a 67-year-old man who has chronic obstructive pulmonary disease (COPD). On examination there is evidence of cor pulmonale with a significant degree of pedal oedema. His FEV1 is 43%. During a recent hospital stay his pO2 on room air was 7.1 kPa. Which one of the following interventions is most likely to increase survival in this patient?

A.Inhaled corticosteroid

B.Heart-lung transplant

C.Pulmonary rehabilitation

D.Loop diuretic therapy

E.Long-term oxygen therapy

Answer:Long-term oxygen therapy

Explanation:

After smoking cessation, long-term oxygen therapy (LTOT) is one of the few interventions that has been shown to improve survival in COPD.

LTOT should be offered to patients with a pO2 of < 7.3 kPa or to those with a pO2 of 7.3 - 8 kPa and one of the following:

secondary polycythaemia

nocturnal hypoxaemia

peripheral oedema

pulmonary hypertension

Question:

Each one of the following statements regarding autism is correct, except:

A.There is a global impairment of language and communication

B.The majority of children have normal or increased intelligence

C.Children may perform ritualistic behaviour

D.75% of children are male

E.Usually develops before 3 years of age

Answer:The majority of children have normal or increased intelligence

Explanation:

Question:

Terry is a 45-year-old man who presents to his GP with a burning pain on the outer part of his right knee. The pain is present on movement and he has not noticed any swelling of the knee. There is no history of trauma and no locking of the knee joint. He is an endurance runner and is training for the London marathon. On examination, there is pain on palpation of the lateral aspect of the joint line. He has a good range of movement of his knee joint. However, you do notice a snapping sensation on the lateral aspect of the knee during repeated flexion and extension of his joint .

What is the most likely diagnosis?

A.Patellofemoral syndrome

B.Meniscal tear

C.Rheumatoid arthritis

D.Iliotibial band syndrome

E.Osteoarthritis

Answer:Iliotibial band syndrome

Explanation:

Iliotibial band syndrome is a common cause of knee pain, particularly in runners

Important for meLess important

Iliotibial band syndrome is a common cause of lateral knee pain in runners. Athletes commonly present with a sharp or burning pain around the lateral knee joint line.

Meniscal tears present with locking of joint, pain and swelling.

Patellofemoral syndrome causes pain in the knee cap worse with climbing up and down stairs and excessive use. It can also cause pain after sitting for a prolonged time.

Rheumatoid arthritis typically affects the small joints in the hands and feet first. It can also affect other joints and symptoms include stiffness, pain and swelling.

Osteoarthritis causes pain and knee swelling. On examination, there may be crepitus of the joint. Risk factors include being older in age, large body mass index and a physical/ manual occupation.

Question:

A 30-year-old man is trapped in a house fire and sustains 30% partial and full thickness burns to his torso and limbs. Three days following admission he has a brisk haematemesis. Which of the following is the most likely explanation for this event?

A.Dieulafoy lesion

B.Curlings ulcers

C.Mallory Weiss tear

D.Depletion of platelets

E.Depletion of clotting factors

Answer:Curlings ulcers

Explanation:

Stress ulcers in burns patients are referred to as Curlings ulcers and may cause haematemesis.

Question:

A 75-year-old woman present was a 3-month history of worsening pain when walking. On examination of her right leg, her leg was cold to touch and her medial tibial pulse was difficult to palpate. She also complained of severe calf pain which was also present at rest. The patient was treated with intra-arterial thrombolysis for peripheral arterial disease and was ready to be discharged.

It is also noted she has a past medical history of aortic stenosis, blood pressure of 123/72 mmHg and peptic ulcer disease.

Given her new diagnosis, which regular medication should the patient be offered?

A.Aspirin and clopidogrel

B.Phosphodiesterase III inhibitor

C.Amlodipine

D.Atorvastatin and clopidogrel

E.Warfarin and GTN spray

Answer:Atorvastatin and clopidogrel

Explanation:

All patients with peripheral arterial disease should take clopidogrel and atorvastatin

Important for meLess important

Secondary prevention of PAD is very important. NICE recommends offering all patients lifestyle modification to stop smoking, diet and exercise.

NICE recommends commencing all patients with established cardiovascular disease should be on a statin. Additionally, the dose of atorvastatin differs depending on if it is being started as primary or secondary prevention. The dose of 80mg atorvastatin is the appropriate dose for secondary prevention of PAD. The dose of 20mg of atorvastatin is typically used in primary prevention.

Although aspirin is a suitable option to start in secondary prevention in PAD it is contra-indicated in this patient due to a history of peptic ulcer disease, NICE recommends starting all patients on clopidogrel alone first-line as an anti-platelet when a combination of aspirin and clopidogrel is not tolerated.

Phosphodiesterase III inhibitors have both antiplatelet and vasodilator effects, however, this is currently not advised by NICE.

The management of blood pressure in PAD is important for secondary prevention and the use of calcium channel blockers would be the drug of choice in a patient above the age of 55. However, the patient does not have a history of high blood pressure and currently, her blood pressure is normal therefore amlodipine is not the most appropriate medication to start.

The use of GTN can be considered in PAD due to its vasodilator effects. However, according to NICE the use of GTN is contraindicated in aortic stenosis; cardiac tamponade; constrictive pericarditis; hypertrophic cardiomyopathy and hypotensive conditions. Therefore, is not an ideal medication to commence this patient on.

There is no indication to start this patient on warfarin as it is not used in the secondary prevention of PAD.

Question:

A 32-year-old woman who is 10 weeks pregnant presents for her booking appointment.

A midstream urine sample is collected for dipstick and culture. The urine dip comes back positive for blood, nitrites and leukocytes. The urine culture comes back positive for E. coli. Despite her being asymptomatic, she is treated with a 7-day course of nitrofurantoin which she has now finished. She remains asymptomatic after treatment.

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

A.No further action required

B.Urine dip

C.Urine culture

D.7-day course of cefalexin

E.Continue nitrofurantoin for a further 7 days

Answer:Urine culture

Explanation:

A test of cure MSU should be sent in pregnant women treated for a UTI

Important for meLess important

A further urine culture should always be sent following completion of treatment for a UTI in pregnant women as a test of cure due to the significant risk of progression to acute pyelonephritis.

No further action required is incorrect as a test of cure is always indicated after UTI treatment in pregnant women.

A urine dip is not a satisfactory test of cure in this situation as it has a much lower sensitivity, meaning that a persisting UTI may be missed, leaving the woman susceptible to progression to acute pyelonephritis.

Cefalexin is another antibiotic used for the treatment of UTIs in pregnant women but is not appropriate in this case as she has already been treated with nitrofurantoin.

A further 7 days of nitrofurantoin is not necessary in this case, NICE guidance recommends only a 7-day course of either nitrofurantoin, cefalexin or amoxicillin for treatment of asymptomatic bacteriuria during pregnancy.

Question:

A 65-year-old man with a 16 year history of type 2 diabetes mellitus presents complaining of poor eye sight and blurred vision. Visual acuity measured using a Snellen chart is reduced to 6/12 in the right eye and 6/18 in the left eye. Fundoscopy reveals a number of yellow deposits in the left eye consistent with drusen formation. Similar changes but to a lesser extent are seen in the right eye. What is the most likely diagnosis?

A.Wet age-related macular degeneration

B.Pre-proliferative diabetic retinopathy

C.Chronic open angle glaucoma

D.Proliferative diabetic retinopathy

E.Dry age-related macular degeneration

Answer:Dry age-related macular degeneration

Explanation:

Drusen = Dry macular degeneration

Important for meLess important

Question:

A 55-year-old man with a history of type 2 diabetes mellitus presents for a routine review. On examination, he appears well and there are no abnormal examination findings except for his blood pressure, which is recorded at 160/110 mmHg. Routine blood tests are performed which demonstrate the following:

Na+ 139 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 16 mmol/L (2.0 - 7.0)

Creatinine 163 µmol/L (55 - 120)

What additional feature would suggest that the cause of this presentation is chronic and not acute?

A.Anuria

B.Haematuria

C.Hypocalcaemia

D.Normal parathyroid hormone levels

E.Oliguria

Answer:Hypocalcaemia

Explanation:

Hypocalcaemia is an indication that kidney disease is chronic and not acute

Important for meLess important

Hypocalcaemia is correct. This patient has blood tests suggestive of renal impairment, as shown by the increased urea and creatinine, which may be due to his history of type 2 diabetes mellitus (which can cause diabetic nephropathy). It is important to establish whether the renal impairment is acute or chronic, as their management varies significantly. Chronic renal failure can lead to impaired conversion of 25-hydroxyvitamin D to its active form, which is needed for intestinal calcium absorption. This makes hypocalcaemia a marker that suggests the kidney disease is chronic and not acute, as an acute kidney injury is not associated with hypocalcaemia.

Anuria is incorrect. Most patients with chronic kidney disease are asymptomatic until very late-stage renal disease occurs and at this point, they would manifest other symptoms alongside such as oedema, anaemia, pruritus etc. The presence of oliguria is more suggestive of an acute kidney injury in this scenario as it is unlikely for him to have progressed this far with his chronic kidney disease in the absence of other symptoms.

Haematuria is incorrect. Most patients with chronic kidney disease are asymptomatic until very late-stage renal disease occurs. The presence of anuria is more suggestive of an acute kidney injury.

Normal parathyroid hormone levels is incorrect. Chronic kidney disease is a cause of secondary hyperparathyroidism due to the impaired conversion of 25-hydroxyvitamin D to its active form, which is needed for intestinal calcium absorption. This leads to hypocalcaemia, which in turn leads to secondary hyperparathyroidism.

Oliguria is incorrect. Most patients with chronic kidney disease are asymptomatic until very late-stage renal disease occurs and at this point, they would manifest other symptoms alongside such as oedema, anaemia, pruritus etc. The presence of oliguria is more suggestive of an acute kidney injury in this scenario as it is unlikely for him to have progressed this far with his chronic kidney disease in the absence of other symptoms.

Question:

A 68-year-old man is brought to the emergency department with a 10-day history of muscle cramping and fatigue. Blood tests are taken and an ECG is performed.

Blood tests:

Na+ 140 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 28 mmol/L (22 - 29)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

Calcium 1.7 mmol/L (2.1-2.6)

Phosphate 1.3 mmol/L (0.8-1.4)

Magnesium 0.62 mmol/L (0.7-1.0)

The ECG demonstrates a regular sinus rhythm at a rate of 72 BPM. The QTc is calculated as 480ms.

What is the next best management step?

A.Check vitamin D level

B.Intravenous calcium gluconate

C.Oral calcium carbonate

D.Oral levothyroxine

E.Oral magnesium aspartate

Answer:Intravenous calcium gluconate

Explanation:

Hypocalcaemia: prolonged QT interval is an indication for urgent IV calcium gluconate

Important for meLess important

This scenario describes a 68-year-old man who has presented with hypocalcaemia causing a prolonged QT interval. It is important to note that the definition of a prolonged QT interval varies across the literature, but some sources define it as >450ms in adult males and >460ms in adult females.

A prolonged QT interval in hypocalcemia is an indication for urgent intravenous calcium gluconate. This urgent therapy is indicated in severe hypocalcaemia which can present with hand & foot spasming, tetany, seizures, and prolonged QT interval. A prolonged QT interval is of high importance as it can predispose the individual to develop cardiac arrhythmias, including Torsades de pointes.

Check vitamin D level is not correct. Whilst this is an important part of establishing the cause of hypocalcaemia, it is not the next best management step for this patient with severe hypocalcaemia.

Oral calcium carbonate is incorrect. Oral calcium supplementation can be useful in some causes of hypocalcaemia, but only once the cause has been identified. In the case of severe hypocalcaemia, intravenous calcium should instead be given.

Oral levothyroxine is not correct. Whilst hypothyroidism can cause hypocalcaemia and levothyroxine may be indicated for some patients, this has not been shown as the diagnosis for this patient. Also, this patient is acutely unwell and therefore urgent IV calcium gluconate should be given.

Oral magnesium aspartate is not the single best answer. Whilst this patient will likely need magnesium supplementation (as hypomagnesaemia can cause hypocalcaemia), it is not the next best step for this patient with severe hypocalcemia.

Question:

A 63-year-old man with a background of heart failure, type 2 diabetes, and hypertension is brought into the emergency department with central crushing chest pain, diaphoresis, and vomiting.

He is triaged urgently as doctors suspect he has had a myocardial infarction. While awaiting specialist review, the man goes into cardiac arrest. A continuous cardiac monitor shows asystole and CPR is commenced. He undergoes 4 cycles of CPR without return of circulation before the lead doctor calls for attempts to be stopped.

What needs to be done to confirm death in this patient?

A.Cardiac monitoring only for a further 3 minutes

B.Cardiac monitoring only for a further 5 minutes

C.Full assessment for signs of life for a further 5 minutes

D.Full assessment of signs of life for a further 2 minutes

E.No further assessment needed

Answer:Full assessment for signs of life for a further 5 minutes

Explanation:

Following an unsuccessful resuscitation attempt in hospital, an individual should be observed for signs of life for a minimum of 5 minutes

Important for meLess important

Full assessment for signs of life for a further 5 minutes is correct. This patient has had an unsuccessful resuscitation attempt in hospital following a witnessed cardiac arrest. All in-hospital deaths require confirmation of death by a qualified practitioner. The specific requirements depend on whether or not CPR was attempted. In this case, the patient requires a minimum of 5 minutes of observation (including central pulse palpation, chest auscultation, cardiac monitoring, pupillary light response, and response to a painful stimulus) before death is confirmed.

Cardiac monitoring only for a further 3 minutes is incorrect. While cardiac monitoring forms part of the confirmation of death in a patient who underwent CPR, it must be continued for a minimum of 5 minutes and other observations are required.

Cardiac monitoring only for a further 5 minutes is incorrect. Cardiac monitoring for a minimum of 5 minutes is one of the requirements for cardiac arrest following CPR. However, other criteria must be fulfilled, specifically: lack of palpable central pulse, lack of heart sounds on auscultation, absent pupillary light reflex, and no response to a painful stimulus.

Full assessment of signs of life for a further 2 minutes is incorrect. This would be the case in a patient who has a valid DNACPR who dies in hospital. However, as this patient underwent CPR cardiac monitoring must also be performed and the minimum time of observation is 5 minutes.

Question:

You are the GP reviewing an 81-year-old man with varicose veins. When he removes his right sock, you notice an ill-defined area of ulceration in the region of the medial malleolus. There is also pedal oedema to the mid-shins and some cutaneous changes of chronic venous insufficiency. Pulses are present. You decide to refer to vascular surgery.

Alongside surgery for his varicose veins, which treatment would be most appropriate?

A.Oral flucloxacillin

B.Graduated compression hosiery

C.Femoral endarterectomy

D.Compression bandaging

E.Intermittent pneumatic compression

Answer:Compression bandaging

Explanation:

Management of venous ulceration - compression bandaging

Important for meLess important

Charing Cross 4-layer compression bandaging is the most appropriate initial treatment for venous ulcers - although without surgery for the underlying varicose veins the ulcers are likely to either fail to heal or recur.

There is no evidence of infection so antibiotics are not required. Oral flucloxacillin is commonly used for skin and soft tissue infections and would be a suitable antibiotic choice for an infected ulcer (provided the patient was not allergic).

Compression hosiery is used for the treatment of venous disease in the absence of ulceration or once the ulcers have healed.

Femoral endarterectomy is an operation to remove plaque from occluding the lumen of the femoral artery - this is not indicated here as there is no evidence of arterial disease.

Intermittent pneumatic compression (IPC) is a form of thromboprophylaxis commonly used on stroke wards.

Question:

A 34-year-old man presents with an itchy rash on his genitals and palms. He has also noticed the rash around the site of a recent scar on his forearm. Examination reveals papules with a white-lace pattern on the surface. What is the diagnosis?

A.Lichen planus

B.Scabies

C.Lichen sclerosus

D.Morphea

E.Pityriasis rosea

Answer:Lichen planus

Explanation:

Lichen

planus: purple, pruritic, papular, polygonal rash on flexor surfaces. Wickham's striae over surface. Oral involvement common

sclerosus: itchy white spots typically seen on the vulva of elderly women

Important for meLess important

This is a typical history of lichen planus

Question:

A 67-year-old gentleman comes in to your practice complaining of 'dizziness'. He has a past medical history of hypertension, hypercholesterolaemia and hay fever. He is an ex-smoker with a forty pack-year history.

On closer questioning, he describes a sudden onset of a sensation at 9am this morning - 'like the room is spinning' - accompanied by nausea but no vomiting. The dizziness has persisted and is constant.

On examination he looks well, blood pressure 170/120 mmHg, with other observations in normal range. Cardiac, respiratory and ENT examination is unremarkable. On neurological examination he has normal power, tone, sensation and reflexes throughout both upper and lower limbs bilaterally. There is notable nystagmus on cranial nerve testing. There is also mild past pointing and dysdiadochokinesis.

What is the most appropriate action?

A.Arrange for an urgent outpatient CT head

B.Admit the patient urgently to hospital

C.Give a prescription for Prochlorperazine and review in 48 hours

D.Perform a Dix-Hallpike test +/- Epley manoeuvre

E.Arrange an urgent ECG

Answer:Admit the patient urgently to hospital

Explanation:

This gentleman has a history suggestive of vascular disease, and has presented with acute onset of symptoms suggesting a posterior stroke.

Prochlorperazine may be useful in vestibular neuronitis but given this gentleman's constellation of symptoms, a vascular event is more likely and must be excluded. This should be done urgently and he may need an MRI after a CT head, as MRI is more effective at visualising the posterior part of the brain.

Dix-Hallpike is a test for BPPV (Benign Paroxysmal Positional Vertigo) which is episodic and lasts a few seconds at a time, classically by turning the head. The history does not fit with this.

Question:

A lean 32-year-old female has recently undergone a colonoscopy to remove some incidental polyps. On inspection of the colon, the doctor also noticed abnormal pigmentation. He send a sample off to be reviewed by the histopathologists and they reported 'pigment-laden macrophages within the mucosa on PAS staining'.

What is the most common cause of the underlying condition?

A.Pre-malignancy

B.C. difficile

C.Antibiotic abuse

D.Laxative abuse

E.Idiopathic

Answer:Laxative abuse

Explanation:

Melanosis coli is most commonly caused by prolonged laxative use

Important for meLess important

The underlying diagnosis is melanosis coli.

Melanosis coli is the abnormal pigmentation of the large bowel due to the presence of pigment-laden macrophages. It is most commonly due to laxative abuse. It is not associated with C. difficile or antibiotic use.

Although it is not a pre-malignant disease and is usually considered completely benign, some studies have suggested it may be associated with ileal ulcers, polyps and adenomas (see below). Nonetheless, laxative abuse is still the most common cause.

Link: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0186668

Question:

A 36-year-old woman gives birth to healthy twin girls. Which agent is most likely to be used after the birth to facilitate delivery of the placenta and to prevent postpartum haemorrhage?

A.Prostaglandin E2

B.Indomethacin

C.Oxytocin / ergometrine

D.Mifepristone

E.Salbutamol

Answer:Oxytocin / ergometrine

Explanation:

Medical treatments for postpartum haemorrhage secondary to uterine atony include oxytocin, ergometrine, carboprost and misoprostol

Important for meLess important

All of the agents listed may be involved in obstetrics in some form, however, only oxytocin/ergometrine is commonly used to encourage smooth muscle contraction in uterine blood vessels, reducing the risk of postpartum haemorrhage.

Prostaglandin E2 is used in initiating labour.

Indomethacin and salbutamol can be used as tocolytics.

Mifepristone is used in medical abortion.

Question:

An 84-year-old lady presents to the emergency department (ED) via ambulance having fallen over in her room at the nursing home this morning. She is unable to weight bear and is in excruciating pain, with her leg shorted and externally rotated.

An X-Ray is requested by the ED Registrar, and it shows a displaced intracapsular neck of femur fracture. The orthopaedic team is contacted and the orthopaedic senior house officer (SHO) states that he will come to the ED and admit the patient.

Past medical history: Heart failure, mild Alzheimer’s disease, kidney stones

Which of the following is the most appropriate method of analgesia for the patient?

A.Rectal diclofenac

B.1g oral paracetamol

C.Intravenous propofol

D.Spinal anaesthesia

E.Iliofascial nerve block

Answer:Iliofascial nerve block

Explanation:

An iliofascial nerve block is an effective and commonly used method of analgesia for patients with a neck of femur fracture

Important for meLess important

The Fascia iliaca compartment is an area of potential space that lies between the posterior surface of the fascia iliaca and the anterior surface of the iliacus and posts major muscles. Local anaesthetic injected into this potential space affects the femoral, obturator and lateral femoral cutaneous nerves. The aim of this is to reduce the use of opioids analgesics e.g. morphine, which is particularly helpful in elderly patients who are often more susceptible to their side effects. As the vast majority of patients with neck of femur fractures are elderly, an iliofascial nerve block (5) is now the recommended first line method of analgesia in most UK hospitals.

Rectal diclofenac (1) is a very effective form of analgesia for patients with kidney stones. This patient has had kidney stones in the past, but the cause of her current pain is her fractured neck of femur and thus an alternative method of analgesia is preferred.

1G of oral paracetamol (2) is very unlikely to be strong enough to be an adequate method of analgesia for neck of femur fracture patients.

Intravenous propofol (3) is an anaesthetic agent and is not appropriate as an initial method of analgesia in the emergency department.

Spinal anaesthesia (4) is a commonly used method of anaesthesia for patients with neck of femur fractures to have during their surgery, however this is less appropriate than an iliofascial nerve block in the emergency department setting.

Question:

A 61-year-old woman attends general practice with her daughter, who believes her mum has been looking ‘yellow’ recently. On observation, the patient is visibly jaundiced and her abdomen is distended.

On questioning, the patient describes feeling increasingly bloated over the past month and has found ‘small red dots’ appearing on her upper chest, these disappear when pressed on, and subsequently, refill from the centre. She is uncertain if she has lost weight but she does describe her clothes seeming baggier over the past few months.

She has a background of type 2 diabetes, hypertension, and liver cirrhosis secondary to chronic hepatitis B. She admits to missing several follow up appointments with gastroenterology over the past couple of years.

What is the most likely cause of the patient's deterioration?

A.Cholangiocarcinoma

B.Hepatocellular carcinoma

C.Hepatitis D infection

D.Fulminant hepatitis

E.Pancreatic adenocarcinoma

Answer:Hepatocellular carcinoma

Explanation:

Deterioration in patient with hepatitis B - ? hepatocellular carcinoma

Important for meLess important

Hepatocellular carcinoma (HCC) is correct. The patient is presenting with decompensated liver disease. HCC is a known cause of this. Further, hepatitis B is known to be a risk factor for hepatocellular carcinoma, and the patient's history of probable weight loss, anorexia, and missing follow up appointments fits this picture. Patients diagnosed with cirrhosis should have surveillance at six-monthly intervals for HCC consisting of abdominal ultrasound and measuring AFP levels. Management options include surgical resection in early stages, radiofrequency ablation, transarterial chemoembolization multikinase inhibitors such as sorafenib, and liver transplantation.

Hepatitis D infection is incorrect, as although it can cause a decompensated liver failure picture, there are no signs pointing to this in the clinical scenario. This would typically present with features of acute hepatitis such as fever, nausea and vomiting, abdominal pain, jaundice, dark urine and pale stools, but rarely progresses to chronic hepatitis. It is, however, important to note that hepatitis D in someone with pre-existing hepatitis B can cause fulminant hepatitis, as discussed below.

Fulminant hepatitis is a rare syndrome of massive necrosis of the liver parenchyma. This can be due to infection with certain hepatitis viruses e.g. hepatitis D co-infection in someone with hepatitis B. Hepatitis A can also cause fulminant hepatitis, although this is more rare. Other causes include toxic agents or drug-induced injury e.g. with acetaminophen. This presents with rapid deterioration, including coagulopathy due to liver failure, disseminated intravascular coagulation, and hepatorenal syndrome. This may progress to coma and cerebral oedema over a period of several days to weeks.

Pancreatic adenocarcinoma classically presents with painless jaundice. Although, it is common also to present in non-specific ways such as with anorexia, weight loss, epigastric pain, atypical back pain. There may also be loss of exocrine function e.g steatorrhoea and loss of endocrine function e.g diabetes mellitus. Some features of this fit with the clinical presentation, such as jaundice, weight loss and anorexia, however, the other signs of hepatic decompensation do not fit.

Cholangiocarcinoma typically presents with persistent jaundice, biliary colic pain, Sister Mary Joseph nodes (periumbilical lymphadenopathy) and Courvoisier's sign (a palpable mass in the right upper quadrant).

Question:

A 65-year-old man, with diagnosed type 2 diabetes mellitus, undergoes a diabetic foot examination. He is found to have subungual hyperkeratosis of both big toenails, yellow discoloration, and onycholysis. The patient says this has been bothering him for a while. Clippings are taken and sent for microscopy and culture, confirming onychomycosis caused by dermatophytes.

What is the first line management option for this condition?

A.Fluconazole

B.Leave it alone

C.Oral itraconazole

D.Oral terbinafine

E.Topical amorolfine

Answer:Oral terbinafine

Explanation:

Dermatophyte nail infections - use oral terbinafine

Important for meLess important

Oral terbinafine is first line for dermatophyte nail infections.

Fluconazole is not licensed for onychomycosis. It is also less effective than terbinafine.

Leaving it alone is an option if the patient was not bothered by the nail and if he was asymptomatic.

Oral itraconazole is less effective in dermatophyte infections. It is first line if the infection was caused by Candida or other fungal causes.

Topical amorolfine is an antifungal but as it is topical, it is less effective than systemic.

Question:

Each one of the following predisposes to cataract formation, except:

A.Down's syndrome

B.Hypercalcaemia

C.Diabetes mellitus

D.Long-term steroid use

E.Uveitis

Answer:Hypercalcaemia

Explanation:

Hypocalcaemia is a cause of cataracts

Important for meLess important

Hypocalcaemia, rather than hypercalcaemia, predisposes to cataract formation.

Question:

An 81-year-old man presents to the emergency department complaining of visual disturbance and headache. The headache came on suddenly around an hour ago in the occipital region. On examination, his left eye is depressed and laterally deviated, and there is left-sided ptosis. The left pupil is dilated and he has diplopia at rest with pain on all movements of the left eye. His past medical history includes hypertension and polycystic kidney disease.

Given the most likely diagnosis which vessel is affected?

A.Anterior communicating artery

B.Bridging veins

C.Middle meningeal artery

D.Posterior cerebral artery

E.Posterior communicating artery

Answer:Posterior communicating artery

Explanation:

Painful third nerve palsy = posterior communicating artery aneurysm

Important for meLess important

The correct answer is posterior communicating artery. The question describes a painful CN III (oculomotor nerve) palsy with pupil involvement. This is a classic presentation of a posterior communicating artery aneurysm rupture leading to compression of CN III fibres between the midbrain and the orbit. This can occur without rupture of the aneurysm and the patient will present solely with a painful CN III palsy.

The anterior communicating artery would not be correct in this case. These aneurysms can lead to compression of the optic nerve (CN II) leading to decreased visual acuity, often with a scotoma. A rupture would lead to symptoms of intracranial haemorrhage such as headache, facial droop and motor weakness in the upper and lower limbs.

Bridging veins is incorrect. Rupture of the bridging veins leads to the development of a subdural haematoma that is not associated with CN III palsy. This would commonly lead to decreasing GCS and an occipital headache. This is commonly seen in trauma patients, the elderly and alcoholics.

The middle meningeal artery is incorrect in this case. Rupture of the middle meningeal artery would lead to an extradural haemorrhage. This presents with decreasing level of consciousness, as well as pain. It is commonly seen in patients who have suffered trauma to the pterion region.

The posterior cerebral artery would be incorrect in this case. A posterior cerebral artery rupture would lead to symptoms of intracranial haemorrhage. This would more commonly present with symptoms of haemorrhagic stroke such as unilateral limb weakness, facial droop and visual disturbance.

Question:

A 65-year-old male attends the clinic with a 3-month history of lethargy and polyuria. He has a past medical history of biventricular heart failure. He takes no regular medications.

Blood results are as follows:

HbA1c 58 mmol/mol (<42)

The patient is started on metformin which is titrated to the maximal dose.

Repeat blood testing 4 weeks later is as follows:

HbA1c 52 mmol/mol (<42)

What further treatment is indicated?

A.Empagliflozin

B.Gliclazide

C.Liraglutide

D.No further treatment

E.Pioglitazone

Answer:Empagliflozin

Explanation:

SGLT-2 inhibitors should be used in addition to metformin as initial therapy for T2DM if CVD, high-risk of CVD or chronic heart failure

Important for meLess important

Empagliflozin is correct. Empagliflozin is a type of SGLT-2 inhibitor. These agents should be used in addition to metformin as initial therapy for T2DM if the patient has cardiovascular disease (CVD), a high-risk of CVD, or chronic heart failure. The patient in this clinical case has established heart failure and should therefore be started on an SGLT-2 inhibitor.

Gliclazide, Liraglutide, and Pioglitazone are incorrect. These are second-line agents which should be used if the HbA1c has risen to 58 mmol/mol (7.5%) despite the initial measures. Given the large number of drug therapy options, medication choices depend on individual clinical circumstances (comorbidities, contraindications, weight) and patient preference.

No further treatment is incorrect. The patient has established heart failure and thus requires the addition of an SGLT-2 inhibitor.

Question:

A 64-year-old man is brought to the emergency department after being involved in a road traffic accident. He denies any recent illness and takes no regular medications.

On examination, he appears breathless and has a visibly raised jugular venous pressure. Heart sounds are muffled on auscultation and he is hypotensive and tachycardic. A bedside echocardiogram is subsequently performed which confirms the likely diagnosis.

Which of the following ECG findings is most likely to be seen?

A.Delta wave

B.Electrical alternans

C.J wave

D.P mitrale

E.S1Q3T3

Answer:Electrical alternans

Explanation:

Electrical alternans is suggestive of cardiac tamponade

Important for meLess important

The diagnosis here is cardiac tamponade, likely a result of the trauma from the accident. Beck's triad is present - muffled heart sounds, hypotension and raised jugular venous pressure - which suggests tamponade. The diagnosis is confirmed by an echocardiogram. The correct answer here is therefore electrical alternans, which is seen in tamponade. It describes consecutive, normally-conducted QRS complexes that alternate in height, due to the heart swinging back and forth in a fluid-filled pericardium.

Delta waves are associated with Wolff-Parkinson-White (WPW) syndrome - a slurred upstroke to the QRS complex. WPW is a pre-excitation syndrome due to a congenital accessory pathway, leading to episodic tachyarrhythmias.

J waves are positive deflections at the junction between the QRS complex and the ST segment. These are most typically associated with hypothermia, rather than cardiac tamponade.

P mitrale refers to broad, notched P waves, usually in lead II. These are a sign of left atrial enlargement, classically due to mitral stenosis.

S1Q3T3 describes a deep S wave in lead I, a Q wave in lead III and an inverted T wave in lead III. This is associated with pulmonary embolism, although it is not a common finding. More commonly, sinus tachycardia is seen in pulmonary embolism.

Question:

Which one of the following is less common in women who take the combined oral contraceptive pill?

A.Stroke

B.Endometrial cancer

C.Pulmonary embolism

D.Cervical cancer

E.Ischaemic heart disease

Answer:Endometrial cancer

Explanation:

Combined oral contraceptive pill

increased risk of breast and cervical cancer

protective against ovarian and endometrial cancer

Important for meLess important

Question:

A 22-year-old woman presents to the emergency department after an intentional paracetamol overdose. She is alert and oriented but is tearful and regrets this decision. She took 16 tablets 5 hours ago.

Blood tests are performed:

Bilirubin 13 µmol/L (3 - 17)

ALP 66 u/L (30 - 100)

ALT 34 u/L (3 - 40)

γGT 45 u/L (8 - 60)

Albumin 43 g/L (35 - 50)

Paracetamol level 65 mg/L (<6)

pH 7.38 (7.35 - 7.45)

pCO2 5.3 kPa (4.5 - 6.0)

pO2 12 kPa (10 - 14)

What is the most appropriate step in her management?

A.Immediate N-acetylcysteine

B.Immediate activated charcoal

C.Immediate sodium bicarbonate

D.Manage conservatively

E.N-acetylcysteine in 4 hours

Answer:Manage conservatively

Explanation:

Manage conservatively is the correct answer. This patient has presented with an acute, single paracetamol overdose. There is no clinical evidence of liver toxicity (jaundice, right upper quadrant pain, altered mental state) and her blood results are normal. Her overdose is less than 150mg/kg (16 tablets \*500mg /65kgs=123mg/kg), it was taken 5 hours ago, and it was not a staggered overdose. Her paracetamol level has returned to 65mg/L. When this is plotted on the nomogram it is below the treatment line. As this patient has no indications for treatment with N-acetylcysteine, managing conservatively is justified.

Immediate N-acetylcysteine is incorrect. The patient does not meet the criteria to start N-acetylcysteine treatment mainly because her paracetamol level is below the treatment line.

Immediate activated charcoal is incorrect. It may be appropriate if the patient presented within 1 hour of ingestion. This patient presented after 5 hours of her overdose making this option ineffective.

Immediate sodium bicarbonate is incorrect. It does not form part of the routine management of a paracetamol overdose. Sodium bicarbonate may be used for urinary alkalinization in other drug toxicities such as aspirin overdose and if there is evidence of metabolic acidosis. The patient in this scenario is stated to have a normal blood gas result.

N-acetylcysteine in 4 hours is incorrect. The patient does not meet the criteria to start N-acetylcysteine treatment mainly because her paracetamol level is below the treatment line.

Question:

You are covering the neurosurgical unit over night. One of your patients is a man in his seventies, who presented with an intracerebral bleed. CT scan showed there was some extension of the bleed into the ventricles. The patient has remained stable during the day, but one of the nurses bleeps you to inform you that the patient's Glasgow Coma Scale score has dropped. It was previously 15, but now he only localising to pain. What is the most likely cause of his symptoms?

A.Expansion of the haematoma

B.Hyponatraemia

C.Hydrocephalus

D.Vasospasm

E.Hypoglycaemia

Answer:Hydrocephalus

Explanation:

Hydrocephalus is a common complication from intraventricular haemorrhages

Important for meLess important

Hydrocephalus is a very common complication of intraventricular haemorrhages. It usually requires insertion of an external ventricular drain.

Expansion of the haematoma can be worrying if it causes midline shift, but is not as likely as hydrocephalus. Hyponatraemia can occur with many types of cerebral insult but does not present with reduced responsiveness. Vasospasm occurs only in patients with subarachnoid haemorrhages. Hypoglycaemia should always be a worry when a patient has reduced consciousness but is not linked to cerebral bleeds.

Question:

A 62-year-old man is brought by ambulance to the Emergency Department. He is noted to have significant frank haematemesis on a background of recent melaena. He is tachycardic and hypotensive. A major haemorrhage call is put out, and urgent blood is on its way. The patient has a history of alcohol excess and a recent endoscopy demonstrated the presence of oesophageal varices.

What else is indicated in the management of this patient?

A.Gastrectomy

B.Propranolol

C.Tranexamic acid

D.Vasopressin analogue

E.Vasopressin receptor antagonist

Answer:Vasopressin analogue

Explanation:

Terlipressin is used in the management of variceal haemorrhage

Important for meLess important

This patient is presenting with an acute upper gastrointestinal bleed secondary to oesophageal varices. Blood products and fluid resus is urgently required, as well as a likely need for endoscopic management when stable enough. A vasopressin analogue, such as terlipressin, causes splanchnic vasoconstriction, thereby causing a reduction in portal pressure and variceal bleeding. Accordingly, where variceal haemorrhage is suspected, terlipressin is indicated.

Gastrectomy would be indicated in some cases of ruptured ulcer or malignancy, but given that varices are found in the oesophagus, gastrectomy would not be useful here.

Beta-blockers are used to prevent bleeding in patients with known varices, but serve no purpose in the acute bleed.

Tranexamic has historically been used in GI bleeds and is still used in other forms of major haemorrhage such as trauma. However, a recent large scale study (HALT-IT trail) has shown tranexamic use in upper GI haemorrhage to worsen outcomes due to the increased risk of thrombosis. Accordingly, tranexamic acid is no longer indicated in the management of upper GI bleed.

Vasopressin receptor antagonists are not used in GI bleed management. They are most commonly used in the management of the syndrome of inappropriate ADH secretion (SIADH).

Question:

A 21-year-old man presents to his GP with an itchy rash. This has been coming on for the past three months and is characterised by red, scaly patches of skin, most prominent on the back of his elbows and the front of his knees. He has suffered with dandruff for some time. He has no past medical or family history and is not taking any medication.

What finding is most likely to be present in this patient?

A.Aphthous ulceration

B.Aspirin sensitivity and nasal polyps

C.Formation of new skin lesions at sites of skin injury

D.Rash is worsened by sun exposure

E.Significant ulceration after minor skin injury

Answer:Formation of new skin lesions at sites of skin injury

Explanation:

Psoriasis commonly exhibits the Koebner phenomenon

Important for meLess important

This patient is presenting with a history suggestive of chronic plaque psoriasis. The Koebner phenomenon describes the tendency for new skin lesions to form at sites of cutaneous injury. It is not clear why this occurs, but it is observed in chronic plaque psoriasis and vitiligo.

Aphthous ulceration is the formation of ulcers on the oral and genital mucous membranes. It may be idiopathic but is also associated with connective tissue diseases including Behcet's and systemic lupus erythematosus (SLE). It is not a feature associated with psoriasis.

Aspirin sensitivity and nasal polyps are two aspects of Samter's triad, the third being chronic asthma, not psoriasis. Samter's triad is seen in aspirin-exacerbated respiratory disease, where hypersensitivity to aspirin results in asthmatic symptoms.

Photosensitive rash is primarily associated with SLE and other connective tissue diseases including dermatomyositis. It may rarely be seen in psoriasis, but the majority of psoriasis patients actually experience an improvement in symptoms when exposed to UV light, and so this is not the most likely feature.

Significant ulceration after minor skin injury is referred to as pathergy, and is seen primarily in Behcet's disease and pyoderma gangrenosum. These patients may experience ulcer formation following venesection, and the pathergy test can be used in the diagnostic work-up of these conditions. It is not associated with psoriasis.

Question:

A 23-year-old woman presents to her GP wanting advice on contraception. She has started on the progestogen-only pill (POP) today and is going on holiday tomorrow with her partner. Both she and her partner have been recently tested for STIs with both results coming back negative. She would like to know whether she can have unprotected sexual intercourse while away on holiday.

What advice should you give her?

A.No additional precautions required

B.Use condoms for the first 48 hours

C.Use condoms for the first 7 days

D.Use condoms for the first 3 days

E.Use condoms for the first 28 days

Answer:Use condoms for the first 48 hours

Explanation:

The progestogen-only pill takes 48 hours before it becomes effective

Important for meLess important

The progestogen-only pill (POP) takes 48 hours before it becomes effective. Additional precautions, such as condoms, should be used in the first 48 hours.

No additional precautions required would be inappropriate advice as the POP takes 48 hours to become effective.

Additional precautions are not required beyond 48 hours, so long as POP is taken around the same time each day (within a 3-hour window), so using condoms for 3 or 28 days would be unnecessary for preventing pregnancy.

If she was started on the combined oral contraceptive pill (COCP) then she would be advised to use condoms for the first 7 days.

POP gives no protection against STIs and so condoms may be discussed long-term as a barrier method, but as the patient and her partner have recently been screened for STIs with negative results this wouldn't be needed.

Question:

You review a 14-year-old boy who has recently emigrated from Russia. He was involved in a car accident two years ago and underwent an emergency splenectomy.

Following the accident, he takes penicillin V on a daily basis. He is unsure of his vaccination history.

Which organism is he particularly susceptible to, despite taking prophylactic antibiotics?

A.Staphylococcus aureus

B.HIV

C.Haemophilus influenzae

D.Streptococcus pneumoniae

E.Mycobacterium tuberculosis

Answer:Haemophilus influenzae

Explanation:

Penicillin V would protect him against Streptococcus pneumoniae but not Haemophilus influenzae due to the production of beta-lactamases by the organism.

Question:

Which one of the following is the most likely result if a fetus is homozygous for alpha-thalassaemia?

A.Anencephalic fetus

B.Normal pregnancy

C.Prematurity

D.Hydrops fetalis

E.Macrosomia

Answer:Hydrops fetalis

Explanation:

Question:

An 18-year-old woman presents with fever, sore throat, headaches and lethargy. Her symptoms have been worsening over the last 8 days. She has no recent travel history but admits to having unprotected sex with a male student 10 days ago. She reports no recent weight loss or night sweats.

On examination, she has tender cervical lymphadenopathy bilaterally. Her pharynx is inflamed and erythematous. She also has some visible palatal petechiae.

Her temperature is 39.2ºC, blood pressure 120/90 mmHg, heart rate 70 /min, respiratory rate 12 /min and oxygen saturations 99%.

What is the most appropriate management?

A.Admit to hospital for IV fluids and antibiotics

B.Advise rest, plentiful hydration and simple analgesia

C.Prescribe a 10-day course of oral amoxicillin and advise simple analgesia as needed

D.Refer urgently to haematology

E.Test for serum HIV antibodies and arrange for a follow-up review

Answer:Advise rest, plentiful hydration and simple analgesia

Explanation:

Young adult with sore throat, fever, lethargy, cervical lymphadenopathy persisting > 1 week → ?infectious mononucleosis

Important for meLess important

The most likely diagnosis here is infectious mononucleosis, a self-limiting viral condition typically seen in adolescents or young adults and treated with supportive measures.

Admitting to hospital for IV fluids and antibiotics is incorrect. There is no indication for hospitalisation at this stage. A self-limiting viral infection such as infectious mononucleosis is unlikely to be helped by antibiotics. Supportive hospital management would only be necessary in the presence of additional life-threatening features, such as severe dehydration or significant upper airway compromise due to pharyngitis or lymphadenopathy.

Advising rest, plentiful hydration and simple analgesia is the correct answer. A young adult presenting with a sore throat, fever and lethargy following recent intimate social interactions is likely to be infectious mononucleosis, which is self-limiting and treated conservatively.

Prescribing a 10-day course of oral amoxicillin is incorrect. Whilst streptococcal pharyngitis might be clinically indistinguishable from infectious mononucleosis, antibiotics should not routinely be prescribed unless there is a high degree of suspicion for bacterial infection and a throat culture has confirmed group A streptococci (GAS). Even when treating for infectious mononucleosis with concomitant GAS, amoxicillin and other beta-lactam antibiotics should be avoided due to the risk of amoxicillin rash.

Referring urgently to haematology is incorrect. Hodgkin's lymphoma (HL) commonly presents with lymphadenopathy in young adults. However, lymphadenopathy must be unexplained and persist for at least 6 weeks to meet the criteria for urgent referral in the UK. Additionally, HL lymphadenopathy tends to be painless and asymmetrical, and may also present with weight loss and/or night sweats.

Testing for serum HIV antibodies and arranging follow-up is incorrect. In 60-80% of people, seroconversion following early HIV infection can cause an acute illness similar to infectious mononucleosis, involving fever, malaise and lymphadenopathy. However, seroconversion typically occurs 3-12 weeks after the initial infection, not in the first 10 days. There is also no mention that the recent sexual partner was HIV positive nor are there any other HIV risk factors in the history. Additionally, most people take 4-6 weeks to develop HIV antibodies following exposure, meaning it would be inappropriate to test for serum HIV antibodies at such an early stage.

Question:

A 52-year-old female presents with weakness and pins and needles in her right hand. On examination she has wasting of the thenar eminence associated with sensory loss to the palmar aspect of lateral (radial) three fingers. Which nerve is likely to be affected?

A.Common peroneal nerve

B.Median nerve

C.Radial nerve

D.Anterior interosseous nerve

E.Ulnar nerve

Answer:Median nerve

Explanation:

This patient most probably has carpal tunnel syndrome

Question:

A 67-year-old man presents to the emergency department for a fall. His x-ray revealed a fracture of his distal 1/3 right femur. The radiologist also commented on v-shaped osteolytic lesions on his femur. The fracture is managed conservatively due to old age and the stability of the fracture. His blood test results can be seen below.

Test Results Normal values

Haemoglobin 142 g/L (135-180)

Calcium 2.6 mmol/L (2.2 - 2.6)

Phosphate 0.9 mmol/L (0.74 - 1.4)

Alkaline phosphatase 418 u/L (30 - 100)

Parathyroid hormone 52 pg/mL (10-55)

He has a past medical history of chronic kidney disease and diabetes.

What is the most likely diagnosis?

A.Myeloma

B.Osteomalacia

C.Osteoporosis

D.Paget's disease

E.Secondary hyperparathyroidism

Answer:Paget's disease

Explanation:

Paget's disease of the bone generally affects the skull, spine/pelvis, and long bones of the lower extremities

Important for meLess important

Paget's disease is the correct answer. The patient has presented with a distal 2/3 femur fracture with osteolytic lesions seen on this long bone. His ALP is the only value elevated in his blood tests. His calcium is on the high end due to the recent fracture. All these point to a diagnosis of Paget's disease, a condition characterised by dysfunction of osteoclasts and osteoblasts resulting in patchy areas of sclerosis and lysis. His haemoglobin is not reduced, demonstrating non-significant blood loss.

Paget's disease (not to be confused with the condition affecting the areola) commonly affects the bones of the axial skeleton (skull, spine and pelvis) as well as the long bones of the lower extremities. In this scenario, the femur has been affected resulting in a fracture from the fall.

Myeloma is incorrect. This is a cancer of the bone marrow and presents with similar features as this case, with lytic bone lesions. However, there are no signs of anaemia (bone marrow infiltrates reduce the number of red blood cells produced), or hypercalcaemia (due to increased osteoclast activity in the bones). Interestingly, myeloma also affects the kidneys, however, this patient's diagnosis of chronic kidney disease is unlikely to be pointing to myeloma.

Osteomalacia is incorrect. This condition is characterised by changes in the mineral content of the bones, resulting in them becoming brittle. This would likely present as bone pain and a characteristic waddling gait due to proximal myopathy. It would result in a decrease in calcium and phosphate, but also an increase in ALP and PTH.

Osteoporosis is incorrect. In an elderly person presenting with a fracture, it is worth considering the possibility of it being a fragility fracture. However, this patient is a man (not a post-menopausal woman with low oestrogen) and the blood tests are abnormal, which is unlikely to be pointing to a diagnosis of osteoporosis. The gold-standard investigation would involve a DEXA scan of the hip or lumbar spine to confirm the diagnosis.

Secondary hyperparathyroidism is incorrect. This is could be likely due to this patient's history of chronic kidney disease, however, there are no signs of bone changes (e.g. osteitis fibrosa cystic, soft bone calcifications) that would suggest a diagnosis as such. Moreover, the patient's blood tests would show a high PTH and low calcium, which is not the case here.

Question:

You are asked to review a 56-year-old male. He has presented to your practice complaining of a worsening rash and ongoing diarrhoea. The rash is erythematous and bilaterally symmetrical over his upper and lower limbs over sun-exposed areas. He reports that it is very tender and has a burning sensation. As well, he complains of ongoing nausea, vomiting and watery diarrhoea. He also reports that he is finding it harder and harder to concentrate at work and that he is increasingly forgetful. He reports that he normally leads a very healthy lifestyle, having taken up frequent cycling and a strict vegan diet 2 years ago. What is the most likely diagnosis?

A.Pernicious anaemia

B.Beriberi

C.Pellagra

D.Scurvy

E.Wernicke–Korsakoff syndrome

Answer:Pellagra

Explanation:

Pellagra: Dermatitis, diarrhoea, dementia/delusions, leading to death

Important for meLess important

Vitamin deficiencies should be suspected in those with reduced vitamin uptake/absorption, including those with malnutrition, strict diets or bowel disease. In this case, this veganism is the cause of his nutritional deficiency.

Pellagra is a deficiency of vitamin B3, niacin.

Primary pellagra is due to a diet that is poor in niacin, as described in this case. The patient exhibits the characteristic sunburn-like dermatitis rash, diarrhoea and cognitive deficit (dementia/delusion).

Beriberi is due to a thiamine (vitamin B1) deficiency and can be further categorized into wet beriberi (presenting with tachypnoea, dyspnoea and pedal oedema) and dry beriberi (presenting with pain, paresthesia and confusion). Wernicke–Korsakoff syndrome is a subtype of dry beriberi.

Scurvy is due to vitamin C deficiency. It presents with anaemia, bleeding gums and bruising/petechiae of the skin.

Question:

A 50-year-old man presents with excessive thirst and constipation for the past 4 months. He wakes up several times in the night to urinate. He had a fracture of the right index finger two months ago after falling off from his bed. Physical examination shows no abnormalities. Ultrasound of the neck was arranged and showed bilateral parathyroid adenomas.

Laboratory blood investigations show:

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

Female: (115 - 160)

Platelets 190 \* 109/L (150 - 400)

WBC 5.2 \* 109/L (4.0 - 11.0)

Sodium 141 mmol/L (135 – 145)

Potassium 4.5 mmol/L (3.5 – 5.5)

Calcium 3 mmol/L (2.2 – 2.6)

Phosphate 0.4 mmol/L (0.74 – 1.4)

Albumin 30 g/L (35 – 50)

Parathyroid hormone 9 pmol/L (1.6 - 6.9)

25-Hydroxy Vitamin D 55 nmol/L (>50)

Which of the following is the next best step in the definitive management of this patient’s condition?

A.Cinacalcet

B.Total parathyroidectomy

C.Vitamin D supplementation

D.Bisphosphonates

E.Subtotal parathyroidectomy

Answer:Total parathyroidectomy

Explanation:

The definitive management of primary hyperparathyroidism is total parathyroidectomy

Important for meLess important

We have a case of primary hyperparathyroidism. Though the symptoms are non-specific, laboratory findings of high calcium and low phosphate along with the ultrasound showing adenomas make this diagnosis very likely. Also, past medical history shows a fracture after trivial trauma.

Cinacalcet is a calcimimetic which binds the calcium-sensing transmembrane receptor on the parathyroid gland making it more sensitive to serum calcium levels. The advantage of cinacalcet over vitamin D is that if itself does not induce hypercalcaemia. It is used in the management of primary hyperparathyroidism when surgery is not an option or declined.

The definitive management of primary hyperparathyroidism is total parathyroidectomy. Refer for surgery if primary hyperparathyroidism is confirmed and the patient has:

• Polydipsia, polyuria or constipation.

• Osteoporosis, fragility fracture or nephrolithiasis.

• Albumin-adjusted serum calcium is ≥ 2.85 mmol/L.

In any patient with suspected primary hyperparathyroidism, measure vitamin D levels and supplements offered if needed. Vitamin D causes increased absorption of calcium and phosphate from the gut, thereby has to be used with caution. It is be given safely in asymptomatic patients.

Primary hyperparathyroidism causes loss of bone mineral density and osteoporosis. Bisphosphonates inhibit the resorption of bone by osteoclasts and help in improving the osteoporosis. They do not have any direct effect on the parathyroid itself, so their use is limited to those patients who have an increased risk of fracture.

Check for albumin-adjusted serum calcium levels on two separate occasions and serum parathyroid levels. These results will help confirm the diagnosis and determine the next step in the management. After confirmation, the patient will need an assessment of comorbidities, eGFR and creatinine levels, DXA scan and ultrasound of the renal tract. The definitive management of primary hyperparathyroidism is total parathyroidectomy and not subtotal parathyroidectomy.

Question:

A 53-year-old woman presents to her GP with a left-sided breast lump. She first noticed this one month ago and thinks it has increased in size in this time. Her last menstrual period was two years ago. On examination there is a firm, painless nodule in the left breast. She is subsequently urgently referred for triple assessment and is diagnosed with invasive ductal carcinoma.

As part of the diagnostic work-up, molecular subtyping of the cancer is performed, with results shown below:

Oestrogen receptor (ER) positive

Progesterone receptor (PR) positive

HER2 expression negative

Which of the treatments below is this woman most likely to be given?

A.Anastrozole

B.Imatinib

C.Nivolumab

D.Tamoxifen

E.Trastuzumab

Answer:Anastrozole

Explanation:

Tamoxifen is used in ER +ve women who are pre- or perimenopausal, aromatase inhibitors are used in those who are post-menopausal

Important for meLess important

This woman has ER+ve breast cancer and therefore is likely to be treated with targeted therapies. As her last menstrual period was two years ago she is post-menopausal, and so is most likely to be offered an aromatase inhibitor. Oestrogen in post-menopausal women is primarily derived from peripheral aromatisation and so aromatase inhibitors are preferred in this patient group.

Imatinib is a tyrosine kinase inhibitor used as targeted therapy in the management of chronic myeloid leukaemia (CML). It targets the tyrosine kinase formed from the abnormal fusion gene BCR-ABL1 that is seen in a majority of CML patients.

Nivolumab is an immune checkpoint inhibitor of PD-1, primarily used in the management of malignant melanoma and renal cell carcinoma, but not breast cancer. Immune checkpoint inhibitors suppress the ability of the cancer to evade immune destruction.

Tamoxifen is an oestrogen receptor modulator, with both anti-oestrogenic and oestrogenic effects, depending on the tissue. In the breast, it inhibits the oestrogen receptor, and so is useful in the targeted treatment of ER+ve breast cancer. It is most preferred in pre- and peri-menopausal women as oestrogen is primarily produced by the ovaries in this patient group. In post-menopausal women, aromatase inhibitors are preferred due to peripheral aromatisation being the predominant mechanism of oestrogen production.

Trastuzumab is an anti-HER2 monoclonal antibody and is indicated in HER2+ve breast cancer. As this woman has HER2-ve breast cancer there is no indication for giving trastuzumab.

Question:

A 34-yr-old man is brought to the Emergency Department by his wife after becoming increasingly drowsy and confused. He is normally fit and well, only taking methotrexate for his psoriasis.

CT head shows multiple ring enhanced lesions. A diagnosis of toxoplasmosis is suspected.

What is the most appropriate treatment?

A.Chloroquine and sulphadiazine

B.Metronidazole and chloroquine

C.Pyrimethamine

D.Pyrimethamine and metronidazole

E.Pyrimethamine and sulphadiazine

Answer:Pyrimethamine and sulphadiazine

Explanation:

Immunocompromised patients with toxoplasmosis are treated with pyrimethamine plus sulphadiazine

Important for meLess important

Chloroquine is an anti malarial agent so would not be used in toxoplasmosis.

Metronidazole, whilst primarily an antibiotic agent, it has some effect against protozoa. However it would not normally be used in toxoplasmosis.

Pyrimethamine is used to treat toxoplasmosis but in immunocompromised patients it is used in combination with sulphadiazine.

Question:

A 15-year-old boy from Birmingham is brought to surgery by his mother complaining of abdominal pains for the past two days. On examination there is a clinical suspicion of appendicitis and a referral to hospital is planned. On discussing this with the patient he refuses to be admitted as he had planned to go to a party tonight. He is able to understand all information you give him and repeat it, including the serious nature of untreated appendicitis. What is the most appropriate course of action?

A.An independent legal guardian should be appointed

B.As he has demonstrated capacity his wishes should be respected

C.An approved social worker should be contacted

D.A psychiatric opinion is mandatory before further management

E.His mother may overrule his wishes

Answer:His mother may overrule his wishes

Explanation:

In England and Wales a child has the ability to consent to, but not refuse, treatment. Whether a child has demonstrated capacity (as per the Fraser guidelines) is not the relevant issue.

Question:

A 73-year-old woman is admitted to hospital. After being treated with a broad-spectrum antibiotic for sepsis secondary to a lower respiratory tract infection. After a period of improvement, the patient deteriorates and is discovered to have an MRSA bacteraemia. The patient is documented as having previously had an allergic reaction to vancomycin. With which antibiotic would it be appropriate to treat the patient?

A.Clarithromycin

B.Levofloxacin

C.Linezolid

D.Gentamicin

E.Piperacillin-tazobactam

Answer:Linezolid

Explanation:

Linezolid is the second line antibiotic to treat MRSA

Important for meLess important

Linezolid is the second line choice antibiotic for MRSA, after vancomycin or teicoplanin. Clarithromycin is a macrolide antibiotic which has reasonable efficacy against Methicillin-sensitive Staph aureus however many MRSA strains have developed resistance to macrolides. Levofloxacin and gentamicin have predominantly gram-negative cover so Staph aureus has a degree of innate resistance to them both, and they should not generally be used alone because resistance may develop. Piperacillin-tazobactam is a beta-lactam so would not work on MRSA.

Question:

A 32-year-old man with known severe depression is brought in after an attempted suicide. The patient was found at home having taken his mother’s methotrexate tablets with alcohol. It is estimated that he consumed 10 10mg tablets of methotrexate.

Whilst in the department, he has a self-terminating tonic-clonic seizure. Serum blood tests confirm a toxic level of methotrexate with evidence of renal impairment.

What antidote should be considered for this patient?

A.Folinic acid

B.Fomepizole

C.Magnesium

D.Pralidoxime

E.Pyridostigmine

Answer:Folinic acid

Explanation:

Folinic acid is the treatment of choice for methotrexate toxicity

Important for meLess important

This patient has presented with a potentially lethal overdose of the antimetabolite methotrexate. Methotrexate inhibits dihydrofolate reductase (DHFR), preventing the synthesis of purines and pyrimidines required to create DNA and RNA. The toxic effects are primarily on rapidly dividing cells, such as bone marrow and kidneys, but the presentation can vary with toxicity causing multi-organ failure. Folinic acid is the treatment of choice for methotrexate overdose as it allows for purine and pyrimidine synthesis to occur despite the presence of DHRF inhibitors, therefore allowing for some normal DNA replication to take place.

Fomepizole is used in treating methanol and ethylene glycol toxicity, inhibiting the breakdown of these toxins into their active metabolites. Fomepizole has no role in the management of methotrexate toxicity.

Magnesium can be used in the management of several conditions, including eclampsia and torsade pointes, but it has no role in the management of methotrexate toxicity.

Pralidoxime is used in the management of organophosphate poisoning and other anti-cholinesterase nerve agents. Organophosphates bind to part of the active site of the acetylcholinesterase enzyme, thereby blocking its activity. Pralidoxime is an affect antidote as it binds to the other component of the active site and displaces the phosphate. Pralidoxime has no role in the management of methotrexate toxicity.

Pyridostigmine is an acetylcholinesterase (Ach) inhibitor, preventing its breakdown in the synaptic cleft. It is therefore used in the treatment of myasthenia gravis. It has no role in the management of methotrexate overdose.

Question:

A 25-year-old woman presents to the neurology clinic with a 5-month history of olfactory hallucinations. She works in an office and has episodes of suddenly smelling burnt rubber-despite there being none in her presence. These episodes last around 2 minutes before returning to normal and she denies any headaches, visual disturbances, or loss of consciousness during these episodes.

She has a 3-year history of cannabis use disorder and is currently receiving help with stopping and has depression managed with sertraline.

What is the most likely diagnosis?

A.Absence seizure

B.Focal aware seizure

C.Focal impaired awareness seizure

D.Olfactory hallucination due to cannabis use

E.Psychogenic non-epileptic seizure

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 correct. This patient has 2-minute episodes of olfactory hallucinations while retaining consciousness throughout. Out of the options listed, the most likely diagnosis is a focal aware seizure. These are seizures that affect a small (focal) part of one of the brain's lobes and the person remains conscious throughout. It is likely this seizure originates from the temporal lobe, and seizures of this type can lead to hallucinations (auditory, gustatory, olfactory), epigastric rising and in some cases, automatisms.

Absence seizure is incorrect. This is a type of generalised seizure commonly seen in children. It is typically characterised by a sudden onset of impaired consciousness, a blank stare, and possibly automatisms such as eyelid twitching. These do not apply to this patient, as the only symptom she is getting is smelling burnt rubber, and her consciousness is retained.

Focal impaired awareness seizure is incorrect. While this seizure is also focal, suggesting a small part of the brain is affected, this patient's consciousness is retained throughout, making this seizure a focal aware seizure, not impaired awareness.

Olfactory hallucination due to cannabis use is incorrect. While the sudden withdrawal of cannabis may cause psychosis in some individuals with cannabis dependency, it is unlikely that this would manifest without other signs such as agitation, tremors, irritability and depression. This patient is also receiving help with their cannabis-use disorder and there is nothing in the stem to suggest she is not engaging with the help.

Psychogenic non-epileptic seizure is incorrect. While this may be a possibility, psychogenic non-epileptic seizures tend to mimic generalised tonic-clonic seizures and generally last longer. They are also associated with an underlying psychiatric disorder, but it is inappropriate to make this assumption this early with such limited information. If a true epileptic seizure is missed, it may progress to a generalised seizure which can have dangerous consequences.

Question:

Janet is a 35-year-old woman who has presented to her GP with symptoms of dyspepsia a few months ago. She was started on omeprazole 20 mg once daily. Although her symptoms are better with the medication, they recur once she has stopped taking them.

What is the next best step in her treatment?

A.Arrange an endoscopy

B.Check her full blood count (FBC)

C.Double the dose of omeprazole

D.Request a stool test for H. pylori

E.Switch her to lansoprazole

Answer:Request a stool test for H. pylori

Explanation:

When treating dyspepsia, if either a PPI or 'test and treat' approach has failed then the other approach should be tried next

Important for meLess important

According to NICE guidelines, all patients with dyspepsia need to be assessed for red flag symptoms to ensure that they do not need a 2-week wait. Patients should also be offered lifestyle advice such as stopping non-steroidal anti-inflammatory drugs (NSAIDs) and reducing consumption of alcohol and spicy foods. You can then try the patient on a proton pump inhibitor (PPI) for one month or test for H. pylori. If one approach does not work, like in this scenario, the other approach can be tried. Therefore a stool test is a correct answer.

An endoscopy can be considered if there are refractory symptoms despite optimum management in primary care. As the patient has not been tested for H. pylori, this should be done first.

You would perform an FBC if you were concerned that the patient had any risk of malignancy to check for an iron deficiency anaemia. If there were any active symptoms of bleeding (melaena or haematemesis) the patient should be sent to the emergency department.

As per the guidelines, the patient should be tested for H. pylori first prior to changing the medications. 40mg omeprazole may be beneficial in severe cases of gastritis or oesophagitis, however, you would first need to exclude H. pylori.

Lansoprazole and omeprazole have the same mechanism of action, and therefore changing to lansoprazole is unlikely to help the patient

Question:

A 28-year-old pregnant woman attended her booking appointment with the midwife last week. She has no other medical conditions. This is her first pregnancy and she is 10-weeks pregnant.

As part of the booking appointment, the midwife sent a mid-stream urine sample to screen for asymptomatic bacteriuria. The patient reported no urinary symptoms. The culture is positive for Escherichia Coli, sensitive to nitrofurantoin and trimethoprim. This is confirmed on a repeat sample.

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

A.Treat with a 7 day course of nitrofurantoin

B.Treat with a 3 day course of nitrofurantoin

C.Treat with a 7 day course of trimethoprim

D.Treat with a 3 day course of trimethoprim

E.Take no further action as the patient reports no symptoms

Answer:Treat with a 7 day course of nitrofurantoin

Explanation:

Asymptomatic bacteriuria in pregnant women should be immediately treated with antibiotics

Important for meLess important

According to current NICE guidance, all pregnant women should be screened for asymptomatic bacteriuria at the first antenatal (booking) appointment.

In asymptomatic pregnant women with positive cultures, a second culture should be sent to confirm asymptomatic bacteruria as contamination can sometimes occur. If this remains positive, antibiotics should be prescribed immediately.

NICE guidance recommends a 7 day course of treatment taking into account culture and susceptibility results.

Although asymptomatic bacteriuria is relatively common in pregnancy (occurring in 2% to 10% of pregnancies), not treating may lead some mothers to develop acute pyelonephritis and therefore taking no action based on these urine results is inappropriate.

Trimethoprim is generally not advised in the first trimester owing to teratogenic risk (as it is a folate antagonist) so nitrofurantoin would be the better option, but always remember to follow local prescribing guidelines.

Of note, if group B streptococcal bacteriuria is detected on screening it is important that antenatal services are made aware as prophylactic intrapartum antibiotics will be required.

Question:

A woman gives birth via normal vaginal delivery. The midwife notices the baby has an umbilical hernia, a large, protruding tongue, flattened face, and low muscle tone.

Which of the following results is most likely to have been those of this woman's combined screening test at 12-weeks-pregnant with this child?

A.↓ HCG, ↓ PAPP-A, normal nuchal translucency

B.↓ HCG, ↓ PAPP-A, thickened nuchal translucency

C.Normal HCG, normal PAPP-A, normal nuchal translucency

D.↑ HCG, ↑ PAPP-A, thickened nuchal translucency

E.↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Answer:↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Explanation:

Down's syndrome is suggested by ↑ HCG, ↓ PAPP-A, thickened nuchal translucency

Important for meLess important

This child has several signs of Down's syndrome, including hypotonia, umbilical hernia, a flattened face, and a large protruding tongue. Therefore, the combined screening test would have shown parameters consistent with Down's syndrome - ↑ HCG, ↓ PAPP-A, and thickened nuchal translucency. HCG and PAPP-A are both hormones secreted by the placenta during embryo development.

Whilst Down's syndrome does present with decreased PAPP-A, you would expect to see a raised HCG and thickened nuchal translucency. Therefore ↓ HCG, ↓ PAPP-A, thickened nuchal translucency is incorrect.

If PAPP-A was decreased and nuchal translucency increased, but HCG was low this would be more indicative of Patau's syndrome or Edward's syndrome than Down's syndrome.

If all parameters were within normal ranges this would be indicative of a fetus without any chromosomal changes.

Whilst Down's syndrome does present with increased HCG and thickened nuchal translucency, PAPP-A is more likely to be low than raised in Down's syndrome. Therefore, ↑ HCG, ↑ PAPP-A, thickened nuchal translucency is not the correct answer.

Question:

You are a doctor attached to a cardiology clinic. You are about to see a 55-year-old male who has recently presented with progressive exertional dyspnoea, orthopnoea, and pitting ankle oedema.

He went on to have an echocardiogram which showed dilation of all four chambers, thinning of both ventricular walls, tricuspid regurgitation, mitral regurgitation and a reduced ejection fraction.

Which is the following is the most likely cause for this patients condition?

A.Amyloidosis

B.Chronic alcoholism

C.Obesity

D.Smoking

E.Stress

Answer:Chronic alcoholism

Explanation:

Chronic alcohol use may cause dilated cardiomyopathy

Important for meLess important

The history is suggestive of heart failure. The echo findings are suggestive of dilated cardiomyopathy (DCM). In DCM, the walls of the heart thin leading to dilation of the chambers. As the ventricles dilate they pull the AV valve leaflets apart leading to a degree of regurgitation. DCM is a systolic heart failure (where systolic contraction is poor), this leads to a reduced ejection fraction.

DCM is most commonly idiopathic. Other causes include alcoholism, cocaine abuse, various infections, heamochromatosis, sarcoidosis, and pregnancy. There are many more causes these are some of the most common.

Chronic alcoholism is correct. This is a common cause of DCM and is related to thiamine deficiency. It is a less well known, but equally important, reason to manage thiamine deficiency in alcoholics.

Amyloidosis may be seen in patients with multiple myeloma. Protein deposition in the myocardium can cause restrictive cardiomyopathy. It is not associated with DCM.

Obesity itself is not a cause of any global cardiomyopathies. Obesity, of course, increases the risk of cardiovascular disease which may, in turn, lead to ischaemic heart disease (IHD). IHD may cause regional defects (you may see these referred to as regional wall motion abnormalities (RWMA)) potentially leading to heart failure.

As with obesity, smoking itself is not a cause of any global cardiomyopathies. It does however increase your risk of IHD.

Stress is not a cause of DCM. Acute stress is thought to be linked to takotsubo cardiomyopathy. This heart condition is characterised by akinesia (paralysis) at the apex of the heart. This can cause a transient reduction in cardiac output which can in turn cause symptoms like that of a heart attack. Patients may present with chest pain or collapse following a stressful situation e.g., during a funeral. It is colloquially known as heartbreak syndrome.

Question:

A 24-year-old female presents to her GP due to increased frequency of migraine attacks. She is now having around four migraines per month. Which type of medication would it be most appropriate to prescribe to reduce the frequency of migraine attacks?

A.Specific 5-HT2 agonist

B.5-HT1 antagonist

C.Tricyclic antidepressant

D.Beta-blocker

E.Specific 5-HT1 agonist

Answer:Beta-blocker

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

Topiramate is also recommended by NICE as first-line prophylaxis against migraine. However, given that she is female and of child-bearing age a beta-blocker (such as propranolol) is a better choice.

Question:

You receive an emergency bleep to a 52-year-old woman who was admitted 6 hours ago with atrial fibrillation with a fast ventricular response.

On arrival, you find her sweaty, tachypnoeic, and hypotensive. You note bibasal crepitations on auscultation of the chest with irregular tachycardia. Cardiac monitoring shows atrial fibrillation at a rate of 140-170 bpm.

A decision is made to perform emergency DC cardioversion. The on-call anaesthetist is in attendance to support with sedation and airway.

Synchronised DC cardioversion takes place as per the tachyarrhythmia advanced life support algorithm.

Which part of the QRS complex is used for synchronisation?

A.P wave

B.Q wave

C.R wave

D.S wave

E.T wave

Answer:R wave

Explanation:

Electrical cardioversion is synchronised to the R wave

Important for meLess important

This woman is showing signs of shock and heart failure in association with atrial fibrillation with a fast ventricular response. These are two unstable, adverse features of tachyarrhythmias that require emergency, synchronised DC cardioversion.

Prior to a shock being delivered, the 'sync' button should always be pressed to ensure that the shock occurs at the correct time in the QRS complex.

DC cardioversion is synchronised to the R wave to minimise the risk of inducing ventricular fibrillation. Non-synchronised DC cardioversion is defibrillation and should only be used in cardiac arrest scenarios for shockable rhythms (ventricular fibrillation and ventricular tachycardia).

Question:

A 37-year-old female, who is breastfeeding, presented with an episode of mastitis. On examination there is erythema around the nipple. You decide to prescribe flucloxacillin and an analgesic.

Which analgesic is absolutely contraindicated in this patient?

A.Aspirin

B.Hot and cold compresses

C.Dihydrocodeine

D.Ibuprofen

E.Paracetamol

Answer:Aspirin

Explanation:

Aspirin in breastfeeding must be avoided

Important for meLess important

Aspirin is contraindicated for use in breastfeeding, particularly at higher doses used for analgesia. This is due to its association with Reye's syndrome, which can cause liver and brain damage.

Paracetamol is considered to be safe and is the first choice.

It is important to be aware of other analgesia options in pregnant/breastfeeding patients as paracetamol alone will not always be sufficient to manage pain.

There is limited information from studies on the use of non-steroidal anti-inflammatories (NSAIDs) while breastfeeding, however ibuprofen and diclofenac have been used extensively and are generally considered to be safe. There are some concerns over long-term diclofenac use and increased cardiovascular risk.

Opioids can be secreted in breast milk and cause toxicity in the infant. This may manifest as lethargy and respiratory depression. A case of fatal morphine toxicity in an infant where the mother was taking codeine led the MHRA contraindicate its use in breastfeeding women. The mother was a rapid metaboliser of codeine (dihydrocodeine is a different medication to codeine) and as testing for this is impractical, it is recommended to avoid codeine during breastfeeding. As an alternative, weak opioids (dihydrocodeine or tramadol) can be considered.

Hot and cold compresses are a potential non-medical treatment that could be used for analgesia. There is no contraindication to this in breastfeeding women.

Question:

A 37-year-old woman who is 32 weeks pregnant presents with malaise, headaches and vomiting. She is admitted to the obstetrics ward after a routine blood pressure measurement was 190/95mmHg. Examination reveals right upper quadrant abdominal pain and brisk tendon reflexes. The following blood tests are shown:

Hb 85 g/l

WBC 6 \* 109/l

Platelets 89 \* 109/l

Bilirubin 2.8 µmol/l

ALP 215 u/l

ALT 260 u/l

γGT 72 u/l

LDH 846 u/I

A peripheral blood film is also taken which shows polychromasia and schistocytes.

What is the most likely diagnosis?

A.Obstetric cholestasis

B.HELLP syndrome

C.Eclampsia

D.Gestational hypertension

E.Acute viral hepatitis

Answer:HELLP syndrome

Explanation:

HELLP syndrome is a severe form of pre-eclampsia whose features include: Haemolysis (H), elevated liver enzymes (EL), and low platelets (LP). A typical patient might present with malaise, nausea, vomiting, and headache. Hypertension with proteinuria is a common finding, as well as epigastric and/or upper abdominal pain.

The patient in this scenario fulfils the criteria for HELLP syndrome.

Question:

A 58-year-old man with type 2 diabetes presents to his GP for a review. He has stopped taking his modified-release metformin due to diarrhoea and nausea. Over the last few weeks, he has noticed that he feels more thirsty than usual and is getting progressively more tired. His blood pressure is 150/110 mmHg and he has no problems with his vision. Blood tests are performed and his HbA1c is 56 mmol/mol. A QRISK score is calculated which returns as 23%. He does not smoke or drink alcohol.

What is the most appropriate next step in his management?

A.Offer a lower dose of metformin

B.Offer dapagliflozin

C.Offer diet and lifestyle advice only

D.Offer gliclazide

E.Offer pioglitazone

Answer:Offer dapagliflozin

Explanation:

T2DM initial therapy: if metformin is contraindicated + patient has a risk of CVD, established CVD or chronic heart failure → SGLT-2 monotherapy

Important for meLess important

Offer dapagliflozin is correct. NICE updated its guidance on the management of type 2 diabetes in 2022. In the management of type 2 diabetes, if metformin is contraindicated or not tolerated and the patient has either established cardiovascular disease or a high risk of cardiovascular disease, they should be offered SGLT-2 monotherapy. This patient cannot tolerate metformin (as he has attempted a modified-release regimen with no success) and now has an increased risk of cardiovascular disease (as his QRISK score is >10%), meaning he should be offered an SGLT-2 inhibitor, such as dapagliflozin.

Offer diet and lifestyle advice only is incorrect as his HbA1c is very high and diet and lifestyle advice alone is unlikely to reduce it. As well as this, he now has an increased risk of cardiovascular disease (as his QRISK score is >10%), meaning he should be offered an SGLT-2 inhibitor, such as dapagliflozin.

Offer a lower dose of metformin is incorrect. The patient was on modified-release metformin which often has fewer side effects, however, this was unsuccessful and not tolerated. If metformin is contraindicated or not tolerated and the patient has either established cardiovascular disease or a high risk of cardiovascular disease, they should be offered SGLT-2 monotherapy. This patient cannot tolerate metformin and now has an increased risk of cardiovascular disease (as his QRISK score is >10%), meaning he should be offered an SGLT-2 inhibitor, such as dapagliflozin.

Offer gliclazide is incorrect. This is not a first-line option in the management of type 2 diabetes. This patient cannot tolerate metformin and now has an increased risk of cardiovascular disease (as his QRISK score is >10%), so the next option is giving an SGLT-2 inhibitor. If control with an SGLT-2 inhibitor alone is insufficient, gliclazide can then be offered as an add-on treatment.

Offer pioglitazone is incorrect. This is not a first-line option in the management of type 2 diabetes. This patient cannot tolerate metformin and now has an increased risk of cardiovascular disease (as his QRISK score is >10%), so the next option is giving an SGLT-2 inhibitor. If control with an SGLT-2 inhibitor alone is insufficient, pioglitazone can then be offered as an add-on treatment.

Question:

A 78-year-old man presents with unilateral deafness which has been present for the past 3 months. On examination Webers test localises to the contralateral side and a CT scan of his head shows a thickened calvarium with areas of sclerosis and radiolucency. His blood tests show an elevated alkaline phosphatase, normal serum calcium and normal PTH levels. Which of the following is the most likely underlying diagnosis?

A.Multiple myeloma with skull involvement

B.Osteoporosis

C.Paget's disease with skull involvement

D.Lung cancer with skull metastasis

E.Osteopetrosis with skull involvement

Answer:Paget's disease with skull involvement

Explanation:

Paget's disease - old man, bone pain, raised ALP

Important for meLess important

Of the conditions listed Paget's disease is the most likely diagnosis (skull vault expansion and sensorineural hearing loss). Multiple myeloma would typically result in multiple areas of radiolucency and usually raised calcium in this setting. Osteopetrosis is a recognised cause of the features described. However, it is a rare inherited disorder and usually presents in children in young adults. Presentation at this stage with no prior symptoms would be extremely rare and therefore this is not the most likely diagnosis.

Question:

A 48-year-old man presents to his general practitioner with increasing abdominal distension for the past 2 months, despite a reduced appetite. His friends have also pointed out that his skin has begun to appear yellow for the past 3 weeks.

His past medical history includes mild liver disease and dyslipidaemia. Further questioning reveals that the most likely aetiology of his liver disease is heavy alcohol use. The patient reports he separated from his wife 4 months ago and as a result, his alcohol intake increased significantly for 3 months. Prior to this, he consistently consumed 3 units of alcohol each day. However, he has cut down recently as he began to feel increasingly unwell. At its peak, he was consuming up to 25 units of alcohol per day.

His GP decides to take some blood results from him.

Which pattern of blood results is most likely to be seen in this patient?

A.AST 140IU/L, ALT 295IU/L

B.AST 280IU/L, ALT 135IU/L

C.AST 310IU/L, ALT 300IU/L

D.Hb 125g/L, MCV 81fl

E.Total bilirubin 15umol/L

Answer:AST 280IU/L, ALT 135IU/L

Explanation:

The AST/ALT ratio in alcoholic hepatitis is 2:1

Important for meLess important

This patient is suffering from alcoholic hepatitis. The characteristic clinical features of alcoholic hepatitis are jaundice, anorexia, fever, and tender hepatomegaly. Laboratory tests reveal moderately elevated transaminases ie. AST and ALT (typically <300U/mL), with an AST:ALT ratio of 2 or greater - as seen in this patient. Patients may also present with right upper-quadrant/epigastric pain, hepatic encephalopathy, and signs of malnutrition. Patients often stop drinking as they become ill, so it is common for patients to have stopped drinking alcohol several weeks prior to presentation.

An AST of 140IU/L and ALT of 295IU/L gives an AST:ALT ratio of ~1:2. This is not the correct answer as an AST:ALT ratio of 2:1 is typically seen in alcoholic hepatitis.

An AST of 310IU/L and ALT of 300IU/L gives an AST:ALT ratio of ~1:1. This is not the correct answer as a ratio of >2:1 is seen in alcoholic hepatitis. The disproportionate rise in AST relative to ALT is due to alcohol-induced deficiency of the cofactor pyridoxine-phosphate, the active form of vitamin B6, which limits the rise in ALT.

A haemoglobin of 125g/L and mean corpuscular volume (MCV) of 81fl is a borderline microcytic anaemia. If anaemia was to be present in this patient, it would most likely cause an increased MCV, due to defective synthesis of red blood cells as a result of excess alcohol intake and likely concurrent malnutrition.

This patient is presenting with jaundice. Patients can have significantly elevated bilirubin before jaundice is visible to the naked eye, but when present, it is expected that bilirubin will be markedly increased: typically >100umol/L.

Question:

Mary, 69, is a lady who was brought into the emergency department by ambulance following a cardiac arrest. Upon arrival Mary was resuscitated and intubated, although this was particularly difficult in this patient. She was subsequently transferred to the intensive care unit. Mary regained consciousness, the ability to control her own respirations and has subsequently had the intubation tube taken out. Mary has now developed a cough, fever, loss of appetite and is finding herself short of breath. An x-ray reveals areas of consolidation. Which of the following is the likely cause?

A.Basal atelectasis

B.Pulmonary embolism

C.Aspiration pneumonia

D.Upper respiratory tract infection

E.Pneumothorax

Answer:Aspiration pneumonia

Explanation:

The patient in this scenario has developed an aspiration pneumonia.

Aspiration pneumonia is a pneumonia that develops as a result of foreign materials gaining entry to the bronchial tree, usually oral or gastric contents such as food and saliva. Depending on the acidity of the aspirate a chemical pneumonitis can develop, as well as bacterial pathogens adding to the inflammation. Aspiration pneumonia often results from an incompetent swallowing mechanism, such as those that occur in neurological disease or injury such as stroke, multiple sclerosis and intoxication. Iatrogenic causes, such as intubation, can also result in aspiration pneumonia developing. Risk factors for the development of aspiration pneumonia include:

Poor dental hygiene

Swallowing difficulties

Prolonged hospitalization or surgical procedures

Impaired consciousness

Impaired mucociliary clearance

The bacteria often implicated in aspiration pneumonia are aerobic, and often include:

Streptococcus pneumoniae

Staphylococcus aureus

Haemophilus influenzae

Pseudomonas aeruginosa

Other aerobic, and anaerobic, organisms can also result in aspiration pneumonia, but are less common.

Question:

A 31-year-old woman is brought to accident and emergency after a road traffic accident. She complains of severe right-sided pelvic pain that is constant and worse with even slight movement. There is no past medical history and she is normally fit and well.

On examination, her right leg is shortened and externally rotated. She is unable to weight bear. There is no sign of any penetrating injuries or bleeding. A pelvic x-ray reveals an undisplaced intracapsular neck of femur fracture.

What is the most suitable surgical management?

A.External fixation

B.Hemiarthroplasty

C.Internal fixation

D.Intramedullary nail

E.Total hip replacement

Answer:Internal fixation

Explanation:

Internal fixation is the method of choice for patients with good pre-morbid status with an intracapsular NOF fracture

Important for meLess important

Internal fixation is the correct answer. This is a young patient with an undisplaced neck of femur fracture and good pre-morbid status. Therefore internal fixation is the best choice.

External fixation is incorrect. It is used occasionally in patients with intertrochanteric neck of femur fractures who are not suitable for general anaesthesia. However, this patient has a good pre-morbid status.

Hemiarthroplasty is incorrect. It would be the correct treatment for a displaced intracapsular neck of femur fractures or undisplaced neck of femur fractures in patients with more comorbidities. This will include the majority of patients with neck of femur fractures due to osteoporosis and low-energy falls.

Intramedullary nail is incorrect. It would be a treatment for an extracapsular neck of femur fracture. Typically it is used for reverse oblique and subtrochanteric fractures.

Total hip replacement is incorrect. It is another treatment for displaced intracapsular fractures. However, this patient has an undisplaced fracture.

Question:

A 17-year-old girl who is nine weeks pregnant has a surgical termination of pregnancy. She feels well a few hours after the procedure. Which of the following risks is most common following a TOP?

A.Infection

B.Haemorrhage

C.Uterine perforation

D.Cervical trauma

E.Failure

Answer:Infection

Explanation:

Infection can happen in up to 10% of TOP cases. Antibiotics are given to reduce the risk of infection. Signs and symptoms of an infection are unlikely to occur so soon after the procedure.

Retained tissue pregnancy occurs in less than 1% of cases.

Haemorrhage occurs in less than 1% of cases, but is more likely to occur in pregnancies greater than 20 weeks gestation.

Failure occurs in less than 1% of cases.

Injury to the cervix occurs in less than 1% of cases.

Question:

A 59-year-old man was recently treated after presenting to hospital with back pain, weight loss and severe hyperhidrosis. He has been taking the therapy he was given as it was prescribed for 4 weeks, however, has now noticed some blurred vision in his right eye. He remembers being told by his doctor to see a doctor if he developed any problems with his eyes. He also suffers from overactive bladder and has been on treatment for this for 3 months.

What medication is most likely to be responsible for his symptoms?

A.Ethambutol

B.Ethosuximide

C.Isoniazid

D.Oxybutynin

E.Pyridoxine

Answer:Ethambutol

Explanation:

Optic neuritis is common in patients taking ethambutol

Important for meLess important

This patient has previously experienced symptoms of tuberculosis including back pain (possibly suggestive of Pott's disease or spinal tuberculosis), weight loss and severe hyperhidrosis (sweating).

Patients with tuberculosis generally take 4 drugs (rifampicin, isoniazid, pyrazinamide and ethambutol) for 2 months followed by 2 drugs for 4 months (rifampicin and isoniazid). Therefore, they usually take antituberculous medication for a total duration of 6 months.

Ethambutol is the correct answer. This patient has unilateral blurred vision and combined with the likely medication history, this is likely to be ethambutol-induced optic neuritis. Visual acuity testing using a Snellen chart must be checked regularly before and after starting treatment.

Ethosuximide is incorrect. This is an antiepileptic and is not a treatment for tuberculosis. It is also not known to commonly cause blurred vision.

Isoniazid is incorrect. This can cause peripheral neuropathy and so vitamin B6 (pyridoxine) is usually given concurrently.

Oxybutynin is incorrect. Although oxybutynin can cause cholinergic side effects including blurred vision, this is not the most likely cause for this patient who has recently presented with symptoms suggestive of tuberculosis and only noticed blurred vision since. His overactive bladder medication was started three months ago and so it would be expected that any side effects would have become apparent earlier.

Pyridoxine is incorrect. Also known as Vitamin B6, it is usually given to reduce the risk of peripheral neuropathy that can result from isoniazid.

Question:

A 57-year-old man presents to his GP due to pain in his right knee. An x-ray shows osteoarthritis. He has no past medical history of note. What is the most suitable treatment option for the management of his pain?

A.Oral diclofenac with omeprazole

B.Oral glucosamine

C.Oral diclofenac

D.Oral ibuprofen

E.Oral paracetamol

Answer:Oral paracetamol

Explanation:

Osteoarthritis - paracetamol + topical NSAIDs (if knee/hand) first-line

Important for meLess important

Oral NSAIDs should be used second line in osteoarthritis due to their adverse effect profile

Question:

A 17-year-old girl takes an overdose of 12 paracetamol tablets following a break up with her boyfriend. She is discovered by her parents and taken to hospital.

Which factor would most indicate a high risk of completed suicide?

A.An overdose with paracetamol and alcohol

B.History of deliberate self harm

C.An impulsive suicide attempt associated with a difficult life event

D.Making efforts to not be found

E.A text sent to her ex-boyfriend telling him that she was planning to kill herself

Answer:Making efforts to not be found

Explanation:

Efforts to avoid discovery increase the risk of completed suicide.

Important for meLess important

Other factors which increase risk of completed suicide include writing a note, making plans, sorting of affairs and violent methods.

An overdose with paracetamol and alcohol has not been shown to increase the risk of completed suicide. History of deliberate self harm increases the suicide risk but not that of completed suicide. An impulsive attempt is less worrying than a carefully planned suicide attempt.

Question:

A 7-year-old boy is brought to the emergency department by his parents after he was woken up from sleep at night with unilateral jerking movements of the right face and upper limb lasting for 3 minutes. During the episode, he did not lose consciousness. This has only happened once before a couple of nights ago.

A neurological examination is unremarkable, and his temperature is 37.3ºC and his heart rate is 85 bpm. He is drowsy. Another episode occurs and an EEG is performed, which shows centrotemporal spikes.

He has no past medical history.

What is the most likely diagnosis?

A.Benign rolandic epilepsy

B.Febrile convulsions

C.Generalised tonic-clonic epilepsy

D.Infantile spasms

E.Juvenile myoclonic epilepsy

Answer:Benign rolandic epilepsy

Explanation:

Benign rolandic epilepsy is characterised by partial seizures at night

Important for meLess important

Benign rolandic epilepsy is correct. This child has partial seizures occurring at night, characterised by his unilateral facial and upper limb motor symptoms, and no loss of consciousness. He has no lingering neurological symptoms and no medical history that would predispose him to epilepsy (such as cerebral palsy or complications during pregnancy and birth). Partial seizures that occur at night in an otherwise healthy child should raise suspicion of benign rolandic epilepsy, which usually occurs in children between 4-12 years of age. The EEG showing centrotemporal spikes confirms the diagnosis, as the seizures originate from the central sulcus of the brain in a region called the Rolandic fissure, hence the name. The prognosis is usually excellent with most children outgrowing it.

Febrile convulsions is incorrect. This typically presents in children aged 6 months to 5 years following a sudden increase in temperature (e.g. due to a viral infection). The seizures are usually tonic-clonic in nature, which is not the case here.

Generalised tonic-clonic epilepsy is incorrect. This would present with sustained muscle tone and repetitive short muscle contractions with a loss of consciousness, with a post-ictal period following. This child's seizure was partial, as they only had jerking of the right face and upper limb, and did not lose consciousness. Although the child is drowsy, post-ictal states can occur in benign rolandic epilepsy as well.

Infantile spasms is incorrect. These would present within the first 4-6 months of life, characterised by flexion of the head, trunk, and limbs, followed by extension of the arms (known as Salaam attacks). An EEG would show hypsarrhythmia as well. These features do not apply to this patient.

Juvenile myoclonic epilepsy is incorrect. This usually presents in adolescence and is characterised by infrequent generalised myoclonic (characterised by quick, involuntary jerks) seizures in the morning or following sleep deprivation. These features do not apply to this patient, and his seizure is not generalised due to preserved consciousness.

Question:

A 58-year-old man is seen with his husband in the emergency department for an acute-onset weakness of his left arm. His husband also noticed slight slurring of his speech. The patient reported he noticed the features 5 hours ago. His symptoms have resolved completely now.

His past medical history includes hypercholesterolaemia and type 2 diabetes.

Upon examination, power is 5/5 for all upper and lower limb movements. There are no sensory deficits. Cranial nerves examination is normal.

What is the most appropriate next step?

A.Arrange an outpatient carotid artery duplex ultrasound

B.Arrange an urgent CT of the head

C.Arrange thrombectomy

D.Order a diffusion-weighted MRI of the head

E.Thrombolysis with altepase

Answer:Order a diffusion-weighted MRI of the head

Explanation:

MRI brain with diffusion-weighted imaging is the preferred modality in patients with suspected TIA who require brain imaging

Important for meLess important

Order a diffusion-weighted MRI of the head is the correct answer. The patient has presented with unilateral arm weakness and speech disturbance, which have resolved by the time of examination. This is suggestive of a transient ischaemic attack (TIA) as the symptoms have resolved in less than 24 hours. The patient is not on warfarin, a direct anti-coagulant (e.g. rivaroxaban) or has any bleeding disorder, therefore not needing an urgent computed tomography (CT) to exclude haemorrhagic stroke. It is assumed that hypoglycaemia has been checked. The most sensitive imaging is diffuse-weighted magnetic resonance imaging (MRI) as there is likely no infarction but rather ischaemic changes.

Arrange an outpatient carotid artery duplex ultrasound is incorrect. This is a reasonable step, as the patient is a candidate for endarterectomy (young and few co-morbidities). Carotid artery atherosclerosis may result in future embolism and TIAs increase your risk of future stroke (infarction). However, this should be done urgently to determine the follow-up of the patient. Diagnosis of the TIA should be prioritised.

Arrange an urgent CT of the head is incorrect. The patient does not have any risk factors for bleeding (previous bleeding disorder, on anti-coagulants like warfarin or DOACs). CT is not useful in showing changes consistent with a TIA, therefore not used unless an alternative diagnosis is more likely.

Arrange thrombectomy is incorrect. From the history and clinical examination, the patient likely suffered from a TIA as the symptoms have resolved. Thrombectomy is an option for a stroke patient, ideally within 6 hours from the onset of symptoms and after confirmation of occlusion from CT angiography. This is not the case here and would require further investigations to proceed to thrombectomy if this was a stroke patient.

Thrombolysis with altepase is incorrect. This is also part of the management of a stroke patient. In a TIA patient, the symptoms have resolved as the ischaemia was temporary, therefore there is no need to initiate thrombolysis with alteplase. Recommendations are aspirin 300mg on admission (as long as a haemorrhagic episode has been excluded if suspected) and clopidogrel to be used for the long-term risk of stroke.

Question:

A 25-year-old female presents with loin pain, frequency of micturition and dysuria. Urinalysis reveals 3+ nitrites and 2+ leukocytes. On examination blood pressure = 110/75 mmHg, heart rate = 120 bpm and temperature = 38.4ºC. An arterial blood gas (ABG) sample reveals:

pO2 14.8 kPa

pCO2 2.9 kPa

pH 7.32

HCO3- 15 mmol/l

How would you describe the acid-base balance?

A.Mixed metabolic acidosis and respiratory acidosis

B.Metabolic acidosis with no respiratory compensation

C.Metabolic alkalosis with partial respiratory compensation

D.Respiratory acidosis with partial metabolic compensation

E.Metabolic acidosis with partial respiratory compensation

Answer:Metabolic acidosis with partial respiratory compensation

Explanation:

The pH is low confirming acidaemia. The HCO3- is low confirming a metabolic acidosis. The pCO2 is also low confirming partial respiratory compensation.

The patient likely has a metabolic acidosis secondary to sepsis.

Question:

A 27-year-old student presents to the GP with a 24-hour history of explosive diarrhoea and vomiting. On further questioning, he has not noticed any blood in his stool, has no history of foreign travel. He tells you he has been eating rice kept warm in a rice cooker for several days.

What is the likely pathogenic organism underlying his symptoms?

A.Bacillus cereus

B.Campylobacter jejuni

C.Shigella flexneri

D.Norwalk virus

E.Staphylococcus aureus

Answer:Bacillus cereus

Explanation:

Bacillus cereus characteristically occurs after eating rice that has been reheated

Important for meLess important

This young gentleman is likely to have toxigenic food poisoning from Bacillus cereus. Bacillus cereus spores germinate in cooked rice and produce toxin if the cooked product is kept insufficiently chilled. S. aureus will also cause a toxigenic food poisoning but the specific history in this case makes this a less likely underlying organism. Equally Norwalk virus can cause explosive diarrhoea and vomiting but is not associated with any specific food stuffs.

Campylobacter and Shigella cause bacterial food poisoning and would likely have a longer history with bloody diarrhoea.

Question:

A 27-year-old woman who is 34 weeks pregnant presents to the Emergency Department as she feels her 'waters have broken'. She says she noticed a gush of clear fluid from her vagina which has lessened to a trickle and feels some pressure in her pelvis.

What is the most appropriate investigation to perform next?

A.Bimanual examination

B.Cardiotocography

C.Fetal blood sample

D.Speculum examination

E.Transvaginal ultrasound

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

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.

Bimanual exam should be avoided to reduce the risk of introducing infection.

Cardiotocography may be used to investigate foetal wellbeing, but it is not the most appropriate first line investigation.

Foetal blood sampling would not be the most appropriate first line investigation and carries the risk of infection and miscarriage.

Transvaginal ultrasound also may carry a risk of introducing infection, but could be used to supplement a diagnosis of preterm prelabour rupture of membranes (PPROM) by identifying oligohydramnios. Transperineal ultrasound may be preferred in some centres to reduce infection risk. Ultrasound should be performed after speculum examination however.

Question:

At what age would the average child start to say 'mama' and 'dada'?

A.3 months

B.4-5 months

C.6-7 months

D.9-10 months

E.13-14 months

Answer:9-10 months

Explanation:

Question:

A 12-year-old boy presents to the GP with a 3-week history of right-sided hip pain, accompanied by his father. On questioning, he says the pain has gradually worsened over the weeks. On being asked to localise the pain, he points to his right hip and groin area.

On examination, his heart rate is 71bpm and temperature 37.3ºC. He is able to mobilise and weight-bear with moderate discomfort in an antalgic gait out-toeing. On passively moving the hip, there is a loss of internal rotation of the right leg in flexion.

What is the most likely diagnosis?

A.Juvenile idiopathic arthritis

B.Perthe's disease

C.Septic arthritis

D.Slipped capital femoral epiphysis

E.Transient synovitis

Answer:Slipped capital femoral epiphysis

Explanation:

There is often the loss of internal rotation of the leg in flexion in slipped capital femoral epiphysis

Important for meLess important

Slipped capital femoral epiphysis is correct. This commonly presents with either acute or chronic hip pain and is common in boys aged 10-15 years old with a key examination finding being the loss of internal rotation of the leg in flexion. The absence of a temperature makes septic arthritis and transient synovitis less likely. Therefore, the most likely diagnosis is slipped capital femoral epiphysis.

Juvenile idiopathic arthritis is incorrect. This is characterised by joint pain, swelling without a large effusion and morning stiffness that persists longer than 6 weeks with no obvious cause. As this boy has only had pain for 3 weeks, this does not satisfy the diagnostic criteria for juvenile idiopathic arthritis. Furthermore, he has had no imaging for other causes which should be investigated first before considering juvenile idiopathic arthritis.

Perthe’s disease is incorrect. This is caused by idiopathic avascular necrosis of the developing head, commonly occurring in children between 3-10 years old. Whilst the onset is usually insidious over a few weeks presenting with pain and a limp, there is usually no limitation of hip movements. This boy has loss of internal rotation in right leg flexion, implying Perthe's disease is unlikely, as well as the boy is slightly old for this diagnosis.

Septic arthritis is incorrect. As there is no temperature this is very unlikely. On examination, one would expect a red, hot, swollen joint, which is not described here. Furthermore, hip septic arthritis would usually present with an inability to weight bear which is not seen.

Transient synovitis is incorrect. This usually presents 1-2 weeks after an upper respiratory tract infection or gastrointestinal infection. It does not last for 3 weeks and does not affect the movement of the limb. The loss of internal rotation implies a different diagnosis and should be investigated.

Question:

A 62-year-old man presents with lethargy. He has no other systemic symptoms of note. Routine clinical examination reveals a palpable mass in the right lower quadrant of the abdomen, which doesn't move with respiration and is non-pulsatile. He also has pale conjunctivae. What is the most appropriate management?

A.Blood screen including LFTs, U&Es

B.Urgent referral to local urological service

C.Ultrasound abdomen

D.Urgent referral to local colorectal service

E.Routine referral to general surgical clinic

Answer:Urgent referral to local colorectal service

Explanation:

The combination of possible anaemia (lethargy and pallor) combined with an abdominal mass raises the possibility of colorectal cancer.

Question:

What is the most common inherited bleeding disorder?

A.Haemophilia A

B.Activated protein C resistance

C.Haemophilia B

D.Antithrombin III deficiency

E.von Willebrand's disease

Answer:von Willebrand's disease

Explanation:

Question:

A 67-year-old man presents to the Emergency Department with 2 hours of left-sided chest pain. He reports having had similar pains that come and go when he exercises. The pain usually subsides when he rests.

He appears sweaty, agitated and short of breath.

An ECG is performed and shows new T-wave inversion in V3-V6.

His troponin and d-dimer levels are as shown:

Troponin 223 ng/L (<5)

D-Dimer 932 ng/mL (< 400)

What is the most likely diagnosis?

A.Non-ST-elevation myocardial infarction (NSTEMI)

B.Pulmonary embolism (PE)

C.ST-elevation myocardial infarction (STEMI)

D.Sepsis

E.Unstable angina

Answer:Non-ST-elevation myocardial infarction (NSTEMI)

Explanation:

Unstable angina or NSTEMI? Elevation in troponin points towards NSTEMI

Important for meLess important

This man is presenting with symptoms of acute coronary syndrome on a background of angina. His ECG does not show features of ST elevation. His troponin is raised which points towards an NSTEMI, rather than unstable angina. D-dimer is a marker of clot degradation, whilst it is often associated with venous thromboembolism such as pulmonary embolism, it is also raised in myocardial infarction.

Non-ST-elevation myocardial infarction (NSTEMI) is correct. NSTEMI is most consistent with his symptoms, ECG findings and raised troponin. Typical ECG findings for NSTEMI are ST depression or T-wave inversion.

Pulmonary embolism is incorrect. Given the shortness of breath and chest pain, this diagnosis should be considered. A positive d-dimer is also associated with PE. The ECG in pulmonary embolism most often shows sinus tachycardia but may also include right bundle branch block or the classic SI QIII TIII (deep S wave in lead I, Q wave in III, inverted T wave in III). Troponin may also be raised in a pulmonary embolism due to right ventricular ischaemia. In this case, the history of exertion chest pain, with T-wave inversion makes the diagnosis of an NSTEMI much more likely.

ST-elevation myocardial infarction (STEMI) is incorrect. There are no features of ST elevation or left bundle branch block on the ECG.

Sepsis is incorrect. Sepsis occurs in response to infection and usually presents as confusion, tachypnoea, tachycardia or hypotension. The patient may be hyper or hypothermic which can present as diaphoresis (sweating) or rigors (shaking). In this case, the diaphoresis is caused by the NSTEMI as there are no other signs of infection or septic response.

Unstable angina is incorrect. The symptoms and ECG findings could be caused by unstable angina. However, the troponin should not be raised.

Question:

A 37 year old presents to the Emergency Department with a two day history of bilateral facial nerve palsy. She is unable to close her eye or mouth without assistance. The rest of her history is unremarkable with the exception of a recent camping holiday in North East America during which she sustained multiple insect bites. What is the likely causative organism?

A.Poliovirus

B.Treponema pallidum

C.Rabies virus

D.Rickettsia

E.Borrelia burgdorferi

Answer:Borrelia burgdorferi

Explanation:

Lyme disease is caused by the spirochaete Borrelia burgdorferi

Important for meLess important

Borrelia burgdorferi is the causative organism in Lyme disease. Transmission to humans is by bites from the Ixodes tick, common in North America. Symptoms include joint pains, facial nerve palsy, palpitations, headaches and fever.

Question:

A 57-year-old man presents to his general practitioner complaining of poor hearing. He has noticed that he cannot hear the television anymore from his sofa and he is unable to hear his wife from the other room when she speaks.

On examination, both of his ears look grossly normal and an otoscopy is unremarkable. He denies any other symptoms.

His past medical history is complex, comprising multiple conditions, including chronic obstructive pulmonary disease, hypertension, heart failure and diabetes mellitus.

What medication is most likely to have caused his symptoms?

A.Amlodipine

B.Bisoprolol

C.Bumetanide

D.Ramipril

E.Spironolactone

Answer:Bumetanide

Explanation:

Loop diuretics may cause ototoxicity

Important for meLess important

The correct answer is bumetanide. The patient is presenting with signs of ototoxicity, which are marked by hearing loss. The only medication among the options which can cause this presentation is bumetanide. This medication is a loop diuretic which may be used to manage heart failure, even if it has not been shown to reduce mortality. It acts by inhibiting the Na+-K+-Cl- cotransporter (NKCC) in the thick ascending limb of the loop of Henle, reducing the absorption of NaCl.

NKCC are not only present in the kidney, but they are also present in the ear, even if they have less affinity for bumetanide than the kidney ones. At high levels, bumetanide will inhibit the Na+-K+-Cl- cotransporter in the inner ear, decreasing endolymph, and damaging the hair cells.

Amlodipine is a calcium channel blocker used in the management of hypertension. Side effects of this medication include flushing, headache, or ankle swelling. Ototoxicity is not a recognised side effect.

Bisoprolol is a beta-blocker used as first-line management for heart failure. Side effects of this medication include confusion and fatigue. Ototoxicity is not a recognised side effect.

Ramipril is an angiotensin-converting enzyme inhibitor used in the management of hypertension. Side effects of this medication include cough and angioedema. Ototoxicity is not a recognised side effect.

Spironolactone is an aldosterone antagonist used in the management of both heart failure and hypertension. Side effects of this medication include gynaecomastia. Ototoxicity is not a recognised side effect.

Question:

A 65-year-old man presents to his general practitioner with a red, hot, and painful toe. The symptoms came on in < 24 hours. He has a past medical history of hypertension and hypercholesterolemia. He takes amlodipine, ramipril, and atorvastatin.

On examination, the 1st metatarsophalangeal joint on the left foot is red, swollen, and exquisitely tender to touch.

Given the likely diagnosis, what is the most appropriate strategy to prevent future episodes?

A.Commence NSAID

B.Commence allopurinol if 2nd attack within 12 months

C.Commence allopurinol in 2-4 weeks

D.Commence febuxostat in 2-4 weeks

E.Commence prednisolone

Answer:Commence allopurinol in 2-4 weeks

Explanation:

Offer allopurinol to all patients after their first attack of gout

Important for meLess important

Commence allopurinol in 2-4 weeks is correct. The patient presents with a painful swollen 1st MTP. Gout can be clinically diagnosed in this context. This is known as 'podagra'. Hypertension and hypercholesterolemia are associated with the development of gout. Recent guidance now states that allopurinol should be commenced after the 1st attack of gout. Typically, this is delayed by 2-4 weeks. Acute treatment for gout is often co-prescribed i.e. colchicine/allopurinol / NSAID to prevent flares of gout while allopurinol is instituted.

Commence NSAID is incorrect. NSAIDs can be used to treat acute flares of gout and prevent flares while instituting urate-lowering therapy i.e. allopurinol. However, it is allopurinol that treats the underlying cause of gout resulting in long-term lower urate levels and ultimately preventing further flares rather than NSAID treatment.

Commence allopurinol if 2nd attack within 12 months is incorrect. This was the historical advice for when to institute urate-lowering therapy. It is now advised to start after the 1st attack.

Commence febuxostat in 2-4 weeks is incorrect. This is a 2nd line treatment for gout which is used if allopurinol is ineffective or contraindicated. It is a xanthine oxidase inhibitor.

Commence prednisolone is incorrect. This is another treatment that can be used in the treatment of acute gout if NSAIDs or colchicine are unsuitable or ineffective. It is not an appropriate long-term therapy for preventing future episodes of gout due to its myriad side effects with long-term use.

Question:

A 48-year-old woman with a 25 year history of type 1 diabetes presents to the emergency department with severe hypoglycaemia. When checking the patient’s records, you discover that she has presented five times over the last couple of months with the same problem. Other than her diabetes, which has been treated with subcutaneous injections of insulin since the point of diagnosis, there is no other significant past medical history. The patient has recently entered menopause and stopped taking any oral contraception, but denies being sexually active.

What is the most likely explanation for this patient’s impaired hypoglycaemia awareness?

A.Hyperthyroidism

B.Long-term treatment with insulin

C.Increased endogenous production of insulin

D.Loss of P450 inhibition

E.Neuropathy in the autonomous nervous system

Answer:Neuropathy in the autonomous nervous system

Explanation:

Impaired hypoglycaemia awareness occurs due to neuropathy of parts of the autonomous nervous system

Important for meLess important

In a patient with long-standing type 1 diabetes, impaired hypoglycaemia awareness is most commonly due to neuropathy of parts of the autonomous nervous system.

Reference: Cryer, PE. Hypoglycemia-associated autonomic failure in diabetes. Am J Physiol Endocrinol Metab. 2001 Dec;281(6):E1115-21.

Question:

A 68-year-old male attends complaining of breathlessness, this has been ongoing for 6 months along with a productive cough. He currently only takes amlodipine for hypertension and is otherwise fit and well. He also notes that he is an ex-smoker and has a 40 pack year history. Following spirometry, his FEV1/FVC ratio is shown to be 0.68 and his FEV1 is 82% of his predicted FEV1.

Given the likely diagnosis, what is the severity of his disease?

A.Stage 1

B.Stage 2

C.Stage 3

D.Stage 4

E.Stage 5

Answer:Stage 1

Explanation:

The severity of COPD is based upon the FEV1 spirometry reading

Important for meLess important

This man is most likely presenting with COPD (breathlessness, chronic productive cough and an extensive smoking history). His diagnosis of COPD is confirmed by the FEV1/FVC ratio which is < 0.7.

The severity of COPD is categorised by using the patient's FEV1. This man's COPD is categorised as Stage 1 (Mild) as his FEV1 is >80% of what is expected.

Stage 2 (Moderate) is an FEV1 which is 50-79% of the predicted value.

Stage 3 (Severe) is an FEV1 which is 30-49% of the predicted value.

Stage 4 (Very severe) is an FEV1 <30% of the predicted value.

Stage 5 is not an option in COPD staging.

Question:

A 34-year-old woman has been referred to the endocrinology clinic as she has been feeling thirsty all the time and is passing large quantities of pale urine frequently during the day. She also complains of feeling weakness in her arms in addition to occasional palpitations. On examination her blood pressure is 150/100 mmHg. Blood tests are requested which reveal the following results.

Na+ 143 mmol/L (135 - 145)

K+ 3.0 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 4.3 mmol/L (2.0 - 7.0)

Creatinine 105 µmol/L (55 - 120)

Calcium 2.4 mmol/L (2.1 - 2.6)

Fasting glucose 5.3 mmol/L (4 - 7)

What is the most appropriate first-line investigation?

A.Abdominal CT scan

B.Adrenal vein sampling

C.Oral glucose tolerance test

D.Plasma aldosterone/renin ratio

E.Serum parathyroid hormone

Answer:Plasma aldosterone/renin ratio

Explanation:

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

Important for meLess important

This patient has features of hypokalaemia and hypertension. This presentation can be caused by primary hyperaldosteronism. The first-line investigation in suspected primary hyperaldosteronism would the plasma aldosterone/renin ratio, which is raised in primary hyperaldosteronism. Therefore this is the correct answer.

An abdominal CT scan would also be performed after confirmation of primary hyperaldosteronism by plasma aldosterone/renin ratio as part of investigations to localise the source of excess aldosterone.

Adrenal vein sampling would be performed after primary hyperaldosteronism has been confirmed by plasma aldosterone/renin ratio and so is not the correct answer. Adrenal vein sampling is used to determine whether the underlying cause is a solitary aldosterone-producing adenoma (Conn's syndrome) or bilateral adrenal hyperplasia.

In a patient presenting with polyuria and polydipsia, diabetes mellitus needs to be ruled out. As fasting plasma glucose was normal in this case, performing an oral glucose tolerance test is not required.

Parathyroid hormone testing would not be required as a first-line investigation as the patient's calcium is within the normal range.

Question:

A 30-year-old woman presents to the emergency department with an acutely swollen and red left leg, which she reports first noticing around 12-hours ago.

She reports that she has no known medical conditions, is on no medication and has no family history of similar events. A pregnancy test confirms she is not pregnant.

Following examination and a doppler ultrasound scan, she is diagnosed with a deep vein thrombosis (DVT). Routine bloods, including a full blood count and coagulation screen are performed and are significant for thrombocytopenia and a prolonged activated partial thromboplastin time (APTT). These findings prompt an antibody screen, and the patient is subsequently diagnosed with antiphospholipid syndrome.

Based on the above information, what is the most appropriate long-term anticoagulation strategy for this patient?

A.Daily low-dose aspirin

B.Lifelong warfarin

C.3-months of Low-molecular weight heparin (LMWH)

D.6-months of LMWH

E.6-months of warfarin

Answer:Lifelong warfarin

Explanation:

After the first VTE, patients with antiphospholipid syndrome should be on lifelong warfarin

Important for meLess important

A patient diagnosed with antiphospholipid syndrome should be on life-long warfarin following their first venous-thromboembolism (VTE), which may be a DVT or a pulmonary embolism (PE). Anti-phospholipid syndrome is an autoimmune condition predisposing to arterial and venous thrombosis. It presents with CLOTS (clots, livedo reticularis, obstetric complications and thrombocytopenia).

If a patient is diagnosed with antiphospholipid syndrome without ever experiencing a VTE, they should be treated prophylactically with daily low-dose aspirin.

LMWH can be an option for treatment in patients who are pregnant. However, that is not the case in this patient, who requires life-long anticoagulation.

Again, 6-months of anticoagulation is not adequate in this patient, and warfarin is the anticoagulant of choice in a non-pregnant patient with no co-morbidities.

6-months of warfarin is the treatment of choice in an unprovoked DVT. This would likely have been the long-term treatment of choice in this patient if she had not been diagnosed with antiphospholipid syndrome.

Question:

After a complicated revision of a total hip replacement, an 80-year-old lady receives two units of packed red cells. She has a history of heart failure and currently takes bisoprolol, ramipril and furosemide.

Which should be prescribed between the units?

A.Stat dose of furosemide

B.Stat dose of bisoprolol

C.Cetirizine

D.Albumin transfusion

E.Platelet tranfusion

Answer:Stat dose of furosemide

Explanation:

Although packed red cells have a higher haematocrit than blood, transfusion of two units or more can result in fluid overload. Therefore, furosemide should be prescribed to be given between every other unit, if two or more units are given. Paracetamol can be used if there is a non-haemolytic febrile reaction to the transfusion. Cetirizine and hydrocortisone are used in cases of an anaphylactic reaction to the transfusion. Platelets may be given in cases of major haemorrhage, alongside packed red cells.

Question:

A 46-year-old man presents to his GP with tiredness and cold intolerance.

He undergoes blood tests which show the following:

Thyroid stimulating hormone (TSH) 10.6 mU/L (0.5-5.5)

Free thyroxine (T4) 8.5 pmol/L (9.0 - 18)

Anti-thyroid peroxidase antibodies (anti-TPO) 240 IU/ml (<100)

What other clinical feature can be associated with his condition?

A.Exophthalmos

B.Goitre

C.Hypercalcaemia

D.Onycholysis

E.Raised serum cortisol

Answer:Goitre

Explanation:

Hashimoto's thyroiditis = hypothyroidism + goitre + anti-TPO

Important for meLess important

This man has biochemical evidence of hypothyroidism. Given his raised anti-TPO antibodies, the most likely diagnosis is autoimmune thyroiditis, also known as Hashimoto's thyroiditis.

Hashimoto's thyroiditis can result in a goitre, which is typically diffuse and painless.

Exophthalmos is incorrect. This is an ocular manifestation of Graves' disease, which is a common cause of thyrotoxicosis rather than hypothyroidism.

Hypercalcaemia is incorrect. Hashimoto's thyroiditis does not tend to be associated with defects in calcium metabolism, hence serum calcium levels are usually normal unless there is an unrelated pathology.

Onycholysis refers to the separation of the distal nail body from the nail bed. This is more commonly associated with hyperthyroidism (especially Graves' disease). While it is sometimes linked to hypothyroidism as well, this is much less common.

Raised serum cortisol is incorrect. While patients with autoimmune thyroiditis are more susceptible to other autoimmune diseases, this would more likely manifest as low serum cortisol if they had co-existing Addison's disease.

Question:

A 23-year-old woman is being reviewed on the labour ward.

She is 39 weeks gestation. She felt her waters breaking 2 hours ago.

She is G1P0, has no had no complications throughout her pregnancy and has no significant past medical history.

On examination, her Bishop's score is calculated as 10. A vaginal exam confirms that her amniotic sac has ruptured. There is no evidence of contractions yet. Foetal heart rate is reassuring at 140/min.

What is the most appropriate next step in her immediate management?

A.Insertion of a Cook balloon

B.Membrane sweep

C.Oxytocin infusion

D.Reassure and monitor

E.Vaginal prostaglandins

Answer:Reassure and monitor

Explanation:

A Bishop's score of ≥ 8 indicates that the cervix is ripe, or 'favourable' - there is a high chance of spontaneous labour, or response to interventions made to induce labour

Important for meLess important

This woman is presenting without signs of labour commencing yet, but her amniotic sac has ruptured. Her Bishop's score can be used to determine whether or not labour is likely to start spontaneously, with a score of 8 or above suggesting that the cervix is ripe and spontaneous labour is likely. Therefore, in this case, there is no reason to begin interventions to accelerate labour. The most appropriate option is to reassure and monitor since labour is very likely to begin soon.

Insertion of a Cook balloon is incorrect. This is a way to mechanically induce labour and ripen the cervix, by inserting a balloon above the cervix and inflating with saline. The pressure of the balloon helps make the cervix more favourable. However, a Bishop's score of 10 would suggest this is not required.

A membrane sweep is incorrect. This can be done to loosen the amniotic sac from the uterine wall, encouraging membrane rupture. However, in this case, the amniotic sac has already ruptured, and therefore a membrane sweep is not possible.

A oxytocin infusion is incorrect. Oxytocin is used to encourage or strengthen contractions. It is not advised for first-line use in the induction of labour. Equally, there has not been enough time given to see if contractions may start on their own, and so any form of induction is inappropriate.

Vaginal prostaglandins are incorrect. This is the most appropriate method used to induce labour. However, there is a high probability of labour happening spontaneously and therefore induction is not needed at this stage.

Question:

A 17-year-old man presents to the emergency department with a painful knee. This came on 2 days ago. On examination, the patient is stable but has a temperature of 38.8ºC. His left knee was red and showed a limited range of movement. He also complained he has a bad sore throat 2 weeks ago which he was treated with antibiotics. He did not complain of any other symptoms.

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

A.Referral to GUM clinic

B.Synovial fluid sampling

C.Start patient on flucloxacillin

D.Blood cultures

E.Ultrasound scan of left knee

Answer:Synovial fluid sampling

Explanation:

Synovial fluid sampling is the key investigation in patients with suspected septic arthritis

Important for meLess important

The acute red painful joint should be treated as septic arthritis until proven otherwise. NICE guidelines suggest that septic arthritis must be considered in any person who is systemically unwell (with or without a temperature) and an acutely painful, hot, hot swollen joint. Synovial fluid sampling is the key investigation in patients with suspected septic arthritis.

Synovial fluid sampling is mandatory in the management of septic arthritis and therefore is the next best step in managing this patient. According to NICE synovial fluid culture is the only reliable method of evaluating a potentially infected joint.

Referral to the GUM clinic is not appropriate in the urgent management of this patient. This can be considered in a patient with symptoms of reactive arthritis. However, in the acute presentation of painful, red joint; septic arthritis needs to be diagnosed or excluded before considering differentials.

NICE advises that synovial fluid sampling should be done before starting antibiotics. Therefore, even though it is an appropriate option, it is not the next best step in this patients' management.

Blood cultures are an important investigation as the most common cause of septic arthritis is hematogenous spread. However, NICE indicates the use of synovial fluid sampling as the most appropriate investigation in this scenario due to its specificity as blood cultures can be elevated in other conditions.

Imaging the joint is a useful but not mandatory step and therefore is not the appropriate next investigation. Ultrasound is not as sensitive as MRI or CT scan; however, it is an inexpensive non-invasive method that can help show intra- and extra-articular abnormalities not obvious on plain X-ray.

Question:

A 31-year-old woman presents to the emergency department with a severe headache. The pain started five weeks ago and has become persistently worse with associated visual blurring in the past week. She has no past medical history and has been taking only paracetamol and ibuprofen for her pain.

On examination her heart rate is 81 bpm, her blood pressure is 131/84 mmHg, her temperature is 37.2ºC. Eye abduction is limited bilaterally with all other eye movements normal. On fundoscopy, there is obvious bilateral optic disc blurring. Peripheral neurological examination is normal and she has no cognitive deficit.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Aneurysmal subarachnoid haemorrhage

C.Bacterial meningitis

D.Idiopathic intracranial hypertension

E.Intracranial space-occupying lesion

Answer:Idiopathic intracranial hypertension

Explanation:

Idiopathic intracranial hypertension signs - papilloedema, 6th nerve palsy

Important for meLess important

The scenario is of a young woman with a headache and features of raised intracranial pressure. Bilateral optic disc blurring indicates papilloedema and an inability to abduct the eyes indicates bilateral abducens (sixth) nerve palsies. The most fitting diagnosis here from the options would be idiopathic intracranial hypertension (IIH). Papilloedema is a reflection of the raised intracranial pressure (ICP) causing retinal oedema. The bilateral sixth nerve palsies are due to the abducens nerve’s long course intracranially making it more at risk of damage by raised ICP.

Acute angle-closure glaucoma can cause headache and visual blurring but most commonly occurs unilaterally. However, the main symptoms are eye pain and progressive acute visual loss. Redness of the eye and a fixed, oval pupil are also common features of acute angle-closure. This patient’s symptoms are symmetrical making acute angle-closure less likely.

Aneurysmal subarachnoid haemorrhage can cause headache and papilloedema (due to raised ICP) but would present with a sudden onset headache. In this case, the headache has been progressive over five weeks making subarachnoid haemorrhage less likely.

Bacterial meningitis is a central nervous system infection that usually presents with fever, headache and can cause papilloedema and visual change. However, without fever or symptoms of meningeal irritation (i.e. neck stiffness, photophobia and Kernig’s sign) bacterial meningitis is less likely in this situation.

An intracranial space-occupying lesion such as a primary brain tumour or a brain metastasis can cause raised ICP and subsequently papilloedema and sixth nerve palsies. However, due to them displacing and affecting a focal area of the brain, they are almost always associated with a focal neurological deficit or a cognitive deficit before raised ICP develops. As neither is present in this case, a space-occupying lesion is less likely.

Question:

A 24-year-old woman with a background of bipolar disorder is booked in for a medication review. When asked about how she feels, she begins to talk about how many different kinds of feelings there are and how people in the world have some of these feelings, and whether all people have felt all feelings. She eventually tells you, without prompting, she feels really well.

What has the patient demonstrated in this situation?

A.Circumstantiality

B.Derailment

C.Incoherence

D.Pressure of speech

E.Tangentiality

Answer:Circumstantiality

Explanation:

Circumstantiality can be a sign of anxiety disorders or hypomania

Important for meLess important

This patient has demonstrated circumstantiality in her reply to the question given. This is demonstrated by the long-winded nature of her answer.

This is not derailment as the patient has remained on the subject at hand. An example of her derailing may be talking about feelings, then sadness then saying how sad the current pandemic situation is, and then talking about viruses.

The patient is coherent in this situation. An example of her becoming incoherent would be replying with nonsensical statements such as 'feelings like this different colour and rat poison'.

Pressured speech would be evidenced by increased production of spontaneous speech. It is difficult to say this is the case on a text-based question and this would not be the best answer in this situation.

Tangentiality would be the answer if the patient began to talk about feelings, gave the answer and connected this to something else then began talking about this. For example, if she talked about feelings and how she feels sad, then sadness, then how she feels sad about animal testing for cosmetic products.

Question:

A 75-year-old female presents with weakness of her left hand. On examination, wasting of the hypothenar eminence is seen and there is weakness of finger abduction. Thumb adduction is also weak. Where is the lesion most likely to be?

A.C7

B.Median nerve

C.Radial nerve

D.Anterior interosseous nerve

E.Ulnar nerve

Answer:Ulnar nerve

Explanation:

Question:

A 72-year-old man is admitted to the Emergency Department with chest pain. On initial assessment he is noted to be pale, have a heart rate of 40/min and a blood pressure of 90/60 mmHg. An ECG shows that he is in complete heart block. Which one of the coronary arteries is most likely to be affected?

A.Posterior descending

B.Left anterior descending

C.Right coronary

D.Anterior interventricular

E.Left circumflex

Answer:Right coronary

Explanation:

Complete heart block following a MI? - right coronary artery lesion

Important for meLess important

This patient has developed complete heart block secondary to a right coronary artery (RCA) infarction. The atrioventricular node is supplied by the posterior interventricular artery, which in the majority of patients is a branch of the right coronary artery. In the remainder of patients the posterior interventricular artery is supplied by the left circumflex artery.

Question:

A 52-year-old woman presents to the emergency department with sudden onset right-sided groin pain. The groin pain is severe and she has a past medical history of hypertension controlled with amlodipine.

Her pulse is 98 bpm, her blood pressure is 127/85 mmHg, and she is afebrile. On examination, an irreducible lump is present that is superior and medial to the pubic tubercle on the right 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 inguinal hernia

Explanation:

Strangulated inguinal hernias are painful (as opposed to incarcerated hernias)

Important for meLess important

Strangulated inguinal hernia is correct. The presence of a lump that is superior and medial to the pubic tubercle suggests the presence of an inguinal 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, leading to pain). Since this patient has an extremely painful irreducible hernia, this suggests that it is strangulated.

Incarcerated femoral hernia is incorrect. A femoral hernia would be inferior and lateral to the pubic tubercle, which is not the case in this scenario. This patient is also 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 such as pain, it would be incarcerated.

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.

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 femoral hernia is incorrect. Although this hernia is strangulated due to the presence of severe pain, a femoral hernia would be inferior and lateral to the pubic tubercle, which is not the case in this scenario.

Question:

A 25-year-old man is brought into the emergency department by his girlfriend at 11 am. She found him at home surrounded by 5 opened packets of paracetamol, an empty bottle of whisky, and an empty bottle of wine. She left him at home the night before at 8 pm to go to a night shift. He reports having drunk the alcohol over the course of the evening and took 2 packets of paracetamol at midnight and the other 2 a few hours later. It is estimated that he has taken 13g paracetamol. He denies taking any other substances. He has blood tests sent and is immediately started on IV N-acetylcysteine.

What is the most important prognostic marker for this patient?

A.Arterial blood gas lactate

B.Arterial blood gas pH

C.C-reactive protein

D.Liver function tests

E.Serum paracetamol concentration

Answer:Arterial blood gas pH

Explanation:

The arterial pH is the single most important prognostic factor in paracetamol overdose

Important for meLess important

This patient has had a staggered overdose and is being managed appropriately with immediate N-acetylcysteine. This is due to the unreliability of a serum paracetamol concentration in a staggered overdose. As paracetamol overdosing leads to metabolic acidosis, the most indicative factor of a poor outcome requiring liver transplantation is the arterial blood gas pH.

The arterial blood gas lactate will be high due to a combination of the paracetamol levels, ingestion of alcohol, and likely dehydration (if the patient has not drunk any other fluids). As such, the lactate may be high but is not sensitive as a marker for a poor prognostic outcome on its own.

C-reactive protein has no value in the prognosis in paracetamol overdose. This acute inflammatory marker is more useful in infective conditions.

Liver function tests (LFTs) are a useful marker of paracetamol overdose as this drug is metabolised by the liver. Due to the patient having a staggered overdose, however, and the duration of time taken for derangement in LFTs - this is not the most important prognostic factor.

Serum paracetamol concentration is useful if the patient has not had a staggered overdose to ascertain whether N-acetylcysteine should be given. As this patient has had a staggered overdose, there will be a staggered period of time for the serum paracetamol concentrations to peak and, therefore, this investigation is not the most important prognostic factor.

Question:

Which of these tumour markers is most helpful in identifying an individual with hepatocellular carcinoma?

A.Serum AFP

B.Serum CA19-9

C.CEA

D.Beta HCG

E.CA125

Answer:Serum AFP

Explanation:

Hepatocellular carcinoma is commonly diagnosed with imaging and an elevated alpha fetoprotein. Biopsy may seed the tumour and should be avoided. Up to 80% of hepatocellular carcinoma arise in cirrhotic livers.

Question:

A 43-year-old woman who has been experiencing continuous bilateral 'runny nose' with a sensation of facial pressure for 4 months continuously comes to see you for help.

She is otherwise fit and well, with no other medical conditions. She has not been experiencing nosebleeds or bloody discharge, has no changes to her vision or sense of smell and has normal observations and cranial nerve examination.

She has already tried a 14 day course of high-dose nasal corticosteroids and found it didn't help very much.

What is an appropriate treatment option for her condition?

A.Advise her that her symptoms are likely due to a virus and will resolve soon

B.Suggest a trial of nasal irrigation with saline solution

C.Repeat her course of intranasal corticosteroids extending it to 4 months

D.Prescribe her co-amoxiclav for 5 days

E.Prescribe her phenoxymethylpenicillin for 5 days

Answer:Suggest a trial of nasal irrigation with saline solution

Explanation:

Nasal irrigation with saline solution is a treatment option for chronic rhinosinusitis

Important for meLess important

The question describes a case of chronic sinusitis due to the length of her symptoms.

Any treatment options focusing on acute sinusitis, especially suggesting a bacterial cause are incorrect especially as she does not have a temperature. For acute sinusitis with a suspected bacterial cause, phenoxymethylpenicillin is the first line treatment with co-amoxiclav being considered for second-line treatment.

Similarly, while acute sinusitis is often caused by a virus (which should not be treated with antibiotics), this prolonged course does not fit with this.

Both nasal irrigation with saline solution and intranasal corticosteroids are appropriate treatment options for chronic sinusitis.

Saline 'douching' is not thought to have a large evidence base supporting it but NICE CKS states: 'Consider nasal irrigation with saline solution to relieve congestion and nasal discharge.'

The maximum course for intranasal corticosteroids is 3 months making the answer suggesting a 4 month course inappropriate.

Question:

A 42-year-old woman is started on daily hydrocortisone and fludrocortisone following a diagnosis of Addison's disease. A week later she presents to her general practitioner as she is waking up 2 hours earlier than she used to in the morning, and is feeling very tired all day.

She denies any other symptoms.

What is the most likely cause of this?

A.Fatigue related to Addison's disease

B.Nocturnal hypoglycaemia related to Addison's disease

C.Steroid-induced hypomania

D.Steroid-induced insomnia

E.Steroid-related mood disturbance

Answer:Steroid-induced insomnia

Explanation:

Corticosteroids may cause insomnia

Important for meLess important

It can be difficult to determine whether a symptom is due to the underlying disease, or due to the treatment of the disease. In this case, since steroids come with a wide variety of side effects, it is important to think about this being the cause. Steroid-induced psychiatric symptoms are likely to come on 3-5 days after starting a new steroid regime, but can also start at any time when taking them, or even when discontinuing them. This woman is describing early morning awakening, with no other symptoms. This is likely to be steroid-induced insomnia, as insomnia can include waking up and not being able to get back to sleep, as well as not being able to fall asleep in the first place.

Fatigue related to Addison's disease is a common symptom experienced. Sleep cycles can be affected due to the normal diurnal variation in cortisol secretion being lost. However, since she has started treatment, this is unlikely to be the reason for the current insomnia.

Nocturnal hypoglycaemia related to Addison's disease is a cause of sleep disturbance in those with the condition. However, other symptoms would be expected, such as confusion or nausea in the morning, and the fatigue is unlikely to last all day, as it will get better when breakfast is eaten.

Steroid-induced hypomania may be a cause of sleep cycle disturbance in those taking the drug. However, it would not present with individuals feeling fatigued all day long, as they would by contrast have lots of energy.

Steroid-related mood disturbance may cause early morning awakening as a somatic symptom of depression. However, in the absence of other symptoms of depression, this is unlikely.

Question:

A 26-year-old woman presents to GP with troublesome symptoms when eating fruit.

The patient explains that when she eats certain foods such as apples, pears, and kiwis, she immediately develops a tingling sensation around her lips. She remains systemically well and there is no airway compromise.

The patient's past medical history is significant for allergic rhinitis. This tends to flare in the springtime and she has read on the internet that this might be a birch pollen allergy. She takes cetirizine 10mg daily in the spring and summer months. The patient also has depression, for which she takes sertraline 50mg daily.

What is the most likely diagnosis?

A.Airway hyperreactivity syndrome

B.Conversion disorder

C.Non-IgE-mediated food allergy

D.Oral allergy syndrome

E.Panic disorder

Answer:Oral allergy syndrome

Explanation:

Oral allergy syndrome is strongly linked with pollen allergies and presents with seasonal variation

Important for meLess important

This is a typical history for oral allergy syndrome.

Oral allergy syndrome, also called pollen-food syndrome, is a hypersensitivity reaction to raw plant-based foods which usually causes rapid onset of mild symptoms such as itching.

Non-IgE-mediated food allergy symptoms would take much longer to develop following exposure/eating (up to several hours).

Airway hyperreactivity syndrome is a condition involving easily-triggered bronchospasm. It is a common cause of cough following a viral upper respiratory tract infection. This does not fit the scenario described here.

Conversion disorder is a psychiatric condition in which repressed psychological stressors manifest physically. This would more typically present with neurological symptoms such as motor weakness. There are no signs in the history to point to a psychiatric disorder.

Panic disorder can theoretically cause circumoral paraesthesiae due to hyperventilation-induced alkalosis causing hypocalcaemia. However, the history is not suggestive of panic attacks, and the symptoms would not be brought on by specific foods.

Question:

You are the F2 in psychiatry. You are reading the notes of a 28-year-old man who is described as 'preferring to be alone, has never been in a relationship and doesn't want one, and has little or no interest in sexual experiences with another person. Does well at work but places little value on praise or criticism from colleagues. ‘

Which of the following personality disorders is this man most likely to have?

A.Borderline

B.Dependent

C.Antisocial

D.Schizoid

E.Schizotypal

Answer:Schizoid

Explanation:

Schizoid personality disorder: prefer to be alone, don't like relationships, low libido

Important for meLess important

This is a typical history of schizoid personality disorder: prefer to be alone, don't like relationships, and low libido.

Whilst being asexual is recognised as being part of the LGBTQ+ spectrum both the DSM-5 and ICD-10 list lack of interest in sex as being part of the diagnostic criteria:

DSM-5:

Neither desires nor enjoys close relationships, including being part of a family.

Almost always chooses solitary activities.

Has little, if any, interest in having sexual experiences with another person.

Takes pleasure in few, if any, activities.

Lacks close friends or confidants other than first-degree relatives.

Appears indifferent to the praise or criticism of others.

Shows emotional coldness, detachment, or flattened affectivity.

ICD-10:

Few, if any, activities provide pleasure.

Displays emotional coldness, detachment, or flattened affectivity.

Limited capacity to express warm, tender feelings for others as well as anger.

Appears indifferent to either praise or criticism from others.

Little interest in having sexual experiences with another person (taking into account age).

Almost always chooses solitary activities.

Excessive preoccupation with fantasy and introspection.

Neither desires, nor has, any close friends or confiding relationships (or only one).

Marked insensitivity to prevailing social norms and conventions; if these are not followed this is unintentional.

Borderline: emotionally labile in relationships, severe sudden mood swings, rages, self-harming, intensely jealous.

Dependent: Rely on reassurance of others, rely on others to make decisions.

Schizotypal: people generally have unusual beliefs and behaviours.

Question:

An 18-year-old woman visits a family planning clinic to discuss methods of contraception. She has suffered from migraine with aura for the last eighteen months. Which one of the following contraceptive methods is classified by the UK Medical Eligibility Criteria as having no caution or contraindication to use in this condition?

A.Levonorgestrel-releasing intrauterine device

B.Combined oral contraceptive pill

C.Progestogen-only implant

D.Progestogen-only pill

E.Copper intrauterine device

Answer:Copper intrauterine device

Explanation:

Migraine with aura is a complete contraindication to using the combined oral contraceptive pill due to an increased risk of ischaemic stroke (UKMEC class 4). The progestogen-based methods of contraception and the levonorgestrel-releasing intrauterine device are classed as UKMEC 2 in patients who suffer from migraine with aura, indicating that 'the advantages of using the method generally outweigh the theoretical or proven risks'. The only form of contraception that is recommended by the UKMEC as having no contraindication in this condition - i.e. UKMEC 1 - is the copper intrauterine device.

(UKMEC 2009)

Question:

A 60-year-old woman presents with a 2-week history of gradual onset right-sided lateral hip discomfort. There is no history of trauma. She is systemically well and able to fully weight bear. The discomfort is often worst at night and can sometimes wake her from sleep whilst led on her right-hand side.

What is the most likely underlying diagnosis?

A.Greater trochanteric pain syndrome

B.Iliotibial band syndrome

C.Meralgia paresthetica

D.Osteoarthritis

E.Septic arthritis

Answer:Greater trochanteric pain syndrome

Explanation:

Trochanteric bursitis presents with isolated lateral hip/thigh pain with tenderness over the greater trochanter

Important for meLess important

Greater trochanteric pain syndrome (trochanteric bursitis) is most likely, due to the localised tenderness over the lateral aspect of the hip, in a patient who is otherwise systemically well.

Iliotibial band syndrome would tend to affect the knee and would not account for nighttime symptoms and is unusual in this age group.

Meralgia paresthetica is due to compression of the lateral femoral cutaneous nerve and would tend to present with paraesthesia/numbness, not pain.

Osteoarthritis would not usually cause pain on direct pressure over the greater trochanter.

Septic arthritis is unlikely given she is systemically well and fully weight-bearing.

Question:

A 20-month-old child has been admitted following a massive rectal bleed requiring transfusion. The child is settled and does not appear to be in pain.

What is the most likely diagnosis?

A.Meckel's diverticulum

B.Oesophagitis

C.Anal fissure

D.Necrotising enterocolitis

E.Inflammatory bowel disease

Answer:Meckel's diverticulum

Explanation:

Meckels diverticulum is the number one cause of painless massive GI bleeding requiring a transfusion in children between the ages of 1 and 2 years.

Important for meLess important

Meckel's diverticulum is a congenital disorder causing malformation in the small intestine. There is an out-pouching from the small intestine, formed by the remnant of the umbilical cord. Often this disorder is asymptomatic, however, it can release acid, ulcerating the small intestine. Consequently, this condition is the most common cause of gastrointestinal bleeding requiring transfusion in under 2-year-olds, presenting with bright red rectal bleeding, constipation, nausea and vomiting, and abdominal pain.

Oesophagitis, where the oesophagus lining has become inflamed, is most commonly caused by acid reflux and classically presents with heartburn. If very severe it may cause bleeding but this blood would be found in vomit, not as bright red rectal bleeding.

An anal fissure is a common cause of blood per rectum, particularly in those who have been constipated. However, this blood is more commonly painful or itchy, unlike Meckel's diverticulum. Furthermore, this is not commonly a cause for transfusion.

Necrotising enterocolitis, where the intestine becomes inflamed and necrotic, causes gastrointestinal bleeding and makes a child very unwell. However, this condition is far more common in neonates, particularly those born prematurely. It is less likely here than Meckel's diverticulum.

Inflammatory bowel disease can cause rectal bleeding which may rarely be severe and require a blood transfusion. However, it is usually diagnosed in older children, with the most common age of onset being 15 years and above.

Question:

A 60-year-old female presents with pain and erythema of the posterior calf, around the site of a varicose vein. Ultrasound shows no evidence of a DVT. A diagnosis of thrombophlebitis of the distal great saphenous vein is made.

After prescribing NSAIDs as anti-inflammatory analgesia, what other treatment is indicated in this patient?

A.Compression stockings

B.Endovenous laser ablation (EVLA)

C.Great saphenous vein biopsy

D.Superficial vein sclerotherapy

E.Elevation of the feet for at least 8 hours daily

Answer:Compression stockings

Explanation:

Compression stockings are recommended for superficial thrombophlebitis

Important for meLess important

Compression stockings is the correct answer because they reduce the risk of DVT and reduce the thrombophlebitis. This is important because the risk of a DVT increases significantly with ongoing thrombophlebitis.

Endovenous laser ablation (EVLA) is the wrong answer as this is used to burn shut regurgitating varicose veins, and is strongly contraindicated in inflamed, thrombophlebitic veins.

Great saphenous vein biopsy is the incorrect answer because this will permanently shut the vein, and is not necessary for diagnosis of thrombophlebitis.

Superficial vein sclerotherapy is incorrect because this is used to shut small surface veins with a sclerosant material, and is contraindicated in inflamed or thrombophlebitic veins.

Elevation of the feet for at least 8 hours daily is incorrect, and is a distractor. This would be impractical, and may increase the risk of a DVT due to being sedentary for prolonged periods.

Thrombophlebitis is not usually due to infection, an antibiotics are not recommended without evidence of infection. However, if left untreated, thrombophlebitis can proceed to a bacterial infection.

Question:

You are asked to urgently review a 61-year-old female on the cardiology ward due to difficulty in breathing. On examination, she has a raised JVP with bilateral fine crackles to the mid zones. Blood pressure is 100/60 mmHg and the pulse is 140-150 and irregular. An ECG confirms atrial fibrillation. A review of her notes and previous ECGs show no prior history of atrial fibrillation.

What is the most appropriate management?

A.IV amiodarone

B.IV digoxin

C.Urgent synchronised DC cardioversion

D.Oral digoxin

E.IV flecainide

Answer:Urgent synchronised DC cardioversion

Explanation:

Heart failure is one of the adverse signs indicating the need for urgent synchronised DC cardioversion

Question:

A 24-year-old woman presents to her GP surgery with recent symptoms of increased thirst and urination throughout the day. She also reports feeling more tired than normal. Otherwise, she is fit and well with no weight issues. The GP suspects that this may be diabetes and so orders for a blood glucose check. Her blood glucose is 12 mmol/L and urine dip does not have any ketones. Her mother was also diagnosed with diabetes around the same age. The GP thinks this may be a case of maturity onset diabetes of the young.

What is the inheritance pattern for this condition?

A.Autosomal recessive

B.X-linked dominant

C.X-linked recessive

D.Autosomal dominant

E.Mitochondrial mutation

Answer:Autosomal dominant

Explanation:

MODY is inherited in an autosomal dominant fashion so a family history is often present

Important for meLess important

MODY is typically inherited as an autosomal dominant condition. The age, history of polyuria and polydipsia and an immediate relative with the same condition points towards MODY.

Question:

A 16-year-old rugby player is brought into the emergency department following an accident on the field. On examination, the doctor finds tenderness over the anatomical snuffbox. There is also tenderness over the scaphoid tubercle.

Which of the following neurovascular structures is most likely to be compromised?

A.Dorsal carpal arch of the radial artery

B.Dorsal carpal arch of the ulnar artery

C.Radial nerve

D.Ulnar nerve

E.Median nerve

Answer:Dorsal carpal arch of the radial artery

Explanation:

The dorsal carpal branch of the radial artery is the main neurovascular structure that is compromised in a scaphoid fracture

Important for meLess important

The primary blood supply to the scaphoid bone is the dorsal carpal branch of the radial artery (not the ulnar artery). The most concerning neurovascular injury in a scaphoid fracture is avascular necrosis.

The ulnar nerve lies on the opposite side of the hand to the scaphoid bone.

Median and ulnar nerve pathology are not caused by a scaphoid fracture as they are not anatomically related to the scaphoid bone.

Although the radial nerve lies close to the scaphoid bone, it actually runs superficially to the tendons of the snuffbox and is less likely to be compromised than the blood vessels as a result.

Reference:

[1] https://www.orthobullets.com/hand/6034/scaphoid-fracture

Question:

A 15-year-old male presents to his GP with the following skin complaint. He has recently had a sore throat, following which the rash started on his trunk. On examination, you notice the following:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Discoid eczema

B.Guttate psoriasis

C.Pityriasis rosea

D.Pityriasis versicolor

E.Pompholyx eczema

Answer:Guttate psoriasis

Explanation:

Acute onset of tear-drop scaly papules on trunk and limbs → ?guttate psoriasis

Important for meLess important

The patient has guttate psoriasis. This is a subtype of psoriasis which commonly affects teenagers and may follow a streptococcal throat infection. The rash is often widespread on the torso, legs, and arms, often with >100 individual lesions. It can be tear-drop-shaped.

Discoid eczema more commonly presents with oval patches which are much larger than the lesions pictured here.

Pityriasis rosea can also follow an upper respiratory tract infection. However, this more commonly presents with one singular 'herald' patch followed by a rash along skin tension lines. This individual's rash arrived in clusters, so without a herald patch.

Although pityriasis versicolor can cause a scaly rash, it causes small patches of skin to become discoloured or depigmented unlike the rash seen in this patient. The patches tend to develop gradually and may join up to form larger patches over time. It does not commonly follow an upper respiratory tract infection.

Pompholyx eczema is a type of eczema which leads to blisters on hands and the soles of the feet. It is very itchy and does not commonly affect the torso.

Question:

A 45-year-old obese woman with a background of fibroids and menorrhagia is in pre-op assessment prior to having a left total knee replacement. She is due to have surgery in 10 days. She weighs 105kg.

Hb 79 g/l

MCV 68.1 fL

Platelets 196 \* 109/l

WBC 4.9 \* 109/l

Iron low

Ferritin low

TIBC high

Based on the above findings, you offer her a pre-operative blood transfusion 72 hours before the procedure however she declines. She was previously prescribed oral iron by her GP but stopped taking it due to gastrointestinal side effects. What is the most appropriate next intervention to offer her?

A.Ferrous sulphate 200mg BD for 10 days prior to her procedure

B.IV iron (ferric carboxymaltose) 1g, repeated 1 week later

C.IM iron (iron dextran) 2ml (50mg/ml), repeated 1 week later

D.No intervention necessary

E.Tranexamic acid 1g 3 times a day during menstruation

Answer:IV iron (ferric carboxymaltose) 1g, repeated 1 week later

Explanation:

IV iron should be used in patients who are found to have iron deficiency anaemia prior to surgery where oral iron either can't be tolerated or the time interval is too short

Important for meLess important

IV iron should be used in patients who are found to have iron deficiency anaemia prior to surgery where oral iron either can't be tolerated or the time interval is too short. The rate-limiting step with oral iron is the amount which can be absorbed from the GI tract. As such the shortest time interval for oral iron to work is 2-4 weeks, however usually patients are treated for 2-3 months before a decent treatment response is demonstrated in the blood tests. Additionally, in the above scenario, the patient has previously taken oral iron and has been unable to tolerate it due to side effects. As she has declined transfusion, IV iron is the most appropriate and timely way to replace her iron stores, with a view to improving her anaemia prior to surgery. Her anaemia is sufficiently severe that her postoperative morbidity and mortality are increased, and hence it needs to be addressed prior to surgery. Tranexamic acid would help reduce blood loss during menstruation however it would not help raise her haemoglobin.

See the below guidelines:

https://www.nice.org.uk/guidance/ng24/chapter/Recommendations#alternatives-to-blood-transfusion-for-patients-having-surgery-2

Question:

Michael is an 80-year-old man who presents to his GP with a chronic cough, haemoptysis and weight loss.

He previously worked as a dock yard worker and has had significant asbestos exposure.

Given the likely diagnosis, what would be the definitive way to diagnose it?

A.CT scan alone

B.MRI scan

C.Thoracoscopy and histology

D.Bronchoscopy and endobronchial ultrasound-guided transbronchial needle aspiration

E.Bronchoscopy alone

Answer:Thoracoscopy and histology

Explanation:

Diagnosis of a mesothelioma is made on histology, following a thoracoscopy

Important for meLess important

Given the location of mesothelioma, the most appropriate test is a thoracoscopy and histology.

Bronchoscopy and endobronchial ultrasound guided transbronchial needle aspiration are not indicated here as mesothelioma does not spread into the airways. Therefore a bronchoscopy would yield no more information.

CT scan or MRI is a good test to show evidence of a tumour but it is necessary to obtain a sample to be examined histologically to make the correct diagnosis.

Question:

A 21-year-old man was brought in by police to the psychiatry unit due to reports of him behaving strangely in public place. On arrival, the clerking doctor gets a full history which shows evidence of paranoid ideation, thought insertion, withdrawal and broadcasting. He has no previous medical history and he is not on any regular medication. He denies illegal substance use and urine drug screen results were negative. The consultant psychiatrist feels the top differential diagnosis is first episode psychosis and recommends initiation of a daily anti-psychotic. Before prescribing this class of drugs, an initial assessment must include?

A.Urine dip to exclude evidence of an acute infection

B.Intravascular access for fluid resuscitation

C.An ECG to assess for cardiovascular abnormalities including QT-interval prolongation

D.Spirometry to assess his respiratory function

E.A mini mental state examination to briefly assess cognitive function

Answer:An ECG to assess for cardiovascular abnormalities including QT-interval prolongation

Explanation:

Cardiovascular function must be monitored, especially the QT interval due to the risk of sudden death. Antipsychotic medications have a higher probability of causing a prolonged QT interval if administered intravenously or in combination with other antipsychotic drugs with doses exceeding the recommended maximum. An ECG must be included in the patient's initial assessment.

Question:

A 16-year-old male presents with lower back pain of 5 months duration, worse at night, with morning stiffness. He finds the pain improved with exercise. There is no history of trauma. He is given a clinical diagnosis of ankylosing spondylitis. Which of the following findings on examination would be most associated with this diagnosis?

A.Schober's test 4.0cm

B.Development of scoliosis

C.Cervical kyphosis

D.Mitral valve incompetence

E.Osteomyelitis

Answer:Schober's test 4.0cm

Explanation:

Schober's test <5cm is suggestive of ankylosing spondylitis. This is an indication of reduced lumbar flexion.

Schober's test is performed by identifying L5, and then marking 10cm above and 5cm below this point whilst the patient is stood upright. The patient is then asked to bend forwards to touch their toes whilst keeping their knees straight. If the distance between the points does not increase by 5cm (or the distance between the points originally marked is not more than 20cm in total), then it can be said that there is reduced flexion of the lumbar spine, which is a sign of ankylosing spondylitis.

Thoracic kyphosis is an associated spinal deformity, alongside neck hyperextension. This may be referred to by some as the 'question mark' appearance.

Aortic valve incompetence is associated with <3% of cases.

Osteoporosis is associated with ankylosing spondylitis.

Source: NICE (http:cks.nice.org.uk/ankylosing-spondylitis#!diagnosissub)

Question:

A patient is due to be commenced on terbinafine for a fungal nail infection, having not been successful treating with Amorolfine nail lacquer. Which investigation is required before commencing treatment?

A.Electrocardiogram

B.Full blood count

C.Liver function tests

D.Urea and electrolytes

E.Thyroid function tests

Answer:Liver function tests

Explanation:

LFTs need to be checked before commencing a patient on terbinafine (to treat a fungal nail infection)

Important for meLess important

All patients need LFTs checking before commencing terbinafine and 4-6 weeks into treatment. Treatment should be ceased (or not commenced) if there is derangement.

Question:

A 73-year-old gentleman with known bipolar disorder and bowel cancer is brought into the acute medical unit department short of breath and looking pale. Initial bloods show his haemoglobin (Hb) to be 86g/L.

The foundation year one (FY1) clerking the patient discusses the case with his consultant and with haematology who advise that the patient would benefit from a blood transfusion. The patient advises the FY1 that he does not wish to undergo the transfusion and wishes to go home. He is able to understand the information presented by the FY1, he took his time to weigh up his options, and was able to retain the info and communicate his decision to the FY1. His bipolar disorder is well managed and he is attending regular reviews with his psychiatrist.

What is the appropriate action to take?

A.Act in the patient's best interests, detain him under Common Law and arrange the transfusion

B.Detain the patient under the Mental Health Act and arrange the transfusion

C.Discharge the patient and arrange follow up with GP

D.Discuss case with senior, with a view to discharge patient and arrange follow up with GP

E.Discuss case with senior and the patient's next of kin, with a view to discharge patient

Answer:Discuss case with senior, with a view to discharge patient and arrange follow up with GP

Explanation:

The Mental Health Act should not be used to detain patients (including those with mental health conditions) for non-psychiatric issues

Important for meLess important

As this patient has the capacity to make a decision regarding his treatment, steps should be taken to carry out his wishes. Therefore, it would be inappropriate to act in the patient's best interest and use Common Law.

His mental health history has not been deemed to have an impact on his 'physical health' decision making and therefore his plan need not involve the use of the Mental Health Act.

Whilst discharge is an appropriate part of his further management, he should not be discharged by an FY1 and it should not be the sole action taken. It would be important to discuss the case with a senior to ascertain whether any alternative treatments, such as IV fluids should be offered or whether it would be appropriate to discharge the patient. By discussing plans with a senior and arranging a GP follow up, you are also safety-netting the patient.

Discussing plans with the next of kin would be inappropriate without explicit consent from the patient.

Question:

A 55-year-old man is seen in the pre-operative clinic for an elective cholecystectomy. He does not report any recent infective symptoms and is feeling well in himself. There is no past medical history of notes and he has no allergies. He denies a history of smoking or alcohol use.

On examination, his observations are recorded within normal limits. His height is measured at 170cm with a weight of 100kg. On auscultation, chest sounds are clear and heart sounds are normal. He has a capillary refill time of < 2 seconds and no evidence of peripheral oedema.

What is this patient's ASA classification?

A.ASA I

B.ASA II

C.ASA III

D.ASA IV

E.ASA V

Answer:ASA II

Explanation:

Patients with BMI between 30 and 40 are classified as ASA II

Important for meLess important

The ASA scoring system is used to assess a patient's pre-operative morbidity with a lower score indicating a better pre-operative physical condition. Although this patient does not have any significant past medical history and does not smoke or drink alcohol, he has an elevated body mass index (BMI) which contributes to the ASA score. His calculated BMI can be rounded up to 35 kg/m². Anyone with a BMI between 30-40 is classified as ASA II.

ASA I grading is given to a healthy patient who does not smoke or drink with a BMI < 30kg/m².

ASA III grading is given to a patient with severe systemic diseases such as poorly controlled diabetes, hypertension, chronic obstructive pulmonary disease, or morbid obesity (BMI > 40kg/m²).

ASA IV grading refers to a severe systemic disease that is a constant threat to life including ongoing cardiac ischaemia or recent myocardial infarction, sepsis and end-stage renal disease.

ASA V grading refers to a moribund patient who is not expected to survive without the operation including a major trauma patient or significant haemorrhage/bleeding.

Question:

A mother brings her child for a routine general practice (GP) appointment. During the consultation, the mother mentions that the child recently joined his school's trampolining team and has been performing well in the sport. You notice that the child has a short stature, upslanting palpebral fissures, a flat occiput and a single palmar crease.

Which of the following should be the most immediate concern of the GP for this child?

A.Hypothyroidism

B.Dementia

C.Atlantoaxial instability

D.Leukaemia

E.Seizures

Answer:Atlantoaxial instability

Explanation:

Screen for atlanto-axial instability in people with Down syndrome who participate in sports that may carry an increased risk of neck dislocation (e.g. trampolining, gymnastics, boxing, diving, rugby and horse riding)

Important for meLess important

The child has clinical features of Down syndrome. Although hypothyroidism, dementia, leukaemia, and seizures are complications of Down syndrome, nothing in this scenario points towards them being of immediate concern. Atlantoaxial instability is a complication of Down Syndrome that increases the risk of sudden neck dislocation. It is strongly advised people with Down syndrome who participate in sports that may carry an increased risk of neck dislocation (e.g. trampolining, gymnastics, boxing, diving, rugby and horse riding) are screened for atlantoaxial instability.

Question:

A 74-year-old man presents to his GP complaining of pain in his hands. He explains that in the last few months he has started to struggle with tasks such as buttoning up his clothes.

He describes stiffness in his fingers particularly in the morning, which seems worse in his left hand, and has noticed swelling. On examination, he has swelling at the distal interphalangeal joints and a reduced range of motion with no other findings. A set of observations are normal.

He has a history of hypertension, type 2 diabetes, gout, and alcohol excess.

What is the most likely diagnosis?

A.Gout

B.Osteoarthritis

C.Pseudogout

D.Reactive arthritis

E.Rheumatoid arthritis

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. This patient has given a typical presentation of osteoarthritis - asymmetrical stiffness and swelling of the joints with a reduced range of motion. The incidence of osteoarthritis increases with age and may affect any joints, but it is commonly seen in the knees, hips, and small joints of the hand. Swelling at the distal interphalangeal joints (known as Heberden's nodes) is highly suggestive of osteoarthritis versus other forms of inflammatory joint disease.

Gout is incorrect. Acute gout will present as an acutely hot joint with severe pain and redness. Further, gout of the hand is more likely to affect the proximal interphalangeal joint if the hands are affected. As this patient has stiffness that has been ongoing for months and affects multiple joints, gout is unlikely.

Pseudogout is incorrect. This is a crystal arthropathy, like gout, and most commonly affects the knees. Acute pseudogout presents with pain, swelling, stiffness, and warmth of the joints. As this patient's joints are not warm to the touch, and his pain and stiffness have been ongoing for months, pseudogout is unlikely.

Reactive arthritis is incorrect. Reactive arthritis is a form of inflammatory arthritis which usually develops following a sexually transmitted infection - most commonly chlamydia. It usually presents with signs of systemic illness, such as malaise, fatigue, fever, and asymmetrical swelling predominantly affecting the lower limbs. This is an unlikely diagnosis in this patient who has presented with a months-long history of hand stiffness and pain.

Rheumatoid arthritis (RA) is incorrect. This is a form of inflammatory arthritis which often presents with pain, stiffness, and swelling of multiple joints. RA commonly produce a symmetrical picture and can be seen alongside systemic unwell as a result of ongoing inflammation. This patient has asymmetrical swelling and stiffness of the hands, thus pointing more towards osteoarthritis as a cause. Further, RA is unlikely to affect the distal interphalangeal joints.

Question:

A 24 year old man who is normally well presents with a new skin rash. He has no personal or family history of skin conditions but reports he had a viral illness shortly before noticing the first lesion. It started a couple of weeks ago with a lesion he noted on the hip, which is a patch approximately 4cm in diameter, mildly erythematous, with some mild scaling around the edge. He awoke this morning to find multiple smaller similar lesions, mainly on his back. The lesions are asymptomatic. How should this condition be managed?

A.Topical antifungal eg. ketoconazole shampoo

B.Mild topical steroid

C.No treatment required

D.Refer for phototherapy

E.Oral steroids

Answer:No treatment required

Explanation:

This is a typical history of pityriasis rosea, a self-limiting skin condition which most often occurs in teenagers and young people. The cause is unclear but thought to be viral in nature. An initial solitary 'herald patch' is followed some days to weeks later by multiple smaller lesions to the trunk. It is usually asymptomatic, in which case no treatment is required, but may cause a mild itch, in which case topical steroids and oral antihistamines could be considered. Referral to dermatology for phototherapy may be considered in extensive disease (some limited evidence of benefit).

Source: NICE CKS Pityriasis rosea

http://cks.nice.org.uk/pityriasis-rosea#!scenario

Question:

A 32-year-old multiparous female at 9 weeks gestation has presented to her general practitioner to book her pregnancy. Due to her previous history of gestational diabetes, she returns the following day for an oral glucose tolerance test. She has bloods which reveal:

Fasting glucose 7.2 mmol/L

2-hour glucose 8.9 mmol/L

What is the appropriate management plan following these results?

A.Patient to be started on insulin

B.Patient to be started on insulin plus statin

C.Patient to be started on metformin

D.Patient to be started on metformin plus statin

E.Patient to be started on sitagliptin

Answer:Patient to be started on 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 patient has a fasting glucose level ≥ 7.0 mmol/L - she needs to be started on insulin (plus or minus metformin).

If her fasting plasma glucose level was < 7.0 mmol/L, trial of diet and exercise with review in 1-2 weeks would be appropriate.

She must be seen in a joint antenatal and diabetic clinic within a week of diagnosis.

Statins are contraindicated during pregnancy. The British National Formulary (BNF) advises to stop taking statins 3 months before attempting to conceive as there have been incidents of congenital abnormality reported which may be attributed to reduced cholesterol synthesis possibly affecting foetal development.

Sitagliptin is not recommended for use during pregnancy and breast-feeding. It is a DPP-4 inhibitor (this is an enzyme which acts upon incretin).

Question:

A 24-year-old female presents to her GP complaining of a painful red patch on her left leg that she says has been gradually increasing in size over the past week. She mentions that she had accidentally grazed her left shin last week following a fall. The patient has no other co-morbidities. On examination, the GP notes a warm tender area of erythema over the patient's left shin that is poorly demarcated. There is also mild pitting oedema around the area of erythema. Observations reveal that the patient is currently non-febrile with a blood pressure of 115/75 mmHg and a heart rate of 72 bpm.

What should the GP do next?

A.Admit for IV antibiotics

B.Offer oral antibiotics

C.Perform blood cultures

D.Perform blood tests for FBC and CRP

E.Perform skin swabs

Answer:Offer oral antibiotics

Explanation:

The diagnosis of cellulitis is clinical. No further investigations are required in primary care.

Important for meLess important

This patient has cellulitis, however she is not systemically unwell and does not have any underlying co-morbidities. Therefore she can be prescribed oral antibiotics by the GP with no further investigations required.

She would require admission for IV antibiotics if she was either systemically unwell or had underlying co-morbidities such as diabetes or peripheral vascular disease which could impede resolution of the infection. None of these apply, so IV antibiotics are not required.

If she were admitted to hospital, then other investigations such as skin swabs, blood tests for FBC and CRP, and blood cultures may have been appropriate.

Question:

Which one of the following is a risk factor for the development of surfactant deficient lung disease in the newborn?

A.Maternal diabetes mellitus

B.Maternal pregnancy-induced hypertension

C.Vaginal delivery

D.Maternal asthma

E.Female sex

Answer:Maternal diabetes mellitus

Explanation:

Question:

A 26-year-old female is commenced on carbamazepine for focal impaired awareness seizures. She has no previous medical history of note and consumes a moderate amount of alcohol. Three months later she is admitted due to series of seizures and carbamazepine levels are noted to be subtherapeutic. A pill-count reveals the patient is fully compliant. What is the most likely explanation?

A.Auto-inhibition of liver enzymes

B.Prescription of omeprazole

C.Prescription of fluoxetine

D.Auto-induction of liver enzymes

E.Alcohol binge

Answer:Auto-induction of liver enzymes

Explanation:

Carbamazepine is a P450 enzyme inductor

Important for meLess important

Carbamazepine is an inducer of the P450 system. This in turn increases the metabolism of carbamazepine itself - auto-induction

Question:

A 53-year-old caucasian man attends his GP with the results of 7 days of home blood pressure monitoring (HBPM) he was advised to complete following a random clinic blood pressure of 153/91mmHg. His HBPM is 144/87mmHg. Baseline investigations show no evidence of end-organ damage. He is a current smoker and his QRISK3 score is calculated to be 11.3%. He is reluctant to engage with lifestyle and smoking cessation advice.

What is the best treatment option?

A.Atorvastatin

B.Atorvastatin and amlodipine

C.Atorvastatin and ramipril

D.No treatment required

E.Ramipril

Answer:Atorvastatin and ramipril

Explanation:

Newly diagnosed patient with hypertension (< 55 years) - add an ACE inhibitor or an angiotensin receptor blocker

Important for meLess important

Atorvastatin and ramipril is correct. His clinic blood pressure and HBPM results are consistent with stage 1 hypertension. As per NICE guidelines, antihypertensive drug treatment in addition to lifestyle advice should be offered to people aged under 80 years with persistent stage 1 hypertension who have one or more of the following: target organ damage, established cardiovascular disease (CVD), renal disease, diabetes, an estimated 10-year risk of CVD of 10% or more. As he is under the age of 55 and not of black African or African-Caribbean family origin, he should first be offered an ACE inhibitor (in this case ramipril) or an angiotensin-II receptor antagonist (not in the options above). As his QRISK3 score is greater than 10%, he also should be offered atorvastatin for primary cardiovascular disease prevention.

Atorvastatin is incorrect as he should be offered an antihypertensive agent in addition to lipid-lowering therapy.

Atorvastatin and amlodipine is incorrect. He should be offered a statin and an antihypertensive agent, however, this patient should first be offered an ACE and/or angiotensin-II receptor antagonist due to his age and ethnicity. Calcium-channel blockers are the first-line antihypertensive agent for patients who are aged 55 years or over and do not have type 2 diabetes, or of black African or African-Caribbean family origin and do not have type 2 diabetes (of any age).

No treatment required is incorrect. As above, he should be offered an antihypertensive agent and lipid-lowering therapy, especially given his reluctance to engage with lifestyle measures.

Ramipril alone is incorrect. He should be offered a statin in addition to commencing an ACE and/or angiotensin-II receptor antagonist.

Question:

Each one of the following is a recognised complication of blood transfusion, except:

A.Iron overload

B.ARDS

C.Hypokalaemia

D.Clotting abnormalities

E.Febrile reaction

Answer:Hypokalaemia

Explanation:

Question:

A 26 year-old lady presents complaining of persistent itching. She has a history of eczema and uses emollients daily but this has not helped. She is currently 30 weeks pregnant. On examination there is evidence of excoriation on the hands but no obviously visible dermatitis. Which of the following tests is the most important investigation to request?

A.Full blood count

B.Liver function tests

C.Skin biopsy

D.Skin scrapings

E.Dermatoscopy

Answer:Liver function tests

Explanation:

Pruritus is extremely common in pregnancy, affecting as many as a quarter of women. Causes include exacerbations of eczema, polymorphic eruption of pregnancy, or simply just as the result of skin stretching and changes in circulation. Pruritus in the absence of a rash should raise the possibility of obstetric cholestasis. This potentially serious condition increases the risk of complications such as prematurity, passage of meconium, post partum haemorrhage, and possibly stillbirth. Liver function tests and bile acids are therefore the most important tests to check. Iron deficiency anaemia can also cause pruritus so full blood count would also be relevant.

Source: RCOG Obstetric Cholestasis Guidelines

https://www.rcog.org.uk/globalassets/documents/guidelines/gtg43.pdf

Question:

You are an FY2 in the Emergency Department (ED) and review a 34-year-old woman with a 6-week history of right wrist pain. The pain started gradually but has slowly been worsening.

She has no significant past medical history, apart from a visit to this ED 4 months ago. When asked about this attendance, she reports she landed awkwardly on the same wrist falling off her skateboard. You saw in her notes that the x-ray wrist at the time was normal and she was discharged home with safety netting advice and a repeat x-ray booked, although no image is available on the system. When you ask about the follow-up, she reports she had no pain at the time and wanted to avoid an unnecessary trip to the hospital during the COVID-19 pandemic.

What is the most appropriate management plan?

A.Refer to hand clinic for physiotherapy

B.Refer to orthopaedics

C.Discharge home with safety netting advice and patient advice leaflet

D.Calculate FRAX score and decide further management based on her individual risk score

E.Request an outpatient MRI wrist with GP follow up in 1 week

Answer:Refer to orthopaedics

Explanation:

Falling onto an outstretched hand (FOOSH) is the most common mechanism causing a scaphoid fracture

Important for meLess important

This patient has a history of a fall onto an outstretched hand (FOOSH), which is the most common mechanism for a scaphoid fracture. Although the x-ray wrist at the time of the injury was normal, patients with a possible scaphoid fracture should have a repeat x-ray (with dedicated scaphoid views) after 7-10 days. This is because scaphoid fractures can take time to appear radiographically.

Avascular necrosis is a common complication of scaphoid fractures and presents with a history of gradually worsening pain in the affected wrist, sometimes years after the injury. This warrants a referral to orthopaedics for further investigation (MRI) and likely surgical intervention.

A referral to a hand clinic for physiotherapy is not appropriate in this case, as the patient requires further investigation and management. She will likely be referred to hand therapy by the orthopaedics team following treatment.

Discharging home with safety netting advice and a leaflet is good practice, and whilst this patient may be discharged from ED, they should be referred to the orthopaedics team first.

The FRAX score is a risk assessment tool that calculates a patient's 10-year risk of developing an osteoporosis-related fracture. It has no role in the diagnosis or management of avascular necrosis.

Although MRI is the imaging modality of choice in avascular necrosis of the scaphoid, requesting an outpatient MRI with GP follow up in 1 week is a less appropriate pathway than referring directly to orthopaedics, as the patient would benefit from specialist input without delay. The orthopaedics team, rather than the GP, are best placed to arrange and follow up the scan and decide on whether surgical intervention is indicated.

Question:

A 64-year-old man with a history of depression and lumbar spinal stenosis presents with a swollen and painful left calf. He is seen in the DVT clinic and found to have a raised D-dimer. He therefore undergoes a Doppler scan which shows a proximal deep vein thrombosis. The patient reports being active and otherwise well. He has not recently had any surgery or been immobile for any prolonged period. He is started on a direct oral anticoagulant.

What is the most appropriate duration of treatment?

A.6 week

B.3 months

C.6 months

D.12 months

E.Lifelong

Answer:6 months

Explanation:

Venous thromoboembolism - length of warfarin treatment

provoked (e.g. recent surgery): 3 months

unprovoked: 6 months

Important for meLess important

Question:

A 45-year-old woman presents to the surgical assessment unit with increasing abdominal pain after going out for a meal with friends.

She says the pain is in the upper right-hand side of her abdomen. She has had this for the last few months but it has never been so bad before. It is often worse after she eats dinner, particularly with fast food. The pain sometimes radiates to her right shoulder.

On examination, you observe increased body habitus. Her abdomen is soft and non-tender and bowel sounds are present. She is currently afebrile.

What is the definitive management of this condition?

A.Elective ERCP

B.Elective laparoscopic cholecystectomy

C.MRCP

D.Percutaneous cholecystostomy

E.Urgent ERCP

Answer:Elective laparoscopic cholecystectomy

Explanation:

An elective laparoscopic cholecystectomy is the treatment of choice for biliary colic

Important for meLess important

This is a classical presentation of biliary colic. The pain becomes worse after eating but she is generally well, afebrile and her abdomen is soft. In cholecystitis, you would expect evidence of infection (e.g. fever, tachycardia). You might also be able to palpate the gallbladder, and she may be Murphy's sign positive.

In terms of management, an elective cholecystectomy is appropriate in patients who are clinically well and suitable for surgery. This is therefore the correct answer, as we have been given no reason to suggest she would not be suitable.

Cholecystostomy is performed in cases of a 'hot gallbladder' to drain pus from a gathered infection in those cases where acute cholecystectomy may not be suitable.

ERCP is a procedure that can be used to remove obstructing gallstones from the common bile duct or pancreatic duct, so has no role in simple biliary colic. Signs of an obstructing stone would include jaundice, of which there is no mention here. An obstructing gallstone also puts patients at risk of ascending cholangitis.

MRCP is used for diagnostic purposes, not treatment.

Question:

A 71-year-old man presents with several days of abdominal pain and watery diarrhoea. He has recently completed a course of ciprofloxacin for a chest infection.

On examination, he has a temperature of 38.2ºC and has mild abdominal tenderness. Stool culture is performed and confirms infection with Clostridium difficile. He is initially commenced on oral vancomycin. After an extended course, symptoms persist and so a course of oral fidaxomicin is given. The infection still persists after this.

What should be given next?

A.Intravenous vancomycin with oral metronidazole

B.Oral fidaxomicin with intravenous metronidazole

C.Oral fidaxomicin with oral metronidazole

D.Oral vancomycin with intravenous metronidazole

E.Oral vancomycin with oral metronidazole

Answer:Oral vancomycin with intravenous metronidazole

Explanation:

If a first episode of C. difficile doesn't respond to either vancomycin or fidaxomicin then oral vancomycin +/- IV metronidazole should be tried

Important for meLess important

The correct answer is oral vancomycin with intravenous metronidazole. Current guidelines state that, if a first episode of C. difficile infection does not respond to either vancomycin or fidaxomicin, oral vancomycin should be given with intravenous metronidazole. The dose of oral vancomycin given alongside intravenous metronidazole is often significantly higher than the dose of oral vancomycin when used alone.

Intravenous vancomycin with oral metronidazole is incorrect. Vancomycin has very poor bioavailability orally; thus, it is usually administered intravenously. However, for the treatment of C. difficile, the bioavailability is irrelevant as its action is taking place in the gastrointestinal tract. Oral metronidazole is also incorrect.

Oral fidaxomicin with intravenous metronidazole is another incorrect combination. Oral fidaxomicin may be used solely as a first-line agent. It is not given in combination with metronidazole.

Similarly, oral fidaxomicin with oral metronidazole is also therefore incorrect.

Oral vancomycin with oral metronidazole would not be appropriate. The metronidazole should be given intravenously alongside the vancomycin, not orally.

Question:

A 29-year-old fireman presents following a recent traumatic incident where a child died in a house fire. He describes recurrent nightmares and flashbacks which have been present for the past 3 months. A diagnosis of post-traumatic stress disorder is suspected. What is the most appropriate first-line treatment?

A.Arrange a CT head to exclude an organic cause

B.Cognitive behavioural therapy or eye movement desensitisation and reprocessing therapy

C.Cognitive behavioural therapy or graded exposure therapy

D.Cognitive behavioural therapy or psychodynamic therapy

E.Watchful waiting

Answer:Cognitive behavioural therapy or eye movement desensitisation and reprocessing therapy

Explanation:

PTSD management - trauma-focused cognitive behavioural therapy or EMDR

Important for meLess important

Question:

A 34-year-old man who is HIV positive is starting treatment for Burkitt's lymphoma. His chemotherapy regime includes cyclophosphamide, vincristine, methotrexate and prednisolone. Around 24 hours after starting chemotherapy he becomes confused and complains of muscle cramps in his legs. Which one of the following is most likely to have occurred?

A.Prednisolone-induced psychosis

B.Hypercalcaemia

C.Methotrexate pneumonitis leading to hypoxia

D.Haemorrhagic cystitis leading to acute renal failure

E.Tumour lysis syndrome

Answer:Tumour lysis syndrome

Explanation:

Burkitt's lymphoma is a common cause of tumour lysis syndrome

Important for meLess important

Tumour lysis syndrome occurs as a result of cell breakdown following chemotherapy. This releases a large quantity of intracellular components such as potassium, phosphate and uric acid.

Question:

With respect to the NICE Chronic Obstructive Pulmonary Disease guidelines (COPD), what criteria should be used to determine whether patients who are having an excerbation of COPD require antibiotics?

A.Those with moderate or severe COPD

B.Those who are > 65 years of age or patients with significant comorbidities

C.Those with purulent sputum or clinical signs of pneumonia

D.All patients

E.Those who have had a positive sputum culture

Answer:Those with purulent sputum or clinical signs of pneumonia

Explanation:

Question:

A 74-year-old man with Chronic Obstructive Pulmonary Disease (COPD) presents on the acute take with increasing shortness of breath over the past two days. His arterial blood gas on room air shows:

pH 7.28

pO2 5.9kPa

pCO2 7.9kPa

HCO3- 31.0mmol/L

BE +3.5mmol/L

He is started on 2 litres of oxygen and the second gas shows:

pH 7.25

pO2 6.1kPa

pCO2 8.5kPa

HCO3- 31.2mmol/L

BE +3.5mmol/L

What is the next most appropriate course of action?

A.Intubate and ventilate the patient

B.Start 28% Venturi mask

C.Start non-invasive ventilation

D.Place the patient on room air

E.Continue 2 litres of oxygen

Answer:Start non-invasive ventilation

Explanation:

If you recognise that the first blood gas result shows that the patient is very unwell, you know that placing the patient back on room air is not enough.

Their blood gas has worsened with just 2 litres of oxygen and so continuing this or increasing the oxygen to 28% will worsen the patient's condition.

It may be that the patient eventually requires intubation and ventilation to manage their condition but for most patients with acute exacerbations of COPD, a period of non-invasive ventilation with BiPAP (bi-level pressure support) is attempted first.

Question:

A young mother brings her 5 year old son to the Emergency Department. She mentions her son has had 2 days of swelling on his legs, scrotum and around his eyes. She continues to tell you that he is generally tired and his urine is noted to be frothy. Boys mother has noticed a cough which has persisted. No past medical history except for eczema and asthma.

Renal biopsy: no abnormalities can be seen on light microscopy, however, electron microscopy reveals abnormal podocytes (fused).

What is the most likely diagnosis?

A.Focal segmental glomerulosclerosis

B.Membranous nephropathy IgA disease

C.Rapidly progressive glomerulonephritis (RPGN)

D.Minimal change disease

E.IgA disease

Answer:Minimal change disease

Explanation:

First thing is to determine what type of glomerulonephritis this is i.e. proliferative or non-proliferative. Generally proliferative glomerulonephritis causes nephritic syndrome and non-proliferative glomerulonephritis causes nephrotic syndrome

In this case the big clue is the fused podocytes on electron microscopy which points to non-proliferative glomerulonephritis, in particular, Minimal Change Disease (MCD) as patient is very young. MCD mostly affects children and is associated with facial/periorbital swelling and frothy urine. Also, Note: MCD also has an association with atopy and Hodgkins lymphoma.

Option 1: You do see podocyte fusion as with MCD but this tends to occur in older children and young adults; it may be associated with haematuria, hypertension and impaired renal function.

Option 2: You see thickening of the glomerular basement membrane and is mostly idiopathic but may be associated with systemic lupus erythematosus, hepatitis B, malignancy, or the use of gold or penicillamine.

Option 3: You see crescents on histology and is often seen in Goodpasture's syndrome and systemic vasculitis (Wegeners and microscopic polyangitis).

Option 5: The most common cause of glomerulonephritis in adults is IgA disease.

Question:

Sarah is a 28-year-old woman who attended for cervical screening 1 week ago. She is well with no past medical history.

Her result is positive for high-risk human papillomavirus (hrHPV). Cervical cytology has returned as inadequate.

What is the most appropriate next step?

A.Referral for colposcopy

B.Repeat HPV testing in 1 week

C.Repeat sample in 3 months

D.Return to routine recall every 3 years

E.Repeat sample in 12 months

Answer:Repeat sample in 3 months

Explanation:

Cervical cancer screening: if smear inadequate then repeat within 3 months

Important for meLess important

NICE guidelines for cervical screening state:

'If the high-risk human papillomavirus (hrHPV) test result is unavailable or cytology is inadequate at any screening episode in the pathway — the sample is repeated in no less than 3 months.'

Therefore repeating the sample in 3 months is the correct answer.

Repeating HPV testing in 1 week will not change ongoing management as we know already that Sarah is positive for hrHPV and requires an adequate cervical cytology result.

Colposcopy is indicated if there are two consecutive inadequate results.

Repeat the sample in 12 months would be inappropriate as this would be a lengthy wait between samples. Similarly, returning Sarah to routine recall is incorrect as Sarah requires an adequate cytology result.

Question:

A 35-year-old woman presents with a variety of symptoms including generalised skin tingling and headache. She is concerned she may have multiple sclerosis. What is the most common presentation of multiple sclerosis?

A.Tremor

B.Urinary incontinence

C.Optic neuritis

D.Motor neuropathy

E.Internuclear ophthalmoplegia

Answer:Optic neuritis

Explanation:

Optic neuritis can be a feature of multiple sclerosis

Important for meLess important

Question:

A 46-year-old woman presents to the GP with irritability, sweating and weight loss despite increased appetite. She has a past medical history of mechanical back pain and sees a physiotherapist for this.

On examination, there is digital clubbing and soft tissue swelling of the hands and feet. X-ray imaging of the hands shows periosteal new bone formation. Thyroid function test results are below:

TSH 0.1 mU/L (0.4-4)

T3 9.8 pmol/L (3.5 - 7.8)

T4 29.4 pmol/L (9 - 25)

What antibody is most commonly associated with this condition?

A.Anti-centromere antibodies

B.Anti-cyclic citrullinated peptide (anti-CCP) antibodies

C.Anti-thyroid peroxidase (anti-TPO) antibodies

D.Antinuclear antibodies (ANA)

E.TSH receptor stimulating antibodies

Answer:TSH receptor stimulating antibodies

Explanation:

TSH antibodies are found in 90% of patients with Graves' disease and can help distinguish from other forms of hyperthyroidism

Important for meLess important

TSH receptor stimulating antibodies is the correct answer. From the description, the patient is most likely to have Graves' disease. She shows some of the typical signs and symptoms such as digital clubbing and soft tissue swelling around the hand and feet. 90% of all patients will have TSH antibodies which can be useful in arriving at a diagnosis.

Anti-centromere antibodies is incorrect. Anti-centromere antibodies are commonly found in limited cutaneous systemic sclerosis.

Anti-cyclic citrullinated peptide (anti-CCP) antibodies is incorrect. These are antibodies commonly found in rheumatoid arthritis and may be detectable in a patient up to ten years before its onset.

Anti-thyroid peroxidase (anti-TPO) antibodies is incorrect. These are antibodies that are more likely to be found in Hashimoto's which causes hypothyroidism rather than hyperthyroidism.

Antinuclear antibodies (ANA) is incorrect. The presence of ANA occurs in some autoimmune conditions such as systemic lupus erythematosus (SLE), scleroderma, Sjogren’s and other connective tissue disorders including rheumatoid arthritis. Although this antibody can be found in patients with Graves' disease, the question asks what is most likely to be found; thus, the most appropriate answer here would be TSH which is found in 90% of patients.

Question:

A 65-year-old woman presents for a review of her type 2 diabetes mellitus. She has been taking metformin and sitagliptin, but this has been ineffective. It is mutually decided that she will start taking insulin. She is concerned about how this is going to affect her driving, as her father who also had type 2 diabetes stopped driving early due to problems with hypoglycaemia.

What is the most appropriate advice to give her regarding checking her blood glucose?

A.Check before driving and every 1 hour if she has not eaten

B.Check before driving and every 1 hour regardless of if she has eaten or not

C.Check before driving and every 2 hours if she has not eaten

D.Check before driving and every 2 hours regardless of if she has eaten or not

E.She does not need to check if she has eaten

Answer:Check before driving and every 2 hours regardless of if she has eaten or not

Explanation:

Insulin-dependent diabetics must check their blood glucose every 2 hours whilst driving

Important for meLess important

Check before driving and every 2 hours regardless of if she has eaten or not is correct. The DVLA recommends that patients taking insulin for their diabetes mellitus should check their blood glucose concentration every 2 hours, even if they use continuous glucose monitoring systems and/or they are asymptomatic. This applies regardless of whether they have eaten or not. Some patients may lose their awareness of hypoglycaemia and not experience symptoms due to diabetic neuropathy, and may only experience symptoms when their blood glucose concentration is dangerously low. For this reason, patients should monitor every 2 hours in general. In some cases, the frequency of monitoring may need to be increased, however, nothing in this stem suggests the need to do so.

Check before driving and every 1 hour, if she has not eaten, is incorrect. The DVLA guidelines state to check the blood glucose concentration every 2 hours, even if the patient uses continuous blood glucose concentration and/or is symptomatic, regardless of if they have eaten or not.

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Question:

A 60-year-old lady presents to the GP with chronic diarrhoea. After further questioning, she has had daily bloating, and flatulence and a diagnosis of small intestinal bacterial overgrowth (SIBO) syndrome is suspected. Which of the following conditions may increase her risk of developing this condition?

A.Diabetes mellitus

B.Hyperthyroidism

C.Chronic obstructive pulmonary disease (COPD)

D.Iron deficiency anaemia

E.Systemic lupus erythematous

Answer:Diabetes mellitus

Explanation:

Diabetes mellitus is a risk factor for bacterial overgrowth

Important for meLess important

This lady has presented with classical features of bacterial overgrowth syndrome. The question is asking which of the conditions above predisposes to this condition and thus the correct answer is diabetes mellitus. This is thought to be caused by autonomic neuropathy.

Hypothyroidism and not hyperthyroidism is a predisposing condition for bacterial overgrowth syndrome

Chronic obstructive pulmonary disease (COPD) is not associated with small intestinal bacterial overgrowth

Iron deficiency anaemia is not a predisposing factor to developing small intestinal bacterial overgrowth syndrome but is a complication that can occur as a result of it.

Systemic lupus erythematosus is not a predisposing condition, however, systemic sclerosis is one.

Question:

A 72-year-old man with known lung cancer and bone metastases presents to the Emergency Department with abdominal pain, vomiting and new-onset confusion. Blood tests reveal a calcium of 3.7mmol/L. What is the most important first-line treatment?

A.Dexamethasone 8mg orally

B.Intravenous 0.9% saline

C.Intravenous calcitonin

D.Intravenous pamidronate

E.Radiotherapy to the spine

Answer:Intravenous 0.9% saline

Explanation:

IV fluid therapy is the first-line management in patients with hypercalcaemia

Important for meLess important

This patient has hypercalcaemia associated with malignancy which is an oncological emergency. The causes of malignancy associated hypercalcaemia include:

Lytic bony metastases

Myeloma

Production of osteoclast-activating factor or PTH-like hormones by the tumour

Patients can present with non-specific symptoms such as nausea, polydipsia, polyuria, constipation, confusion and weakness. These are most apparent when the corrected serum calcium is > 3mmol/L.

Because these patients are often severely dehydrated, the most important acute management is rehydration with IV 0.9% saline. Following this, a bisphosphonate such as IV pamidronate can be used, however this will take a few days to lower serum calcium and reaches its maximum effect at 1 week. Calcitonin can be used in patients who are resistant to bisphosphonates.

Dexamethasone and radiotherapy to the spine are both treatments for spinal cord compression. Steroids do have a role however in treating hypercalcaemia when it is due to sarcoidosis.

Question:

A 28-year-old woman self-presents to the Emergency Department, extremely concerned regarding her pregnancy. She is 33 weeks pregnant and thus far, the pregnancy has been uncomplicated. However, several hours ago whilst out shopping, she felt a sudden gush of fluid from her vagina and a subsequent wetness of her underwear.

Her observations have already been taken by one of the triage nurses and are stable, within normal ranges.

Given the likely diagnosis, what is the first-line investigation?

A.Digital examination

B.Obstetric abdominal examination

C.Speculum examination

D.Ultrasound scan

E.Placental alpha microglobulin‐1 (PAMG‐1) vaginal fluid test

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

The history is highly suggestive of preterm prelabour rupture of the membranes. As per RCOG Green-top guidelines, to confirm this diagnosis, the initial investigation should be a sterile speculum examination, to look for pooling of amniotic fluid in the posterior vaginal vault.

Digital examination should be avoided due to the risk of introducing infection.

Abdominal examination would not aid the process of diagnosing rupture of the membranes.

Ultrasound may be useful in demonstrating oligohydramnios, but this is not the first-line investigation to perform.

RCOG guidelines suggest performing vaginal fluid tests for PAMG-1, or insulin‐like growth factor‐binding protein 1, if amniotic fluid is not demonstrated on speculum examination, to guide further management.

Question:

A 33-year-old man was admitted to the surgical ward due to an exacerbation of Crohn's disease. He presented with a perianal abscess that has been surgically drained. An MRI confirms a complex perianal fistula.

In addition to an antibiotic and a biologic, what other management would be indicated?

A.Lidocaine gel

B.Rectal mesalazine

C.Seton placement

D.Surgical resection

E.Topical glyceryl trinitrate

Answer:Seton placement

Explanation:

A draining seton is used for complex perianal fistulae in patients with Crohn's disease

Important for meLess important

A seton is a piece of surgical thread that is run through the fistula to allow continuous drainage while the fistula is healing. This ensures that the fistula doesn't heal containing pus within, which would result in further abscess formation.

Lidocaine gel can be used in the management of haemorrhoids and anal fissures to provide analgesia as part of conservative management, along with increasing dietary fibre intake, increasing oral fluids and laxatives to soften the stool.

Rectal mesalazine is used to induce and maintain remission in ulcerative colitis. Evidence suggests it is not an effective drug in Crohn's disease and the priority, in this case, is to manage the fistula.

Surgical resection can be required in Crohn's disease if inflammation is resistant to medical treatment. However, in this case, a draining seton should be placed after abscess drainage to allow healing of the fistula tract.

Topical glyceryl trinitrate is used in the management of anal fissures. It works by relaxing the sphincter muscles, improving blood flow to the area, which enables healing. It also provides analgesia.

Question:

You are working in general practice. An 87-year-old lady complains that her right nipple is exquisitely itchy. On examination, you note that the nipple is erythematous and there is some blood-stained discharge on the inside of her bra. What is the most appropriate management?

A.Hydrocortisone cream

B.DiproBase emollient cream

C.Ciprofloxacin for 5 days

D.Imaging and biopsy

E.Evening primrose oil

Answer:Imaging and biopsy

Explanation:

Paget's disease of the nipple can present with skin changes suggestive of eczematous skin changes, but is associated with breast malignancy. The most appropriate management would therefore be imaging and biopsy to exclude underlying malignancy in this elderly patient.

Emollients and hydrocortisone are used in eczema. Evening primrose oil is sometimes used for breast pain.

Question:

A 62-year-old man is reviewed in diabetes clinic. His glycaemic control is poor despite weight loss, adherence to a diabetic diet and his current diabetes medications. He has no other past medical history of note. Which one of the following medications would increase insulin sensitivity?

A.Repaglinide

B.Tolbutamide

C.Pioglitazone

D.Acarbose

E.Gliclazide

Answer:Pioglitazone

Explanation:

Glitazones are agonists of PPAR-gamma receptors, reducing peripheral insulin resistance

Important for meLess important

Question:

A 36-year-old woman presents for a routine antenatal review. She is now 15 weeks pregnant. Her blood pressure in clinic is 154/94 mmHg. This is confirmed with ambulatory blood pressure monitoring. On reviewing the notes it appears her blood pressure four weeks ago was 146/88 mmHg. A urine dipstick is normal. There is no significant past medical history of note. What is the most likely diagnosis?

A.Pre-eclampsia

B.Pregnancy-induced hypertension

C.White-coat hypertension

D.Normal physiological change

E.Pre-existing hypertension

Answer:Pre-existing hypertension

Explanation:

This lady has pre-existing hypertension. Pregnancy related blood pressure problems (such as pregnancy-induced hypertension or pre-eclampsia) do not occur before 20 weeks. The raised ambulatory blood pressure readings exclude a diagnosis of white-coat hypertension.

Note the use of the term 'pre-existing hypertension' rather than essential hypertension. Raised blood pressure in a 36-year-old femaleis not that common and raises the possibility of secondary hypertension.

Question:

A 51-year-old woman is newly diagnosed with colorectal cancer, following a colonoscopy which showed a right-sided, poorly differentiated carcinoma with no evidence of adenomatous polyps. Her sister and father had suffered from the same condition.

Based on colonoscopy findings and family history, which of the following extra-colonic malignancies is the patient most at risk of?

A.Ovarian carcinoma

B.Endometrial carcinoma

C.Duodenal carcinoma

D.Breast carcinoma

E.Thyroid carcinoma

Answer:Endometrial carcinoma

Explanation:

A strong family history of colorectal cancer and lack of adenomatous polyposis on colonoscopy point towards a diagnosis of hereditary nonpolyposis colorectal cancer (HNPCC) - the commonest extra-colonic malignancy of HNPCC is endometrial cancer

Important for meLess important

While various different malignancies are associated with HNPCC, the second most common malignancy following colorectal cancer is endometrial cancer.

Reference: Hoffman BL (2012). 'Chapter 33: Endometrial Cancer'. Williams Gynecology (2nd ed.). New York: McGraw-Hill Medical

Question:

A 47-year-old female attends the emergency department complaining of sudden onset shortness of breath and chest pain. Her past medical history includes hypothyroidism for which she takes levothyroxine. She doesn't recall any other medical conditions but does remember having a 'leg clot' a few years previously.

On examination her airway is patent, however her respiratory rate is 22 breaths/min and her heart rate is 126 beats/min. You take her blood pressure and find it to be 88/42mmHg. She has an urgent chest x-ray followed by a CT pulmonary angiogram which shows a pulmonary embolism in her pulmonary trunk.

What must be done next in her management?

A.Prescribe rivaroxaban

B.Thrombolysis

C.Perform an ECG

D.Prescribe apixaban

E.Prescribe LMWH and warfarin

Answer:Thrombolysis

Explanation:

Massive PE + hypotension - thrombolyse

Important for meLess important

The correct answer here is thrombolysis. Thrombolysis is indicated when there is haemodynamic instability (e.g. hypotension) associated with a massive PE.

DOACs such as apixaban or rivaroxaban should now be offered as first-line treatments for PE. If neither of these are suitable then LMWH followed by another DOAC such as dabigatran or edoxaban OR LMWH followed by a vitamin K antagonist (e.g. warfarin) may be used.

Although this patient should have an ECG as part of her investigations, this won't help us further with the diagnosis and management at this time.

Question:

A 25-year-old woman sees her psychiatrist for review following management and treatment for an episode of moderate depression disorder. From the patient’s history, her psychiatrist believes that the patient’s early morning waking is the symptom most troubling her at the moment.

What is the best description for this type of symptom?

A.Atypical depression symptom

B.Core depression symptom

C.Psychotic symptom

D.Personality disorder symptom

E.Somatic symptom

Answer:Somatic symptom

Explanation:

Somatic symptoms can include early morning waking and changes in appetite and weight

Important for meLess important

Early morning waking is the best example here of a somatic symptom.

Other examples of somatic symptoms (sometimes referred to as biological/melancholic symptoms (DSM-V) or vital symptoms) include:

Loss of emotional reactivity

Diurnal mood variation

Anhedonia

Early morning waking

Psychomotor agitation or retardation

Loss of appetite and weight

Loss of libido

Depression with somatic symptoms is thought to be a more biological/endogenous depressive episode and is typically more severe than an episode with no somatic symptoms.

An atypical symptom is one that is unusual in depressive patients and may include increased appetite and hypersomnia.

A core depressive symptom includes anhedonia, anergia or low mood. These are the 3 core symptoms characteristic of depressive disorders.

A psychotic symptom includes examples such as hallucinations or delusions. These would be features similar to a presentation of psychotic condition such as schizophrenia or schizoaffective disorder.

A personality disorder symptom can be described as a feature that may fit a typical personality disorder (e.g. being socially withdrawn in schizoid personality disorder). These features are rarely taken in isolation to diagnose a patient.

Question:

Sarah is a 29-year-old woman who comes to see you for a follow-up visit. You initially saw her 1 month ago for low mood and referred her for counselling. She states she is still feeling low and her feelings of anxiety are worsening. She is keen to try medication to help.

Sarah has a 4-month-old baby and is breastfeeding.

Which of the following is the most appropriate medication for Sarah to commence?

A.Citalopram

B.Duloxetine

C.Fluoxetine

D.Sertraline

E.Venlafaxine

Answer:Sertraline

Explanation:

Sertraline or paroxetine are the SSRIs of choice in breastfeeding women

Important for meLess important

Infant exposure of antidepressants through breast milk is generally low to very low. Sertraline or paroxetine are the SSRIs of choice in breastfeeding women as whilst they are secreted in low levels in the breast milk it is not thought to be harmful to the infant.

When antidepressant treatment is indicated in postnatal depression, patients should not be advised to discontinue breastfeeding.

Venlafaxine and duloxetine are both serotonin and norepinephrine reuptake inhibitors (SNRIs), and these are not usually used first-line in management of depression in any case. They are best avoided in breastfeeding women if possible.

Citalopram is an SSRI. If the mother was taking citalopram during pregnancy or if other antidepressants have been ineffective, most experts recommend against changing medications during breastfeeding. However it would not be recommended as a first-line drug.

Question:

A 56-year-old woman presents with a sudden loss of vision in the left eye. She denies any pain associated with the loss of vision. The patient describes the loss of vision initially starting as a dense shadow that started at the edges of her vision and progressed towards the centre. She has no significant past medical history except for myopia, for which she wears corrective glasses.

What is the most likely diagnosis?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Retinal detachment

D.Vitreous detachment

E.Vitreous haemorrhage

Answer:Retinal detachment

Explanation:

Retinal detachment is a cause of sudden painless loss of vision. It is characterised by a dense shadow starting peripherally and progressing centrally

Important for meLess important

The history is most suggestive of retinal detachment. The description of a dense shadow progressing towards the centre is classic of this condition. The history of myopia is also a big risk factor for retinal detachment. This condition requires urgent corrective surgery.

Central retinal artery occlusion is less likely to be the diagnosis here. This is due to thromboembolism or arteritis; no risk factors are given for either. Again, the description of a shadow progressing towards the centre of the vision, along with myopia, are more suspicious of retinal detachment.

Central retinal vein occlusion is another possibility; its incidence increases with age and it is more common than arterial occlusion. Again, however, no risk factors are mentioned and, given the history, retinal detachment is more likely.

Vitreous detachment is not a cause of loss of vision. It may precede retinal detachment - but its symptoms (if any) are typically floaters/flashes of light which do not usually interfere with daily activities.

Vitreous haemorrhage is a reasonable differential diagnosis. Again, though, there are no risk factors (diabetes, anticoagulants) mentioned. Whilst it would also cause sudden vision loss, the description of centrally progressive loss and myopia is much more suggestive of retinal detachment.

Question:

A 42-year-old woman presents to the emergency department with nausea. She also states that she has been passing reduced amounts of dark urine for 12 hours.

She has a past medical history of lymphoma for which she began combined chemotherapy 2 days ago.

Her blood results are shown below:

Hb 120 g/L Female: (115 - 160)

Platelets 175 \* 109/L (150 - 400)

WBC 5.6 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 5.5 mmol/L (3.5 - 5.0)

Urea 11.4 mmol/L (2.0 - 7.0)

Creatinine 160 µmol/L (55 - 120)

Calcium 1.6 mmol/L (2.1-2.6)

Phosphate 1.9 mmol/L (0.8-1.4)

Uric acid 1.22 mmol/L (0.18 - 0.48)

What could have been done at the time of chemotherapy to prevent this patient's presentation?

A.IV granulocyte colony-stimulating factor (G-CSF)

B.IV octreotide

C.IV ondansetron

D.IV piperacillin with tazobactam (Tazocin)

E.IV rasburicase

Answer:IV rasburicase

Explanation:

High uric acid + renal impairment following chemotherapy → tumour lysis syndrome

Important for meLess important

This question tests your knowledge and ability to identify a patient with tumour lysis syndrome (TLS). This patient is presenting, two days post chemotherapy with nausea, reduced urine output, and deranged blood results. Of note, her blood results show hyperkalaemia, an AKI, hypocalcaemia, hyperphosphataemia and an increased uric acid. These blood results are classical of TLS. The question then asks you to identify the preventative medication that should have been given to this patient to stop the progression to TLS.

IV rasburicase is correct. As mentioned above, this patient has TLS. TLS is often seen in patients with high-grade lymphomas or leukaemias 2-3 days post-chemotherapy. They should be treated prophylactically with IV allopurinol or IV rasburicase. IV rasburicase is a synthetic version of urate oxidase and it facilitates the conversion of uric acid to allantoin which is much more easily excreted by the kidneys. IV rasburicase should be given before and for the few days following chemotherapy in patients deemed to be at high risk (like those with high-grade lymphoma or leukaemia.

IV granulocyte colony-stimulating factor (G-CSF) is incorrect. IV G-CSF is occasionally given to patients following chemotherapy who present with neutropenic sepsis or can be given in the treatment of myeloproliferative disorders. This patient is not presenting with neutropenic sepsis (normal white cell count and no evidence of a fever) and therefore, would not require treatment with G-CSF.

IV octreotide is incorrect. Octreotide is a somatostatin analogue used in the treatment of neuroendocrine tumours to treat the symptoms of serotonin syndrome e.g. flushing and diarrhoea. This patient has neither a neuroendocrine tumour nor symptoms of serotonin syndrome so this answer is incorrect.

IV ondansetron is incorrect. Ondansetron is an antiemetic used in the treatment of post-chemotherapy nausea and vomiting. Although it may be used in the treatment of this patient to help with her nausea, it would not be useful in preventing the underlying cause - TLS.

IV piperacillin with tazobactam (Tazocin) is incorrect. Tazocin is an antibiotic treatment used as an empirical treatment for neutropenic sepsis. his patient is not presenting with neutropenic sepsis (normal white cell count and no evidence of a fever) and therefore, would not require treatment with antibiotics.

Question:

A 72-year-old man with a background of ischaemic heart disease presents to the emergency department with severe retrosternal chest pain which he described as 'tearing'. You request a chest x-ray as part of his initial work-up.

Which of the following findings are you expecting to see, based on your differential diagnosis?

A.Cardiomegaly

B.False lumen

C.Hilar lymphadenopathy

D.Kerley B-lines

E.Widened mediastinum

Answer:Widened mediastinum

Explanation:

A widened mediastinum may be seen on the chest x-ray of patients with aortic dissection

Important for meLess important

From radiopedia: chest radiography may be normal or have a several findings suggestive of aortic dissection, such as:

Widened mediastinum: > 8.0-8.8 cm at the level of the aortic knob on portable anteroposterior chest films

Double aortic contour

Irregular aortic contour

Inward displacement of atherosclerotic calcification (>1 cm from the aortic margin)

Depending on the aetiology there may also be signs of peri-aortic or mediastinal haematoma, such as deviation of mediastinal structures, oesophageal or tracheal deviation to the right and inferior displacement of the left main bronchus.

Cardiomegaly and Kerley B-lines are suggestive of congestive cardiac failure.

False lumen is a finding suggestive of aortic dissection but on CT angiography rather than chest radiographs.

Hilar lymphadenopathy can be unilateral of bilateral is a feature of various pathologies, such as tuberculosis, malignancy and sarcoidosis (but not aortic dissection).

Question:

An 86-year-old woman presents to the GP complaining of constant, increased vaginal discharge. She explains this has been ongoing for about a month now and is so foul-smelling that she has to change pads 2-hourly.

On examination, her abdomen is soft and non-tender. There is a small amount of faecal matter on the pad. A digital rectal examination demonstrates normal perianal sensation and an empty rectal vault.

What is the most likely condition causing her symptom?

A.Age-related faecal incontinence

B.Bacterial vaginosis

C.Cauda equina syndrome

D.Diverticular disease

E.Overflow diarrhoea

Answer:Diverticular disease

Explanation:

Diverticulitis symptoms + vaginal passage of faeces or flatus → ?colovaginal fistula

Important for meLess important

Diverticular disease is the correct answer. This woman has a colovaginal fistula, developed as a complication of diverticular disease. A fistula (an abnormal connection between two viscera) can develop at any point, during acute episodes or following the resolution of diverticulitis. Therefore, you do not need an active infection, inflammation, or symptoms to diagnose this condition. Due to the fistula, continuous leakage of faecal matter can pass via the vagina, appearing as if the woman has faecal incontinence. Diverticular disease is not present in the rectum due to the lack of taenia coli (weak points in the mucosa where the mesenteric arteries penetrate the muscularis layer allowing for diverticulosis formation), therefore there will never be any findings on digital rectal examination.

Age-related faecal incontinence is incorrect. Faecal incontinence is not a normal part of ageing and should never be accepted and put down to age. There will always be an underlying cause, most of which is reversible.

Bacterial vaginosis is incorrect. This presents as an offensive fishy smelling discharge, that is clear, greyish and thin in colour and texture. It is more common in younger individuals who are sexually active. It is diagnosed by Amsel's criteria which involves vaginal pH>4.5, greyish-white homogenous discharge, positive whiff test and presence of clue cells.

Cauda equina syndrome is incorrect. Whilst this is an important differential to consider, there is perianal sensation present making it less likely. Furthermore, a symptom of cauda equina syndrome is faecal incontinence, however, if this was ongoing for a month, the woman would also have many other symptoms, including back pain, bilateral sciatica and lower limb paralysis.

Overflow diarrhoea is incorrect. This can occasionally present with faecal incontinence, secondary to faecal loading from chronic constipation. However, if someone is constipated enough to have overflow diarrhoea, their abdomen will be positive for hard faecal matter on palpation. This woman has a soft and non-tender abdomen, making this option less likely.

Question:

A 75-year-old gentleman with a long history of hypertension is having his eyes checked. He has reduced visual acuity and headaches which have been worsening over the last few weeks.

On fundoscopy, he has flame haemorrhages, cotton wool spots, arteriovenous nipping and papilloedema.

What grade of hypertensive retinopathy does this correspond to?

A.Grade I

B.Grade II

C.Grade III

D.Grade IV

E.Grade V

Answer:Grade IV

Explanation:

Papilloedema indicates grade IV hypertensive retinopathy

Important for meLess important

This is the most serious manifestation of hypertensive retinopathy and should be taken seriously as it is associated with high morbidity and mortality.

See below for the characteristics of the different grades of hypertensive retinopathy.

Question:

A 75-year old gentleman presents with a short history of neck pain, paraesthesia in his finger tips and progressive leg weakness. Following a MRI scan of his spine, he is diagnosed with degenerative cervical myelopathy due to a C4/5 disc prolapse. Which of the following is the most appropriate management?

A.Cervical decompressive surgery

B.Cervical nerve root injection

C.Analgesia and referral to physiotherapy

D.Analgesia and review in 4 weeks time

E.Analgesia, a hard cervical collar and review in 4 weeks

Answer:Cervical decompressive surgery

Explanation:

All patients with degenerative cervical myelopathy should be urgently referred for assessment by specialist spinal services (neurosurgery or orthopaedic spinal surgery). This is due to the importance of early treatment. The timing of surgery is important, as any existing spinal cord damage can be permanent. Early treatment (within 6 months of diagnosis) offers the best chance of a full recovery but at present, most patients are presenting too late. In one study, patients averaged over 5 appointments before diagnosis, representing >2 years [1].

Currently, decompressive surgery is the only effective treatment. It has been shown to prevent disease progression. Close observation is an option for mild stable disease, but anything progressive or more severe requires surgery to prevent further deterioration. Physiotherapy should only be initiated by specialist services, as manipulation can cause more spinal cord damage.

Prompt diagnosis and onward referral are therefore key to ensuring good outcome for your patients. There are national initiatives to raise awareness of the condition to try and improve referral times (www.myelopathy.org). All of the other listed options in this question do not control the patients primary pathology.

References:

1. Behrbalk E, Salame K, Regev GJ, et al. Delayed diagnosis of cervical spondylotic myelopathy by primary care physicians. Neurosurg Focus 2013;35:E1. doi:10.3171/2013.3.FOCUS1374

Question:

A 28 year old male smoker comes in complaining of an acute onset of excruciating pain on the left side of his head, he says that this is the 4th time this week. He states that it is non-throbbing and denies any visual disturbances or auras. On examination there is profuse rhinorrhoea, as well as lacrimation and eyelid swelling on the left side. On closer inspection it is also noticed that the patient has partial left-sided ptosis and miosis. On further investigation the patient states that both himself and his father usually experience this pain every 2 years or so. What is the most likely diagnosis?

A.Acute closed angle glaucoma

B.Migraine

C.Cluster headache

D.Tension headache

E.Brain tumour

Answer:Cluster headache

Explanation:

This scenario shows the presentation of a cluster headache. There is also a number of risk factors present (young male smoker with a positive family history). The partial horner's syndrome is actually a fairly common sign seen in cluster headaches, however the presentation of rhinorrhoea, nasal congestion and lacrimation comprise the main autonomic symptoms.

The absence of visual disturbances such as blurring of vision / photophobia makes acute closed angle glaucoma less likely, however, it is still good practice to have this condition in mind with this type of presentation.

Although it is possible to have migraines without aura, the non-throbbing nature of the pain makes this diagnosis less likely.

The unilateral pain distribution would be inconsistent with a typical tension headache - which would be described as more of a 'tight band' around the head.

The acute onset as well as the 2-yearly recurrence make the presence of a brain tumour less likely.

Question:

A 23-year-old woman is in labour and there is failure of progression. You suspect there may be some shoulder dystocia. There are several ways to attempt to deliver this baby, but which of the following describes Wood's screw manoeuvre?

A.Press on the posterior shoulder

B.Put the mother on all fours on the floor

C.Put your hand in the vagina and attempt to rotate the foetus 180 degrees

D.Hyperflex the mothers legs onto her abdomen and apply suprapubic pressure

E.Push the head back in and do an emergency caesarean section

Answer:Put your hand in the vagina and attempt to rotate the foetus 180 degrees

Explanation:

The Wood's screw manoeuvre describes the action of putting a hand in the vagina and rotating the foetus 180 degrees in attempt to 'dislodge' the anterior shoulder from the symphysis pubis. Before you try this you should put the woman in the McRoberts position (hyperflex the mother's legs onto her abdomen and apply suprapubic pressure) this allows a bit of extra room for the anterior shoulder. If this fails, you can try Rubin manoeuvre (press on the posterior shoulder to allow the anterior shoulder extra room) and the Wood's screw manoeuvre. You can also try these with the woman on all fours; if this fails you need to push the head back in and do an emergency caesarean section.

Question:

A 23-year-old man presents to the emergency department with a suspected acute asthma exacerbation. He was diagnosed with asthma as a child, for which he currently takes salbutamol and beclomethasone inhalers. He has never suffered an acute exacerbation before. Observations show:

Respiratory rate 33/min

Heart rate 134/min

Blood pressure 102/66 mmHg

Temp 37.3ºC

Oxygen saturations 91% on room air

A peak expiratory flow test is performed which is 45% of the predicted value.

Which of the following is an indication to perform an arterial blood gas (ABG) in this patient?

A.His heart rate

B.His oxygen saturations

C.His peak expiratory flow rate

D.His respiratory rate

E.The absence of previous acute exacerbations

Answer:His oxygen saturations

Explanation:

In acute asthma, the BTS guidelines only recommend ABGs for patients with oxygen sats < 92%

Important for meLess important

The correct answer is oxygen saturations of 91% on room air as according to the British Thoracic Society (BTS), an ABG is indicated in any patient with an oxygen saturation below 92%. ABGs are used in differentiating severe from life-threatening asthma attacks. In life-threatening situations, PaCO2 will rise to either normal or high levels due to the patient becoming physically exhausted.

The fact that this is his first asthma attack should have no bearing on how the patient is treated.

While a respiratory rate of 33/min is high, this alone is not an indication to perform an ABG.

Peak expiratory flow 45% predicted value is suggestive of a severe, not life-threatening asthma attack and so is not sufficient grounds alone to perform an ABG.

While a heart rate 134/min is high, this alone is not an indication to perform an ABG.

Question:

A 65-year-old is seen on the ward after originally being admitted for a chest infection requiring several courses of antibiotics.

After the last course, the patient’s respiratory symptoms improved however she developed diarrhoea with a stool sample testing positive for Clostridium difficile and so she was started on a course of oral vancomycin. After completing a 10-day course she still reported diarrhoea and abdominal discomfort so treatment was changed to oral fidaxomicin.

Today is day 10 of fidaxomicin but again the patient has ongoing symptoms.

What treatment should now be started?

A.Bezlotoxumab

B.IV co-amoxiclav

C.Oral fidaxomicin and IV vancomycin

D.Oral metronidazole and IV vancomycin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

If a first episode of C. difficile doesn't respond to either vancomycin or fidaxomicin then oral vancomycin +/- IV metronidazole should be tried

Important for meLess important

This patient has developed a persistent Clostridium difficile infection, non-responsive to both first-line, oral vancomycin, and second-line treatment, oral fidaxomicin. Persistent and recurrent infections of C. difficile are relatively common and it can be difficult to distinguish a recurrence infection that develops as a relapse of the same bacterial strain versus an infection that is the result of a new strain. These recurrent/persistent cases can result in serious and sometimes life-threatening infections. Third-line treatment requires the addition of IV metronidazole along with a repeat course of oral vancomycin, even if this has been used previously as resistance is quite rare. Once patients require oral vancomycin and IV metronidazole they often will be at the stage of developing complications from the infection and close monitoring with supportive management is normally required.

Bezlotoxumab is a monoclonal antibody shown to target C. difficile toxin B, one of the main exotoxins produced that causes intestinal damage and pseudomembranous colitis. Currently NICE do not support its use for the management of C. difficile as it is not cost-effective.

Co-amoxiclav is an antibiotic that is used in the management of several types of infections. Due to it's broad-spectrum, co-amoxiclav can disrupt and suppress a patient’s normal gut flora and is therefore a common catalyst of C. difficile infections. As such co-amoxiclav has no role in the treatment of C. difficile infections.

Fidaxomicin and vancomycin are both used in the management of C. difficile infections however mainly in their oral forms. The two drugs are also used interchangeable and there is no evidence to support the use of the two together.

IV vancomycin does not have a clear role in the management of C. difficile infections with the oral form of the antibiotic used as first-line before escalating to other therapeutic agents. Oral metronidazole is also not used in C. difficile with the IV form used as part of third-line treatment. As such oral metronidazole and IV vancomycin combined is not recommended.

Question:

A 61-year-old man with peripheral arterial disease is prescribed simvastatin. What is the most appropriate blood test monitoring?

A.LFTs + creatinine kinase at baseline, 1-3 months and at intervals of 6 months for 1 year

B.LFTs at baseline and every 3 months for first year

C.Routine blood tests not recommended

D.LFTs at baseline and annually

E.LFTs at baseline, 3 months and 12 months

Answer:LFTs at baseline, 3 months and 12 months

Explanation:

A fasting lipid profile may also be checked during monitoring to assess response to treatment.

Question:

A 45-year-old lady presents with a 6 month history of pain in the joints of her right hand. On examination she has tenderness in the right distal interphalangeal joints. An X-ray shows erosions in the centre of the right distal interphalangeal joints, which are described as having a pencil in cup appearance.

What is the most likely diagnosis?

A.Osteoarthritis

B.Psoriatic arthritis

C.Rheumatoid arthritis

D.Gout

E.Systemic lupus erythematosus (SLE)

Answer:Psoriatic arthritis

Explanation:

Psoriatic arthropathy has many types. The one described in this case is the asymmetrical oligoarthritis type which typically affects hands and feet. Pencil-in-cup deformity is the description given to one of the appearances on plain radiograph in psoriatic arthritis. The appearance results from periarticular erosions and bone resorption giving the appearance of a pencil in a cup.

Question:

A 72-year-old woman presents to the emergency department with her wife with new symptoms. They were having dinner when she started coughing and having trouble eating. She tried to get up, but she could not walk properly and she was feeling dizzy.

On examination, she has clear ataxia. Nystagmus is observable in both eyes. She has right-sided facial pain and temperature sensory loss. Her right eyelid is drooping and the pupil looks constricted.

There is left-sided upper and lower limb pain and temperature sensory loss, with normal power in all muscle groups.

Given the most likely diagnosis, where is the lesion?

A.Left anterior inferior cerebellar artery

B.Left midbrain branches of the posterior cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior inferior cerebellar artery

Answer:Right posterior inferior cerebellar artery

Explanation:

Lateral medullary syndrome - PICA lesion - cerebellar signs, contralateral sensory loss & ipsilateral Horner's

Important for meLess important

Right posterior inferior cerebellar artery is correct. The patient in the vignette has features of lateral medullary syndrome/Wallenburg's syndrome (resulting from ischemia in the lateral part of the medulla oblongata in the brainstem). The features are usually ataxia, nystagmus, dysphagia, ipsilateral facial sensory loss and Horner's syndrome, with contralateral upper and lower limb sensory loss. Most commonly, this is caused by occlusion of the posterior inferior cerebellar artery.

It causes ipsilateral facial pain and temperature loss (due to damage to the trigeminal nucleus and the fact that the fibres of the trigeminal nerve do not decussate), contralateral limb/torso pain and temperature loss (due to damage to the lateral spinothalamic tract, before it decussates), ataxia (due to damage to the inferior cerebellar peduncle), and nystagmus (due to damage to the vestibular nucleus). Additionally, it causes Horner's syndrome (here described as ptosis and miosis) due to damage to the sympathetic connections descending from the hypothalamus into the cervical cord. Hence, in this case, the injury occurred on the right side.

Left anterior inferior cerebellar artery and right anterior inferior cerebellar artery are both incorrect. Ischaemia arising from occlusion of these vessels would cause ipsilateral facial muscle weakness, decreased lacrimation and salivation and loss of taste sensation from the anterior ⅔ of the tongue due to the damage to the facial nerve nuclei and deafness due to labyrinthine artery ischaemia. These symptoms are not described in this case.

Left midbrain branches of the posterior cerebral artery is incorrect. Ischaemia resulting from occlusion of these vessels would cause contralateral upper and lower limb weakness and ipsilateral oculomotor palsy (Weber syndrome). In this case, the strength is preserved, and there is no sign of oculomotor nerve palsy.

Left posterior inferior cerebellar artery is incorrect. Damage to this vessel would cause ipsilateral facial pain, ipsilateral Horner's syndrome, contralateral loss of limb/torso pain and temperature sensation, ataxia, and nystagmus. The patient in the vignette has features more consistent with a right-sided lesion.

Question:

A 15-year-old girl presents with an urticarial rash, angioedema and wheezing. Her mother states that she has just come from her younger sister's party where she had been helping to blow up balloons. What is the most likely diagnosis?

A.C1-esterase deficiency (hereditary angioedema)

B.Allergic contact dermatitis

C.Peanut allergy

D.Latex allergy

E.Irritant contact dermatitis

Answer:Latex allergy

Explanation:

Type I hypersensitivity reaction - anaphylaxis

Important for meLess important

This is a typical history of latex allergy. Adrenaline should be given immediately and usual anaphylaxis management followed

Question:

A 78-year-old woman is discharged following a fractured neck of femur. On review she is making good progress but consideration is given to secondary prevention of further fractures. What is the most suitable management?

A.Arrange DEXA scan + start strontium ranelate if T-score < -2.5 SD

B.Start oral bisphosphonate

C.Arrange DEXA scan + start oral bisphosphonate if T-score < -1.0 SD

D.Arrange DEXA scan + start hormone replacement therapy if T-score < -2.5 SD

E.Arrange DEXA scan + start oral bisphosphonate if T-score < -1.5 SD

Answer:Start oral bisphosphonate

Explanation:

NICE guidelines support starting a bisphosphonate without waiting for a DEXA scan in such scenarios

Question:

An 80-year-old male in the intensive care unit is being treated for a hospital acquired pneumonia that resulted in sepsis. This has contributed to the development of an acute kidney injury. His fluid status is being monitored using a catheter. Medical management has been optimised and his physical condition improves remarkably well. Despite this, the nurse taking care of him expresses some concerns about his behaviour. Whilst he was previously willing to engage in conversation, he has become withdrawn and lethargic over the past few days. It now takes persistence to get him to answer basic questions. You check his obs and find: oxygen sats 90%, temperature: 36.9ºC, blood pressure: 138/80 mmHg, respiratory rate: 17/min, heart rate 70/min. His past medical history includes hypertension, osteoarthritis, and COPD.

What is the most likely cause of his symptoms?

A.Opiate overdose

B.Dementia

C.ICU psychosis

D.Meningitis

E.Delirium

Answer:Delirium

Explanation:

Hypoactive delirium is a subtype of delirium characterised by withdrawal and sleepiness

Important for meLess important

Despite his physical condition improving, he has had an acute deterioration of his mental state. This is a common scenario that is very often missed, unfortunately.

Opiate overdoses would cause other symptoms, such as a decreased respiratory rate.

Dementia is a chronic process. There can be an acute deterioration in his condition, but that would be classed as delirium.

ICU psychosis would be considered if there were accompanying hallucinations/delusions.

Meningitis - there were no symptoms indicative of this and his observations were normal as well

Hypoactive delirium is the correct answer. There are three subtypes of delirium - hyperactive, hypoactive, and mixed. People are well acquainted with the hyperactive form, but the hypoactive subtype is very common as well. Symptoms include being withdrawn, lethargic, and slow to respond.

Question:

A 32-year-old woman presents to the antenatal clinic at 41-weeks gestation. She is concerned that she has not yet gone into labour. She reports normal foetal movements and denies recent illness. This is her first pregnancy and there is no other past medical history of note.

On examination, her abdomen is soft with a palpable uterus in keeping with a term pregnancy. Her Bishop's score is calculated as 5.

What is the most initial step in the management of this patient?

A.Artificial rupture of membranes

B.Membrane sweep

C.Oxytocin infusion

D.Reassurance and discharge

E.Vaginal prostaglandins

Answer:Membrane sweep

Explanation:

A membrane sweep is a useful adjunct, prior to formal induction of labour, that may be done in the antenatal clinic

Important for meLess important

This patient is past her due date and may require induction of her pregnancy. Prior to inducing a pregnancy, it is important to calculate the Bishop's score. A score above 8 indicates that spontaneous labour is likely whereas a lower score suggests that induction may be needed. The most initial step is a membrane sweep. A membrane sweep should be considered as an adjunct to labour rather than an actual method of induction. It involves separating the chorionic membrane from the decidua to trigger natural labour. It can be performed in the antenatal clinic by a midwife or obstetrician.

An artificial rupture of membranes (also referred to as an amniotomy) is performed by obstetricians or midwives by using sterilised equipment to break the mother's waters. However, there are certain risks to this method of induction including increased risk of cord prolapse and increased risk of infection, particularly if there is a prolonged time from the rupture of membranes to the start of labour. These potential complications make it a less favourable initial option for inducing labour.

Sometimes a membrane sweep alone is enough to induce labour. However, in some cases, induction methods may be needed. Typically, if initial methods fail and induction is required then vaginal prostaglandins are recommended according to NICE guidelines. However, this question asks for the most initial step in the management of this patient. Therefore, membrane sweep is the correct answer.

Oxytocin stimulates uterine contraction and can be used in the induction of labour. However, NICE guidelines do not recommend that an infusion of oxytocin alone should be used to induce labour due to the risks of uterine contraction against an unprimed cervix.

Patient's with a Bishop's score of 8 or above are more likely to go into spontaneous labour. As this patient has a Bishop's score of 5 and is already at 41-weeks gestation it is inappropriate to discharge home without discussing methods of inducing labour. This is due to the risk of complications with prolonged pregnancy including macrosomia and stillbirth.

Question:

A 3-day-old neonate born prematurely at 34 weeks' gestation has been slow to wean off the ventilator since birth. On examination, she has been found to have a continuous heart murmur.

An echocardiogram has detected a patent ductus arteriosus. No other structural heart abnormalities have been found. A chest x-ray shows cardiomegaly and mildly congested lung fields.

What initial treatment should be started to manage this condition?

A.Emergency surgery

B.Indomethacin

C.Beta-blockers

D.Intravenous fluids

E.Prostaglandins

Answer:Indomethacin

Explanation:

Indomethacin or ibuprofen is used in patent ductus arteriosus to promote duct closure

Important for meLess important

Patent ductus arteriosus (PDA) is a condition where there is a failure of the ductus arteriosus (DA) to close after birth. This results in the flow of some oxygenated blood from the descending aorta to the pulmonary artery (a left-to-right shunt) which can lead to pulmonary oedema. It is more common in preterm infants.

In the developing fetus, the ductus arteriosus allows blood from the right ventricle to bypass the fluid-filled non-functioning lungs. Endogenous prostaglandins - secreted by the placenta and DA itself - usually maintain the patency of the DA. After the infant takes its first breaths, increased pulmonary blood flow results in the clearance of these prostaglandins, thereby resulting in the closure of the DA.

Non-steroidal anti-inflammatory drugs (such as indomethacin and ibuprofen) inhibit prostaglandin synthesis, therefore accelerating the closure of the DA and is an effective non-surgical treatment.

Surgery is generally only performed if non-surgical measures have been unsuccessful.

There is no role for using beta-blockers in this condition.

Intravenous fluids are of no benefit in treating this condition and may worsen heart failure.

Prostaglandins would have the opposite effect i.e. maintaining the patency of the DA. They are sometimes used where a PDA is desirable, such as if there is co-existing right-to-left shunt defect where the PDA may be the only way for oxygenated blood to mix with deoxygenated blood.

Question:

A 50-year-old woman presents with bloody discharge from her right nipple. She is a perimenopausal woman with two (now adult) children who were born after normal labour and delivery and breastfed. She is not receiving hormone replacement therapy. On physical examination, there is no evidence of lumps, asymmetry, or dimpling of the skin or nipple. When pressure is exerted on the nipple, a small amount of bloody fluid appears.

What is the most likely cause of the presenting complaint?

A.Ductal carcinoma in situ

B.Intraductal papilloma

C.Mammary duct ectasia

D.Mastitis

E.Paget's disease of the nipple

Answer:Intraductal papilloma

Explanation:

Blood stained discharge is most likely to be associated with a papiloma

Important for meLess important

Bloodstained nipple discharge, as is seen here, is most likely to be associated with intraductal papilloma. Intraductal papilloma is a benign tumour that grows within the lactiferous duct. There is usually no palpable lump but large papillomas may present with a mass. There is no increased risk of malignancy with intraductal papilloma.

Ductal carcinoma in situ is a type of non-invasive breast cancer. Unilateral bloody nipple discharge can be a symptom of DCIS, or it may be asymptomatic. However, intraductal papilloma is a much more common cause of the bloody discharge and is the more likely diagnosis here.

Mammary duct ectasia is a benign breast condition that occurs when the large breast ducts dilate. The discharge and often thick and green-tinged, unlike the blood-stained discharge seen in this case.

Mastitis is an inflammation of the breast tissue that occurs in 1 out of 10 breastfeeding women. It can sometimes cause bloody discharge of the nipple, but is also associated with pain, heat, erythema, fever and sometimes a lump. It is also much more common in women who are currently breastfeeding or lactating, which this woman is not.

Paget's disease of the nipple is an eczematoid change of the nipple associated with underlying breast malignancy and it is present in 1-2% of patients with breast cancer. It can cause straw-coloured or bloody discharge but is associated with skin changes that are not present in this case.

Question:

A 43-year-old man has a work-up for hypertension. He has found to have blood + on a urine dipstick of a freshly voided sample. Which one of the following may account for this finding?

A.Smoking

B.Exercise

C.Obesity

D.Eating red meat the previous day

E.Use of ramipril

Answer:Exercise

Explanation:

Question:

A 56-year-old woman attended the emergency department 1 day ago with signs of urinary sepsis. Since then, she has been admitted to the ward. A urine culture was positive for bacteria and she is being treated with intravenous antibiotics. She has a past medical history of asthma.

Today, she complains of feeling breathless. On examination, her oxygen saturations are 85% on 40% inspired oxygen, she has a respiratory rate of 29 breaths/minute and a temperature of 36.7ºC. Auscultation of the chest reveals bilateral crackles.

What is the most likely diagnosis?

A.Acute heart failure

B.Acute respiratory distress syndrome

C.Asthma exacerbation

D.Hospital acquired pneumonia

E.Pulmonary embolism

Answer:Acute respiratory distress syndrome

Explanation:

Decrease in pO2/FiO2 in poorly patient with non-cardiorespiratory presentation → ?ARDS

Important for meLess important

Acute respiratory distress syndrome is the correct answer. This woman has developed symptoms of pulmonary oedema following a septic episode. Her presentation of breathlessness, reduced oxygen saturations and auscultation of the chest showing bilateral crackles, is typical of acute respiratory distress syndrome. This is a form of non-cardiogenic pulmonary oedema (i.e the pulmonary oedema is not a result of increased hydrostatic pressure from left ventricular failure or fluid overload). It is instead caused by tissue damage in the lungs from a precipitating factor, such as sepsis. One of the criteria is a pO2 / FiO2 < 300mmHg. In this woman 85 / 0.4 = 212.5mmHg, which satisfies these criteria, along with the acute presentation within 1 week after sepsis and bilateral crackles.

Asthma exacerbation is incorrect. Whilst this woman does have a past medical history of asthma, typical auscultation would reveal a widespread wheeze, not crackles. Crackles on auscultation imply fluid whereas an asthma exacerbation creates a wheeze as the airways tighten.

Acute heart failure is incorrect. Although this can present with shortness of breath and bilateral crackles on pulmonary oedema, this is less likely as this patient as no risk factors (such as previous myocardial infarction) for the development of heart failure. As well as this, there are no signs of fluid overload, such as S3 heart sounds, distended jugular venous pressure, or peripheral oedema, making this patient's pulmonary oedema unlikely to be cardiac in origin.

Hospital acquired pneumonia (HAP) is incorrect. This woman has not been in the hospital for more than 48 hours meaning the criteria of HAP is not satisfied. Equally, she has no temperature and pneumonia usually presents as increased breath sounds on auscultation in a certain lung zone, rather than bibasal crackles.

Pulmonary embolism (PE) is incorrect. It would be unusual to develop a PE after 1 day of hospitalisation given other than sepsis, she has no obvious risk factors (such as combined oral contraceptive use). Furthermore, a PE usually presents with a clear chest.

Question:

A 62-year-old woman presents with a four-month history of painless, malodorous discharge from the left ear. There are no other symptoms of note. She saw one of your colleagues one month previously who prescribed a course of gentamicin/hydrocortisone ear drops, unfortunately these did not improve her symptoms.

Examination of the ears shows some wax in the attic of the left ear but is otherwise unremarkable. Cranial nerve examination is normal.

What is the most appropriate course of action?

A.Suggest olive oil ear drops

B.Prescribe a course of oral amoxicillin

C.Refer to ENT outpatient clinic

D.Request an MRI of the internal auditory meatuses (IAMs)

E.Advise the patient to book for ear syringing

Answer:Refer to ENT outpatient clinic

Explanation:

Non-resolving unilateral discharge suggests cholesteatoma

Important for meLess important

NICE recommend that cholesteatoma should be suspected in any patient with unexplained unilateral ear discharge that is not responsive to antibiotics. A cholesteatoma can be hidden behind attic wax so microsuction and direct inspection is needed, this can only be done in ENT clinic, hence referral is appropriate.

The urgency of referral is determined by the patient's symptoms. In this case semi-urgent referral would be appropriate, however if she were to have symptoms of more advanced disease such as vertigo or facial nerve palsy an urgent discussion with on-call ENT would be indicated.

Olive oil would be useful for wax build up however the main problem here is discharge, wax alone is unlikely to cause this.

Oral antibiotics would be of no benefit as there is no evidence of infection.

MRI of the IAMs will most likely be needed but this is better organised as part of an assessment by the ENT service.

Ear syringing may help wax build up but is not advisable here.

Question:

A 30-year-old woman is seen in the gynaecology department to discuss management of her newly diagnosed cervical cancer. The staging of her disease revealed a small, malignant tumour, only visible on microscopy and 5mm wide. The depth of the tumour was 2mm, without nodal or distant metastases, therefore classifying her disease as stage IA1. She would like to maintain her fertility as she hasn't started her family yet.

What is the most appropriate treatment option for this patient?

A.Cone biopsy and close follow-up

B.Hysterectomy with lymph node clearance

C.Hysterectomy without lymph node clearance

D.Radical trachelectomy

E.Radiotherapy with concurrent chemotherapy

Answer:Cone biopsy and close follow-up

Explanation:

Women with stage IA cervical cancer may be considered for a cone biopsy with negative margins if they wish to maintain their fertility

Important for meLess important

Cone biopsy and close follow-up is correct. This woman's cervical cancer is stage IA1 and she wishes to maintain fertility. So the best option for her is to have a cone biopsy with a close follow-up.

Hysterectomy with lymph node clearance, although is an option to consider for IA1 tumours, this would not preserve her fertility.

Hysterectomy without lymph node clearance is an option to consider for IA1 tumours, but this would not preserve her fertility.

Radical trachelectomy also called radical cervicectomy. This operation involves removing the cervix, the upper part of the vagina and surrounding supporting tissues. Often lymph nodes in the pelvis are often removed to check whether cancer has spread beyond the cervix. This option also preserves fertility but would only be indicated for IA2 tumours.

Radiotherapy with concurrent chemotherapy is a treatment option for tumours stages IB and higher.

Question:

A 72-year-old woman with a past history of treated hypertension presents for review. Yesterday she had a 2 hour episode where she couldn't find the right word when speaking. These symptoms have now fully resolved. This has never happened before and there were no associated features. Neurological examination is unremarkable and blood pressure was 150/100 mmHg. Her only current medication is amlodipine. What is the most appropriate management?

A.Aspirin 300mg immediately + specialist review within 2 weeks

B.Specialist review within 2 weeks

C.Aspirin 300mg immediately + specialist review within 24 hours

D.Aspirin 75mg + outpatient CT brain

E.Specialist review within 24 hours

Answer:Aspirin 300mg immediately + specialist review within 24 hours

Explanation:

This patients age, blood pressure and duration of symptoms would put her in a higher risk category. Current guidelines advocate specialist review within 24 hours.

If a patient's symptoms have not fully resolved then aspirin should be withheld until an haemohorragic stroke has been excluded. As this is a transient ischaemic attack (symptoms last less than 24 hours) aspirin should be given as soon as possible.

Question:

A 62-year-old woman presents to the Emergency Department with chest pain for the past four hours. This seemed to follow breakfast and is described as a 'hot' sensation in the retrosternal area. She has vomited once. Examination of her cardiorespiratory system is unremarkable. An ECG is taken:

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In her notes you find a previous ECG from three months ago which showed normal sinus rhythm, rate 76/min and no other changes. What is the most appropriate action?

A.Give intravenous adenosine

B.Repeat the ECG in 1 hour

C.Perform electrical cardioversion

D.Prescribe intravenous magnesium sulphate

E.Arrange percutaneous coronary intervention

Answer:Arrange percutaneous coronary intervention

Explanation:

This is new left bundle branch block (LBBB). In the context of chest pain new LBBB is significant as it is an indication for thrombolysis / percutaneous coronary intervention.

Question:

As part of the bedside teaching, you were asked to carry out a cardiovascular examination on Mr Henry in bed 5. He exhibits an early diastolic murmur that is louder on expiration and is best heard in the 3rd intercostal space left sternal edge.

Given the most likely diagnosis, what is the most likely feature of his pulse?

A.Pulsus paradoxus

B.Slow rising pulse

C.Jerky pulse

D.Pulsus alternans

E.Collapsing pulse

Answer:Collapsing pulse

Explanation:

Collapsing pulse is a feature of aortic regurgitation, PDA, and hyperdynamic states (anaemia, thyrotoxicosis, fever, exercise/pregnancy)

Important for meLess important

The murmur described is consistent with aortic regurgitation. Collapsing pulse describes a rapid upstroke and a sharp descent. This is seen in chronic aortic regurgitation and other hyperdynamic states e.g. anaemia, thyrotoxicosis, fever, exercise/pregnancy.

Option 1: Pulsus paradoxus describes a fall in systolic blood pressure of more than 10mmHg during inspiration. This is seen in severe asthma and cardiac tamponade

Option 2: Slow rising pulse is seen in aortic stenosis

Option 3: Jerky pulse is seen in hypertrophic obstructive cardiomyopathy

Option 4: Pulsus alternans is a regular alternation of the force of the arterial pulse. This is seen in cases of severe left ventricular failure

Question:

You receive a call from a 26-year-old woman who is 9-weeks pregnant with twins. Last week she had severe nausea and vomiting despite a combination of oral cyclizine and promethazine. She continued to vomit and was admitted to the hospital briefly where she was started on metoclopramide and ondansetron which helped control her symptoms.

Today she tells you she read a pregnancy forum article warning about ondansetron use in pregnancy. She is worried and wants advice if she should continue taking it.

How should you counsel this woman on the risks of ondansetron use in pregnancy?

A.There are no recognised risks for her, the pregnancy or the newborns

B.There is a small but significant risk of spontaneous miscarriage in twin pregnancies

C.There is a small increased risk of cleft lip/palate in the newborn if used in the first trimester

D.There is an established risk of severe congenital heart defects in the newborn and it should be stopped

E.There is some evidence of an increased rate of developing HELLP syndrome in the 3rd trimester

Answer:There is a small increased risk of cleft lip/palate in the newborn if used in the first trimester

Explanation:

Ondansetron during pregnancy is associated with a small increased risk of cleft palate/lip - the MHRA advise that these risks need to be discussed with the pregnant woman before use

Important for meLess important

The correct answer is there is an association with a small increased risk of cleft lip/palate in the newborn if used in the first trimester. The Medicines and Healthcare products Regulatory Agency (MHRA) issued a drug safety update regarding ondansetron use in the first 12 weeks of pregnancy being associated with a small but significant increased risk of orofacial cleft malformations.

The MHRA statement comments on the evidence:

'...This was based on an observational study of 1.8 million pregnancies in the US of which 88,467 (4.9%) were exposed to oral ondansetron during the first trimester of pregnancy. The study reported that ondansetron use was associated with an additional 3 oral clefts per 10,000 births (14 cases per 10,000 births versus 11 cases per 10,000 births in the unexposed population)'.

This risk is discussed but not included in the Royal College of Gynaecology (RCOG) guideline on the management of nausea and vomiting of pregnancy (2016). There is no official NICE guidance on nausea and vomiting during pregnancy, however, a draft has been published as of August 2021, as part of an update to NICE's antenatal care guidance. This suggests the following on the use of ondansetron:

'Increased chance of the baby being born with a cleft lip or cleft palate. This is an increase of 3 extra cases per 10,000 from 11 in 10,000 to 14 in 10,000, so with ondansetron 9,986 out of 10,000 babies would not have this. Some evidence suggests ondansetron may cause heart problems in babies but other evidence does not support this.

There are no recognised risks for her, the pregnancy or the newborn is not correct. It does not address the MHRA's recommendation of the above small but significant risks of cleft lip and palate.

There is a small but significant risk of spontaneous miscarriage in twin pregnancies is not correct. This is a fictitious risk contrived for this question.

There is an established risk of severe congenital heart defects in the newborn and it should be stopped is not correct. Whilst there has been some evidence from some studies about a small risk, both the RCOG's guideline (2016) and NICE guidance (2021) suggest this is not an established risk. The MHRA statement (2020) advises similarly that the findings conflict with previous evidence of no such risk. Therefore, this option is incorrect as this risk is not established.

There is some evidence of an increased rate of developing HELLP syndrome in the 3rd trimester is not correct. HELLP (haemolysis, elevated liver enzymes, and low platelets) is s a life-threatening complication usually and can be considered a variant of preeclampsia. This usually occurs during the later stages of pregnancy, or soon after childbirth. There is no association between ondansetron use and the development of this syndrome, or pre-eclampsia during pregnancy.

Question:

A 5-week-old baby is suffering from projectile vomiting after feeds. The vomit is profuse but not bile-stained and occurs within minutes of a feed. On examination, an olive-sized pyloric mass can be palpated. What is the most likely electrolyte abnormality seen in this infant?

A.Hyperchloremic hypokalaemic metabolic alkalosis

B.Hypochloremic hypokalaemic metabolic alkalosis

C.Hypochloremic hypokalaemic metabolic acidosis

D.Hypochloremic hyperkalaemic metabolic acidosis

E.Hyperchloremic hyperkalaemic metabolic alkalosis

Answer:Hypochloremic hypokalaemic metabolic alkalosis

Explanation:

This baby has pyloric stenosis. Hypochloremic, hypokalaemic metabolic alkalosis is the classic electrolyte and acid-base imbalance that occurs. Persistent vomiting causes progressive loss of fluids which contains hydrochloric acid, in turn causing the kidneys to retain hydrogen ions in favor of potassium. There may be no electrolyte abnormalities if the duration of illness is short.

Question:

A 40-year-old woman has been admitted to the hospital with a severe flare of her ulcerative colitis. She has experienced several episodes of abdominal pain and bloody diarrhoea during the last 2 weeks.

What is the most appropriate investigation to assess disease activity and therapeutic response at this stage?

A.CT scan of the abdomen

B.Colonoscopy

C.MRI of the abdomen

D.Sigmoidoscopy

E.Ultrasound scan of the abdomen

Answer:Sigmoidoscopy

Explanation:

In patients with severe colitis, colonoscopy should be avoided due to the risk of perforation - a flexible sigmoidoscopy is preferred

Important for meLess important

Sigmoidoscopy with biopsy is the correct option. The patient is suffering from a severe flare of ulcerative colitis (UC). This investigation is preferred, compared to colonoscopies, in severe flares of UC, as perforations are much rarer. Sigmoidoscopies can also be done urgently without bowel preparation. During a sigmoidoscopy, the disease severity can be examined and the effectiveness of any ongoing treatment can be evaluated. If a diagnosis needs to be confirmed, a biopsy can also be taken during the procedure, hence also excluding other causes of colitis, mainly cytomegalovirus (CMV) colitis, a significant differential.

CT scan of the abdomen is incorrect, as it would not have been performed at this point. It may have been useful at a later stage, if complications, such as primary sclerosing cholangitis, were being considered.

Colonoscopy is incorrect. It could have been the correct answer if the patient was stable and was not suffering from a severe UC exacerbation. However, as explained above, there is a high risk of perforation and a sigmoidoscopy should be thus preferred.

MRI of the abdomen is wrong. This investigation has a limited role in such acute cases of abdominal pain and would thus be not indicated. Magnetic resonance angiography (MRA) and magnetic resonance cholangiopancreatography (MRCP) would have been useful if aortic dissection and acute pancreatitis were suspected respectively.

Ultrasound scan of the abdomen is wrong. An ultrasound would have been preferred under other circumstances of abdominal pain, such as an acute case of right upper quadrant pain resembling cholecystitis, or an acute presentation of a pregnant woman with abdominal pain.

Question:

A 62-year-old man with a long history of schizophrenia comes to the psychiatric clinic. He says that in the last number of months he has had a unpleasant feeling of inner restlessness, and his wife notices that he is constantly moving his arms and legs.

Which of the following symptoms is this man suffering from?

A.Acute dystonia

B.Akathisia

C.Parkinsonism

D.Pseudo-parkinsonism

E.Tardive dyskinesia

Answer:Akathisia

Explanation:

Akathisia is a sense of inner restlessness and inability to keep still

Important for meLess important

This is a typical history of akathisia- long history of anti-psychotic use (due to schizophrenia), with a sense of restlessness and inability to sit still. Acute dystonia is typically spasm of facial muscles, parkinsonism would be changes in gait and resting tremor, and tardive dyskinesia would be abnormal involuntary movements like licking lips. Neuroleptic malignant syndrome would be rare in someone who is long established on anti-psychotics but would present with hyperthermia and muscle rigidity.

Question:

A 79-year-old woman is brought to the emergency department from her care home with confusion and anuria. She has a complex past medical history including hypertension for which she takes amlodipine, antiphospholipid syndrome for which she takes warfarin and mild dementia. She had a fall 2 months ago and a kidney stone of 5mm removed 1 year ago.

Her blood tests show the following:

Hb 134 g/L (115 - 160)

Platelets 342 \* 109/L (150 - 400)

WBC 7.7 \* 109/L (4.0 - 11.0)

Na+ 147 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 16.1 mmol/L (2.0 - 7.0)

Creatinine 123 µmol/L (55 - 120)

What is the most likely cause of her symptoms?

A.Acute interstitial nephritis

B.Acute tubular necrosis

C.Dehydration

D.Recurrent kidney stones

E.Rhabdomyolysis

Answer:Dehydration

Explanation:

Prerenal disease - raised serum urea:creatinine ratio

Important for meLess important

The correct answer is dehydration. This patient is presenting with confusion, which is an unspecific symptom in elderlies, especially with dementia, and anuria. The blood tests show that the patient has slightly elevated sodium and urea.

Most importantly, their urea to creatinine ratio is increased. To calculate the urea to creatinine ratio you need to divide the urea by the creatinine divided by 1000. In this case, we need to do 16.1/(123/1000) which gives a result of 131. Urea to creatinine ratio above 100 is a landmark characteristic of a pre-renal acute kidney injury. Urea and creatinine are both freely filtered at the glomerulus, but urea can be reabsorbed if the body's homeostatic system perceives a decrease in fluids. Hence, an increased ratio equals a pre-renal cause of disease. In this question, dehydration is the only cause of pre-renal acute injury available, hence it must be the correct option.

Acute interstitial nephritis is a cause of acute kidney injury, mostly caused by drugs. It presents with fever, rash, and arthralgia. On blood tests, you would expect to see eosinophilia. None of these features is present in this patient, making the option incorrect. This patient is regularly taking warfarin and amlodipine, which are not nephrotoxic, so they cannot be responsible for the development of this condition.

Acute tubular necrosis is the most common cause of acute kidney injury. It is caused by the necrosis of tubular cells due to ischaemia or nephrotoxins. Hence, the tubule would not be capable of reabsorbing urea. On blood tests, you would expect to see normal serum urea : creatinine ratio. This patient is regularly taking warfarin and amlodipine, which are not nephrotoxic, so they cannot be responsible for the development of this condition.

Recurrent kidney stones can cause post-renal obstruction. This patient is at risk of developing another kidney stone after having had one, but she did not present with strong colicky pain localised in the flank. Additionally, the blood test would show normal urea: creatinine ratio.

Rhabdomyolysis is a common finding in patients who had a fall or prolonged epileptic seizure and is found to have an acute kidney injury on admission. In this case, the patient had a fall two months ago, but this is too far away in time to cause kidney damage today. The damage usually happens in a matter of hours. Additionally, it would present with a disproportionately raised creatinine, hypocalcaemia, elevated phosphate and hyperkalaemia, which are all absent in this patient.

Question:

A 3-year-old girl is taken to the GP due to a rash on her upper arm. On examination multiple raised lesions of about 2 mm in diameter are seen. On close inspection a central dimple is present in the majority of lesions. What is the likely diagnosis?

A.Roseola infantum

B.Molluscum contagiosum

C.Kawasaki disease

D.Viral warts

E.Pityriasis rosea

Answer:Molluscum contagiosum

Explanation:

Question:

A 26-year-old woman who recently returned from her medical elective to Bangladesh presents with a non-productive cough and diarrhoea. On examination, her pulse is 58 beats per minute, an erythematous rash is present on her trunk and back. Abdominal examination reveals a palpable mass in the left hypochondriac region. Which of the following is the most likely diagnosis?

A.Leptospirosis

B.Dengue fever

C.Typhoid

D.Tuberculosis

E.Hepatitis A

Answer:Typhoid

Explanation:

Given the woman's recent return from holiday and the nature of her symptoms, it is highly suggestive of typhoid. The erythematous rash on her trunk and back are known as rose spots which are irregular discrete spots measuring between 2-4mm. Patients often develop splenomegaly and a slowed heart rate. Dengue usually presents with fever and joint pains whilst leptospirosis follows a biphasic pattern of fever and headaches continuing with muscle and abdominal pain. Tuberculosis is unlikely as it often presents with a non-productive cough, loss of appetite and weight loss. Hepatitis A is common in travellers as it is passed via the faecal and oral route, however, patients often present with right hyponchondriac pain due to liver involvement, jaundice as the condition progresses and abrupt onset of fever.

Question:

You are consulting with a family whose son has been referred due to suspected learning difficulties. Whilst talking to his parents, you observe the son has a bubbly outgoing personality, and contemplate whether this might be a case of William's syndrome.

What physical feature would most support this diagnosis?

A.Rocker-bottom feet

B.Flattened philtrum

C.Tall, slender stature

D.Webbing of the neck

E.Elfin facies

Answer:Elfin facies

Explanation:

William's syndrome - associated with elfin facies

Important for meLess important

William's syndrome is associated with several distinctive physical features, including elfin facies, strabismus, broad forehead and short stature (it is Klinefelter's syndrome which is characterised by a tall slender stature).

Rocker-bottom feet is associated with Edward's syndrome.

Individuals with William's often have an elongated not flat philtrum. Flattened philtrum is associated with foetal alcohol syndrome.

Webbing of the neck is associated with Turner's syndrome and Noonan's syndrome.

Question:

A 67-year-old gentleman is seen by his general practitioner as he has noticed that his urine does not flow as well as it used to. He does not report any strong urges to urinate and does not need to get up in the night to urinate. In addition to some urine dribbling out after he has finished, he feels that he does not empty his bladder fully. He is troubled by these symptoms as this has never happened before.

He is known to have heart failure and smokes 10 cigarettes a day. He has had no previous surgery and lives alone.

On digital rectal examination, his prostate feels hard and irregular.

Blood tests requested last week are reported below.

serum prostate-specific antigen 2.0 ng/ml

How should this patient be managed?

A.Urgent 2 week referral

B.Repeat serum prostate-specific antigen

C.Same day referral to secondary care

D.Prescribe doxazosin and finasteride

E.Prescribe doxazosin and review in 4 weeks

Answer:Urgent 2 week referral

Explanation:

An ultrasound guided biopsy of the prostate should be performed in the context of a suspicious digital rectal examination, irrespective of a patients PSA

Important for meLess important

This presentation is consistent with bladder outflow obstruction secondary to prostate cancer. They should, therefore, be referred urgently for further evaluation.

A serum prostate-specific antigen of <4.0 ng/ml is generally considered to be normal, however, given that this is the first time this patient has presented, a biopsy of the prostate is necessary to evaluate this patient.

Given the suspicious findings on examination, it would not be appropriate to manage this patient for benign prostatic hyperplasia (options 4 and 5).

Question:

A 27-year-old woman is investigated for bloody diarrhoea. This started around six weeks ago. She is currently passing 3-4 loose motions a day which normally contain a small amount of blood. Other than feeling lethargic she remains systemically well with no fever or significant abdominal pain. A colonoscopy is performed which shows inflammatory changes in the ascending, transverse and descending colon consistent with ulcerative colitis. Bloods show the following:

Hb 142 g/L Male: (135-180)

Female: (115 - 160)

Platelets 323 \* 109/L (150 - 400)

WBC 8.1 \* 109/L (4.0 - 11.0)

CRP 22 mg/L (< 5)

What is the most appropriate first-line medication to induce remission?

A.Rectal aminosalicylate

B.Oral aminosalicylate + rectal aminosalicylate

C.Oral prednisolone

D.Intravenous corticosteroids

E.Rectal corticosteroids

Answer:Oral aminosalicylate + rectal aminosalicylate

Explanation:

In a mild-moderate flare of ulcerative colitis extending past the left-sided colon, oral aminosalicylates should be added to rectal aminosalicylates, as enemas only reach so far

Important for meLess important

This patient has symptoms consistent with mild/moderate ulcerative colitis. As she has some disease outside the reach of enemas she should be given an oral aminosalicylate first-line as well as a rectal aminosalicylate.

Question:

A 63-year-old man attends his routine diabetic eye screening session. The patient had recently seen their general practitioner who optimised their glycaemic control. On examination, the patient is found to have cotton wool spots and neovascularisation across the retina. A diagnosis of proliferative retinopathy is made.

What is the best definitive management?

A.Conservative management and monitoring

B.Laser iridotomy

C.Panretinal laser photocoagulation

D.Phacoemulsification

E.Vitrectomy

Answer:Panretinal laser photocoagulation

Explanation:

Proliferative retinopathy is treated with panretinal laser photocoagulation

Important for meLess important

This scenario describes a patient with diabetes who has been diagnosed with proliferative retinopathy, which is a condition in which neovascularisation occurs. Neovascularisation leads to new blood vessels which are small, fragile, and can cause vitreal haemorrhage. In addition to glycaemic control and potentially using anti-VEGF injections, panretinal laser photocoagulation is a definitive management step. In panretinal laser photocoagulation, thermal burns are made using a laser to prevent abnormal blood vessel development.

Conservative management and monitoring is not the single best answer for definitive management. Regular monitoring may be considered for non-proliferative retinopathy, however neovascularisation across the retina can result in vitreal haemorrhage and treatment is likely indicated.

Laser iridotomy is an incorrect answer. A laser iridotomy is the use of a laser to create holes in the iris, which allows the movement of aqueous humor from the posterior to anterior chambers in acute angle-closure glaucoma. It is not indicated in proliferative retinopathy.

Phacoemulsification is an incorrect answer. Phacoemulsification is the name of the operation commonly used for cataract surgeries in which the old lens is fragmented and removed. It is not indicated in proliferative retinopathy.

Vitrectomy is an incorrect answer. Vitrectomy is the removal of the vitreous and can be used to manage a vitreal haemorrhage, which can be a complication of proliferative retinopathy. However, for the above patient, no vitreal haemorrhage is described, and therefore vitrectomy is unlikely to be the single best answer.

Question:

A 35-year-old woman presents to the emergency department with chest pain and shortness of breath. She describes the pain as sharp and it came on fairly suddenly. There is a past medical history of depression for which she takes sertraline, asthma which she uses a steroid inhaler for, and takes the combined contraceptive pill. She is alert and talking to you, observations are blood pressure 87/59 mmHg, heart rate 112 bpm, respiratory rate 25/min and temperature 37.8ºC.

ECG shows sinus tachycardia and a chest X ray has no abnormal findings. Pulmonary embolism is suspected.

Given the most likely diagnosis, what would the most suitable treatment plan be?

A.Aspirin then lower molecular weight heparin

B.Inferior vena cava filter

C.Lower molecular weight heparin

D.Thrombolysis

E.Rivaroxaban for at least 3 months

Answer:Thrombolysis

Explanation:

Massive PE + hypotension - thrombolyse

Important for meLess important

This patient has sudden onset chest pain (sharp), shortness of breath, tachycardia, and is suspected of pulmonary embolism (PE). She also has circulatory failure (hypotension). Thrombolysis is correct in such patients. This is recommended first line for large PE which are haemodynamically unstable.

Aspirin is not indicated in the management of PE.

Inferior vena cava filters may be offered in people who have recurrent PE despite anticoagulation, which is not the case here.

Lower molecular weight heparin would not be used as she is haemodynamically unstable, and LMWH is not recommended first line (DOACs are now first line).

Rivaroxaban would be offered for haemodynamically stable PE, as DOACs are now increasingly used in PE. However she is hypotensive and tachycardic so this would not be suitable in her case.

Question:

A 77-year-old man presents to his GP having noticed some blood when passing urine. He says this has happened a few times over the past few weeks, however, he has not felt unwell over this time period. The GP performs a dipstick urine sample during the consultation and this indeed confirms haematuria. The GP is concerned this may well be an early presentation of bladder cancer. The patient is a type 2 diabetic and is on various medications to treat that. The GP is aware that there has been a recently discovered link between bladder cancer and one of his regular medications.

Which of the following medication classes may be responsible for this gentleman's presentation?

A.SGLT-2 inhibitors

B.Biguanides

C.Thiazolidinediones

D.GLP-1 mimetics

E.Insulin

Answer:Thiazolidinediones

Explanation:

Thiazolidinediones are associated with an increased risk of bladder cancer

Important for meLess important

This case is describing a classical presentation of bladder cancer.

Recent studies have identified that thiazolidinediones, in particular, pioglitazone, are associated with an increased risk of bladder cancer. This is a rare, but important, adverse effect to consider in a patient on thiazolidinediones.

The other answers are not associated with bladder cancer. Instead, they have the following adverse effects:

1 - SGLT-2 inhibitors - genital infections, diabetic ketoacidosis

2 - Biguanides e.g. metformin - GI upset, lactic acidosis

4 - GLP-1 mimetics - nausea, vomiting, pancreatitis

5 - Insulin - weight gain, hypoglycaemia, lipodystrophy

Question:

You review a 60-year-old woman in the COPD clinic. She was diagnosed with COPD four years ago and is currently maintained on a salbutamol inhaler as required. She has recently managed to give up smoking and her latest FEV1 was 42% of predicted. Despite her current therapy she has frequent exacerbations. There is no history of asthma, eosinophilia or FEV1 variation.

What is the most appropriate next step in her management?

A.Salmeterol inhaler

B.Combined salmeterol + fluticasone inhaler

C.Combined long acting beta agonist and long acting muscarinic antagonist (LABA/LAMA)

D.Betamethasone inhaler

E.Oral aminophylline

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

Following the 2018 NICE guidelines, the next step in management would be a combined long-acting beta2-agonist (such as salmeterol) + a long-acting muscarinic antagonist. This is because there are no 'asthmatic features/features suggesting steroid responsiveness'.

Question:

You are asked to review a 72-year-old-man due to dark-coloured urine and generalized muscle aches, particularly in his thighs.

He has a past medical history of type 2 diabetes, chronic kidney disease, and myocardial infarction. He reports that he recently started a new medication and is compliant with his usual medications; metformin, atorvastatin, ramipril, and aspirin.

What new drug is likely to have caused this complication?

A.Allopurinol

B.Ciprofloxacin

C.Clarithromycin

D.Furosemide

E.Ibuprofen

Answer:Clarithromycin

Explanation:

Statins + erythromycin/clarithromycin - an important and common interaction

Important for meLess important

In this case, the dark urine and muscle aches are describing rhabdomyolysis.

Clarithromycin is an inhibitor of the P450 CYP3A4 isoenzyme and leads to increased levels of atorvastatin through reduced metabolism. This leads to an increased likelihood of developing rhabdomyolysis. The risk is even high for patients with chronic kidney disease.

Allopurinol side effects include rashes, nausea, and vomiting. It is associated with acute interstitial nephritis, rather than rhabdomyolysis.

Ibuprofen side effects include heartburn but more seriously it can cause GI bleeding and renal failure. It is not associated with the development of rhabdomyolysis.

Furosemide is a loop diuretic. Loop and thiazide diuretics are associated with acute interstitial nephritis, not rhabdomyolysis.

Ciprofloxacin is not associated with rhabdomyolysis. It is associated with acute interstitial nephritis and crystal nephropathy.

Question:

A 39-year-old man presents to the emergency department with a 3-month history of worsening lower back pain. He denies any trauma or prior fractures. He takes no medications, does not smoke, consume excessive alcohol and had never been treated with corticosteroids. A review of systems demonstrates delayed puberty with reduced libido for several years and absence of morning erections.

Dual-energy X-ray absorptiometry (DEXA) scans of the skeleton is reported below using Z-scores.

Lumbar vertebrae (L2–L4) -6.9

Femoral neck -3.5

Total hip -4

What test would be crucial to perform alongside routine investigations?

A.Alpha fetoprotein

B.Serum calcitonin

C.Serum protein electrophoresis

D.Testosterone

E.Urinary hydroxyproline

Answer:Testosterone

Explanation:

Osteoporosis in a man - check testosterone

Important for meLess important

Testosterone blood tests are important when suspecting osteoporosis in a man. Hypogonadism is a common cause of osteoporosis in men. It is classified either as hypergonadotropic (primary gonadal failure) or hypogonadotropic (secondary to a defect in the hypothalamic-pituitary axis) hypogonadism. The role of androgens on male bone metabolism is twofold. First, androgens stimulate bone formation during puberty. Second, androgens prevent bone resorption during and after puberty.

Alpha fetoprotein (AFP) is a marker that may be elevated in association with a variety of malignancies or benign diseases. Maternal AFP serum level is used to screen for Down syndrome, neural tube defects. It is not valuable in evaluating osteoporosis.

Calcitonin is a tumor marker. Tumour markers are substances made by cancer cells or by normal cells in response to cancer in the body. If too much calcitonin is found in the blood, it may be a sign of a type of thyroid cancer called medullary thyroid cancer.

Serum protein electrophoresis is used to identify patients with multiple myeloma and other serum protein disorders. Electrophoresis separates proteins based on their physical properties, and the subsets of these proteins are used in interpreting the results. Given the lumbar back pain, this test would be useful to perform and exclude multiple myeloma but is unlikely given his age.

Urinary hydroxyproline is an adequate bone marker and in situations where there are very high rates of bone turnover, such as Paget's disease of the bone its level is increased. This is not suggestive here based on the history and DEXA findings making this answer incorrect.

Question:

Mary is a 29-year-old woman who comes to see you with symptoms of fatigue, muscle ache and dry eyes. She has also developed a red-purple rash over her upper cheeks which she notices most after she has been out in the sun. On further questioning, she tells you that she has been getting mouth ulcers frequently. You have a suspected diagnosis of systemic lupus erythematosus.

Initial blood tests reveal anaemia and urinalysis is positive for proteinuria.

Which of the following tests is most appropriate as a rule out test for this diagnosis?

A.Anti-Ro/La antibodies

B.Anti-Smith (Sm) antibody

C.Anti-dsDNA antibody

D.Antinuclear antibody (ANA)

E.Complement level

Answer:Antinuclear antibody (ANA)

Explanation:

Over 99% of patients with SLE are ANA positive, therefore it is a useful rule out test

Important for meLess important

Antinuclear antibodies (ANAs) are present in over 99% of SLE patients. Therefore, if the test is negative, there is a low clinical probability of the patient having SLE. A positive ANA occurs in approximately 5% of the adult population and alone has poor diagnostic value in the absence of clinical features of autoimmune rheumatic disease.

The presence of anti-dsDNA antibodies, low complement levels or anti-Smith (Sm) antibodies are highly predictive of a diagnosis of SLE in patients with relevant clinical features. However none of these are appropriate as rule out tests as there is a greater chance with these compared to ANA testing that a patient has SLE despite a negative test result.

Anti-Ro/La antibodies are less specific markers of SLE as they are found in other autoimmune rheumatic disorders as well as SLE.

Question:

An 18-year-old man with newly diagnosed type 1 diabetes develops a new, persistent cough and shortness of breath. He self-isolates for 7 days and books a test for COVID-19. He is able to eat and drink only small amounts and is on a basal-bolus insulin regimen. Since he is newly diagnosed he cannot recall the advice given to him regarding his insulin regimen when he is unwell. He calls his GP for advice.

What is appropriate advice to give to him?

A.Continue with his basal insulin, but not his boluses if he is only eating small amounts

B.Continue with his usual insulin regimen

C.Continue with his usual insulin regimen but increase the frequency of checking his blood sugars

D.Half his insulin if he is not eating

E.Immediately go to the emergency department as he is at high risk of severe COVID-19

Answer:Continue with his usual insulin regimen but increase the frequency of checking his blood sugars

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

People with type 1 diabetes mellitus should continue with their usual insulin regimen when unwell. This includes boluses after food, even if they are only eating small amounts.

Reducing or stopping insulin altogether would be dangerous, putting the patient at high risk of diabetic ketoacidosis.

They should also increase the frequency of monitoring their blood sugars and ensure they are hydrated. If their blood glucose is raised they should check their ketones (either urinary or capillary) and administer corrective doses of insulin.

People with type 1 diabetes mellitus are at a higher risk of severe COVID-19. However, attending the emergency department risks the spread of COVID-19 and should be avoided if possible.

Question:

A 48-year-old salesman presents with a 5 day history of cough and

pleuritic chest pain. He has no past medical history of note. On examination his temperature is 38.2ºC, blood pressure is 120/80 mmHg, respiratory rate 18/min and pulse 84/min. Auscultation of the chest reveals bronchial breathing in the left base and the same area is dull to percussion. What is the most suitable management?

A.Oral amoxicillin

B.Oral co-amoxiclav

C.Oral amoxicillin + erythromycin

D.Oral erythromycin

E.Admit

Answer:Oral amoxicillin

Explanation:

Question:

A 24-year-old man attends the emergency department following a knee injury. He explains he was playing a basketball match when he heard a loud 'popping' sound and fell to the floor in extreme pain from his right knee. He could not continue playing. The knee felt like it would 'give way' with any weight-bearing.

On inspection, the knee appears swollen.

What is the most likely diagnosis?

A.Patella tendon rupture

B.Ruptured anterior cruciate ligament

C.Ruptured medial meniscus

D.Ruptured posterior cruciate ligament

E.Tibial plateau fracture

Answer:Ruptured anterior cruciate ligament

Explanation:

Sudden popping sound during athletic activity → knee pain. swelling and instability ?ACL injury

Important for meLess important

Ruptured anterior cruciate ligament is the correct answer. The history of a 'popping' sound followed by pain, inability to continue with the activity and swelling points towards an ACL injury.

Patella tendon rupture is incorrect. On inspection and examination, a high riding patella would be seen. This is an abnormally high patella (further away from the tibial tuberosity than on the left), due to the tension on the patella only originating from the quadriceps tendon now.

Ruptured medial meniscus is incorrect. Catching or locking of the knee with an inability to extend fully or bend the joint is seen in a ruptured medial meniscus.

Ruptured posterior cruciate ligament is incorrect. A PCL is lesser common than an ACL injury. To fully differentiate, an anterior and posterior drawer test would be required. From the information given, an ACL is therefore the more likely answer as a PCL generally occurs when a person jumps and lands on a bent knee or during impact with another person. This is not described in this scenario.

Tibial plateau fracture is incorrect. This is associated with complete inability to weight bear, not just a feeling that the knee would 'give way'. There can also be numbness or tingling in the foot and limited movement of the joint.

Question:

Angela is a 32-year-old doctor who you referred to the mental health team with suspected bipolar disorder. The psychiatrist has written to you to confirm a diagnosis of bipolar disorder and the commencement of lithium. Her levels have been monitored and she is now stable on treatment, therefore they have requested that you take over the monitoring.

You call Angela and advise that she will need her lithium levels. Angela remembers that it is important that she has these tests at a certain time related to her medication, but cannot remember when.

How would you advise her medication levels to be checked?

A.Blood test immediately pre dose every month

B.Blood test 6 hours post dose every 3 months

C.Blood test 6 hours post dose every month

D.Blood test 12 hours post dose every 3 months

E.Blood test 12 hours post dose every month

Answer:Blood test 12 hours post dose every 3 months

Explanation:

When checking lithium levels, the sample should be taken 12 hours post-dose

Important for meLess important

A blood test 12 hours post-dose every 3 months is the correct answer.

NICE advises the following with regard to lithium monitoring:

'Lithium levels are normally measured one week after starting treatment, one week after every dose change, and weekly until the levels are stable. Once levels are stable, levels are usually measured every 3 months. Lithium levels should be measured 12 hours post-dose.'

All the other time intervals are incorrect. A blood test immediately pre-dose is a trough level taken for medications such as twice-daily clozapine.

Question:

A 20-year-old gentleman would like to have a discussion regarding Huntington's disease, which both his father and his grandfather suffered from. He is aware that there is a phenomenon called 'genetic anticipation.' Which of the following conditions also exhibit genetic anticipation?

A.Marfan syndrome

B.Duchenne muscular dystrophy

C.Myotonic dystrophy

D.Homocystinuria

E.Trisomy 21

Answer:Myotonic dystrophy

Explanation:

With genetic anticipation, hereditary diseases have an earlier age of onset through successive generations.

Trinucleotide repeat disorders, including Huntington's disease and Myotonic dystrophy (CTG repeat sequence) can exhibit genetic anticipation.

Genetic anticipation does not occur with the remaining options.

Duchenne muscular dystrophy is an X-linked recessive condition.

Marfan syndrome is an autosomal dominant condition.

Homocystinuria is inherited in an autosomal recessive manner.

Trisomy 21 is due to an extra copy of chromosome 21. This can occur due to non-disjunction at meiosis, Robertsonian translocation or mosaicism.

Question:

A 54-year-old man has a background history of poorly controlled type 1 diabetes. Over the last few months the neuropathic pain in his legs has worsened. Two months ago he was started on 25mg of amitriptyline hydrochloride, 4 weeks later this was increased to 50mg. He comes to see you today because unfortunately he has not seen an improvement in his symptoms.

HbA1c 82 mmol/mol

What is the next step in managing his painful diabetic neuropathy?

A.Add in a non-oral agent such as capsaicin cream

B.Referral to pain clinic for specialist advice

C.Switch to a different neuropathic pain drug

D.Trial a short course of tramadol

E.Increase amitriptyline and review in two weeks

Answer:Switch to a different neuropathic pain drug

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

Although in practice we regularly see patients on combinations of neuropathic agents. NICE guidelines in 2013 advise to not prescribe more than one neuropathic pain drug at the same time. For example, do not prescribe amitriptyline concurrently with gabapentin, or pregabalin if there has been minimal response to amitriptyline.

Capsaicin cream can be used if oral preparations are not wanted or tolerated.

Pain clinic referral should be considered if pain is severe or impact on quality of life is significant.

A short course of tramadol can be considered if a patient is awaiting referral and initial treatments have failed.

Titrating amitriptyline is incorrect as the patient denies any response to two months of amitriptyline treatment so further titrating the dose is unlikely to be beneficial.

Question:

A 62-year-old man presents to his general practitioner with troublesome urinary symptoms, including trouble beginning to urinate, urinating more frequently at night and post-void dribbling. He also reports back pain for the last couple of months, and mild unintentional weight loss.

A digital rectal examination shows loss of the medium sulcus of his prostate with an overall craggy surface. A prostate-specific antigen (PSA) level comes back as normal.

What is the next step in investigating this patient?

A.CT chest, abdomen and pelvis

B.Multiparametric MRI

C.Transrectal ultrasound-guided biopsy

D.Repeat PSA in 4 weeks

E.Reassurance only

Answer:Multiparametric MRI

Explanation:

Multiparametric MRI has replaced TRUS biopsy as the first-line investigation in suspected prostate cancer

Important for meLess important

This man presents with the classical urinary symptoms of prostate cancer, in his hesitancy, nocturia, and post-void dribbling. Back pain and unintentional weight loss may be signs of metastatic disease. Whilst his PSA is normal, the fact his examination reveals findings consistent with prostate cancer validates further assessment via the suspected cancer pathway.

Multiparametric MRI is now the first-line investigation for suspected prostate cancer, even if metastatic disease is suspected. Depending on the results, an MRI-guided biopsy may or may not be offered.

CT chest, abdomen and pelvis can be used for detecting the presence of metastasis but is not the first-line investigation for prostate cancer.

Transrectal ultrasound-guided biopsy was the traditional first-line for prostate cancer, however, due to the possibility of complications such as sepsis or longstanding pain, it has fallen out of favour as first-line.

There is no place for repeating PSA levels in suspected prostate cancer, as a single raised level is indicative enough of the need for further investigation.

Reassurance only in this patient would be highly inappropriate as there are clear signs of suspected prostate cancer. Despite the normal PSA, the examination still points towards cancer.

Question:

A 22-year-old man suffers from a right leg deep vein thrombosis (DVT) following a road traffic accident where he tore his right anterior cruciate ligament. He completed 3 months of treatment with the novel oral anticoagulant (NOAC), rivaroxaban. He now returns to his GP complaining of heaviness in his right calf, worse on walking, associated with itching and ulceration.

Which of the following interventions would be most important to relieve his symptoms?

A.Rivaroxaban for 3 more months

B.Leg elevation

C.Physiotherapy

D.Graduated compression stockings

E.Aspirin

Answer:Graduated compression stockings

Explanation:

Compression stockings are the recommended treatment for post-thrombotic syndrome

Important for meLess important

His symptoms are due to post-thrombotic syndrome, for which compression stockings are the recommended treatment. Leg elevation is also recommended but would not be the first choice treatment over compression stockings.

(1) There is no evidence that a DVT has recurred and this would require clinical examination and venous doppler ultrasound to diagnose, his initial DVT was also due to an obvious precipitating factor which has resolved and therefore 3 months anticoagulation is correct

(3) This is not a first-line treatment for post-thrombotic syndrome

(5) Aspirin is not a treatment for post-thrombotic syndrome

Question:

A 66-year-old woman attends the emergency department with a 2-week history of lethargy and anorexia. Her past medical history includes metastatic bronchial carcinoma for which she has recently completed a course of radiotherapy.

Her observations are as follows:

Temperature 36.1ºC

Heart rate 114bpm

Blood pressure 91/52mmHg

Respiratory rate 16 breaths/min

Oxygen saturations 95% on air

On examination, she appears pale and dehydrated. Chest sounds are clear and heart sounds are normal. Her abdomen is soft.

Laboratory tests:

Hb 102 g/L (115 - 160)

Platelets 299 \* 109/L (150 - 400)

WBC 8.1 \* 109/L (4.0 - 11.0)

Na+ 128 mmol/L (135 - 145)

K+ 5.9 mmol/L (3.5 - 5.0)

Urea 9.1 mmol/L (2.0 - 7.0)

Creatinine 150 µmol/L (55 - 120)

Calcium 2.7 mmol/L (2.1-2.6)

What is the most likely diagnosis?

A.Addison's disease

B.Hyperparathyroidism

C.Pneumonia

D.Radiation pneumonitis

E.Syndrome of inappropriate ADH

Answer:Addison's disease

Explanation:

Metastatic malignancy can cause Addison's disease

Important for meLess important

This patient is displaying symptoms of hypoadrenalism (e.g. Addison's disease) with lethargy, anorexia and significant hypotension and tachycardia. Laboratory tests in patients with hypoadrenalism tend to demonstrate hyponatraemia and hyperkalaemia which are also seen here. Metastatic malignancy to the adrenal glands, including metastatic bronchial carcinoma, can cause Addison's disease and should be considered as the diagnosis for this patient.

Patients with malignancy, particularly squamous cell and small cell carcinoma of the lung, are more likely to develop a paraneoplastic syndrome (e.g. raised parathyroid hormone-related protein (PTH-rp)). Raised PTH-rp can mimic hyperparathyroidism and cause hypercalcaemia and increased thirst and lethargy. Whilst this patient is hypercalcaemic, additional blood tests also show hyponatraemia and hyperkalaemia which, in combination with hypotension and tachycardia, is more suggestive of hypoadrenalism.

Although this patient has tachycardia and hypotension that could represent sepsis, the lack of fever, cough or raised inflammatory markers makes it unlikely that the underlying diagnosis is pneumonia.

Radiation pneumonitis may be seen in patients following radiation therapy with symptoms including pleuritic chest pain, shortness of breath, cough and low-grade fever. This patient is not displaying any of these symptoms and radiation pneumonitis does not explain her blood test findings.

Syndrome of inappropriate ADH (SIADH) can present as a paraneoplastic syndrome in patients with lung malignancy. Hyponatraemia is a common presenting symptom due to the dilutional effect of excess water retention. However, SIADH does not cause tachycardia, hypotension or hyperkalaemia and suggests an alternative diagnosis.

Question:

A 40-year-old woman presents with recurrent episodes of vertigo associated with a feeling or 'fullness' and 'pressure' in her ears. She thinks her hearing is worse during these attacks. Clinical examination is unremarkable. What is the most likely diagnosis?

A.Meniere's disease

B.Benign paroxysmal positional vertigo

C.Acoustic neuroma

D.Cholesteatoma

E.Somatisation

Answer:Meniere's disease

Explanation:

Question:

A 57-year-old woman presents to the emergency department with a 2-hour history of palpitations.

Her past medical history is significant for type 2 diabetes mellitus, chronic heart failure, hypertension, and bipolar affective disorder. Regular medications include metformin, canagliflozin, lithium carbonate, candesartan, bumetanide, and spironolactone.

On examination, the patient appears pale and sweaty. Her ECG shows tall P waves, flattened T waves, ST depression, and prominent U waves.

Given the likely electrolyte disturbance, which drug may have been responsible?

A.Bumetanide

B.Canagliflozin

C.Candesartan

D.Lithium carbonate

E.Spironolactone

Answer:Bumetanide

Explanation:

Loop diuretics may cause hypokalaemia

Important for meLess important

This patient's ECG is highly suggestive of severe hypokalaemia. Severe hypokalemia causes tall P waves, T wave flattening/inversion, ST depression, and prominent U waves.

The correct answer is bumetanide, as this is the only drug listed that is commonly associated with hypokalemia. Bumetanide is a loop diuretic, acting on the thick ascending limb of the loop of Henle. Loop diuretics such as bumetanide are associated with electrolyte disturbances such as hypokalemia, hyponatremia, and hypomagnesemia.

Canagliflozin is incorrect, as it is not commonly associated with hypokalaemia or other electrolyte disturbances. Canagliflozin is an SGLT-2 inhibitor and oral hypoglycemic agent used in the management of type 2 diabetes mellitus.

Candesartan is incorrect, as this may be associated with hyperkalemia rather than hypokalaemia. Candesartan is an angiotensin-2-receptor blocker (ARB) used in the management of hypertension and may be used first-line in patients under 55.

Lithium carbonate is incorrect, as this is associated with hypercalcaemia and hypernatremia, rather than hypokalemia. These electrolyte disturbances may be mediated by lithium-associated renal impairment or nephrogenic diabetes insipidus.

Spironolactone is incorrect. Spironolactone is an aldosterone antagonist and potassium-sparing diuretic, associated with hyperkalemia rather than hypokalemia. ECG findings in spironolactone-induced hyperkalemia may include peaked T waves, flattened P waves, or PR prolongation.

Question:

A 32-year-old man is seen in GP for discussion following his recent blood results. He presented 2 weeks ago with a 2-month history of non-bloody diarrhoea and fatigue. He had no other symptoms.

His results are shown:

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 272 \* 109/L (150 - 400)

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

CRP 2 mg/L (< 5)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

Bilirubin 12 µmol/L (3 - 17)

ALP 210 u/L (30 - 100)

ALT 28 u/L (3 - 40)

γGT 47 u/L (8 - 60)

Calcium 1.8 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

Magnesium 1.0 mmol/L (0.7-1.0)

Vitamin D 15ng/mL (20-50)

Pending further investigation, what is the most likely diagnosis?

A.Coeliac disease

B.Crohn's disease

C.Gastroenteritis

D.Irritable bowel syndrome

E.Ulcerative colitis

Answer:Coeliac disease

Explanation:

Diarrhoea, fatigue, osteomalacia → ?coeliac disease

Important for meLess important

Coeliac disease is correct. This patient is presenting with a short history of diarrhoea and fatigue. His blood results demonstrate mild anaemia, a calcium, phosphate and vitamin D deficiency combined with an isolated rise in ALP. This picture is indicative of anaemia combined with osteomalacia. The low Hb shows mild anaemia. Then, the low levels of calcium, phosphate and vitamin D indicate osteomalacia. The anaemia seen in this picture is likely due to iron malabsorption due to the flattening of the villi in the duodenum and jejunum. We also see osteomalacia in untreated coeliac disease due to the reduced absorption of vitamin D in the small intestine.

Crohn's disease is incorrect. Crohn's disease can present with diarrhoea and fatigue. We could see the anaemia and deficiencies that we see in the patient above. However, the normal CRP level points away from a diagnosis of Crohn's disease, making this answer incorrect. This patient also has no evidence of any other symptoms of Crohn's disease e.g. mucosal involvement (such as mouth ulcers) or perianal disease.

Gastroenteritis is incorrect. Although this can present similarly, you would not expect to see these blood results in a patient presenting with gastroenteritis. You would also expect to see a raised CRP, which is not present.

Irritable bowel syndrome is incorrect. Irritable bowel syndrome is a diagnosis of exclusion. This patient has obvious abnormalities in his blood results and so, therefore, requires further investigation. This answer is, therefore, incorrect.

Ulcerative colitis is incorrect. Ulcerative colitis can present with diarrhoea and fatigue, and we could see the anaemia and deficiencies that we see in the patient above. However, the normal CRP level points away from a diagnosis of ulcerative colitis, making this answer incorrect. This patient also presents with non-bloody diarrhoea. In ulcerative colitis, you would expect to see blood in the diarrhoea.

Question:

You are on the phone with a 56-year-old gentleman who is concerned about his blood pressure control. He has been monitoring his blood pressure at home on a daily basis over the past week. His reading has been consistently over 140/90mmHg with the highest reading being 154/86mmHg. He is otherwise well in himself with no chest symptoms. He has a past medical history of hypertension and is currently taking perindopril. He was previously on amlodipine, but this was stopped as he developed significant ankle oedema whilst taking this medication. His recent blood test shows the following:

Na+ 136 mmol/L (135 - 145)

K+ 4.6 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 80 µmol/L (55 - 120)

Which of the following is the most appropriate next step management for his hypertension?

A.Aldosterone antagonist

B.Beta blocker

C.Calcium channel blocker

D.Angiotensin receptor blocker

E.Thiazide-like diuretic

Answer:Thiazide-like diuretic

Explanation:

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

Important for meLess important

The correct answer is thiazide-like diuretic. Patient’s blood pressure remained uncontrolled despite step 1 treatment with ACE inhibitor. In this instance, NICE recommends adding a calcium channel blocker or a thiazide-like diuretic as step 2 management. As the patient has a history suggestive of intolerance to calcium channel blocker, a thiazide-like diuretic is the preferred choice of antihypertensive agent.

Aldosterone antagonist and beta-blocker are incorrect answers. They are used in step 3 and 4 management of hypertension.

ACE inhibitor is the incorrect answer. It should not be combined with an angiotensin receptor blocker in the management of hypertension due to the risk of acute kidney injury.

Question:

A 47-year-old woman presents to her general practitioner (GP) for her routine cervical smear which was performed without any issues. She receives a letter to inform her that her cervical smear was negative for high-risk strains of human papillomavirus (hrHPV).

What is the most appropriate next step?

A.Cytological examination of the smear

B.Repeat cervical smear in 3 months

C.Repeat cervical smear in 3 years

D.Repeat cervical smear in 5 years

E.Repeat cervical smear in 12 months

Answer:Repeat cervical smear in 3 years

Explanation:

Cervical cancer screening: if sample is hrHPV -ve → return to routine recall

Important for meLess important

Repeating the cervical smear in 3 years is correct because this is routine recall for someone between 25-49 years of age. Her most recent smear was negative for high-risk strains of human papillomavirus (hrHPV). Therefore following current guidance she should return to routine recall for her next cervical smear.

Cytological examination is incorrect because it is not indicated. A sample is tested for hrHPV first and cytological examination is only performed if this is positive. Therefore as her cervical smear was negative for hrHPV, cytological examination is not required.

Repeating a cervical smear after 3 months is not correct because it would usually be indicated if the smear was inadequate which is not the case here.

Repeating the cervical smear in 5 years is incorrect because that is routine recall under the cervical screening programme for people between 50-65 years of age. As this patient is 47 years old, this is not the appropriate timeframe for recall.

Repeating the cervical smear after 12 months is not correct because that would be appropriate if the most recent smear was hrHPV positive but with no cytological abnormalities.

Question:

A 25-year-old female presents to her GP asking for advice about contraception. She decides to have the intrauterine system inserted. What is the most common side effect occurring within the first 6 months of insertion of the intrauterine system she should be advised about?

A.Menorrhagia

B.Irregular bleeding

C.Uterine perforation

D.Pelvic inflammatory disease

E.Weight gain

Answer:Irregular bleeding

Explanation:

In the first 6 months following insertion of the intrauterine system, irregular bleeding is a common side effect. Eventually, most women using the IUS become oligomenorrhoeic or amenorrhoeic, which benefits those who suffer from menorrhagia or do not wish to have periods.

Question:

At what age would the average child start to play alongside, but not interacting with, other children?

A.3 months

B.6 months

C.12 months

D.2 years

E.4 years

Answer:2 years

Explanation:

Question:

You are reviewing the blood results of a 54-year-old woman. Her eGFR is unexpectedly low. She has no past medical history and takes no regular medications. She had a blood test done a month ago which showed a normal eGFR.

What is most likely to have caused this?

A.Alcohol consumption the evening before the blood test

B.Amputated limb

C.Eating red meat the evening before the blood test

D.Ibuprofen use the evening before the blood test

E.Pregnancy

Answer:Eating red meat the evening before the blood test

Explanation:

Eating red meat the evening before a blood test can invalidate eGFR result

Important for meLess important

Eating red meat the evening before the blood test can invalidate the eGFR due to creatinine in the meat. With unexpected blood results, it is important to consider possible causes for this and whether repeating the test to confirm the finding might be appropriate before changing management.

Alcohol consumption the evening before the blood test is incorrect. This would not affect the eGFR the next day; patients do not need to be advised to avoid alcohol the night before a blood test.

Having an amputated limb can invalidate the eGFR result, but the question stem states this patient has no past medical history. Amputation means serum creatinine is reduced, leading to eGFR calculations overestimating renal function in these patients. Caution is required when adjusting medications based on renal function.

Ibuprofen use the evening before the blood test is incorrect. Ibuprofen can affect renal function longer term, but a single dose of ibuprofen would not affect eGFR the next day. It may be appropriate to do a medication review including any over-the-counter medications the patient has been taking to investigate the cause of an unexpectedly low eGFR.

Pregnancy can invalidate the eGFR result, but in a 54-year-old woman red meat consumption is more likely to be the cause. Pregnancy causes an increased eGFR. The mechanism behind this is poorly understood.

Question:

A 45-year-old man has had a chronic productive cough for several months with a few episodes of mild haemoptysis. He has also had unexpected weight loss and night sweats. There is no history of smoking. A sputum sample is taken and is positive for acid-fast bacilli. He is started on an initial phase of treatment and is also prescribed pyridoxine.

The risk of developing what adverse drug effect is reduced by co-prescribing pyridoxine?

A.Agranulocytosis

B.Hepatitis

C.Optic neuritis

D.Orange secretions

E.Peripheral neuropathy

Answer:Peripheral neuropathy

Explanation:

The risk of peripheral neuropathy with isoniazid can be reduced by prescribing pyridoxine

Important for meLess important

Peripheral neuropathy is the correct answer. This patient has tuberculosis as characterised by his chronic cough, haemoptysis, unexplained weight loss, and the presence of acid-fast bacilli. The initial treatment for tuberculosis involves the use of RIPE drugs (Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol). Isoniazid can cause peripheral neuropathy. This risk can be mitigated by co-prescribing pyridoxine (vitamin B6).

Agranulocytosis is incorrect. This is another adverse effect of isoniazid, but cannot be prevented by pyridoxine.

Hepatitis is incorrect. This is an adverse effect of rifampicin, isoniazid and pyrazinamide. The risk is not reduced by pyridoxine.

Optic neuritis is incorrect. Ethambutol can cause optic neuritis. The risk is not reduced by pyridoxine.

Orange secretions is incorrect. This is an adverse effect of rifampicin. The risk is not reduced by pyridoxine.

Question:

A 70-year-old lady is seen in the respiratory clinic. She has been short of breath for several months with a persistent cough productive of white sputum. She has smoked 15 cigarettes a day for 55 years but managed to stop recently. A diagnosis of COPD is made. Lung function testing reveals an FEV1/FVC of 62%.

What is the most appropriate first-line management?

A.Inhaled beclomethasone

B.Inhaled beclomethasone and inhaled salbutamol

C.Inhaled beclomethasone and inhaled formoterol

D.Inhaled formoterol

E.Inhaled salbutamol or ipratropium

Answer:Inhaled salbutamol or ipratropium

Explanation:

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

Important for meLess important

Question:

An 80-year-old man presented to his general practitioner with sudden, painless loss of vision in his right eye 2 hours ago. He is an insulin-dependant type 2 diabetic, with a history of hypertension and dyslipidaemia. On further questioning, he reports brief flashing of lights before a dense shadow that started peripherally and progressed centrally.

What is the most likely diagnosis?

A.Central retinal artery occlusion

B.Central retinal vein occlusion

C.Pre-proliferative retinopathy

D.Retinal detachment

E.Vitreous haemorrhage

Answer:Retinal detachment

Explanation:

Retinal detachment is a cause of sudden painless loss of vision. It is characterised by a dense shadow starting peripherally and progressing centrally

Important for meLess important

Retinal detachment is a disorder of the eye in which the retina peels away from its underlying layer of support tissue causing flashes of light, increased floaters and a dense shadow that starts in the peripheral vision and slowly progresses towards the central vision.

Central retinal artery occlusion is the blockage of blood to the retina of one eye. It usually causes a sudden loss of eyesight in one eye usually from an embolus. It rarely gives floaters, flashing lights or dense shadows seen in this case.

Central retinal vein occlusion will often be described as the blurry or distorted vision in one eye that began suddenly, these symptoms are not seen here.

Vitreous haemorrhage results in the sudden appearance of spots or floaters in your vision to cause a sudden blurring of vision but does not cause flashing lights seen in retinal detachment.

Pre-proliferative retinopathy causes the sudden appearance of floaters in your vision with distortion of object shapes and visual loss as a result.

Question:

A 67-year-old male is admitted to the surgical unit with acute abdominal pain. He is found to have a right-sided pneumonia. The nursing staff put him onto 15L O2 via a non rebreathe mask. After 30 minutes the patient is found moribund, sweaty and agitated by the nursing staff. An arterial blood gas reveals:

pH 7.15

pCO2 10.2

pO2 8

Bicarbonate 32

Base excess + 5.2

What is the most likely cause for this patients deterioration?

A.Acute respiratory alkalosis secondary to hyperventilation

B.Over administration of oxygen in a COPD patient

C.Metabolic acidosis secondary to severe pancreatitis

D.Metabolic alkalosis secondary to hypokalaemia

E.Acute respiratory acidosis secondary to pneumonia

Answer:Over administration of oxygen in a COPD patient

Explanation:

This patient has an acute respiratory acidosis, however this is on a background of chronic respiratory acidosis (due to COPD) with a compensatory metabolic alkalosis (the elevated bicarbonate is the main clue to the chronic nature of the respiratory acidosis). This blood gas picture is typical in a COPD patient who has received too much oxygen; these patients lose their hypoxic drive for respiration, therefore retain CO2 and subsequently hypoventilate leading to respiratory arrest. If the bicarbonate was normal, then the answer would be acute respiratory acidosis secondary to pneumonia.

Question:

A 31-year-old woman is diagnosed with a primary herpes infection at 35+2 weeks gestation. She does not have any other medical problems. She has had a normal pregnancy up to this point. A Caesarean section is planned for delivery at 39 weeks. What treatment should be initiated?

A.Give neonate IV aciclovir post-delivery

B.Oral aciclovir 400 mg tds until delivery

C.Give the mother IV aciclovir during delivery

D.No treatment is required as Caesarean section is planned for delivery

E.Topical aciclovir applied 5 times a day for 10 days

Answer:Oral aciclovir 400 mg tds until delivery

Explanation:

Oral aciclovir 400 mg TDS (three times daily) until delivery is recommended in the RCOG guidelines for women who present with a primary herpes infection in their third trimester of pregnancy, especially if the woman is expected to deliver within 6 weeks.

Although a Caesarean section is planned for delivery, making the risk of vertical transmission to the infant quite low, the mother will require suppressive treatment for the herpes infection. Herpes infections can be very painful and recurrent in pregnancy due to the depressed immune response.

IV aciclovir for the mother or for the infant is only recommended if there has been a preterm pre-labour rupture of membranes or a spontaneous vaginal delivery in the presence of a primary herpes infection.

Neonatal herpes is one of the ToRCH (toxoplasmosis, other, rubella, CMV, herpes) infections. It is rare but has a high morbidity and mortality rate. Infections in neonates can be localised to the skin and eyes but can also cause encephalitis or involve multiple organs in disseminated herpes. Infections are due to transmission at birth, often during vaginal delivery.

The risk of vertical transmission is greatest if a woman contracts a primary infection within 6 weeks of delivery. During the first few weeks of a primary infection viral shedding is at its highest and it is also before the mother can produce protective maternal antibodies that will cross the placenta and protect the infant. In those with symptoms of a primary infection within 6 weeks of delivery, rates of neonatal transmission can be as high as 41% if the mother does not have suppressive treatment and has a vaginal delivery. (Source RCOG guidelines)

It can be difficult to differentiate between a primary infection and a recurrent infection and the guidelines recommend suppressive therapy for both infections after 36 weeks until delivery. Recommended method of delivery in a primary infection is a Caesarean section. For a recurrent infection the risk of transmission is low due to maternal antibodies and a Caesarean section is not recommended.

Guidelines: RCOG Management of Genital Herpes in Pregnancy https://www.rcog.org.uk/globalassets/documents/guidelines/management-genital-herpes.pdf

Question:

A 34-year-old man presents in general practice with a painful right scrotal swelling. He has a past medical history of von Hippel-Lindau syndrome. On examination, a 4mm lump can be felt posterior to and separate to the right testicle. There is no erythema, gross scrotal enlargement, or dysuria. The patient is apyrexial with normal vital signs. Tumour markers are normal.

What is the most likely diagnosis?

A.Hydrocele

B.Epididymo-orchitis

C.Varicocele

D.Testicular cancer

E.Epididymal cyst

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

There are several clues in this vignette pointing towards an epididymal cyst. Epididymal cysts are typically tender and found posterior and separate to the testicle. Moreover, von Hippel-Lindau syndrome causes multiple cysts around the body and predisposes a patient to epididymal cysts.

A hydrocele would cause widespread non-tender hemi-scrotal enlargement.

Epididymo-orchitis is a cause of unilateral testicular pain and swelling. However, it may be associated with symptoms of urethritis and is less likely given the examination findings.

Varicoceles are much more common (80%) on the left side and are associated with a 'bag of worms' texture.

Although this patient is at a peak age for testicular cancer, this tender lump is found posterior and separate to the testicle. Whereas testicular cancer would present as a painless lump on the testicle. Furthermore, tumour markers are normal making the diagnosis less likely. In reality, this patient would likely receive an ultrasound to confirm the diagnosis.

Question:

A 45-year-old woman presents to the rheumatology clinic because of poorly controlled rheumatoid arthritis. She has a five-year history of swollen, painful joints in her hands and feet, especially her metacarpophalangeal joints. They are stiff and painful in the morning and the pain improves with usage throughout the day.

She already tried methotrexate and sulfasalazine and they both have been unsuccessful treatments. The doctor decides to put her on a trial of TNF-inhibitors.

Which one of the following would you perform before the commencement of treatment?

A.Abdominal x-ray

B.Chest x-ray

C.Full blood count

D.Liver function test

E.Urea and electrolytes test

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

The correct answer is a chest x-ray. Biological treatments for rheumatoid arthritis, especially TNF-inhibitors, have been shown to increase the chances of reactivation of tuberculosis. Hence, it is necessary to perform a chest X-ray before beginning the treatment. She might have nodules that can potentially become reactivated.

An abdominal x-ray is not indicated in this situation. It is usually used in cases of abdominal pain with suspected perforation.

Full blood count and liver function test are used as an essential monitoring tool for DMARDs but is not indicated to perform them before the beginning of the treatment. This is due to the risk of myelosuppression and liver cirrhosis.

Urea and electrolytes testing is not indicated in this case, but they are performed before the prescription of ACE inhibitors and lithium.

Question:

A 60-year-old man with chronic schizophrenia presented with nausea and vomiting. He receives metoclopramide for his symptoms. Twenty minutes later he becomes agitated and develops marked oculogyric crises and oromandibular dystonia.

What is the most appropriate drug to prescribe?

A.Haloperidol

B.Lorazepam

C.Midazolam

D.Procyclidine

E.Propofol

Answer:Procyclidine

Explanation:

Acute dystonia secondary to antipsychotics is usually managed with procyclidine

Important for meLess important

This man has developed an acute dystonic reaction. Procyclidine will help to reverse the event. It belongs to a class of medication called anticholinergics that work by blocking acetylcholine. This helps decrease muscle stiffness, sweating, and the production of saliva, and helps improve walking ability in people with Parkinson's disease. This is most likely to have occurred because the patient is on long-term anti-psychotics and has then received metoclopramide.

Midazolam will relieve the anxiety but will not solve his dystonic reaction.

Lorazepam is a benzodiazepine like midazolam but longer acting. It will relieve the anxiety but will not solve his dystonia.

Propofol is used in anaesthetic situations such as induction of anaesthesia. It will not help in relieving the symptoms.

Haloperidol is D2 antagonist. It can block dopaminergic receptors in the basal ganglia which is responsible for normal tone and fine-tuning of movements. It would, therefore, make the situation worse as it is one of the causes for acute dystonic reaction.

Question:

A mother of a 10-week-old baby reports that he has not been himself for the past 24 hours; he is not smiling as much and is having 25% less breastfeeds. He was born term without complication, has been thriving well and is up to date with his immunisations. Examination is unremarkable apart from a temperature of 38.5ºC. What would be the most appropriate initial step in management?

A.Reassure mother that this is most likely a self-limiting virus and advise on conservative measures and strict safety-netting

B.Recommend breastfeeding support from the health visitor

C.Refer for same-day paediatric assessment

D.Administer IM benzylpenicillin immediately and call an ambulance

E.Perform a urine dipstick

Answer:Refer for same-day paediatric assessment

Explanation:

A child aged < 3 months with a fever > 38ºC should be assessed as high risk of serious illness

Important for meLess important

The NICE traffic light system for identifying the risk of serious illness in children categorises a temperature of >38°C in children <3 months of age as red (high risk). The explanatory notes from NICE CKS advises that 'evidence from six studies suggested that the risk of serious illness in this group was over 10 times higher in children aged under 3 months than in older children.'

Question:

A 28-year-old woman attends the early pregnancy assessment unit at 7 weeks gestation due to heavy vaginal bleeding. Ultrasound confirms an intra-uterine miscarriage.

After 14 days of expectant management the patient attends for follow up. She describes ongoing light vaginal bleeding. There are no signs of ectopic pregnancy and she is haemodynamically stable. Ultrasound scan confirms incomplete miscarriage.

What is the most appropriate next step?

A.Admission and observation

B.Manual vacuum aspiration under local anaesthetic

C.Oral methotrexate

D.Surgical management under a general anaesthetic

E.Vaginal misoprostol

Answer:Vaginal misoprostol

Explanation:

Medical management of a miscarriage involves giving vaginal misoprostol alone

Important for meLess important

The NICE miscarriage Clinical Knowledge Summary states that medical management is offered if expectant management is not clinically appropriate or a woman has ongoing symptoms after 14 days of expectant management. This may be with either vaginal or oral misoprostol.

Manual vacuum aspiration and surgical management are options which may be used if products of conception are retained despite medical treatment or if symptoms are ongoing after 14 days of expectant management. These options may be considered at this stage but it would be unusual with only mild ongoing symptoms and haemodynamic stability.

Admission and observation would not normally be required in a patient who is not haemodynamically compromised. In most cases, women can go home after taking misoprostol for the miscarriage to complete.

Oral methotrexate is used in the medical management of ectopic pregnancy.

Question:

A 26-year-old Bangladeshi woman telephones her GP for advice. She is 14-weeks pregnant and 3 days ago was childminding her niece who is suffering from chickenpox. The patient spent several hours with her niece and engaged in close contact such as hugging. The patient feels well in herself and has no symptoms of note. She is uncertain if she has experienced chickenpox in the past.

Given the above, what is the most appropriate course of action?

A.Check antibody levels

B.Discuss case with midwife

C.Give varicella zoster immunoglobulin (VZIG)

D.Prescribe oral aciclovir

E.Reassurance only

Answer:Check antibody levels

Explanation:

Chickenpox exposure in pregnancy - first step is to check antibodies

Important for meLess important

Primary infection with varicella in pregnancy can lead to potentially life-threatening maternal complications such as pneumonitis. There is also a small risk of foetal varicella syndrome (FVS) if exposure occurs within the first 28 weeks of gestation.

If a pregnant patient is exposed to chickenpox or shingles, her blood should be checked for varicella antibodies if her immune status is unknown. If the patient is non-immune then varicella-zoster immune globulin (VZIG) should be administered as soon as possible for post-exposure prophylaxis (PEP).

Although the patient's midwife will likely wish to be informed, management and organisation of the blood test can be arranged by the GP.

If exposed to chickenpox or shingles, a pregnant woman less than 20 weeks gestation who is non-immune to varicella should be given VZIG. The administration of VZIG should be as soon as possible, though may be effective if left up to 10 days post-exposure.

Oral aciclovir (or an equivalent antiviral) is advised in patients more than 20 weeks gestation who develop chickenpox. This should be commenced within 24 hours of rash onset. If the patient is less than 20 weeks gestation then specialist advice should be sought.

Providing only reassurance is inappropriate for this particular case. If the patient proves non-immune to varicella then she and the foetus will be at risk.

Question:

Sally is a 34-year-old woman who comes to see you with a 6 month history of chronic pelvic pain and dysmenorrhoea which is starting to affect her daily life particularly at work. On further questioning, she also describes painful bowel movements which start just before her period and continue throughout it.

You suspect endometriosis and Sally asks you how this can be checked for.

What is the gold-standard investigation that can confirm this diagnosis for Sally?

A.Laparoscopic visualisation of the pelvis

B.Pelvic MRI scan

C.Transabdominal ultrasound

D.Transvaginal ultrasound

E.Serum CA125 level

Answer:Laparoscopic visualisation of the pelvis

Explanation:

Laparoscopy is the gold-standard investigation for patients with suspected endometriosis

Important for meLess important

NICE guidelines state:

Diagnosis of endometriosis can only be made definitively by laparoscopic visualization of the pelvis.

Laparoscopy should be considered in women with suspected endometriosis, even if a transvaginal or transabdominal ultrasound is normal.

If a full, systematic laparoscopy is performed and is normal, the woman should be advised that she does not have endometriosis, and alternative management offered.

Question:

You perform a newborn examination on a 1-day-old boy. He was born at term via spontaneous vaginal delivery. There were no complications prenatally or during labour. On examination, he is a healthy-looking baby. His height, weight and head circumference are all in the 70th percentile. You notice a flat purple lesion on the babies cheek which has been present since birth. This does not seem to be painful. All other examinations are normal.

What is the most likely diagnosis?

A.Port wine stain

B.Strawberry naevus

C.Angiosarcoma

D.Salmon patch

E.Morphea

Answer:Port wine stain

Explanation:

A port-wine stain is a capillary malformation seen at birth which usually requires no treatment. It is typically flat and dark red/purple in colour.

Morphea is not typically found in neonates and is a thickened area of skin due to localised scleroderma. Angiosarcoma is a cancer of the blood vessel lining and can be found in the skin, deep tissue, liver and spleen. They are very rare in neonates and would typically be a raised red/purple lesion. These findings may indicate more severe underlying disease.

Strawberry naevi (infantile haemangiomas) are soft raised vascular swellings on the skin surface, usually bright red in colour. Salmon patches tend to be flat, dull-red areas usually found on the face or neck. These findings are typically asymptomatic and only removed for cosmetic purposes.

Question:

A patient is admitted with central chest pain and a diagnosis of non-ST elevation myocardial infarction is made. Aspirin and fondaparinux are given. What is the mechanism of action of fondaparinux?

A.Reversible direct thrombin inhibitor

B.Glycoprotein IIb/IIIa receptor antagonist

C.Inhibits antithrombin III

D.Inhibits ADP binding to its platelet receptor

E.Activates antithrombin III

Answer:Activates antithrombin III

Explanation:

Fondaparinux works in a similar way to low-molecular weight heparin.

Question:

A 24-year-old woman is brought to the Emergency Department by her friend. The friend states she has been acting differently and can't seem to concentrate on one thing at a time. He has noticed over the past few days that she hasn't been sleeping as he can hear her walking around in the early hours of the morning. His main concern is that she has been coming home with multiple bags of very expensive looking shopping every day for the past 3 days.

The patient denies any hallucinations but states she feels great and wants to eat all the time. She has no past medical history and takes no medications.

What is the most likely cause of this patient's presentation?

A.Bipolar disorder

B.Frontal lobe injury

C.Hypomania

D.Mania

E.Psychosis

Answer:Hypomania

Explanation:

Hypomania is characterised by elevated mood, pressured speech and flight of ideas but without psychotic symptoms

Important for meLess important

This patient is exhibiting symptoms of hypomania. She is agitated, has insomnia and has an increased appetite. Patients with hypomania can experience disinhibition such as increased sexuality, increased spending or taking risks that they wouldn't normally. Features that differentiate this presentation from that of mania include the time frame (less than 7 days) and the lack of psychotic symptoms (hallucinations).

Bipolar disorder has two types: type I and type II. Type I involves episodes of mania and depression and is the most common type. Type II involves episodes of hypomania and depression. While this patient could go on to be diagnosed with type II bipolar disorder, the history does not suggest any prior episodes of depression so at the moment, hypomania is the most appropriate diagnosis.

Frontal lobe injury can present with motor symptoms (weakness or paralysis), difficulty with speech and disinhibition. This can occur due to trauma, infection, stroke, tumours or multiple sclerosis, among other things. This patient doesn't have any history to suggest this condition.

Mania generally lasts for longer than 7 days and is more severe than an episode of hypomania. It can present with all the same symptoms as hypomania but also includes symptoms of psychosis such as hallucinations or delusions. These features are not present in this patient.

This patient is not exhibiting any symptoms of psychosis. Further to those features mentioned above, psychosis can also involve thought disorganisation such as tangentiality, word salad (saying things that don't make sense) and poverty of speech.

Question:

A 28-year-old woman presents to the GP complaining of incidences of dyspareunia, as well as dysuria, and dysmenorrhoea.

Bimanual examination reveals generalised tenderness, a fixed, retroverted uterus and uterosacral ligament nodules.

You refer her for laparoscopy to confirm the suspected diagnosis of endometriosis.

What is the most appropriate initial management option?

A.Codeine

B.Combined oral contraceptive pill

C.Ibuprofen

D.Mirena coil

E.Progestogen-only pill

Answer:Ibuprofen

Explanation:

NSAIDs and/or paracetamol are the recommended first-line treatments for endometriosis

Important for meLess important

Ibuprofen is the most appropriate option for the initial management of endometriosis, as analgesia is the recommended first-line treatment. NSAIDs such as ibuprofen, or another analgesic such as paracetamol can be trialled initially for symptomatic management. These can then be used in conjunction if the pain is not managed with just one. If this is unsuccessful, consider hormonal treatment.

Codeine is incorrect. The first line analgesia to be trialled includes paracetamol and NSAIDs like ibuprofen. Opiates can be used further down the management line but these wouldn’t typically be considered until hormonal therapies have been trialled.

Combined oral contraceptive pill is incorrect. The first line intervention is analgesia including paracetamol and/ or NSAIDs, and if a combination of these fails to manage the symptoms hormonal treatment should be considered.

Mirena coil is incorrect. The first line intervention is analgesia including paracetamol and/ or NSAIDs, and if a combination of these fails to manage the symptoms hormonal treatment should be considered.

Progestogen-only pill is incorrect. The first line intervention is analgesia including paracetamol and/ or NSAIDs, and if a combination of these fails to manage the symptoms hormonal treatment should be considered.

Question:

A 50-year-old, previous well man, undergoes a successful outpatient percutaneous intervention having been diagnosed with coronary disease. Post-procedure he is discharged with a number of secondary preventive and symptomatic medications however after a few days of taking his new medications he develops raised, itchy bumps mainly around his upper limbs and trunks.

He is otherwise well and there is no mucosa involvement. His symptoms improve with simple anti-histamine.

What medication is most likely to have caused this patient’s condition?

A.Amlodipine

B.Aspirin

C.Bisoprolol

D.Furosemide

E.Glyceryl trinitrate

Answer:Aspirin

Explanation:

Aspirin is a common cause of urticaria

Important for meLess important

This patient has developed simple urticaria secondary to aspirin. Although several medications are associated with the condition its incidence in aspirin is relatively common. The full mechanism is unknown but it is thought to be due to aspirin increasing arachidonic acid metabolism to cysteinyl leukotriene instead of prostaglandin. Cysteinyl leukotriene directly affects blood vessels and increases histamine release resulting in the common symptoms of urticaria.

Calcium channel blockers (CaCB), including amlodipine are not commonly associated with urticaria. Some CaCB, such as nifedipine, have actually been trialled as a treatment for chronic idiopathic urticaria with positive results.

Although beta-blockers, including bisoprolol, are known to exacerbate established conditions with skin features such as systemic lupus erythematosus (SLE) and Raynaud’s syndrome, they are not commonly associated with urticaria.

Furosemide is associated with certain skin conditions including eczema, bullous eruption and rarely Steven-Johnson’s syndrome however it is not known to cause urticaria.

Glyceryl trinitrate can cause vasodilation and flushing of the skin, however, it is not commonly associated with urticaria.

Question:

A 34-year-old man confides in you that he experienced childhood sexual abuse. Which one of the following features is not a characteristic feature of post-traumatic stress disorder?

A.Hyperarousal

B.Emotional numbing

C.Nightmares

D.Loss of inhibitions

E.Avoidance

Answer:Loss of inhibitions

Explanation:

Question:

A 66-year-old woman attends for review after a recent inpatient admission with erysipelas of her arm. She had been systemically unwell and required admission for intravenous antibiotics. She is completing her treatment with oral antibiotics. She has no known drug allergies.

What is the most likely prescription?

A.Ciprofloxacin

B.Doxycycline

C.Erythromycin

D.Flucloxacillin

E.Metronidazole

Answer:Flucloxacillin

Explanation:

Erysipelas - flucloxacillin

Important for meLess important

An antibiotic should be offered for individuals with cellulitis or erysipelas. Both conditions are characterised by acute localized inflammation and oedema, with lesions more superficial in erysipelas with a well-defined, raised margin.

When choosing an antibiotic take account of the severity of symptoms; the site of infection; the risk of developing complications and previous antibiotic use. In this instance, the individual has originally been admitted to the hospital due to the features of being systemically unwell. In terms of oral antibiotics, flucloxacillin is the first-line treatment for erysipelas specifically. This should not be confused with cellulitis near the eyes or nose where co-amoxiclav should be used.

Ciprofloxacin use should be limited to specific indications given its link to Clostridium difficile infection.

Doxycycline is not the first choice and even with penicillin allergy, clarithromycin or erythromycin should be used where flucloxacillin for erysipelas or cellulitis.

Erythromycin is not the first-line choice but as before, would be appropriate in this instance if there was a history of a penicillin allergy.

Metronidazole in combination with clarithromycin can be used where there is cellulitis near the eyes or nose and the individual has a penicillin allergy. Monotherapy is, therefore, an incorrect answer.

Question:

An 18-year-old male presents with lethargy, night sweats and on examination is found to have left supraclavicular lymphadenopathy. A surgical registrar performs a left supraclavicular lymph node biopsy. The pathologist identifies Reed- Sternberg cells on the subsequent histology sections, what is the most likely diagnosis?

A.Metastatic gastric cancer

B.Hodgkin's lymphoma

C.Non-Hodgkin's lymphoma

D.Tuberculosis

E.None of the above

Answer:Hodgkin's lymphoma

Explanation:

Reed-Sternberg cells are the characteristic histological cell type found in Hodgkins disease.

Question:

A 79-year-old woman presents to the emergency department having passed 200mL of urine in the past 12 hours and confusion. She has a past medical history of hypertension, controlled with ramipril, and dementia. Her heart rate is 83/min, respiratory rate 20/min, blood pressure 132/82 mmHg, and temperature 36.2 ºC. The team performs some blood tests which show the following:

Hb 143 g/L (115 - 160)

Platelets 321 \* 109/L (150 - 400)

WBC 8.8 \* 109/L (4.0 - 11.0)

Na+ 132 mmol/L (135 - 145)

K+ 7.1 mmol/L (3.5 - 5.0)

Urea 15.1 mmol/L (2.0 - 7.0)

Creatinine 122 µmol/L (55 - 120)

An electrocardiogram is performed.

What is the most appropriate immediate management?

A.Calcium resonium enema

B.Dialysis

C.IV calcium gluconate

D.IV calcium gluconate infusion and IV insulin dextrose infusion

E.IV insulin infusion

Answer:IV calcium gluconate infusion and IV insulin dextrose infusion

Explanation:

All patients with severe hyperkalaemia (≥ 6.5 mmol/L) or with ECG changes:

IV calcium gluconate

insulin/dextrose infusion

Important for meLess important

The correct answer is to administer IV calcium gluconate infusion and IV insulin dextrose infusion. This patient is presenting with anuria, a sign of acute kidney injury, and elevated blood potassium. Hyperkalaemia needs to be managed immediately as it can be lethal in a short timeframe, by causing arrhythmias. This patient has blood potassium of 7.1 mmol/L, which classifies her hyperkalaemia as severe. All patients with severe hyperkalaemia should receive IV calcium gluconate infusion and IV insulin dextrose infusion.

The IV calcium gluconate has no role in lowering the levels of potassium in the blood, but it stabilises the myocardium in order to prevent fatal arrhythmias. The insulin dextrose infusion causes a short-term shift in potassium from the extracellular fluid to the intracellular fluid.

Calcium resonium enema is an incorrect option as it is not an emergency management option for hyperkalaemia. It can be administered later on in the management to remove excess potassium in the body, but severely hyperkalaemic patients should be administered IV calcium gluconate and IV insulin dextrose infusion first.

Dialysis is an option to treat patients with acute kidney injury with persistent hyperkalaemia. In this case, the patient does not show signs of refractory hyperkalemia as she has not been administered anything yet. Hence, the first step is to administer IV calcium gluconate and IV insulin dextrose infusion.

IV calcium gluconate only is incorrect as this patient is severely hyperkalemic and should be administered both calcium gluconate and IV insulin dextrose infusion.

Insulin infusion only is incorrect as this patient is severely hyperkalemic and should be administered both calcium gluconate and IV insulin dextrose infusion. Calcium gluconate is vital as it stabilises the myocardial cells and prevents deadly arrhythmias.

Question:

A 57-year-old man is seen by the hospital team at night due to a sudden heart rate of 157 bpm. He is in hospital due to community-acquired pneumonia requiring treatment with IV antibiotics.

On examination, he is warm and well perfused, alert and orientated and all his other vital signs are within normal limits.

An ECG taken shows supraventricular tachycardia. A carotid sinus massage and blowing into a sealed syringe fails to terminate the tachycardia. He is then prescribed a drug to be administered via a large-bore cannula, in order to terminate the rhythm.

Given the most likely drug he has been given, what side effect should he be warned about?

A.Chest pain

B.Diarrhoea

C.Fever

D.Paresthesia around cannula

E.Rash around cannula

Answer:Chest pain

Explanation:

Adenosine may cause chest pain

Important for meLess important

This man has supraventricular tachycardia which has not been terminated by the use of vagal manoeuvres. He is hemodynamically stable, which is why vagal manoeuvres were used as the first-line. The next step in treatment is to administer 12mg of a drug called adenosine. This causes transient heart block which should revert the rhythm to normal. It has a very short half-life of 8-10 seconds, meaning it should be given via a large-bore cannula. Due to its vasodilatory effects, it can cause flushing, nausea, sweating, bronchospasm and also chest pain. Chest pain can be a particularly worrying symptom for patients who already know they have a problem with their heart, and therefore patients should be warned about this before administering adenosine.

Diarrhoea is not a known side effect of adenosine, given its short half-life and IV route of administration, it is unlikely to have any effects on the gastrointestinal system.

Fever is unlikely to occur with taking adenosine, and therefore this is not the correct answer.

There should be no paresthesia around the site of administration as adenosine does not affect nerves, and therefore this is not the correct answer.

A rash around the cannula may suggest phlebitis or that the drug was administered to soft tissue instead of into a vein. This is not an expected side effect and so the patient does not need to be warned about it.

Question:

A 5-week-old girl is brought to the GP surgery with a rash on her scalp:

What is the most appropriate management?

A.Referral to paediatric dermatologist

B.Swab rash and prescribe topical fusidic acid

C.Baby shampoo and baby oil

D.Topical hydrocortisone

E.Topical ketoconazole

Answer:Baby shampoo and baby oil

Explanation:

Question:

A 20-year-old female presents to the emergency department following overdose of a substance. She explains she has tinnitus and appears very anxious and sweaty. You are asked to perform an arterial blood gas (ABG). What are the most likely results on the ABG?

A.Respiratory alkalosis

B.Metabolic alkalosis followed by respiratory alkalosis

C.Metabolic acidosis

D.Respiratory alkalosis followed by metabolic acidosis

E.Respiratory acidosis followed by metabolic alkalosis

Answer:Respiratory alkalosis followed by metabolic acidosis

Explanation:

With the above clinical picture (symptoms of tinnitus, anxiety and diaphoresis), the patient has most likely taken an overdose of salicylates.

Salicylate overdoses typically presents with a respiratory alkalosis initially due to hyperventilation, followed by a metabolic acidosis due to lactic acid accumulation. Therefore whilst options 1 and 3 are also possible, the most likely option is 4.

Question:

A patient on your ward gets given half the required dose of her medication, she hasn't noticed the change and there appear to be no consequences to the altered dose. What should you do?

A.Tell the patient that the dose was low and you will go ahead as planned in stepping up the medication dose

B.Apologise to the patient, explaining what happened, and that you will alter the dose

C.Change the dose and if the patient realises then apologise

D.Keep the medication at the new dose as there are no consequences

E.Change the dose but don't worry the patient unnecessarily

Answer:Apologise to the patient, explaining what happened, and that you will alter the dose

Explanation:

'The guidance says that doctors, nurses and midwives should:

- speak to a patient, or those close to them, as soon as possible after they realise something has gone wrong with their care

- apologise to the patient, explaining what happened, what can be done if they have suffered harm and what will be done to prevent someone else being harmed in the future

- report errors at an early stage so that lessons can be learned quickly, and patients are protected from harm in the future.

Doctors must follow all our guidance: serious or persistent failure to do so will put their registration at risk'

GMC ethical guidance: When things go wrong - The professional duty of candour

Question:

A 58-year-old male presents to the GP with painless jaundice. Bloods are taken and he is referred to secondary care. The bloods come back and show a raised serum lipase and a HbA1C of 56 mmol/mol (7.3%). He denies ever being diagnosed with diabetes and is sent for a CT.

Given the most likely diagnosis, what sign may be seen on the CT?

A.Double duct sign

B.Hummingbird sign

C.Pseudo-rigler sign

D.Rigler sign

E.Whirl sign

Answer:Double duct sign

Explanation:

The 'double duct' sign may be seen in pancreatic cancer

Important for meLess important

The first part of the question is to work out the diagnosis. New onset diabetes (HbA1C of 7.3%) in someone of this age should ring alarm bells for pancreatic cancer and prompt referral. A raised serum lipase and painless jaundice also add to the case.

Double duct sign - not seen in all cases of pancreatic cancer but if it is present is either pancreatic or ampulla vater cancer. It is a dilated common bile duct and dilated pancreatic duct.

Hummingbird sign - this is seen on brain imaging and can indicate progressive supranuclear palsy (PSP). Other radiological signs of PSP are the ‘Mickey mouse sign’ and the ‘morning glory sign’.

Pseudo-rigler sign - this mimics rigler sign and is when an overlapping of bowels or omental/mesenteric fat make the bowel walls look more striking and as if you can see both sides of the bowel wall.

Rigler sign - a.k.a. the double wall sign. This means that you can see both sides of the bowel wall. It is indicative of gas in the peritoneal cavity - usually appearing after 1L of gas (a lot). Causes include perforation or recent surgery.

Whirl sign - a.k.a. the whirlpool sign. This can be seen in either the bowels, ovaries or the testicles and is when the structures twist around and bring the surrounding structures in a trail behind them. I.e. the bowel may twist around the mesentery and cause the mesenteric vessels to create the characteristic whirl.

Question:

A woman presents with reduced vision in her right eye. She is unsure when it started but can now only make out hand movements with the right eye. Fundoscopy of the affected eye shows the following:

What is the diagnosis?

A.Penetrating foreign body

B.Myelinated optic disc

C.Papilloedema

D.Choroidoretinitis

E.Retinal detachment

Answer:Retinal detachment

Explanation:

A retinal tear is also clearly visible.

Question:

A 31-year-old woman presents with symptoms consistent with coeliac disease. Which one of the following tests should be used first-line when screening patients for coeliac disease?

A.Anti-casein antibodies

B.Tissue transglutaminase antibodies

C.Anti-gliadin antibodies

D.Xylose absorption test

E.Anti-endomyseal antibodies

Answer:Tissue transglutaminase antibodies

Explanation:

Coeliac disease - tissue transglutaminase antibodies are the first-line test

Important for meLess important

Tissue transglutaminase antibodies are recommended as the first-line serological test according to NICE.

Question:

A 67-year-old man with Parkinson’s disease presents to the movement disorder clinic with worsening symptoms. He has a past medical history of hypertension, bipolar disorder, and Parkinson's disease, though he is otherwise fit and well. His only regular medication is amlodipine.

He complains that his tremor is now preventing him from getting dressed in the morning, and he recently had several falls when ambulating from the kitchen to the dining room.

What drug would be most likely to improve his ability to perform activities of daily living (ADLs)?

A.Co-careldopa

B.Methyldopa

C.Pramipexole

D.Rotigotine

E.Selegiline

Answer:Co-careldopa

Explanation:

Of the antiparkinson drugs, levodopa is associated with the greatest improvement in symptoms and activities of daily living

Important for meLess important

The correct answer is co-careldopa, as co-careldopa contains levodopa, which is associated with the greatest improvement in symptoms and ADLs in Parkinson's disease. Co-careldopa contains both levodopa and carbidopa, carbidopa is a decarboxylase inhibitor that prevents the peripheral metabolism of levodopa to dopamine. Of the drugs listed, co-careldopa would be the most likely to improve the patient's ability to dress and cook independently. Bipolar disorder is not a contraindication for pharmacotherapy with co-careldopa in Parkinson's disease.

Methyldopa is incorrect, as this is an antihypertensive that may be used in pregnancy if labetalol is contraindicated. Methyldopa is not licensed for the treatment of Parkinson's disease and would not improve this patient's ADLs.

Pramipexole is incorrect, as it is less potent than levodopa formulations in improving activities of daily living in Parkinson's disease. Pramipexole is a dopamine agonist and may be used either as monotherapy or in combination with levodopa formulations in the treatment of Parkinson's disease.

Rotigotine is incorrect, as it is less potent than levodopa formulations in improving activities of daily living in Parkinson's disease. Rotigotine is a dopamine agonist, administered as a transdermal patch, used as monotherapy or combination therapy in the treatment of Parkinson's disease.

Selegiline is incorrect, as it is less potent than levodopa formulations in improving activities of daily living in Parkinson's disease. Selegiline is a monoamine oxidase B inhibitor, decreasing the degradation of dopamine in the nigrostriatal pathway, used either as monotherapy or in combination with levodopa formulations.

Question:

A 43-year-old woman is seen on the ward following an episode of feeling her heart pounding. This came on 2 minutes ago and is not associated with any other symptoms. She is normally fit and healthy. Her current stay in the hospital is for elective cosmetic surgery.

An ECG carried out by her nurse shows a narrow-complex tachycardia at a rate of 220 bpm. There are no other abnormalities in the ECG.

Apart from her tachycardia, her vital signs are stable.

Which of the following represents the first-line immediate management?

A.Bilateral carotid sinus massage

B.DC cardioversion

C.Encourage deep exhalation against closed airway

D.IV adenosine

E.Put out a medical emergency crash call

Answer:Encourage deep exhalation against closed airway

Explanation:

The first-line management of SVT is vagal manoeuvres: e.g. Valsalva manoeuvre or carotid sinus massage

Important for meLess important

A new-onset narrow-complex tachycardia is likely to be a supraventricular tachycardia (SVT). This may present with various symptoms such as palpitations, chest pain, breathlessness or nausea. The first-line management of an SVT is to try vagal manoeuvres. The Valsalva manoeuvre (e.g. deep exhalation against closed airway or blowing into a syringe) is an appropriate example of this, and therefore the correct answer.

A carotid sinus massage is another example of a vagal manoeuvre, however, bilateral carotid sinus massage is inappropriate. There is a strong risk of occluding both carotids and causing cerebral hypoxia. Therefore, a carotid sinus massage should always only be done unilaterally.

DC cardioversion is inappropriate. This would be appropriate if there were signs of haemodynamic instability, or a persistent arrhythmia despite other management being tried.

IV adenosine is the second line and should be used if vagal manoeuvres do not terminate the SVT. Vagal manoeuvres are first-line in the management of an SVT.

Putting out a medical emergency crash call is inappropriate, as there are no signs of cardiac arrest, a peri-arrest rhythm or airway compromise, and therefore this level of response is not necessary. She may need this level of intervention if she doesn't respond to various levels of treatment or she becomes hemodynamically unstable.

Question:

A 32-year-old woman presents to her GP with ongoing diarrhea and flushing. The GP carries out a full examination and finds a lump in the neck. Following hospital referral, the woman is then diagnosed with medullary thyroid carcinoma. This forms part of the Multiple Endocrine Neoplasia 2a (MEN-2) alongside two other conditions. What are the other two conditions that form MEN-2a?

A.Parathyroid hyperplasia and Addison's disease

B.Parathyroid hyperplasia and phaeochromocytoma

C.Parathyroid hypoplasia and phaeochromocytoma

D.Prolactinoma and phaeochromocytoma

E.Toxic multinodular goitre and Conn's syndrome

Answer:Parathyroid hyperplasia and phaeochromocytoma

Explanation:

Medullary thyroid cancer, hypercalcaemia, phaeochromocytoma - multiple endocrine neoplasia type IIa

Important for meLess important

Multiple Endocrine Neoplasia (MEN) includes numerous distinct syndromes involving tumors of the endocrine glands. These syndromes are inherited as autosomal dominant disorders. The term MEN is used if two or more endocrine tumors types, known to occur as part of one of the defined MEN syndromes, occurs in a single patient and there is evidence for either a causative mutation or hereditary transmission.

Question:

A 35-year-old, 12 week pregnant, female presents to the emergency department with abdominal pain. The pain has been constant for the past 2 hours but she has had no vaginal bleeding.

What are the factors associated with an increased risk of placental abruption?

A.Maternal trauma and young maternal age

B.Maternal trauma, multiparity and increased maternal age

C.Maternal trauma, nulliparity and increased maternal age

D.Nulliparity and young maternal age

E.Multiparity and increased maternal age

Answer:Maternal trauma, multiparity and increased maternal age

Explanation:

Increased risk of placental abruption is associated with increasing maternal age, multiparity and maternal trauma

Important for meLess important

All 3 of these factors are associated with an increased risk of placental abruption.

In addition, proteinuric hypertension is a risk factor; this is another term for pre-eclampsia, which is defined as the presence of protein in the urine, along with hypertension.

Question:

You are an FY2 working on the wards and have just reviewed a 67-year-old man with moderately severe community-acquired pneumonia. He has a background of type 2 diabetes, COPD, and hypertension, and his current medications include metformin, a combination long-acting muscarinic antagonist + long-acting beta-2 agonist inhaler, amlodipine, and salbutamol inhaler as required. On examination, he has no wheeze or dyspnoea currently. His observations are stable with a heart rate of 88bpm, respiratory rate of 19 breaths per minute, and temperature of 37.3ºC. His capillary blood glucose (CBG) is 9 mmol/L.

Intravenous antibiotics have already been prescribed, what other medication should you add in addition to this patient's regular medications?

A.Gliclazide

B.Salmeterol inhaler

C.Leukotriene receptor antagonist

D.Paracetamol

E.Prednisolone

Answer:Prednisolone

Explanation:

Patients diagnosed with pneumonia who have COPD should be given corticosteroids even if no evidence of the COPD being exacerbated

Important for meLess important

The best answer here is to prescribe corticosteroids, as this patient has a background of COPD. A course of steroids, e.g. 30mg prednisolone OD for 5 days, should be given even if there’s no evidence of an acute COPD exacerbation (e.g. wheeze, dyspnoea).

Blood glucose levels can rise when any patient is acutely unwell. This reactive hyperglycaemia can contribute to very poor glycaemic control in people with diabetes and an intercurrent illness. In this scenario, there is no indication that the patient currently requires any change in their anti-diabetic medication as their CBG is reasonable. A good first step here would be to monitor his CBG regularly whilst an inpatient, and if there is worsening glycaemic control to consider increasing his anti-diabetic medication, or adding a new agent if required.

Salmeterol is a long-acting beta-2 receptor agonist (LABA) and can be used as part of maintenance therapy in COPD. This patient is already on a LABA+LAMA combination inhaler.

Leukotriene receptor antagonists are used in the management of asthma.

Although you might consider adding paracetamol PRN, this patient does not currently have any fever or pain.

Question:

A 46-year-old female attends her GP surgery complaining of a few months of itching. Along with this, she has found herself to be tired most of the time. She is otherwise well and only takes levothyroxine for hypothyroidism.

On examination she is comfortable at rest, her respiratory rate is 16 breaths/min, heart rate is 87 beats/min and her blood pressure is 132/85mmHg.

Her blood tests return and show raised levels of serum IgM and the presence of anti-mitochondrial antibodies.

What is this patient's most likely diagnosis?

A.Non-compliance with levothyroxine

B.Autoimmune hepatitis

C.Primary sclerosing cholangitis

D.Hyper IgM syndrome

E.Primary biliary 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

Primary biliary cholangitis (PBC) is the most likely diagnosis in this scenario. The history of fatigue and pruritis is suggestive of this and it is confirmed by the positive anti-mitochondrial antibodies and raised serum IgM (the M rule).

Although this patient may be non-compliant with her levothyroxine, it would not explain the pruritis and her observations may also show a bradycardia. The blood tests also support PBC, however, thyroid function tests may be useful to asses her thyroid status. Thyroid disease is also associated to PBC.

Autoimmune hepatitis is commonly seen in young females and may present with signs of acute hepatitis (fever and jaundice) and chronic liver disease. Blood tests would help differ autoimmune hepatitis from PBC as it may show anti-nuclear antibodies (ANA), anti-smooth muscle antibodies (SMA), anti-liver/kidney microsomal type 1 antibodies (LKM1) or raised IgG levels.

Primary sclerosing cholangitis may present with fatigue and pruritis however there will likely be associated right upper quadrant pain and jaundice. The blood results may also be positive for pANCA instead of anti-mitochondrial antibodies.

Although the serum IgM is raised, this does not indicate that the patient has hyper IgM syndrome. This would present in the first two years of life with recurrent pyogenic bacterial infections.

Question:

A 32-year-old man is prescribed a 5-day course of amoxicillin following a diagnosis of community acquired pneumonia (CURB-65 score of 1). He has a past medical history of type 1 diabetes mellitus, which is well controlled with an insulin basal-bolus regime.

What action should be taken with regards to this patients insulin therapy?

A.Admit the patient for sliding insulin scale

B.Decrease the dose of insulin to lower the risk of hypoglycemia

C.Increase the dose of insulin and advise regular checking of blood sugar levels

D.Increase the dose of insulin to lower the risk of diabetic ketoacidosis

E.No change in dose of insulin

Answer:No change in dose of insulin

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

Admitting a patient to the hospital would only be indicated in a CURB score of 2 or greater.

The dose of insulin should not be decreased as this would increase the risk of diabetic ketoacidosis.

The dose of insulin should not be increased as this puts the patient at risk of hypoglycaemia.

The dose of insulin should not be changed, but the patient should be advised to keep hydrated and frequently check their blood sugar levels.

Question:

A 56-year-old woman who has history of type 2 diabetes mellitus complains of painful and stiff hands:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Psoriatic arthropathy

B.Osteoarthritis

C.Gout

D.Rheumatoid arthritis

E.Medication-related dependent oedema

Answer:Psoriatic arthropathy

Explanation:

The image clearly shows nail changes which suggests a diagnosis of psoriatic arthritis.

Question:

A 56-year-old woman with myasthenia gravis is due for an elective abdominal hysterectomy. Which commonly used anaesthetic agent would she most likely be resistant to?

A.Suxamethonium

B.Sevoflurane

C.Ketorolac

D.Neostigmine

E.Rocuronium

Answer:Suxamethonium

Explanation:

Myasthenia gravis (MG) is caused by autoantibodies to postsynaptic nicotinic acetylcholine receptors at the neuromuscular junction. There are significant implications in the administration of anaesthesia, in particular muscle paralysis.

In this question, eliminating ketorolac and sevoflurane as likely distractors is a useful first step - their mechanisms are unrelated to the pathophysiology of MG.

Neostigmine is used in the treatment of MG, so the patient is unlikely to be resistant to its action.

Rocuronium and suxamethonium are both neuromuscular blocking drugs (NMBDs), however they act in different ways. Rocuronium is a non-depolarising NMBD, acting as an antagonist the post-synaptic receptor and leaving fewer receptors available for acetylcholine. In MG, there are already fewer functional receptors available and therefore patients with MG will be more sensitive to rocuronium and will require a lower dose for paralysis.

Suxamethonium is a depolarising NMBD - it acts by binding to and activating the receptor, at first causing muscle contraction, then paralysis. Again, due to a decreased number of available receptors, MG patients are typically resistant to depolarising NMBDs and may require significantly higher doses.

Therefore they should be used extremely cautiously, if at all, in myasthenic patients.

Question:

A 55-year-old woman with terminal pancreatic cancer is at the hospice for palliative care. The woman usually has a low level of consciousness and her responsiveness fluctuates throughout the day. She does not appear agitated. Recently her daughter, who visits daily, has noticed a rattling sound coming from her mother's throat when she breathes in and out. The daughter is worried about this and informs the staff at the hospice.

What is the mechanism of action of the drug that can be used to alleviate these palliative symptoms?

A.Gamma-Aminobutyric acid (GABA) inhibitor

B.Muscarinic receptor antagonist

C.Gamma-Aminobutyric acid (GABA) potentiator

D.Muscarinic receptor agonist

E.Dopamine receptor antagonist

Answer:Muscarinic receptor antagonist

Explanation:

Hyoscine hydrobromide or hyoscine butylbromide is generally used first-line to manage secretions in a palliative care setting

Important for meLess important

This woman is experiencing excessive bronchial and hypopharyngeal secretions which can occur in the terminal phase of life. These turbulent secretions are responsible for the rattling noise. Hyoscine hydrobromide is an antimuscarinic medication that acts to reduce the volume of bronchial secretions and therefore would be helpful in this scenario. Hyoscine butylbromide and glycopyrronium bromide may also be considered.

Diazepam and lorazepam are benzodiazepines; they are GABA potentiators. Their use as an anticipatory medication in this scenario is limited as the patient is not showing signs of delirium or agitation. The variation in her responsiveness and level of consciousness is common in the terminal phase of life.

GABA inhibitors are not drugs commonly used in clinical practice.

Dopamine receptor antagonists such as prochlorperazine are used to alleviate palliative nausea and vomiting. However, they would serve no use in this scenario.

Question:

A 28-year-old woman who is 25-weeks pregnant presents to the emergency department with a tender, swollen left calf, which is confirmed as a DVT. Before any management can be initiated, she becomes acutely short of breath and complains of pleuritic chest pain.

Given the most likely diagnosis, which of the following is the best initial management step?

A.She should be sent for a CT pulmonary angiogram to confirm the diagnosis before treatment

B.She should be sent for thrombolysis

C.She should be started immediately on apixaban

D.She should be started immediately on low molecular weight heparin

E.She should be started immediately on warfarin

Answer:She should be started immediately on low molecular weight heparin

Explanation:

Suspected PE in pregnant women with a confirmed DVT: treat with LMWH first then investigate to rule in/out

Important for meLess important

The patient should receive LMWH immediately to avoid delay if PE is suspected. PE in pregnancy can cause hypoxia to the foetus and mother and potential cardiac arrest.

Thrombolysis is contraindicated in pregnancy as it can cause catastrophic haemorrhage of the placenta and the foetus.

Apixaban is not licensed to be used in pregnancy and can potentially cause teratogenic effects.

Warfarin is not safe in pregnancy and can cause teratogenic effects. It is known to cause congenital malformations and haemorrhage as it can cause the placenta.

CT pulmonary angiogram (CTPA) is likely to be diagnostic in this case but delaying treatment to wait for the CTPA could cause serious complications for the mother and the baby. Patients should not wait until the scan to start on LMWH.

Question:

A 67-year-old man is brought to the hospital by ambulance with crushing chest pain and nausea. An ECG shows ST elevation in leads V1, V2, V3, and V4. He is treated with angiography and percutaneous coronary intervention, and his left anterior descending coronary artery is stented. When asked about his past medical history, the patient says he strongly dislikes doctors and hasn't been to his GP for over 20 years. He has smoked 15 cigarettes a day since he was 17.

What medications should he have for secondary prevention?

A.Aspirin + apixaban + ramipril + bisoprolol + atorvastatin

B.Aspirin + prasugrel + lisinopril + bisoprolol + atorvastatin

C.Aspirin + prasugrel + ramipril + warfarin

D.Clopidogrel + lisinopril + bisoprolol + atorvastatin

E.Clopidogrel + ticagrelor + lisinopril + propranolol + simvastatin

Answer:Aspirin + prasugrel + lisinopril + bisoprolol + atorvastatin

Explanation:

Following an ACS, all patients should be offered:

dual antiplatelet therapy (aspirin plus a second antiplatelet agent)

ACE inhibitor

beta-blocker

statin

Important for meLess important

The patient's presentation and subsequent management indicate that he has suffered an acute coronary syndrome (ACS). Following an ACS, all patients should be offered:

Dual antiplatelet therapy (aspirin plus a second agent).

ACE inhibitor

Beta-blocker

Statin

Aspirin + prasugrel + lisinopril + bisoprolol + atorvastatin contains the correct classes of drugs.

Two antiplatelet agents - aspirin and an adenosine diphosphate receptor (ADP) receptor inhibitor - are used to prevent the formation of arterial thrombi. Aspirin is cheap, well-tolerated, and has an extensive evidence base. It is prescribed indefinitely following an ACS. The ADP-receptor antagonist is often stopped after one year.

Statins are used to reduce cholesterol, and thereby the risk of further atherosclerosis, in those with cardiovascular disease.

The ACE inhibitor is used for its antihypertensive properties, and the beta-blocker reduces the work of the heart and reduces myocardial oxygen demand.

Aspirin + clopidogrel + ramipril + warfarin does not include a statin.

Warfarin is an anticoagulant that interrupts the clotting cascade by inhibiting the production of vitamin K. It (or, increasingly, a direct oral anticoagulant - DOAC) is used to prevent clots from forming in the venous systems and inside the heart. Anticoagulants are therefore used for the treatment and secondary prevention of venous thromboembolism, and to prevent emboli formation in people with atrial fibrillation or prosthetic heart valves.

Arterial thrombosis is driven by platelet activation, so antiplatelet agents are used for ACS prevention rather than anticoagulants.

Clopidogrel + lisinopril + bisoprolol + atorvastatin does not include aspirin, which is prescribed alongside a second antiplatelet agent.

Clopidogrel + ticagrelor + lisinopril + propranolol + simvastatin contains two antiplatelet agents but one of them should be aspirin. Although the most recent NICE guidelines state that prasugrel is the drug of choice following PCI, ticagrelor or clopidogrel are often prescribed.

Aspirin + apixaban + ramipril + bisoprolol + atorvastatin: apixaban is an anticoagulant rather than an antiplatelet agent.

Question:

A 65-year-old woman presents to secondary care for a routine follow-up. She is asymptomatic. Routine blood tests reveal the following:

Calcium 3.2 mmol/L (2.1-2.6)

Phosphate 0.2 mmol/L (0.8-1.4)

Parathyroid hormone (PTH) 12.2 pmol/L (1.6 - 6.9)

Magnesium 0.8 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 3.4 mU/L (0.5-5.5)

Free thyroxine (T4) 16 pmol/L (9.0 - 18)

Which of the following conditions is this patient most at risk of developing?

A.Gallstones

B.Soft tissue calcification

C.Cataract

D.Pseudogout

E.Osteopetrosis

Answer:Pseudogout

Explanation:

Hyperparathyroidism is a risk factor for pseudogout

Important for meLess important

This patient has raised calcium, low phosphate and a raised parathyroid hormone which is typical of primary hyperparathyroidism. Most patients are asymptomatic and picked up with incidental findings on routine blood tests. Hyperparathyroidism is a risk factor for the development of calcium pyrophosphate dihydrate deposition (CPPD) or pseudogout. Both pseudogout and chondrocalcinosis are described to occur at a greater incidence in patients with untreated primary hyperparathyroidism.

There is nothing in this scenario to suggest an increased risk of developing gallstones. Hyperparathyroidism is a risk factor for the development of renal stones due to increased serum and urinary calcium levels, not gallstones.

Hypoparathyroidism, not hyperparathyroidism, increases the risk of ectopic soft tissue calcifications.

Prolonged hypocalcaemia is associated with an increased risk of developing cataracts whereas hypercalcaemia is associated with corneal calcification.

Primary hyperparathyroidism is associated with an increased risk of osteoporosis, osteitis fibrosa cystica and therefore pathological fractures. It is not associated with the development of osteopetrosis.

Question:

A 35-year-old man with a history of alpha-1-antitrypsin deficiency presents to his GP with worsening breathlessness. The GP worries that his lungs may be starting to be affected and sends him for spirometry to help investigate.

Which of the following results would be expected for a patient suffering from his condition?

A.FEV1 = 60% FEV1/FVC = 0.65

B.FEV1= 90% FEV1/FVC = 0.6

C.FEV1= 60% FEV1/FVC = 0.9

D.FEV1= 90% FEV1/FVC = 0.9

E.FEV1= 40% FEV1/FVC = 1.0

Answer:FEV1 = 60% FEV1/FVC = 0.65

Explanation:

Alpha-1 antitrypsin deficiency shows an obstructive picture on spirometry

Important for meLess important

This question is asking about the picture that will be shown on spirometry in alpha-1 antitrypsin deficiency. Alpha 1 anti-trypsin deficiency will, like chronic obstructive pulmonary disease (COPD), show an obstructive pattern on spirometry.

To approach a spirometry result there are 2 important factors to look at. The FEV1 and the FEV1/FVC ratio.

FEV1 is the total volume of air that someone is able to exhale in the first second of forced expiration. This will be reduced in obstructive disease as the airways are obstructed, limiting the amount of air that can travel through in a certain time.

The FEV1/FVC is simply the ratio of FEV1 to the FVC. Your FVC is the total volume of air that can be exhaled by the person in one breath. Effectively giving an idea of how much capacity is in a person's lungs. In obstructive disease this is not affected as the lung spaces themselves are fine, it is only during expiration that they narrow and become more obstructed. If FVC is normal and FEV1 is reduced, you would expect the patient with alpha-1 antitrypsin deficiency or any obstructive disease to show a reduced FEV1/FVC ratio.

Therefore the correct answer is option 1, where the FEV1 is reduced as is the FEV1/FVC ratio.

Question:

A 7-year-old boy presents to the paediatric department with a 4-day history of epistaxis and mucosal bleeding whilst brushing his teeth. There is no past medical history of note, other than a coryzal illness 2 weeks ago.

On examination, his observations are within normal limits. There are multiple bruises and petechiae over his upper and lower limbs.

Laboratory tests are requested:

Hb 140 g/L (135-180)

Platelets 33 \* 109/L (150 - 400)

WBC 7.3 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

What is the most likely diagnosis?

A.Acute lymphoblastic leukaemia

B.Disseminated intravascular coagulation

C.Henoch-Schönlein purpura

D.Immune thrombocytopenic purpura

E.Thrombotic thrombocytopenic purpura

Answer:Immune thrombocytopenic purpura

Explanation:

ITP is a differential in any child presenting with petechiae and no fever

Important for meLess important

This patient has a diagnosis of immune thrombocytopenic purpura (ITP), an autoimmune haematological disorder characterised by isolated thrombocytopenia in the absence of an identifiable cause. Most commonly, ITP is found in children and women and often follows a viral illness. Presenting features include mucosal bleeding, epistaxis, petechiae and bruising.

Acute lymphoblastic leukaemia is incorrect. Although this is a common malignancy in children, and the presentation may be insidious with increased susceptibility to infections and easy-bruising, the normal haemoglobin and white cell count make the diagnosis less likely.

Disseminated intravascular coagulation (DIC) is incorrect. DIC is an acquired syndrome characterised by activation of coagulation pathways, resulting in unregulated bleeding and thrombosis. DIC can be triggered by major trauma, sepsis, severe obstetric disorders and malignancy. There is nothing in this patient's history to suggest DIC.

Henoch-Schönlein purpura (HSP) is incorrect. HSP is a form of IgA vasculitis characterised by a palpable purpuric rash along with abdominal pain and arthralgia. Acute kidney injury may be seen. It is commonly triggered by a viral infection such as an upper respiratory tract infection. Most cases are self-limiting or resolve with symptomatic treatment. The lack of additional symptoms and the presence of bruising and easy bleeding, make ITP more likely than HSP.

Thrombotic thrombocytopenic purpura (TTP) is incorrect. TTP is a pentad of microangiopathic haemolytic anaemia, acute kidney injury, cerebral dysfunction, thrombocytopenia and fever. It is uncommon in children and is not featured in this patient's presentation.

Question:

A 25-year-old female attends a dermatology review with multiple new pruritic and erythematous scaly plaques on her scalp, particularly around the occipital area. She has a history of chronic plaque psoriasis which is normally well controlled with emollients and topical treatment.

The dermatologist diagnoses scalp psoriasis.

What is the most appropriate management for her new diagnosis?

A.Oral methotrexate

B.Phototherapy

C.Topical betamethasone valerate

D.Topical vitamin D

E.GP review in 2 weeks

Answer:Topical betamethasone valerate

Explanation:

Scalp psoriasis - first-line treatment is topical potent corticosteroids

Important for meLess important

Management of scalp psoriasis differs slightly from the management of plaque psoriasis. Potent corticosteroids are usually recommended as first-line. Topical betamethasone valerate is a potent corticosteroid and so is the best answer here. It may be prescribed as a shampoo or mousse to make application easier.

Oral methotrexate is recommended for extensive and severe psoriasis, which this patient does not have.

Phototherapy is considered for extensive psoriasis, which this patient does not have as her chronic plaque psoriasis normally is well controlled. This may be considered in the future, but is not the first line.

Topical vitamin D is second-line for scalp psoriasis if no improvement is seen after 8 weeks of using a topical potent corticosteroid.

GP review in 2 weeks would not be appropriate as the scalp psoriasis is unlikely to resolve itself.

Question:

A 55-year-old woman presents with creamy nipple discharge. Her last mammography screening done one year ago was normal. She smokes 15 cigarettes per day. Her clinical examination was reassuring. A repeat mammogram was done and no abnormalities were detected. She is worried that it might be a tumour but not annoyed by the discharge itself. Her serum prolactin level is shown below.

Prolactin 200 mIU/L (<600)

According to the most likely diagnosis, what is the best initial treatment?

A.Lumpectomy

B.Mastectomy

C.Microdochectomy

D.Reassurance

E.Total duct excision

Answer:Reassurance

Explanation:

No specific treatment is required for duct ectasia

Important for meLess important

No specific treatment is required for duct ectasia.

Lumpectomy is used to treat breast masses especially if certain criteria apply like having a small-sized mass, being peripheral not central, and taking into consideration the patient's preference.

Mastectomy is used to treat breast masses especially malignant ones if lumpectomy is not appropriate.

Microdochectomy is used to treat duct ectasia (in young women) if the condition is bothering the patient. It is also used in treating intraductal papilloma.

Total duct excision is used to treat duct ectasia (in older women) if the condition is bothering the patient.

Question:

A 48-year-old man presents following a recurred episode of back pain. The patient has had multiple issues following a disc prolapse sustained during his career working in manual labour. The patient reports today he was bending over to pick something up and had an acute onset of lower back pain.

On exam, he had a unilateral, decreased sensation on the posterolateral aspect of the right leg and lateral foot. A straight leg raise test results in pain in the thigh, buttock and calf region and there is weakness on plantar flexion with reduced ankle reflexes.

What root compression has this patient experienced?

A.L1-2 nerve root compression

B.L3 nerve root compression

C.L4 nerve root compression

D.L5 nerve root compression

E.S1 nerve root compression

Answer:S1 nerve root compression

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

This patient has presented with a prolapsed spinal disc producing an S1 nerve root compression. Disc prolapses normal produce a clear dermatomal pain pattern and neurological deficit due to a single nerve root being compressed. As seen in this case compression of the S1 nerve root results in a sensory loss of the posterolateral aspect of the leg and lateral aspect of the foot. There is a weakness of foot plantar flexion and ankle reflexes are normally reduced. Finally, pain can be elicited when the patient performs a straight leg raise; known as the sciatic nerve stretch test.

An L1-2 nerve root compression will result in discomfort over the groin and upper thigh region with associated weakness of the pelvic and psoas muscles. Although rare, patients suffering prolapse of the L1-2 discs often have difficulty lifting the affected leg and therefore struggle to walk upstairs etc.

The pain pattern and neurological deficit of an L3 nerve root compression is commonly a sensory loss over the anterior aspect of the thigh, weakness of the quadriceps with a reduction in the knee reflex on the affected side. Finally, pain can be elicited in the anterior thigh when performing the femoral stretch test, where the knee is passively flexed with the patient lying prone.

An L4 nerve root compression can present with a very similar pattern to an L3 compression with weakness of the quadriceps, a reduced knee reflex and a positive femoral stretch test. In L4 root compression, however, there will be a sensory loss over the anterior aspect of the knee, not the thigh.

L5 nerve root compression can be identified on examination by evidence of sensory loss on the dorsum aspect of the foot with weakness of the foot and big toe dorsiflexion. L5 nerve compressions will also result in a positive sciatic nerve stretch test but the reflexes are normally unaffected.

Question:

You are an FY1 on the paediatric ward round with your consultant. Whilst seeing a child that has been admitted with croup, the consultant you're with decides to quiz you on the pathophysiology.

'What is the most likely organism to cause croup?'

A.Respiratory syncytial virus (RSV)

B.Parainfluenza virus

C.Pseudomonas aeruginosa

D.Streptococcus pneumoniae

E.Bordetella pertussis

Answer:Parainfluenza virus

Explanation:

Parainfluenza virus accounts for the majority of cases of croup

Important for meLess important

Parainfluenza virus : Croup

RSV : Bronchiolitis

Pseudomonas aeruginosa : pseudomonas

Streptococcus pneumoniae : Pneumonia

Bordetella pertussis : Whooping cough

Question:

A 78-year-old inpatient with type 2 diabetes is receiving IV fluids. The nurse notices that he is drowsy, slumped in his bed. His Glasgow Coma Score is 9. Finger-prick glucose level is 2.1 mmol/L. You discover he has been given his morning insulin despite refusing breakfast.

What should you immediately administer to the patient in the first instance?

A.Buccal application of oral GlucoGel®

B.1mg Glucagon IV STAT

C.110mL of Lucozade®Orally STAT

D.100mL of Coca-Cola® Orally STAT

E.100mL of 20% Glucose IV STAT

Answer:100mL of 20% Glucose IV STAT

Explanation:

Hypoglycaemia with impaired GCS: give IV Glucose if there is access

Important for meLess important

In patients with hypoglycaemia causing a low GCS, the BNF advises IV glucose administration if there is IV access. An alternative is IM glucagon - not IV glucagon. In this instance, the patient has IV access and so the STAT dose of IV glucose can easily be administered. If the GCS was not impaired, than proprietary products of quick-acting carbohydrate such as GlucoGel® can be given or alternatively the above-mentioned soft drinks.

Source: BNF

Question:

A 20-year-old woman was admitted overnight with suspected meningitis. You are asked to review the initial microscopy results from the lumbar puncture. The lab tells you the culture is growing gram negative diplococci.

What is the most likely organism?

A.Streptococcus pneumoniae

B.Listeria monocytogenes

C.Escherichia coli

D.Haemophilus influenzae

E.Neisseria meningitidis

Answer:Neisseria meningitidis

Explanation:

Neisseria meningitis and Streptococcus pneumoniae would be most common in this age group but it is N.meningitis that is a gram negative diplococci.

S. pneumoniae is a gram positive diplococci/chain

E. coli is a gram negative bacilli

H. influenzae is a gram negative coccobacilli

L. monocytogenes is a gram positive rod

Question:

A 32-year-old man with a longstanding moderate depression comes to see his GP after recently being started on a new medication by his psychiatrist. He complains that his appetite has increased hugely and as a result he has put on a significant amount of weight. He is also constantly tired and is struggling to concentrate at work.

Which of the following medications has most likely been started?

A.Sertraline

B.Mirtazapine

C.Lithium

D.Carbamazepine

E.Selegiline

Answer:Mirtazapine

Explanation:

If a patient is unresponsive to initial treatments for depression or experiences side effects to their current medication, it is not uncommon for them to be switched to a different antidepressant. In this case it would not be unreasonable to assume that the patient had been tried on a selective serotonin reuptake inhibitor previously and therefore sertraline can be excluded.

Lithium and carbamazepine are advanced treatments for serious mood disorders and therefore unlikely in this case, which leaves Selegiline and mirtazapine.

Selegiline is a monoamine oxidase inhibitor which are an older class of antidepressant which have been largely phased out due to their side effects which leaves mirtazapine as the most likely answer.

Some of the most potent side effects of mirtazapine are a large increase in appetite (and subsequent weight gain) and drowsiness. These side effects are so pronounced that mirtazapine has been known to be used as an appetite stimulant and sleep aid off-formulary.

Question:

A 27-year-old man presents feeling generally unwell with fevers and chills. He describes pain in the upper right-hand side of his abdomen. Further questioning reveals he suffered a bout of bloody diarrhoea after returning from a holiday in Mexico a few months ago. An ultrasound scan reveals a fluid-filled structure in the right lobe of his liver.

What is the most likely diagnosis?

A.Amoebiasis

B.Ascending cholangitis

C.Campylobacter

D.Giardiasis

E.Staphylococcus aureus

Answer:Amoebiasis

Explanation:

Entamoeba histolytica may cause dysentery, liver abscesses, colonic abscesses, or inflammatory masses in the colon

Important for meLess important

Amoebiasis: Entamoeba histolytica is an imported parasite to the UK, in this case from Mexico. It causes bloody diarrhoea. Untreated, it may lead to the development of an amoebic liver abscess as seen in this case.

Ascending cholangitis: fever and right upper quadrant (RUQ) pain are classic features, however, an ultrasound scan would typically reveal bile duct dilatation. Classically occurs secondary to gallstones. Furthermore, usually associated with jaundice, not diarrhoea as seen in this case.

Campylobacter: whilst associated with bloody diarrhoea, liver abscesses are not a known complication.

Giardiasis: whilst foreign travel is a risk factor, it is associated with non-bloody diarrhoea. Furthermore, it is not associated with liver abscesses.

Staphylococcus aureus: bacteria produces heat-stable toxins which are not destroyed by cooking. There is a short incubation period, severe vomiting occurs within a few hours.

Question:

An 8-year-old boy presents to his GP with his parents. His mother is concerned as his school teacher reports that he has occasional episodes of staring blankly during class, during which he is not responsive.

Following a referral to neurology, an EEG is carried out.

What result would be the most suggestive of the most likely diagnosis?

A.3 Hz spike and wave

B.Hypsarrhythmia

C.Multiple sleep latency

D.Normal EEG

E.Slow spike and wave pattern

Answer:3 Hz spike and wave

Explanation:

A young boy is noted to have occasional periods where he stares blankly in class - absence seizure

Important for meLess important

The correct answer is 3 Hz spike and wave . The teacher is describing absence seizures, for which this is a typical EEG abnormality. Absence seizures are a type of generalised seizure, and characterised by episodes where the patient loses awareness of their surroundings and appears to be staring blankly into space or 'daydreaming.'

Hypsarrhythmia is incorrect. This EEG finding is characteristic of infantile spasms, also known as West's syndrome. This is a condition in which the patient experiences brief spasms, which would typically start in the first year of life. The patient in this case has no symptoms of West's syndrome, and is more likely to be experiencing absence seizures.

Multiple sleep latency is incorrect. This is a feature of narcolepsy, a condition in which hypersomnolence is a key feature. Although the child is experiencing unresponsive episodes, they seem more like absence seizures than episodes of sleep.

Normal EEG is incorrect. This is because absence seizures are the most likely diagnosis given the teacher's description, and are associated with a typical 3 Hz spike and wave. Although an EEG may be normal for a patient experiencing a seizure, this is not the best answer.

Slow spike is incorrect. This EEG finding is characteristic of Lennox-Gastaut syndrome. Atypical absence seizures are a feature of Lennox-Gastaut syndrome, however the syndrome more commonly features tonic and atonic seizures.

Question:

A 45-year-old woman has come into your post-menopausal bleed clinic. When taking a history, you ask about her medical history and family history for things that may increase her risk of endometrial cancer. Which of the following is associated with increased risk of endometrial cancer?

A.Anorexia nervosa

B.Familial adenomatous polyposis

C.HNPCC/Lynch syndrome

D.Intrauterine system (Mirena coil)

E.Use of combined oral contraceptive pill

Answer:HNPCC/Lynch syndrome

Explanation:

HNPCC/Lynch syndrome is a strong risk factor for endometrial cancer

Important for meLess important

HNPCC/Lynch syndrome is a strong risk factor for endometrial cancer. The combined oral contraceptive pill is protective against endometrial cancer. Other main risk factors include obesity, increased number of ovulations (for example fewer pregnancies, early menarche, and late menopause), as well as some medications such as tamoxifen, and medical conditions such as diabetes and polycystic ovarian syndrome. The other 3 options are not risk factors. Anorexia is associated with low body weight, so not associated with endometrial cancer. Mirena coil has no association, and familial adenomatous polyposis is mainly associated with bowel cancer.

Question:

A 45-year-old gentleman comes in to the emergency department with a 24 hour history of increasing right knee pain and immobility. He remembers falling off his bike a few days ago but his knee had been fine until yesterday. On examination, you note a hot, red right knee with flexion to only 20º and a small effusion.

He has previously ruptured his ACL in the other knee which was treated conservatively.

His observations are as follows:

Heart rate 100beats/min, respiratory rate 18/min, saturations 98% on room air, blood pressure 102/67mmHg, temperature 37.9ºC.

Bloods results are as follows:

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

Female: (115 - 160)

Platelets 500 \* 109/L (150 - 400)

White cell count (WCC) 13.6 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 5.0 mmol/L (3.5 - 5.0)

Urea 4.0 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

C reactive protein (CRP) 130 mg/L (< 5)

X ray shows no obvious bony injury.

What is the most appropriate next management step?

A.Discharge with oral antibiotics and red flag advice

B.Start colchicine and admit for observation

C.Referral to community physiotherapy

D.Magnetic resonance imaging (MRI) of the knee

E.Urgent orthopaedic review

Answer:Urgent orthopaedic review

Explanation:

Septic arthritis in adults is most common in knees

Important for meLess important

This is a typical presentation of septic arthritis in adults - acute onset pain and immobility of a joint (usually knee) with fever and raised inflammatory markers. This gentleman should be reviewed urgently by the orthopaedic team for aspiration and consideration of a washout.

Discharging with oral antibiotics or physiotherapy is inappropriate as septic arthritis could lead to joint destruction over the next few hours to days if treated incorrectly.

There is no history of gout or pseudogout with no chondrocalcinosis on X ray, so starting colchicine will likely achieve nothing and delay appropriate treatment.

An MRI knee will take time to organise and delay appropriate treatment, and will make no difference to management.

Question:

A 63-year-old man has a check chest x-ray 6 weeks after being treated for community-acquired pneumonia. He reports feeling much better in himself from a chest point of view. However, he has noticed his face has been getting rounder and he has put on weight, particularly in his abdominal region. He has also noticed purplish stripes on his abdomen which has alarmed him.

He has recently been diagnosed with hypertension and reports his GP told him he was borderline diabetic. His medications at present are ramipril. He drinks 4-6 units of alcohol per week, has a 40 pack-year smoking history and is a retired salesman.

Initial chest x-ray Bibasal patch opacification in keeping with pneumonia. Clinical correlation advised.

Check chest x-ray Compared to the previous x-ray, the consolidation has resolved. However, there is a right hilar mass suspicious for malignancy. Further investigation advised.

The patient has been informed of his chest x-ray results and understands that he will be referred urgently to the lung cancer clinic.

Given the presentation, what type of lung cancer is the patient likely to have?

A.Metastatic deposits

B.Mesothelioma

C.Adenocarcinoma of the lung

D.Squamous cell lung cancer

E.Small cell lung cancer

Answer:Small cell lung cancer

Explanation:

Small cell lung carcinoma secreting ACTH can cause Cushing's syndrome

Important for meLess important

This man has a significant smoking history and the repeat chest x-ray has revealed a suspicious mass, highlighting the importance of getting a follow-up x-ray for patients 6 weeks after community-acquired pneumonia (to check for resolution and any evidence of underlying lesions).

The central adipose deposition, 'moon face', new hypertension and impaired glucose tolerance are all in keeping with Cushing's syndrome, This is a paraneoplastic phenomenon seen in small cell lung cancer due to the tumour secreting ACTH.

If these were metastatic deposits, the chest x-ray would show multiple lesions rather than a solitary hilar mass.

Mesothelioma is a cancer of the pleura due to asbestos exposure. There is nothing in the vignette to suggest asbestos exposure. In questions where asbestosis exposure may be relevant, the occupation of the patient is usually that of a plumber or builder.

Adenocarcinoma of the lung is associated with gynaecomastia.

Squamous cell lung cancers can secrete parathyroid hormone-related peptide which causes hypercalcaemia.

Question:

A 78-year-old man has been admitted with an infective exacerbation of chronic obstructive pulmonary disease (COPD). He has been treated with controlled oxygen therapy, nebulised bronchodilators, steroids and antibiotics. Two hours after admission a blood gas is performed:

pH 7.31

Pa 02 7.8kPa

Pa C02 9kPa

HCO3- 36 mmol/l

What is the next most appropriate management step?

A.Bilevel Positive Airway Pressure (BIPAP)

B.Reduce 02 and repeat arterial blood gas in 1 hour

C.Continuous Positive Airway Pressure (CPAP)

D.Increase 02 and repeat arterial blood gas in 1 hour

E.Intubation and Ventilation

Answer:Bilevel Positive Airway Pressure (BIPAP)

Explanation:

Following presentation to hospital the National Institute for Clinical Excellence (NICE) recommends that patients with a suspected exacerbation of COPD should undergo:

Arterial blood gases

Chest X-ray

Electrocardiogram

Full blood count and urea and electrolytes

Theophylline level on admission (if the patient is on theophylline)

Sputum microscopy and culture if purulent

Blood cultures if pyrexial

Patients should then receive medical therapy in the form of:

02 to keep patient within the individualised target range

Nebulised bronchodilators

Steroid therapy

Antibiotics if indicated

Chest physiotherapy

Intravenous theophyllines would be considered if the response to nebulised bronchodilators is poor.

For patients with persistent hypercapnic ventilatory failure despite optimal medical therapy, non-invasive ventilation should be considered.

in this question intravenous theophylline is not an option therefore the single best answer would be a trial of BIPAP.

BIPAP (Bilevel Positive Airway Pressure) is a form of non-invasive ventilation that has been shown to be very effective in acute type two respiratory failure. It works by stenting alveoli open to increase the surface area available for ventilation and gas exchange. A BIPAP machine alternates between the IPAP (Inspiratory Positive Airway pressure) applied when a patient breathes in and the EPAP (Expiratory Positive Airway Pressure) which is applied between patient triggered breaths. A minimum respiratory rate can be set on the machine and the pressures up-titrated as tolerated. Regular arterial blood gas analysis in needed to asses the patient's response to NIV.

CPAP (Continuous Positive Airway Pressure) is another form of non-invasive ventilation but is not as effective as BIPAP in COPD. It is used in type one respiratory failure and is particularly useful in pulmonary oedema.

In this patient, it is not appropriate to try further oxygen titration as he remains in type two respiratory failure despite optimal medical therapy.

Intubation and ventilation can be useful in certain patients with COPD however, a trial of non-invasive ventilation is the most appropriate next step. In all patients presenting with an exacerbation of COPD, it is important to set a ceiling of care.

http://pathways.nice.org.uk/pathways/chronic-obstructive-pulmonary-disease/

Question:

A patient is brought to the Emergency Department in cardiac arrest. The monitor shows that he is in ventricular fibrillation. The paramedics have already given three cycles of cardiopulmonary resuscitation and intravenous adrenaline. You decide to give amiodarone. What is the correct dose of amiodarone to give initially?

A.1 mg

B.10 mg

C.100 mg

D.200 mg

E.300 mg

Answer:300 mg

Explanation:

Question:

You are reviewing a 31-year-old man in the liver clinic. He is currently on triple therapy for hepatitis C. What is the best way to assess his response to treatment?

A.Alanine transaminase level

B.Anti-HCV antibodies

C.Viral load

D.Prothrombin time

E.Hepatitis C genotype

Answer:Viral load

Explanation:

Question:

An emergency call is put out as a 9-year-old boy has collapsed in the waiting room. The receptionists have already dialled 999. He does not respond to stimulation and no signs of respiration can be found after 10 seconds. There is no obvious foreign body in the mouth. What is the most appropriate next step?

A.Start chest compressions/ventilations at a ratio of 15:2

B.Give 2 rescue breaths

C.Give 5 rescue breaths

D.Start chest compressions/ventilations at a ratio of 30:2

E.Check for a carotid pulse

Answer:Give 5 rescue breaths

Explanation:

Paediatric BLS: give 5 rescue breaths if there are no signs of breathing on initial assessment

Important for meLess important

Current paediatric basic life support guidelines do not yet reflect the change in emphasis away from rescue breaths in adults. This partly reflects the fact that the majority of paediatric arrests are secondary to airway or breathing problems.

Question:

A 55-year-old man presents to his GP with symptoms of anorexia, fatigue and swelling in his legs. Urea and electrolytes are performed showing a drop in his kidney function and a renal ultrasound is requested which shows bilaterally enlarged kidneys. He smokes 5 cigarettes a day and is a known IV drug user.

Na+ 135 mmol/l

K+ 4 mmol/l

Urea 23 mmol/l

Creatinine 157 µmol/l

Which of the following conditions is the most likely cause of this man's symptoms?

A.Chronic pyelonephritis

B.Glomerulonephritis

C.HIV-associated nephropathy

D.Hypertension induced nephropathy

E.Renal artery stenosis

Answer:HIV-associated nephropathy

Explanation:

Chronic HIV-associated nephropathy will have large/normal sized kidneys on ultrasound whereas most patients with chronic kidney disease have bilateral small kidneys

Important for meLess important

This question is asking about the causes of chronic kidney disease that present with bilaterally enlarged kidneys on ultrasound. Therefore from the options above, the answer is HIV-associated nephropathy. Other conditions that can cause enlarged kidneys on ultrasound include autosomal dominant polycystic kidney disease, diabetic nephropathy and amyloidosis.

Glomerulonephritis, hypertension induced nephropathy will all cause bilaterally shrunken kidneys

Chronic pyelonephritis will cause a reduction in the size of the affected kidney.

Renal artery stenosis can cause unilateral shrinkage of kidney or bilateral (if both renal arteries are affected)

Question:

A 20-year-old female presents for the 3rd time to the emergency department with a dry cough and repeated episodes of breathlessness. The previous two times she was treated with antibiotics to no avail. As of now, she finds herself more lethargic throughout the day where she is able to do her job effectively in the morning but is extremely tired towards the end of the workday. There is no family history of note, she drinks 30 units per week and has a 2 pack year smoking history.

CT reveals a 4.0 × 3.0 cm mass in the anterior mediastinum.

What is the most likely cause of her new symptoms?

A.Lung carcinoma

B.Sarcoidosis

C.Anaemia

D.Myasthenia gravis (MG)

E.Fibromyalgia

Answer:Myasthenia gravis (MG)

Explanation:

Myasthenia gravis is associated with thymomas

Important for meLess important

Myasthenia gravis is an autoimmune condition that is characterised by autoantibodies directed at the post-synaptic anticholinergic receptors. Thymomas are present in a subset of MG patients and CT’s are done to exclude this. The CT mass is a thymoma and local invasion of this mass is causing the patient’s dry cough and breathlessness. The increased lethargy throughout the day and dysphagia are common symptoms of MG sufferers.

Anaemia and may present with some similar symptoms but would not account for the mass.

Lung carcinoma is a possibility but the characteristic worsening of symptoms in the evening more likely points to MG.

Sarcoidosis would reveal different CT findings such as lymphadenopathy, ground grass appearance, nodules and granulomas.

Fibromyalgia typically would present with a different picture including widespread pain, insomnia, stiffness and fatigue.

Question:

A 65-year-old lady presents to the Emergency Department late at night complaining of new-onset dizziness and shortness of breath on exertion. On further questioning, she also reveals that her stools have been 'quite unpleasant and a lot darker than usual'.

Her blood tests reveal a normocytic anaemia and a raised urea level. You suspect that she has an acute upper gastrointestinal bleed. You book an endoscopy for the following morning and consider prescribing a PPI to alleviate her symptoms overnight.

Which of the following is the most appropriate action with regards to her further management?

A.Give omeprazole 80mg IV over 60 minutes

B.Commence omeprazole 20mg BD, amoxicillin 500mg TDS and metronidazole 400mg TDS

C.Give oral lansoprazole 30mg BD

D.Give oral pantoprazole 40mg STAT

E.Do not prescribe PPI

Answer:Do not prescribe PPI

Explanation:

IV proton pump inhibitors should not be administered as part of the acute management of upper GI bleeding prior to endoscopy - they should be given after, if there is evidence of recent non-variceal haemorrhage

Important for meLess important

PPIs should not be prescribed in an acute GI bleed until post-endoscopy as they may mask the site of bleeding. This rules out option 1, 3 and 4. Option 2 is H. pylori eradication therapy and would not be indicated at this stage as there is no evidence of H. pylori infection.

Question:

Parents bring their 4 week old formula fed infant to the short stay paediatric ward. They are concerned because he has persistent non-bilious vomiting and is becoming increasingly lethargic. Despite this, his appetite is substantial. On examination, he appears pale and you can see visible peristalsis in the left upper quadrant. What is the most likely diagnosis?

A.Pyloric stenosis

B.Cows milk protein allergy

C.Duodenal atresia

D.Malrotation

E.Gastro oesophageal reflux disease

Answer:Pyloric stenosis

Explanation:

This presentation should raise the suspicion of pyloric stenosis. Visible peristalsis can be visualised as the stomach tries to push its contents past the obstruction. The vomiting is non-bilious as the level of obstruction is proximal to the second part of the duodenum where bile enters the gastrointestinal tract. This is contrast to malrotation and duodenal atresia.

Question:

A 40-year-old male who has a past medical history of ulcerative colitis and gout has presented to the emergency department with a sore throat and the coughing up of green sputum for the last 3 days. He says he has pain when breathing in and says he has never had a chest infection in the past.

He is in remission for an acute flare of ulcerative colitis and is maintained on azathioprine. A month ago he was started on a medication for his gout but he cannot remember what it is called and he has not brought it with him.

On examination the chest there are bibasal crepitations and increased vocal fremitus at the bases. His throat is erythematous and there is some exudate around the tonsils. He has a fever of 38.9ºC, a heart rate of 97/min and a respiratory rate of 24/min. All other observations and the rest of the general examination is unremarkable.

His blood results are as follows:

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

Female: (115 - 160)

Platelets 110 \* 109/L (150 - 400)

WBC 0.9 \* 109/L (4.0 - 11.0)

Na+ 140 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 80 µmol/L (55 - 120)

CRP 40 mg/L (< 5)

His chest x-ray shows bibasal consolidation and nil else.

You are concerned a medication has interacted with his azathioprine to cause the above clinical picture of agranulocytosis.

What is the most likely medication started for his gout?

A.Allopurinol

B.Colchicine

C.Diclofenac

D.Naproxen

E.Prednisolone

Answer:Allopurinol

Explanation:

Azathioprine and allopurinol have a severe interaction causing bone marrow suppression

Important for meLess important

Allopurinol is the correct answer. The above clinical picture is one of pancytopaenia, with the low white blood cells allowing for tonsillitis/pharyngitis and a community acquired pneumonia to develop. The reason for the pancytopenia is the drug interaction between azathioprine and allopurinol which can cause bone marrow suppression. The allopurinol is a xanthine oxidase inhibitor which metabolises 6-mercaptopurine, hence reducing the amount of inactivated 6-mercaptopurine (active form of azathioprine). Thus more active 6-mercaptopurine is incorporated in the DNA in the bone marrow precursors, reducing the platelet cell lines and red and white blood cell line production.

Colchicine, diclofenac and naproxen are incorrect answers as these are all non-steroidal anti-inflammatory medications which do not cause bone marrow suppression.

Prednisolone is incorrect as this may cause an element of immunosuppression, but not via a severe drug interaction with azathioprine and not through the bone marrow suppression seen here. Moreover, the immunosuppression from prednisolone is predominantly through suppression of white blood cell function via glucocorticoid receptors and reducing cytokine release.

Question:

A 25-year-old female is found to have a left hemiparesis following a deep vein thrombosis. An ECG shows RBBB with right axis deviation. What is the most likely underlying diagnosis?

A.Ventricular septal defect

B.Patent ductus arteriosus

C.Coarctation of the aorta

D.Ostium secundum atrial septal defect

E.Tetralogy of Fallot

Answer:Ostium secundum atrial septal defect

Explanation:

The ostium secundum in this patient has allowed passage of an embolus from the right-sided circulation to the left causing a stroke

Question:

A young Bangladeshi man presents to the emergency department with back pain and fever. An MRI is performed and a diagnosis of discitis is made. A CT guided biopsy is performed and cultures were taken. They come back showing Staphylococcus aureus as the causative organisms and antibiotic therapy was started based on sensitivity testing. 2 weeks later he returns to the emergency department as he has spiked another fever and the back pain is worsening.

Which of the following may be the cause of this patients worsening features?

A.Acute pyelonephritis

B.Epidural abscess

C.Vertebral metastasise

D.Pott's Disease of the spine

E.Epidural haematoma

Answer:Epidural abscess

Explanation:

Epidural abscess is a complication of discitis

Important for meLess important

This patient has presented with discitis and returned 2 weeks after treatment was commenced with worsening fever and pain. As he had been given antibiotics that were sensitive to the organism that was causing the discitis it indicates that the cause of his fever is an abscess that cannot be accessed from the systemic circulation. In this case an epidural abscess (a possible complication of discitis). The cardinal features of which are fever and back pain.

Acute pyelonephritis could be another cause of back pain, but would the pain would typically radiate from loin to groin and urinary features such as pain on urination may be present.

Vertebral metastasis would be unlikely in this patient with no history of cancer and the fact they are spiking temperatures

Pott's disease of the spine is where a secondary tuberculosis infection affects the spine, this would present with similar features of back pain, fever and constitutional symptoms. However, it is caused by Mycobacterium tuberculosis and not Staphylococcus aureus as this patients infection is.

An epidural haematoma would present with severe back pain however you would not expect a fever, with no history of trauma this is unlikely

Question:

A 3-year-old boy is brought into the emergency department with cough and noisy breathing following a 3-day history of coryzal symptoms. On examination, he is afebrile but has harsh vibrating noise on inspiration, intercostal recession and a cough. He is systemically well.

What is the most likely causative organism?

A.Haemophilus influenzae

B.Respiratory syncytial virus

C.Rhinovirus

D.Influenza virus

E.Parainfluenza virus

Answer:Parainfluenza virus

Explanation:

Parainfluenza virus accounts for the majority of cases of croup

Important for meLess important

The harsh vibrating noise on inspiration is a classic description of stridor. A history of stridor and cough should point towards a diagnosis of croup. The fact that the child is systemically well almost rules out epiglottis. The most common pathogen associated with croup is the Parainfluenza virus.

Question:

A 52-year-old man presents for review at the Endocrinology clinic. He has a history of congestive cardiac failure and type 2 diabetes mellitus, for which he is currently taking modified-release metformin. His latest HbA1c reading is 55mmol/mol, and he agrees to start on gliclazide.

What possible side-effect should he be counselled about for this medication?

A.Euglycaemic ketoacidosis

B.Fluid retention

C.Increased risk of urinary tract infections

D.Weight gain

E.Weight loss

Answer:Weight gain

Explanation:

Sulfonylureas often cause weight gain

Important for meLess important

The correct answer is weight gain. Sulfonylureas such as gliclazide are known to cause weight gain. This is because they directly increase the amount of insulin secreted by the pancreas, which in turn stimulates cells to store glucose in the form of fat.

Euglycaemic ketoacidosis is incorrect as this is a side-effect of SGLT2 inhibitors such as dapagliflozin.

Fluid retention is incorrect. Fluid retention is a side-effect of thiazolidinediones such as pioglitazone, which would be unlikely to be recommended in this patient with congestive cardiac failure.

Increased risk of urinary tract infections is incorrect. This is a side-effect of SGLT2 inhibitors, which inhibit glucose reuptake in the kidney. This increases the concentration of glucose in the urine and creates a favourable environment for bacterial growth.

Weight loss is incorrect as sulfonylureas tend to cause weight gain for the reasons described above.

Question:

A 10-year-old boy presents to the general practitioner (GP) with a sore throat. On examination, he has tonsillitis with exudate and cervical lymphadenopathy. The patient's temperature is 38.1°C, respiratory rate is 24 breaths/min, and his heart rate is 104 beats/min. Auscultation of the chest is clear. The patient denies having a cough and there is no history of allergies. How should this patient be managed?

A.Aspirin

B.Dexamethasone

C.Clarithromycin with analgesia

D.Paracetamol

E.Phenoxymethylpenicillin with analgesia

Answer:Phenoxymethylpenicillin with analgesia

Explanation:

The child has tonsillar exudate, cervical lymphadenopathy, a raised temperature, and no cough and therefore has a Centor score of 4; increasing the likelihood of group A beta-haemolytic streptococcus (GABHS) infection. Furthermore, this infection is more likely in the 5-15-year-old age group. Antibiotic treatment should be considered in this patient (source: SIGN and NICE)

Paracetamol should be used as first-line treatment for pain relief and can be used along with antibiotic treatment. Had the Centor score been less than 3, then the patient should be advised to take regular pain relief only such as paracetamol and ibuprofen.

Clarithromycin should be considered if the patient has a penicillin allergy.

Aspirin should be avoided in children to prevent the possibility of Reye's syndrome.

Dexamethasone is recommended in children to prevent postoperative vomiting in children undergoing a tonsillectomy.

Question:

A 24-year-old woman is airlifted to hospital with dyspnoea and severe chest pain after being thrown from a horse and trampled during an event.

On examination, there are reduced breath sounds on the left side of the chest associated with hyper resonant percussion, with the apex beat being shifted to the right. The patient's right arm appears grossly deformed, consistent with a closed humeral fracture.

Given the examination findings, what drug should only be used with caution?

A.Desflurane

B.Ketamine

C.Morphine

D.Nitrous oxide

E.Sevoflurane

Answer:Nitrous oxide

Explanation:

Nitrous oxide should be used with caution in patients with a pneumothorax

Important for meLess important

This patient has multiple features of a pneumothorax, including a history of recent trauma, hyper resonant percussion notes, unilaterally reduced breath sounds, and a shifted apex beat. Considering the patient's bony injury and pneumothorax, it would be important to promptly control his pain.

The correct answer is nitrous oxide, due to its propensity for diffusion into the air-filled spaces, including pneumothoraces. This increased gaseous diffusion into air spaces can worsen cardiopulmonary impairment caused by pneumothorax. Pneumothoraces are a listed 'caution' for nitrous oxide according to the BNF.

Desflurane is incorrect, as it may be safely administered to patients in acute pain with pneumothoraces. Desflurane is a volatile liquid anaesthetic that is associated with rapid recovery, as it has low solubility in lipids and is more rapidly cleared than other inhalational anaesthetics. Desflurane does not diffuse into gas-filled airspaces as readily as nitrous oxide.

Ketamine is incorrect, as it may be administered safely in patients with traumatic pneumothoraces. Ketamine and is commonly used in field trauma as it is not associated with cardiorespiratory depression. Pneumothoraces are not a 'caution' for ketamine according to the BNF.

Morphine is incorrect, as it may be administered safely in patients with traumatic pneumothorax and is considered first-line due to its predictable effects and reversibility with naloxone. Morphine is commonly used to control pain associated with pneumothoraces in the pre-hospital setting and is safe at appropriate doses. Pneumothoraces are not a 'caution' for morphine according to the BNF.

Sevoflurane is incorrect, as it may be safely administered to patients with pneumothoraces. Sevoflurane is a rapidly acting volatile liquid anaesthetic that may be used in the induction of anaesthesia. Sevoflurane does not diffuse into gas-filled airspaces as readily as nitrous oxide.

Question:

A 65-year-old female with a history of chronic obstructive pulmonary disease (COPD) is reviewed in the Emergency Department. She has presented with a sudden worsening of her dyspnoea associated with haemoptysis. What is the most suitable initial imaging investigation to exclude a pulmonary embolism?

A.Ventilation-perfusion scan

B.Echocardiogram

C.Pulmonary angiography

D.Computed tomographic pulmonary angiography

E.MRI thorax

Answer:Computed tomographic pulmonary angiography

Explanation:

Pulmonary embolism - CTPA is first-line investigation

Important for meLess important

It is still common in UK hospitals, despite guidelines, for a ventilation-perfusion scan to be done first-line

Question:

A 72-year-old man presents to the GP with worsening memory problems. His wife has noticed that his attention span is reduced and his short-term memory is worsening. Last week he forgot his way home when driving back from his daughter's house and has noticed he has trouble paying for things with coins. These symptoms have been on and off for the last 6-months with symptoms being present on some days but not on others. His only past medical history includes 3 recent periods of having visual hallucinations, which were all put down to episodes of delirium.

When talking to him, the GP also notices that he has a tremor in his right hand, and when he entered the room he had a slow shuffling gait. Neither of these has been reviewed by a medical professional yet as he has put these down to old age.

Given this man's presentation, what is the most likely diagnosis?

A.Alzheimer's dementia

B.Stroke

C.Vascular dementia

D.Parkinsonism

E.Lewy body dementia

Answer:Lewy body dementia

Explanation:

Parkinson's plus dementia think Lewy body

Important for meLess important

This question is asking about a man presenting with memory problems. His symptoms tend to fit the pattern of Lewy body dementia. Lewy body dementia typically presents with the triad of symptoms of dementia, visual hallucinations and signs of parkinsonism.

In this patient, he is clearly presenting with symptoms of dementia, including loss of short-term memory, reduced attention span and impaired cognitive function such as the inability to direction find and loss of arithmetic ability (paying with coins).

He also has symptoms of visual hallucinations, these have all been put down to delirium however 3 episodes in a small amount of time is very atypical for delirium unless there was a known underlying cause.

This patient also has symptoms of parkinsonism, his tremor in his right hand, as well as slow shuffling gait, are both typical signs.

Alzheimer's dementia is the most common type of dementia and typically presents with only symptoms of cognitive impairment such as memory loss. It would not be associated with visual hallucinations or parkinsonism like in this case.

A stroke would typically present with FAST symptoms. This would include face drooping, unilateral arm or leg weakness or loss of speech.

Vascular dementia typically presents in a stepwise manner. With symptoms occurring for some time before a step-down decline in ability occurs. It is not associated with parkinsonism or visual hallucinations.

This patient has symptoms and signs of parkinsonism, however, due to his other symptoms, this does not encompass the whole of his presentation.

Question:

A 50-year-old man is admitted to the acute medical unit with a 3-day history of shortness of breath and productive cough of green sputum. He has a past medical history of hypertension, gastritis, type 2 diabetes and hypercholesterolaemia for which he takes omeprazole, ramipril, metformin and atorvastatin.

His investigations are as follows:

Hb 155 g/L (135-180)

Platelets 401 \* 109/L (150 - 400)

WBC 18.4 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.1 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

CRP 99 mg/L (< 5)

He is treated with benzylpenicillin and clarithromycin.

What additional medication changes should be made?

A.Double omeprazole dose

B.Increase warfarin dose

C.Stop atorvastatin

D.Stop metformin

E.Stop ramipril

Answer:Stop atorvastatin

Explanation:

Statins + erythromycin/clarithromycin - an important and common interaction

Important for meLess important

Stop atorvastatin is correct. This patient is taking atorvastatin, a HMG-CoA reductase inhibitor. Statins are metabolised by CYP34A enzymes which are inhibited by clarithromycin. Therefore, there is a subsequent increase in the plasma concentration of the statin and an increased risk of myopathy. For that reason, it is most appropriate to temporarily stop atorvastatin whilst taking clarithromycin.

Double omeprazole dose is incorrect. Omeprazole is a CYP450 enzyme inhibitor but does not interact with the metabolism of clarithromycin.

Increase warfarin dose is incorrect. Clarithromycin is an enzyme inhibitor and therefore would reduce the metabolism of warfarin which, in turn, increases serum levels. Therefore, it would be more appropriate to reduce the warfarin dose rather than increase the dose.

Stop metformin is incorrect. In cases of renal impairment, metformin may be stopped due to the risk of lactic acidosis. However, there are no findings of an acute kidney injury and metformin can be continued as normal.

Stop ramipril is incorrect. There are no interactions between ramipril and the new antibiotics prescribed.

Question:

A 71-year-old patient with chronic lymphocytic leukaemia presents to the emergency department with haematemesis. Urgent blood tests are taken and blood products ordered from the laboratory.

A full blood count shows:

Hb 76 g/L Male: (135-180)

Female: (115 - 160)

Platelets 26 \* 109/L (150 - 400)

WBC 21.8 \* 109/L (4.0 - 11.0)

Which of the following blood products poses the greatest risk in her immunocompromised state?

A.Cryoprecipitate

B.Packed red cells

C.Plasma

D.Platelets

E.Whole blood

Answer:Platelets

Explanation:

Platelet transfusions have the highest risk of bacterial contamination compared to other types of blood products

Important for meLess important

As this patient is actively bleeding with platelets <30 and haemoglobin of 76g/L, she needs both red blood cells and platelets.

Platelet transfusions pose the highest risk to this immunocompromised patient as they are the most likely to be contaminated by bacteria. This is because refrigeration causes irreversible glycoprotein clustering on the platelet surface, which causes the platelets to be recognised by liver macrophages and rapidly cleared by phagocytosis. Therefore, they have a shelf life of only five days from donation to reduce the risk of contamination.

Cryoprecipitate is kept in freezers at -30ºC and therefore has a much lower risk of bacterial contamination.

Packed red cells are stored in a refrigerator and can be kept for up to 42 days from donation.

Plasma is also frozen, reducing contamination risk, and can therefore be kept for up to a year.

Whole blood is stored in a refrigerator for 21-35 days and therefore carries a lower contamination risk.

Also of interest: immunocompromised patients often receive blood that has been specially treated to reduce the risk of transfusion-associated graft vs host disease, such as irradiated or lymphocyte-depleted blood. This is only necessary for blood products containing lymphocytes, including whole blood and packed red cells but not plasma or cryoprecipitate.

Question:

A 35-year-old man presented to the primary care due to bouts of palpitations and shortness of breath on exertion. He is otherwise well. On examination, there was an ejection systolic murmur. An echocardiogram was arranged. This showed an asymmetric hypertrophy most marked in the septal region.

Subsequent cardiovascular MR (CMR) confirmed this finding and found a systolic anterior movement of the anterior leaflet of the mitral valve.

What is the most likely diagnosis?

A.Mitral stenosis

B.Takotsubo cardiomyopathy

C.Hypertrophic obstructive cardiomyopathy

D.Mitral regurgitation

E.Aortic stenosis

Answer:Hypertrophic obstructive cardiomyopathy

Explanation:

Asymmetric septal hypertrophy and systolic anterior movement (SAM) of the anterior leaflet of mitral valve on echocardiogram or cMR support HOCM

Important for meLess important

Option 1 is incorrect as mitral stenosis typically causes a mid-diastolic murmur with an opening snap.

Option 2: Takotsubo cardiomyopathy aka Broken heart syndrome describes a stress-induced cardiomyopathy; its appearance on CMR resembles an octopus put (ballooning of the apical segment of the heart). Its presentation may mimic acute coronary syndrome.

Option 3: In hypertrophic obstructive cardiomyopathy (HOCM), the hypertrophy does not affect the whole of LV equally i.e. more pronounced in certain areas e.g. septal or subaortic region. The SAM of the mitral valve is also characteristic of HOCM.

Option 4 is incorrect as mitral regurgitation typically causes pansystolic murmur (not ejection systolic)

Option 5: Aortic stenosis may cause LV hypertrophy but this typically affects the whole of the left ventricle. Aortic stenosis is not associated with the SAM of the anterior leaflet of the mitral valve

Question:

A 78-year-old woman on hormonal replacement therapy presents with increasing back and joint pain, reducing her mobility. Specifically, she reports lumbar discomfort which has increased in the past week.

An examination is generally unremarkable except for point tenderness over the L3-4 region. X-rays of the area reveal several vertebral compression fractures at L3 and L4.

Further blood tests are performed and are shown below.

Calcium 2.0 mmol/L 2.1–2.6

ALP 250 u/L 30–100

Phosphate 0.5 mmol/L 1.0–1.5

PTH 80 ng/L 10–60

What is the most likely diagnosis?

A.Osteomalacia

B.Osteopetrosis

C.Osteoporosis

D.Paget's disease

E.Primary hyperparathyroidism

Answer:Osteomalacia

Explanation:

Low serum calcium, low serum phosphate, raised ALP and raised PTH - osteomalacia

Important for meLess important

This patient has presented with clinical features and investigation in keeping with osteomalacia. This condition is characterised by softening of the bone, resulting in bone and joint pain, muscle weakness and increased risk of bone fractures. Osteomalacia is a result of impaired bone metabolism due to inadequate levels of phosphate, calcium and/or vitamin D and therefore is associated with low serum calcium and phosphate levels and raised alkaline phosphatase (ALP) and parathyroid hormone (PTH) levels.

Osteoporosis is a condition affecting the skeletal bones resulting from a decrease in bone mass. The reduction in bone mass is secondary to an imbalance between bone resorption and bone formation, which in turn is a result of an imbalance between osteoclast and osteoblast activity. Although vitamin intake can be optimised as part of the management of osteoporosis, the condition is not directly associated with reduced levels of calcium, phosphate etc and therefore serum levels are generally within the normal range. Dual-energy x-ray absorptiometry (DEXA scan) is the gold standard for confirming osteoporosis, identifying a reduction in bone mass, with a level of under 2.5 standard deviations considered diagnostic.

Osteopetrosis is a rare congenital condition resulting in osteosclerosis where patients’ bones harden and becomes denser than normal. The condition is due to a defect in genes coding for osteoclast formation, which is required in bone remodelling. Despite this excess bone formation, patients generally have weaker and more brittle bones than normal and are therefore also a risk of pathological fractures. Serum blood results are commonly normal in patients with osteopetrosis and diagnosis is via characteristic changes observed on simple bone x-rays.

Paget's disease is another condition resulting in bone dysregulation, specifically excessive bone breakdown and subsequent disorganised new bone formation. Although the cause of Paget’s disease is unknown the pathophysiology is thought to involve disrupted osteoclast and osteoblast regulation. The condition is often diagnosed following the early detection of a raised serum ALP with normal calcium, phosphate and PTH levels.

Primary hyperparathyroidism is a condition where the parathyroid gland produces an excess of PTH, normally due to a sporadic parathyroid adenoma, resulting in increased serum levels of calcium. This increased calcium level can cause several features including abdominal pains, kidney stones, psychiatric abnormalities and the formation of osteitis fibrosa cystica of the bones resulting in pain and potential pathological fractures. Blood tests for the condition will show raised calcium, PTH and levels and ALP a decreased phosphate level.

Question:

A 54-year-old man presents to the emergency department with a 3-day history of right-sided scrotal pain and swelling with associated dysuria and increased frequency. He has had unprotected sexual intercourse with his wife, who uses hormonal contraception and is his only partner. The patient has a past medical history of type 2 diabetes.

On examination, the right hemiscrotum is erythematous and diffusely swollen. Elevating the testis alleviates the pain.

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

A.Arrange mid-stream urine sample for microscopy and culture

B.Arrange urethral swab sample for microscopy and culture

C.Arrange urine sample for nucleic acid amplification tests (NAAT)

D.Urgently refer for same-day testicular ultrasound scan

E.Urgently refer to urology for surgical fixation

Answer:Arrange mid-stream urine sample for microscopy and culture

Explanation:

Epididymo-orchitis in individuals with a low STI risk (e.g. married male in 50s, wife only partner) is likely due to enteric organisms (e.g. E. coli)

Important for meLess important

Arrange mid-stream urine sample for microscopy and culture is correct. This patient has signs and symptoms consistent with epididymo-orchitis, characterised by subacute onset of testicular pain and swelling with associated dysuria. His pain being relieved when elevating the testis (positive Prehn's sign) makes a diagnosis of testicular torsion less likely. Epidemiological data shows that individuals with a low sexually-transmitted infection (STI) risk, such as married men in their 50s with a single long-term partner, are likely to have enteric organisms such as Escherichia coli as the underlying aetiological agent, therefore the most appropriate next step would be to arrange a mid-stream urine sample for microscopy and culture to guide antibiotic treatment. It is important to note that this is a general assumption and more detail would be needed regarding his sexual history and whether his wife has any other sexual partners, but with the detail given in this question and in exams, it is safe to assume that the patient and his wife are monogamous.

Arrange urethral swab sample for microscopy and culture is incorrect. Although a urethral swab may have been considered in the past for causes of dysuria, it is a more uncomfortable means of acquiring a sample for testing and a mid-stream urine sample is being increasingly used as it is similar in effectiveness and less uncomfortable. In the management of epididymo-orchitis where enteric organisms are suspected, a mid-stream urine sample for microscopy and culture is the initial investigation of choice.

Arrange urine sample for nucleic acid amplification tests (NAAT) is incorrect. This would be appropriate if the suspected underlying cause was due to a sexually-transmitted infection (STI), however, this is more prevalent in people with a higher STI risk, typically younger patients and/or those with multiple sexual partners. As well as this, patients may present with urethral discharge, which points the likely cause towards an STI. As mentioned above, although this is a general assumption, with the detail given in this question and in exams, it is safe to assume that the patient and his wife are monogamous.

Urgently refer for same-day testicular ultrasound scan is incorrect. This would be an appropriate initial investigation for testicular torsion, which presents more acutely and is more common in younger patients. Testicular torsion is rare in patients over 35 years of age. As well as this, testicular torsion does not present with dysuria and pain is not relieved when elevating the testis (negative Prehn's sign).

Urgently refer to urology for surgical fixation is incorrect. Similarly to the above, this would be performed if a testicular torsion was suspected, but given this patient's age, the presence of dysuria, and a positive Prehn's sign, testicular torsion is less likely.

Question:

A boy, born at term, via cesarean section is under cardiology review after he was found to have a pansystolic murmur. Cardiology reports a ventricular septal defect (VSD). His mother becomes very anxious when she finds out and is keen to find out more about VSD. She asks about the risks to her son.

Which one of the following is he at a high risk of?

A.Essential hypertension

B.Aortic aneurysm

C.Carotid dissection

D.Endocarditis

E.Papillary muscle atrophy

Answer:Endocarditis

Explanation:

VSD increases risk of endocarditis

Important for meLess important

VSD defects that result in haemodynamic instability are repaired surgically, whereas small shunts are left without intervention. Patients with VSD are at a high risk of endocarditis. Occurs at a rate of 2.4 cases per 1000 patients per year

Patients with VSD usually suffer from pulmonary hypertension but are not particularly at a high risk of developing essential hypertension.

VSD is associated with aneurysms of the ventricular septum, however, there is no known association with aortic aneurysms, carotid dissection or papillary muscle atrophy making.

Question:

With which of the following blood products is most likely to cause an iatrogenic septicaemia with a Gram-positive organism?

A.Cryoprecipitate

B.Platelets

C.Packed red cells

D.Factor VIII concentrate

E.Factor IX concentrate

Answer:Platelets

Explanation:

Platelets are stored at room temperature and must be used soon after collection. This places them at increased risk of culturing gram positive organisms. Iatrogenic infection with gram negative organisms is more likely with packed red cells as these are stored at 4 degrees.

Infections with blood products of this nature are both rare.

Question:

A 64-year-old man is found to have an oral glucose tolerance test result of 10.4mmol/L.

His medical history comprises gastro-oesophageal reflux disease, hypertension, and erectile dysfunction.

Which of the following medications taken by the patient is most likely to contribute to his glucose tolerance test result?

A.Bendroflumethiazide

B.Doxazosin

C.Omeprazole

D.Sildenafil

E.B12 supplements

Answer:Bendroflumethiazide

Explanation:

Thiazides can worsen glucose tolerance

Important for meLess important

While thiazide diuretics are beginning to be replaced by thiazide-like diuretics (the latter of which tend not to affect glucose tolerance), you will still come across many patients on thiazide drugs in the hospital setting. It is important to note that thiazides may also cause sexual dysfunction, which is also seen in this patient.

Doxazosin is an alpha-blocker that can be taken for hypertension, it does not worsen glucose tolerance.

Omeprazole is a proton pump inhibitor (PPI) that can be taken for gastro-oesophageal reflux disease (GORD). Omeprazole does not worsen glucose tolerance.

Sildenafil (brand name Viagra) is a selective PDE-5 inhibitor, and it is taken for erectile dysfunction. Sildenafil does not worsen glucose tolerance, and there is some evidence to suggest that it improves insulin sensitivity.

B12 supplementation may be taken for a variety of reasons (for instance, patients with a plant-based diet). B12 supplementation does not worsen glucose tolerance.

Question:

A 37-year-old man with a history of internal haemorrhoids presents as his symptoms have recently flared. He now describes piles which he has to manually reduce following defecation. What grade of haemorrhoids does he have?

A.Grading system does not apply to internal haemorrhoids

B.Grade I

C.Grade II

D.Grade III

E.Grade IV

Answer:Grade III

Explanation:

Question:

You review a 26-year-old woman. She has a history of asthma and is prescribed salbutamol 100mcg 2 puffs prn, beclometasone dipropionate 400mcg bd and salmeterol 50mcg bd. Last week she found out she was pregnant and stopped the beclometasone and salmeterol inhalers as she was concerned about potential harm to the pregnancy. What is the most appropriate action?

A.Reduce beclometasone to 200mcg bd and continue salmeterol at the same dose

B.Stop beclometasone and salmeterol inhalers + refer to a respiratory physician

C.Reduce beclometasone to 200mcg bd and stop salmeterol

D.Restart beclomethasone at same dose and stop salmeterol

E.Reassure + restart beclometasone and salmeterol inhalers

Answer:Reassure + restart beclometasone and salmeterol inhalers

Explanation:

Both the BNF and British Thoracic Society guidelines stress the need for good control of asthma during pregnancy. The BNF advises that 'inhaled drugs, theophylline and prednisolone can be taken as normal during pregnancy and breast-feeding'.

Question:

A four-year-old child with poorly controlled asthma attends GP surgery with his mother due to increasing frequency of his asthma exacerbations. He is already on salbutamol inhaler as required and beclometasone inhaler 200mcg/day. He uses these devices with a spacer and has good technique. What is the next best step in his management?

A.Re-check the patient's inhaler/spacer technique

B.Add in a long acting beta agonist (LABA)

C.Refer to respiratory paediatrician

D.Add in a leukotriene receptor antagonist

E.Increase the dose of steroid

Answer:Add in a leukotriene receptor antagonist

Explanation:

Child aged < 5 years with asthma not controlled by a SABA + paediatric low-dose ICS - asthma management in children < 5 years - add a leukotriene receptor antagonist

Important for meLess important

Question:

Which one of the following is the causative agent of roseola infantum?

A.Human herpes virus 2

B.Parvovirus B19

C.Human herpes virus 6

D.Human herpes virus 8

E.Cytomegalovirus

Answer:Human herpes virus 6

Explanation:

Question:

A 57-year-old man with NYHA class III heart failure is currently treated with furosemide and ramipril. What is the most suitable beta-blocker to add to improve his long-term prognosis?

A.Acebutolol

B.Labetalol

C.Bisoprolol

D.Sotalol

E.Esmolol

Answer:Bisoprolol

Explanation:

Both carvedilol and bisoprolol have been shown to reduce mortality in stable heart failure. The other beta-blockers have no evidence base to support their use

Question:

A 23-year-old male medical student presents to the emergency department with severe right upper quadrant abdominal pain. He describes it as sharp and worse on inspiration. He has been feeling tired and short of breath in the last few days and has a cough productive of purulent, bloody sputum. He has a fever, tachycardia and tachypnoea. He has recently come back from a week-long holiday in which he admits to drinking 15 units of alcohol a day.

What is the most likely cause of his presentation?

A.Viral hepatitis

B.Alcoholic hepatitis

C.Gallstones

D.Pancreatitis

E.Pneumonia

Answer:Pneumonia

Explanation:

Lower lobe pneumonia may present with upper quadrant abdo pain

Important for meLess important

Although the patient is complaining of abdominal pain, the other symptoms point towards a diagnosis of pneumonia. There are signs of infection (fever, tachycardia, tachypnoea) along with shortness of breath and purulent, bloody sputum. This question highlights that pneumonia can sometimes cause abdominal pain; in particular, lower lobe pneumonia may be felt as upper quadrant abdominal pain.

Hepatitis, gallstones and pancreatitis do not cause shortness of breath and a cough productive of purulent, bloody sputum. The history of high alcohol intake is a red herring in this question.

Question:

A 27 year old woman attends her GP with breast pain. She is 2 weeks postpartum and is exclusively breastfeeding. She complains of a 3 day history of worsening right sided breast pain, which has not improved with continued feeding and expressing. On examination, she appears well, her temperature is 38ºC. There is a small area of erythema superior to the right nipple, which is tender to touch. She has no known allergies.

What would be the most appropriate management?

A.Oral flucloxacillin & stop breastfeeding temporarily

B.Oral flucloxacillin & encourage to continue breastfeeding

C.Oral cefalexin & encourage to continue breastfeeding

D.Topical fusidic acid cream & encourage to continue breastfeeding

E.Paracetamol & ibuprofen & encourage to continue breastfeeding

Answer:Oral flucloxacillin & encourage to continue breastfeeding

Explanation:

Lactation mastitis is a common inflammatory condition of the breast, it may be infectious or non-infectious in origin. The main cause is milk stasis, due to overproduction or insufficient removal.

In non-infectious mastitis, the accumulated milk causes an inflammatory response. Sometimes an infection may develop via retrograde spread through a lactiferous duct or a traumatised nipple. The most common organism is Staphylococcus aureus.

Clinical features include breast pain (most commonly unilateral) with an associated erythematous, warm and tender area. Fever and flu-like symptoms may be noted.

First-line conservative management includes analgesia and encouraging effective milk removal (continue breastfeeding or expressing from affected side) in order to prevent further milk stasis. It is also important to ensure that there is correct positioning and attachment when feeding.

If symptoms do not improve after 12-24 hours of conservative management then antibiotics should be prescribed. First-line choice is oral flucloxacillin (500mg four times a day for 14 days) or erythromycin if penicillin allergic. Second-line choice is co-amoxiclav.

Other more serious causes, such as inflammatory breast cancer should be considered in cases that do not improve with conservative and antibiotic management.

(Source - CKS mastitis)

Question:

A 31-year-old man presents with headaches, anxiety and palpitations. On examination, his BP is found to be 195/120mmHg. He is treated for essential hypertension. After failing to respond to initial medical therapy he is further investigated for secondary causes of his hypertension and is diagnosed with pheochromocytoma. Which of the following is the best for control of his blood pressure whilst awaiting definitive management of his tumor?

A.Bisoprolol

B.Ramipril

C.Furosemide

D.Labetalol

E.Bendroflumethiazide

Answer:Labetalol

Explanation:

Both alpha and beta blockade is required when controlling hypertension in pheochromocytoma to avoid hypertensive crises

Important for meLess important

Neither ACE inhibitors nor diuretics have a role in BP control in pheochromocytoma. In pheochromocytoma patients have excessive alpha and beta signalling due to aberrant catecholamine secretion, and because both cardiac output and peripheral vascular resistance are increased, BP is elevated. Beta blockers will act on the heart to decrease cardiac output but will leave unopposed alpha blockade and precipitate a hypertensive crisis or other complications where cardiac output falls but vascular resistance remains high. Beta blockade must only be used alongside adequate alpha blockade; the only medication here which achieves this is labetalol.

Question:

You are in a genetics clinic and explaining to a mother and father the reasoning why their son has Prader-Willi syndrome. What is the term we use to describe the mode of inheritance for Prader-Willi syndrome?

A.Autosomal recessive

B.Autosomal dominant

C.Imprinting

D.Pleiotropy

E.Variable expressivity

Answer:Imprinting

Explanation:

Prader-Willi is an example of imprinting. For this disease to occur, the patient does not receive the gene from their father. The mother's gene may be normal, but that does not prevent the phenotype occurring. The phenotype consists of learning difficulties, hypotonia, obesity and the urge to eat.

Autosomal recessive is when a person receive a defect gene from the mother and a defective gene from the father causing them to have the particular condition. An example of this is cystic fibrosis.

Autosomal dominant refers to when a person only need to receive one defective gene to inherit a condition, this can be from the mother or father. An example of this would Huntington's disease.

Pleiotropy refers to when one gene, when defective, causing two or more clinical effects that appear unrelated.

Variable expressibility refers to when an inherited genetic defect causes different levels of clinical effect.

Question:

You perform a home visit for a 77-year-old man diagnosed with terminal bronchial carcinoma. The patient has palliative care support in place, including anticipatory medications should he develop end-of-life symptoms. He is lucid and eating well, although unfortunately has developed shortness of breath and worsening pains from his metastases. The patient is a smoker and has a background of hypertension, ischaemic heart disease, and stage 4 chronic kidney disease.

What is the most appropriate medication to alleviate his symptoms?

A.Glycopyrronium

B.Home oxygen

C.Midazolam

D.Morphine sulfate

E.Oxycodone

Answer:Oxycodone

Explanation:

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

Important for meLess important

For palliative patients, opioids provide good control of pain and breathlessness. Morphine and codeine are renally excreted, so are therefore not ideal for the above patient given his chronic kidney disease. In contrast, oxycodone is primarily metabolised by the liver and is, therefore, the most appropriate choice.

Anticholinergics such as glycopyrronium are effective in controlling issues surrounding upper airway secretions and hypersalivation, though are unlikely to help with the patient's pain and shortness of breath.

Home oxygen is generally not used to manage breathlessness in palliative care scenarios. In addition, it will not provide any improvement to the patient's pain. Although not an absolute contraindication, prescribing home oxygen for a patient who smokes likely presents an unacceptable level of risk.

Midazolam and other benzodiazepines are useful for palliative patients experiencing distress or displaying signs of agitation. An opioid however would be the best choice to manage the patient's pain and shortness of breath.

Question:

A 72-year-old man presents to his GP complaining of a 4-week history of pain when swallowing and frequent nausea.

Because of his symptoms and his age, the GP refers him for oesophagogastroduodenoscopy (OGD), which showed oesophageal ulceration.

What medication is most likely to have caused this pathology?

A.Alendronic acid

B.Amlodipine

C.Aspirin

D.Ibuprofen

E.Prednisolone

Answer:Alendronic acid

Explanation:

Bisphosphonates can cause a variety of oesophageal problems

Important for meLess important

Alendronic acid is the correct answer. Alendronic acid is a bisphosphonate, typically used in the treatment and prevention of osteoporosis. Bisphosphonates have a range of side effects, most notably oesophageal problems such as oesophagitis and ulceration, acute phase response characterised by fever, myalgia and arthralgia, and hypocalcaemia. This patient has developed oesophageal ulceration which is especially common with alendronate and will likely require high-dose PPI and cessation of the offending medication.

Amlodipine is incorrect. This is a calcium channel blocker used in angina and hypertension. While it can cause dyspepsia, it does not cause gastrointestinal ulceration. Furthermore, some studies have shown that amlodipine may be protective. Common side effects of amlodipine include constipation, lower limb oedema, and headache.

Aspirin is incorrect. While aspirin and other NSAIDs are heavily associated with peptic ulcer disease (ulceration of the stomach and small bowel), there is no evidence to suggest that they cause oesophageal ulcers.

Ibuprofen is incorrect. This is a commonly used NSAID which has a well documented risk of gastric irritation. While peptic ulcers are a relatively common side effect of prolonged NSAID use, oesophageal ulcers are exceedingly rare and are far more likely to be caused by alendronic acid.

Prednisolone is incorrect. Prednisolone is a glucocorticoid used in a wide range of inflammatory and autoimmune disorders. All steroids are known to cause peptic ulcers by thinning the mucosa. As such, all patients on long-term steroids should be given gastric protection, usually with PPI cover. However, prednisolone and other steroids are not known to cause oesophageal ulceration and are used to treat idiopathic oesophageal ulceration.

Question:

A 20-year-old man is brought to the emergency department with acute-onset chest pain, shortness of breath, and palpitations. He has no past medical history.

His temperature is 37.1 ºC, his pulse is 156 bpm, his blood pressure is 86/64 mmHg, and his respiratory rate is 25 /min.

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

Given the likely diagnosis, what is the most appropriate step in his management?

A.IV adenosine

B.IV adrenaline

C.Synchronised direct current (DC) cardioversion

D.Unsynchronised DC cardioversion

E.Valsalva manoeuvre

Answer:Synchronised direct current (DC) cardioversion

Explanation:

Synchronised direct current (DC) cardioversion is correct. Palpitations, shortness of breath, and chest pain should raise suspicion of arrhythmia, which requires investigation using an ECG. This ECG shows a regular, narrow-complex (QRS complex <0.12 s) tachycardia), making the likely diagnosis supraventricular tachycardia (SVT). The Resuscitation Council guidelines state that synchronised cardioversion is indicated if a patient has SVT and is in shock (which applies to this patient as their blood pressure is low). Synchronised cardioversion is generally performed in patients with unstable tachyarrhythmia (such as SVT) without a loss of pulse, as it delivers a shock synchronised to the peak of the R wave. This patient's pulse was measurable, therefore synchronised cardioversion is indicated.

Unsynchronised DC cardioversion is incorrect. This is known as defibrillation and delivers a shock at any point in the cardiac cycle, and is used in shockable rhythms such as ventricular tachycardia (VT) or ventricular fibrillation (VF) where the patient has no pulse (pulseless). VT would show a broad-complex (QRS >0.12 s) tachycardia on the ECG and VF would demonstrate random and chaotic deflections with no identifiable P waves, QRS complexes, or T waves. The ECG does not demonstrate these features and shows a regular, narrow-complex tachycardia, making the likely diagnosis SVT.

IV adrenaline is incorrect. Similarly to the above, this is indicated in cases of pulseless VT and VF. IV adrenaline is given after the third shock using unsynchronised cardioversion. Given that this patient's ECG shows regular narrow-complex tachycardia, the most likely diagnosis is SVT.

IV adenosine is incorrect. This is used as a second option for patients with SVT where a Valsalva manoeuvre has failed. Similarly to the above, this is indicated in patients who are stable, and given that this patient is hypotensive, synchronised cardioversion must be performed.

Valsalva manoeuvre is incorrect. Although this is used in the management of SVT, this is tried first in patients that are haemodynamically stable. Since this patient's blood pressure is very low, the Resuscitation Council guidelines state that synchronised cardioversion should be performed, as it is unlikely that a Valsalva manoeuvre would be successful.

Question:

A 28-year-old pregnant woman presents to the GP. She has some abdominal pain ongoing for the last day. On further questioning, you find that she has been very itchy over the last week and on examination you notice a yellow tinge to her sclera.

Given her presentation, what is the most likely diagnosis?

A.Wilson's disease

B.Hepatitis C

C.Hepatitis B

D.Acute fatty liver of pregnancy

E.Budd-Chiari syndrome

Answer:Acute fatty liver of pregnancy

Explanation:

Jaundice following abdominal pain and pruritus during pregnancy think acute fatty liver of pregnancy

Important for meLess important

This question is asking about a 28-year-old pregnant woman presenting with abdominal pain, jaundice and pruritus. These are all typical features of acute liver failure and given her pregnancy, the most likely cause is acute fatty liver of pregnancy.

Wilson's disease normally presents in children and adolescents as neuropsychiatric symptoms. While it can also present with the symptoms above, the absence of those neurological symptoms helps to rule this out.

Hepatitis B and C would present with non-specific symptoms of infection such as nausea, vomiting, myalgia, fatigue and right upper quadrant pain. You would also expect some risk factors from either a sexual history or travel history.

Budd-Chiari syndrome is due to obstruction of the hepatic vein. It typically presents with right upper quadrant pain and painful ascites. You could also note hepatomegaly, jaundice and it may be associated with an acute kidney injury.

Question:

A man in his 50s presents with a lump under both his nipples. He is very embarrassed and states he no longer takes his shirt off in public anymore. Currently, he is taking 5 medications which include metformin, ramipril, ketoconazole, gliclazide, and co-codamol.

Which of the following is the most likely cause of his presenting complaint?

A.Metformin

B.Ramipril

C.Ketoconazole

D.Gliclazide

E.Co-codamol

Answer:Ketoconazole

Explanation:

A side effect of ketoconazole is gynecomastia

Important for meLess important

Ketoconazole has a clear link with gynecomastia. It does this by suppressing the production of androgens, patients may have reduced levels of testosterone. All the other drugs are not clearly linked with gynecomastia.

Question:

The neurosurgery team review a 55-year-old patient who was admitted for a newly diagnosed brain tumour. He is noted to have a third nerve palsy.

Which clinical findings would be most consistent with this?

A.Miosis, ptosis, anhidrosis, enophthalmos

B.Miosis, ptosis, anhidrosis, exophthalmos

C.Mydriasis, ptosis, anhidrosis, enophthalmos

D.Ptosis, downward and outward deviation of the eye, miosis

E.Ptosis, downward and outward deviation of the eye, mydriasis

Answer:Ptosis, downward and outward deviation of the eye, mydriasis

Explanation:

Raised ICP can cause a third nerve palsy due to herniation

Important for meLess important

A third nerve palsy presents with ptosis, down & out deviation of the eye, and a dilated pupil known as mydriasis. This is due to its innervation of the sphincter pupillae and globe muscles (except lateral rectus and superior oblique).

Miosis, ptosis, anhidrosis, and enophthalmos is the typical presentation of a Horner's syndrome where the sympathetic chain is commonly damaged by an apical pancoast tumour leading to unopposed parasympathetic activity.

Miosis, ptosis, anhidrosis, and exophthalmos are not a distinct clinical syndrome. Exophthalmos typically occurs with conditions such as Grave's disease when the eye is affected.

The combination of mydriasis, ptosis, anhidrosis and enophthalmos is not a distinct clinical syndrome. Generally in Horner's syndrome, the pupils constrict due to unopposed parasympathetic activity.

Ptosis, downward and outward deviation of the eye, and miosis is not a distinct clinical syndrome. Without miosis, ptosis and down & out deviation of the eye is consistent with a third nerve palsy. However, constriction of the pupil is not consistent with this given the third nerve is responsible for this constriction.

Question:

A 60-year-old woman with a background of depression and non-paroxysmal atrial fibrillation is brought to the emergency department by her son after being found on the floor with an empty bottle of medication. She appears confused and complains of feeling nauseous. She also develops visual hallucination and yellow discolouration of her vision shortly after arriving at the hospital.

She does not smoke and denies any substance abuse. According to her son, she rarely leaves the house and is living a sedentary lifestyle.

On examination, her pulse is irregular. Pulse rate is 72 beats per minute, blood pressure is 110/70 mmHg and respiratory rate is 18 breaths per minute. An ECG is done and it reveals a pattern of frequent premature ventricular contractions and ventricular bigeminy.

Based on the most likely diagnosis, which of the following management should be done for this patient?

A.Administer N-acetylcysteine based on body weight of the patient intravenously

B.Administer digoxin-specific antibody fab fragments (Digibind) intravenously

C.Administer an initial dose of naloxone intravenously

D.Administer diazepam intramuscularly

E.Perform cardioversion with the highest possible energy

Answer:Administer digoxin-specific antibody fab fragments (Digibind) intravenously

Explanation:

Digibind is the first line treatment for severe digoxin toxicity

Important for meLess important

According to NICE guidelines, digoxin monotherapy is considered for people with non-paroxysmal atrial fibrillation with a sedentary lifestyle [NICE 2014].

This patient is experiencing severe digoxin toxicity following an overdose of digoxin tablets with suicidal intention. Digoxin-specific antibody fab fragments (Digibind) is a recognised antidote for severe digoxin toxicity.

Clinical features of digoxin toxicity\*:

GIT: nausea, vomiting, anorexia, diarrhoea

Visual: blurred vision, yellow/green discolouration, haloes

CVS: palpitations, syncope, dyspnoea

CNS: confusion, dizziness, delirium, fatigue

N-acetylcysteine is an antidote for paracetamol overdose, while naloxone and diazepam are used in opioid overdose and alcohol withdrawal respectively.

Cardioversion should be avoided wherever possible due to the risk of precipitating asystole, and when necessary should be attempted using the lowest energy possible\*\*.

\*Digoxin Toxicity. Life In The Fast Lane.

\*\*Gregory Y.H. Lip, Malcolm J. Metcalfe, Francis G. Dunn. Diagnosis and Treatment of Digoxin Toxicity. Postgrad Med J (1993) 69, 337 - 339.

Question:

A four-year-old boy has presented with his concerned mother with an abnormal gait and weakness in his lower limbs. A history, examination and subsequent investigations are completed and he is diagnosed with Duchenne muscular dystrophy.

What is the most common cardiac pathology associated with this condition?

A.Acute myocardial infarction

B.Atrioventricular septal defect

C.Coronary aneurysms

D.Dilated cardiomyopathy

E.Tetralogy of Fallot

Answer:Dilated cardiomyopathy

Explanation:

The most common heart lesion associated with Duchenne muscular dystrophy is dilated cardiomyopathy

Important for meLess important

Acute myocardial infarctions are not associated with Duchenne muscular dystrophy

Atrioventricular septal defects are not associated with Duchenne muscular dystrophy. However, it is associated with Down syndrome.

Coronary aneurysms are not associated with Duchenne muscular dystrophy. It is a complication of Kawasaki disease, a medium vessel vasculitis affecting children from 6 months to 5 years.

Dilated cardiomyopathy is associated with Duchenne muscular dystrophy and is, therefore, the correct answer. Duchenne muscular dystrophy is an X-linked recessive condition that is characterised by progressive muscle-weakening and wasting. The complication of dilated cardiomyopathy usually begins in adolescence and is rapidly progressive.

Tetralogy of Fallot is a cyanotic cardiac condition that presents at birth. It is not associated with Duchenne muscular dystrophy.

Question:

A 58-year-old man is being discharged following an episode of paroxysmal fast atrial fibrillation (AF).

He has a past medical history of hyperlipidemia and asthma.

His heart rate is 65/min with a regular pulse, respiratory rate 14/min, blood pressure 125/82 mmHg, and temperature of 36.2 ºC.

The patient requires an assessment for whether anticoagulation is indicated, hence his CHA2DS2-VASc score was calculated using the system below.

Given the patient’s CHA2DS2-VASc score, what is the next step in managing this patient?

A.Arrange an echocardiogram

B.Arrange an electrocardiogram

C.Start aspirin

D.Start rivaroxaban

E.Start warfarin

Answer:Arrange an echocardiogram

Explanation:

The correct answer is to arrange an echocardiogram. This patient has recently been diagnosed with atrial fibrillation. His CHA2DS2-VASc score is 0. This indicates no clinical need for anticoagulation. NICE guidelines indicate the need to perform an echocardiogram, to exclude valvular heart disease. If the echocardiogram shows a valvular defect, then anticoagulation should be started even with a low CHA2DS2-VASc score, as valvular heart disease in combination with atrial fibrillation is an absolute indication for anticoagulation.

Arranging an electrocardiogram is incorrect, as this patient has already been diagnosed with atrial fibrillation. The NICE guidelines indicate performing an echocardiogram rather than an electrocardiogram.

Warfarin is now used second-line in the prevention of stroke in atrial fibrillation. It is used in patients where a direct oral anticoagulant is contraindicated or not tolerated, but in this case, the patient does not need any anticoagulation, given that his CHA2DS2-VASc score is 0.

Rivaroxaban would be the first-line option if this patient necessitated anticoagulation. Given that his CHA2DS2-VASc score is 0 he does not need anticoagulation.

Aspirin is not recommended specifically for AF alone, in the absence of other co-morbidities, by NICE.

Question:

A 25-year-old patient presents to the neurology clinic. They report several episodes of involuntary twitching movement in their right hand. These episodes last for around 2 minutes and they return to normal immediately afterward.

What is the most likely diagnosis?

A.Focal aware seizures

B.Focal seizures with impaired awareness

C.Huntington's disease

D.Median nerve palsy

E.Focal dystonia

Answer:Focal aware seizures

Explanation:

Consciousness is not impaired in a focal aware seizure

Important for meLess important

This history of short attacks with stereotyped movement and quick recovery is consistent with focal aware seizures (previously called simple focal seizures). These could be described even more precisely as focal aware myoclonic seizures.

Focal seizures with impaired awareness (previously called complex focal seizures) would involve impaired consciousness and a post-ictal state

A family history of Huntington’s disease would usually be disclosed in a question like this one and the attacks described do not match with the chorea typical of Huntington’s disease – this would be more chronically present.

Median nerve palsy would typically involve more chronic symptoms, with elements of pain and paraesthesia and would classically be worse on waking.

Focal dystonia would involve rigidity and writhing movements rather than twitching.

Question:

A 14-year-old girl with Tourette's syndrome is brought to the GP by her mother as she is worried about some odd behaviours she has noticed. During the consultation, you find that she has been very worried about her exam results. She has felt the urge to clean all the door handles in the house 3 times each morning as otherwise, she finds herself worrying more about these exams.

Which of the following features would point towards a diagnosis of psychosis over obsessive-compulsive disorder?

A.Female gender

B.She truly believes that if she does not perform these acts that she will definitely fail her exams

C.Previous medical history of Tourette's syndrome

D.Needing to perform more of these acts over a time to feel comfortable

E.There being no family history of obsessive-compulsive disorder

Answer:She truly believes that if she does not perform these acts that she will definitely fail her exams

Explanation:

Obsessive-compulsive disorder can be differentiated from psychosis by the level of insight into their actions

Important for meLess important

Obsessive-compulsive disorder (OCD) is a disorder characterised by obsessions and compulsions. Obsessions are unwanted intrusive thoughts that cannot be removed from your head, and compulsions are acts that patients do to try and reduce the number of obsessions that they get.

In this case, the correct answer is number 2, where she truly believes that if she does not perform these acts that she will definitely fail her exams. In OCD the patients normally have a good level of insight into their condition and understand that if they did not perform the acts their obsessive though would not come true. However, they still get the urge to perform them anyway, just to put their mind at ease.

This lack of insight into the condition she has may indicate that there is a delusional element to her symptoms and this may not be an obsessive-compulsive disorder and may have some form of psychosis.

There is no link between gender and OCD and some causes of psychosis e.g. schizophrenia are more common in males than females

A previous medical history of Tourette's is associated with obsessive-compulsive disorder and not psychosis

Many patients with untreated OCD find themselves needing to perform more and more acts over time to reduce their intrusive thoughts and so this is not a feature that would indicate psychosis

While there is a genetic link to OCD, if a patient did not have a family history it would not point you towards another underlying diagnosis.

Question:

You are asked to see a 72-year-old woman who has been treated for a recent infection with oral cefuroxime. She presents to the emergency department with abdominal pain and diarrhoea. Her observations are shown below:

Heart rate 120 beats per minute

Respiratory rate 18 per minute

Oxygen saturation 96% on air

Blood pressure 95/47 mmHg

Temperature 38.1oC

Given the likely diagnosis, what is the recommended treatment?

A.Intravenous (IV) vancomycin

B.Oral amoxicillin and IV metronidazole

C.Oral metronidazole

D.Oral vancomycin

E.Oral vancomycin and IV metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

The correct answer is oral vancomycin and IV metronidazole.

The presentation of abdominal pain and diarrhoea associated with recent use of second generation cephalosporin antibiotics is strongly suggestive of Clostridium difficile infection. The presence of hypotension means that this would be classed as a life-threatening infection, therefore oral vancomycin and IV metronidazole would be the recommended treatment.

IV vancomycin would not generally be used alone for Clostridium difficile infection.

While IV metronidazole would form part of the treatment for this patient, oral amoxicillin is not recommended in the treatment of Clostridium difficile.

Oral metronidazole for 10-14 days would be the first-line therapy in patients with mild to moderate infection.

Oral vancomycin would be indicated in patients with severe infection or in those not responding to oral metronidazole.

Question:

A 28 year old lady presents to the emergency department with a 4 day history of generalised headache that is worse on lying down. She reports it has gradually become worse and she has also noticed blurred vision since yesterday. Her past medical history includes chronic back pain, acne and anxiety. On examination she is noted to be overweight. Fundoscopy shows papilloedema. Further investigations point to a diagnosis of idiopathic intracranial hypertension. Which of the following of her medications is associated with this condition?

A.Tramadol

B.Tetracycline antibiotics

C.Diazepam

D.Amitryptilline

E.Ibuprofen

Answer:Tetracycline antibiotics

Explanation:

Idiopathic intracranial hypertension (formerly known as benign intracranial hypertension), as the name suggests is a condition whereby there is raised intracranial pressure of uncertain cause. If left untreated the related papilloedema can cause blindness (not so benign after all!) and so appropriate diagnosis and management is imperative.

It usually affects overweight women and is associated with several medications (see the list below). Management is with repeated therapeutic lumbar punctures, where the pressure is lowered by draining off CSF until symptoms settle and with acetazolamide. In resistant cases a lumboperitoneal or ventriculoperitoneal shunt may be considered.

Associated medications include, but are not limited to:

tetracycline antibiotics

isotretinoin

contraceptives

steroids

levothyroxine

lithium

cimetidine

Question:

A 54-year-old woman presents with severe abdominal cramping and bloody diarrhoea for the past 3 days. Her past medical history is significant for Crohn's disease, which was maintained in remission for the past 3 years with azathioprine treatment.

She has been struggling with stress recently, after experiencing menopausal symptoms. She started smoking 5 a day and also recently started hormone replacement therapy 3 months ago.

Also, she has had a recent chest infection, where she took regular ibuprofen and co-amoxiclav for 1 week.

What factor is most likely to have caused relapse of her Crohn's disease?

A.Increased stress levels

B.Recent antibiotic use

C.Recent ibuprofen use

D.Starting hormone replacement therapy

E.Starting smoking

Answer:Starting smoking

Explanation:

Smoking increases the risk of Crohn's disease relapse

Important for meLess important

This woman is experiencing a severe relapse of her Crohn's disease and has had numerous lifestyle and medical changes recently which may be influencing this. Smoking is often considered one of the greatest determining factors for disease relapse, and therefore is the correct answer here.

Increased stress levels is incorrect. Whilst stress is indeed a factor that can cause disease relapse, it is not as strong a predictor as smoking is, and therefore is incorrect here.

Recent antibiotic use is incorrect. Antibiotic usage is actually considered to decrease the chance of relapse, therefore this is incorrect here.

Recent ibuprofen use is incorrect. The use of non-steroidal anti-inflammatory drugs (NSAIDs) in Crohn's disease is an area that is being studied further. There is currently not enough evidence to suggest they are implicated in disease relapse. Equally, only taking them for 1 week is unlikely to cause a substantial change in disease progression.

Starting hormone replacement therapy is incorrect. There is some evidence suggesting this is protective and can slow disease progression, however, the overall opinion is still unclear.

Question:

A 60-year-old man presents to the emergency department with central chest pain. His ECG shows ST depression in leads II,III and aVF. Which of the following may indicate a worse outcome in this patient?

A.Age <65

B.Lung crackles heard on auscultation

C.Raised 48-hour serum creatinine concentration

D.10 pack-year smoking history

E.Previous history of type 2 diabetes

Answer:Lung crackles heard on auscultation

Explanation:

Cardiogenic shock is a poor prognostic indicator in acute coronary syndrome

Important for meLess important

This question is asking about the prognostic factors in acute coronary syndrome. This man has presented with what sounds like a non-ST elevated myocardial infarction with central chest pain and ST depression. In this case, lung crackles heard on auscultation will be a poor prognostic factor as they indicate heart failure has occurred with resultant pulmonary oedema.

Age <65 is not a poor prognostic factor, and in fact the opposite, age >65 is a poor prognostic factor.

It is an initially raised serum creatinine concentration and not a raised 48-hour serum creatinine concentration that is a poor prognostic factor

A 10 pack-year smoking history has no effect on prognosis as many patients with acute contrary syndrome (ACS) will have some risk factors for cardiovascular disease

As with a smoking history, a previous history of type 2 diabetes has no effect on prognosis of ACS

Question:

You are working in obstetrics & gynaecology. Your patient, a 26-year-old female, has presented to the early pregnancy assessment clinic with a 48-hour history of light vaginal spotting and vague lower abdominal pain. Approximately 6 weeks previously, she took a home pregnancy test, which she found to be positive. Her last menstrual period was approximately 8 weeks ago.

Transvaginal ultrasound is performed, which fails to detect an intrauterine pregnancy.

Serum βHCG results are as follows:

Serum βHCG 3,662 IU per ml

What is the most likely diagnosis in this patient?

A.Ectopic pregnancy

B.Early viable pregnancy

C.Complete miscarriage

D.Incomplete miscarriage

E.Missed (delayed) miscarriage

Answer:Ectopic pregnancy

Explanation:

In the case of pregnancy of unknown location, serum bHCG levels >1,500 points toward a diagnosis of an ectopic pregnancy

Important for meLess important

Where transvaginal ultrasound fails to detect an intrauterine pregnancy, serum bHCG can be used to indicate the likely diagnosis.

Ectopic pregnancy is associated with high level of bHCG, thus where the initial serum bHCG level is >1,500 IU per ml, an ectopic pregnancy is likely.

Where the initial serum bHCG level is <1,500 IU per ml, serial bHCG measurements may be required (48 hours apart):

Where there is an increase in serum bHCG >63%, the woman is likely to have a developing intrauterine pregnancy.

Where there is a decrease in serum bHCG >50%, the pregnancy is unlikely to continue.

In the case of unstable serial bHCG measurements, there may be an ectopic pregnancy.

Whilst a complete miscarriage would also present with an empty uterus on transvaginal ultrasound, it is typically associated with heavy blood loss and considerable pain.

In the case of a missed (delayed) miscarriage, a fetus with no cardiac activity will be visible on transvaginal ultrasound.

Question:

A 57-year-old woman has presented to the hospital with a six-hour history of intermittent retrosternal chest pain radiating into the shoulder and jaw with associated diaphoresis, dyspnoea, and dizziness.

She has a past medical history of Crohn's disease and takes azathioprine 150mg daily. She was previously started on sulfasalazine but developed facial swelling.

ECG shows normal sinus rhythm at 78 bpm but demonstrates 3mm of ST depression in leads II, III, and aVF.

Blood results are:

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 132 µmol/L (55 - 120)

Initial Troponin T 17 ng/L (5-14)

6 hour Troponin T 326 ng/L (5-14)

A diagnosis of an inferior non-ST elevation myocardial infarction is made.

Which medication should be avoided?

A.Aspirin

B.Bisoprolol

C.Clopidogrel

D.Ramipril

E.Ticagrelor

Answer:Aspirin

Explanation:

Patients who are allergic to aspirin may also react to sulfasalazine

Important for meLess important

Aspirin is the correct answer. There is evidence of cross-sensitivity between aspirin and sulfasalazine and therefore if a patient is allergic to one, there is a risk of allergy to the other.

Bisoprolol is safe to be given as there is no history of intolerance, allergy, or contraindication.

Clopidogrel is safe to be given in the current situation. The use should be reviewed as to the benefits and risks if the patient happened to be having an acute flare of Crohn's with excess rectal bleeding at the time of presentation.

Ramipril is safe to be given.

Ticagrelor, as with clopidogrel, is safe to be given in the above situation but should be reviewed should the patient developed acute bleeding.

Question:

An 8-year-old boy is brought to the GP by his father following a 2-week history of persistent itch. On examination, you note that the child is scratching his wrists, and you can see linear burrows present on the flexor aspects of his left wrist.

Given the likely diagnosis, what is the most appropriate first-line treatment?

A.Ivermectin

B.Malathion

C.Topical emollient

D.Hydrocortisone

E.Permethrin

Answer:Permethrin

Explanation:

Permethrin is the treatment of choice for scabies

Important for meLess important

The correct answer is 'permethrin'.

The most likely diagnosis in this case is scabies. Patients typically present with widespread pruritus, and linear burrows may be evident on the sides of fingers, interdigital webs and flexor aspects of wrists. The first-line treatment for this is permethrin cream, and the pruritis may persist for up to 4-6 weeks after eradication.

Ivermectin is the treatment of choice for crusted (Norwegian) scabies - this is seen in patients with suppressed immunity, and isolation is essential during treatment.

Malathion can be used in the treatment of scabies. However, it is the second-line therapy. As such, it would normally only be used following failed treatment with permethrin or if there was a contraindication to permethrin.

Topical emollient would not be a suitable treatment for scabies and would be used in the maintenance of skin conditions such as eczema.

Hydrocortisone is a topical steroid and would be used in the treatment of skin conditions such as eczema. It would not be appropriate to use in scabies.

Question:

A 32-year-old woman is seen in the clinic having presented with non-specific symptoms of fatigue, weight loss, myalgia and joint pain over the past 3 months. She also recently developed some shortness of breath with an on-off dry cough as well as purple nodular-like skin lesions on her anterior lower limbs.

A serum angiotensin-converting enzyme (ACE) level is raised and a chest X-ray shows bilateral hilar lymphadenopathy with pulmonary infiltrates.

What prognostic statement regarding individuals with this patient’s condition is correct?

A.Most patients get better but only with treatment

B.Most patients get better even without treatment

C.Only a minority of patients get better even with treatment

D.Only a minority of patients get better without treatment

E.There is no treatment that improves prognosis

Answer:Most patients get better even without treatment

Explanation:

The majority of patients with sarcoidosis get better without treatment

Important for meLess important

This patient has presented with the hallmark features of sarcoidosis, including pulmonary involvement and erythema nodosum, with the associated X-ray and blood test findings. Management of sarcoidosis is very patient dependant however over 50% of patients require no treatment at all and most (over 75%) only require symptomatic treatment in the form of nonsteroidal anti-inflammatory drugs NSAID therefore most patients get better without treatment.

Poor prognostic factors in sarcoidosis include extrapulmonary manifestations such as lupus pernio and splenomegaly and the absence of erythema nodosum. These patients are uncommon, and require treatment with prognosis varying considerably, therefore the statement most patients get better but only with treatment is incorrect.

Most patients do not require treatment and even if they do more than a minority improve therefore only a minority of patients get better even with treatment is not correct.

Only a minority of patients get better without treatment is incorrect as most will improve without treatment.

The statement there is no treatment that improves prognosis in sarcoidosis is incorrect as several medications have been shown to improve prognosis including steroids, antimetabolites and immunosuppressants.

Question:

A 57-year-old man with a background of hypertension presents to the emergency department with severe chest pain. An ECG shows ST elevation in leads II, III and aVF and the patient is diagnosed with ST-elevation myocardial infarction.

Given the likely location of the coronary occlusion, from which complication is this patient most likely to suffer?

A.First degree atrioventricular block

B.Left ventricular wall thrombus

C.Right bundle branch block

D.Ventricular free wall rupture

E.Ventricular septal defect

Answer:First degree atrioventricular block

Explanation:

A right coronary infarct supplies the AV node so can cause arrhythmias after infarction

Important for meLess important

ST elevation in leads II, III and aVF is in-keeping with an inferior ST-elevation myocardial infarction. Inferior myocardial infarctions are typically due to occlusion of the right coronary artery. The right coronary artery supplies the AV node so a right coronary infarct can cause arrhythmias including sinus bradycardia and atrioventricular block.

A left ventricular thrombus can occur after a myocardial infarction due to 'stunning' of the myocardium resulting in blood pooling and clotting. This typically occurs after occlusion of the left anterior descending artery, as this supplies the majority of the left ventricle.

Whilst inferior myocardial infarctions tend to lead to disease within the atrioventricular node, anterior myocardial infarctions lead to heart block below the level of the atrioventricular node. Right bundle branch block is an example of this. Right bundle branch block is, therefore, more likely to be caused by an occlusion of the left anterior descending artery than of the right coronary artery.

Ventricular free wall rupture is an uncommon complication of myocardial infarction. It is usually caused by an anterior myocardial infarction - that is, disease of the left anterior descending artery. Rupture tends to occur within the first few weeks after the event and can present as cardiac tamponade or with cardiac arrest.

Post-myocardial infarction ventricular septal defect is an uncommon complication of a septal infarction. This is typically caused by an occlusion of the left anterior descending artery, as it is this that supplies blood to the anteroseptal portion of the heart.

Question:

A 34-year-old financial gains representative presents in a routine surgery with a 2-week history of a droopy left eyelid with forehead weakness. This is confirmed by examination and there are no ocular or ear findings.

What is an important part of treatment?

A.Anti-viral treatment alone

B.Antibiotic ointment

C.Immediate ENT referral

D.Night-time eyelid coverings

E.Topical steroids

Answer:Night-time eyelid coverings

Explanation:

Eye care is important in Bell's palsy - drops, lubricants and night time taping should be considered

Important for meLess important

Night-time eyelid coverings - this is the correct answer. Care of the eye is very important in Bell's palsy and cannot be understated. Paralysis of the facial nerve can leave the lid open during the night and dry the conjunctiva. Corneal damage or infection can result if not cared for properly.

Anti-viral treatment alone - this is incorrect as this is not a treatment for Bell's palsy. There is no evidence to support the use of anti-viral treatment alone (always alongside steroids).

Antibiotic ointment - this is incorrect as Bell's palsy is due to the reactivation of a virus and is not caused by bacteria. Eye care to keep the eye moist will prevent infection in itself and does not require antibiotics.

Immediate ENT referral - this is incorrect as this is a simple case of Bell's palsy. Refractory Bell's palsy or when the resolution of symptoms does not occur within 2-3 months then warrants a referral.

Topical steroids - this is incorrect as this does not a recognised treatment for Bell's palsy and may indeed spur infection rather than help benefit.

Question:

A 54-year-old woman with a 30-pack-year history of smoking presents due to increasing breathlessness. A diagnosis of chronic obstructive pulmonary disease (COPD) is suspected. Which of the following diagnostic criteria should be used when assessing a patient with suspected COPD?

A.FEV1 > 70% of predicted value + FEV1/FVC < 60%

B.FEV1/FVC < 70% + symptoms suggestive of COPD

C.FEV1 < 70% of predicted value + FEV1/FVC < 70%

D.FEV1 < 80% of predicted value + FEV1/FVC < 60%

E.FEV1 < 70% of predicted value + FEV1/FVC > 70%

Answer:FEV1/FVC < 70% + symptoms suggestive of COPD

Explanation:

Please see the 2010 NICE guidelines for further details. Patients can now be diagnosed with 'mild' COPD if their FEV1 predicted is > 80% if they have symptoms suggestive of COPD.

Question:

A 37-year-old man attends the emergency department with persistent vomiting. He complains that he has been very bloated for the past week, experiencing cramping abdominal pain and discomfort. This morning he began to feel very nauseous and for the past few hours, has vomited small amounts of green liquid.

The patient's past medical history is a previous laparoscopic appendectomy for appendicitis when he was 32 years-old.

What is the most appropriate investigation to confirm the likely underlying diagnosis?

A.Abdominal X-ray

B.Abdominal ultrasound scan

C.Bloods including CEA tumour marker

D.CT abdomen

E.Explorative laparoscopy

Answer:CT abdomen

Explanation:

CT abdo is the definitive diagnostic investigation for small bowel obstruction

Important for meLess important

CT abdomen is the correct answer. It is the gold standard investigation following the NICE guidelines. This is because it is the most sensitive investigation for small bowel obstruction and can differentiate between mechanical obstruction and pseudo-obstruction. In this case, the small bowel obstruction was most likely due to adhesions secondary to the recent previous surgery. Small bowel obstruction generally presents with abdominal distension and pain followed by nausea and bilious vomiting. It can lead to constipation from reduced bowel movements and eventually perforation from increased intra-luminal pressure.

Abdominal X-ray is still used in some settings but is not the best investigation or gold standard. CT abdomen is preferred as it can provide important information about the site and cause of obstruction and if the obstruction has resulted in a perforation of abdominal viscus. Abdominal X-rays are therefore not as useful and usually a CT abdomen would also be required after one has been taken. This would expose the patient to double the amount of radiation they needed.

Abdominal ultrasound scan is incorrect. It is not used for bowel obstruction.

Bloods including CEA tumour marker is incorrect as this history is not suggestive of bowel cancer. Bowel cancer would usually present in an older patient, complaining of blood in their stools and weight loss. There can also be accompanying signs of anaemia due to the ongoing blood loss from bowel cancer.

Explorative laparoscopy is incorrect. If there were evidence of ischaemia or peritonitis, urgent surgery is required. These would present as rebound tenderness, guarding, peritonism and signs of sepsis. However, due to the lack of these signs, conservative management is preferred. This includes making the patient nil-by-mouth, inserting a nasogastric tube and starting IV fluids.

Question:

A 22-year-old man presents to his GP with fatigue and unintentional weight loss for the past six months. He has also been suffering from generalised abdominal pain and an increase in stool frequency. There has been no blood or mucus in his stool but he describes it as greasy and foul-smelling.

He has a past medical history of type 1 diabetes and a family history of thyroid disease.

Initial blood results reveal:

Hb 115 g/L Male: (135-180)

Female: (115 - 160)

Platelets 180 \* 109/L (150 - 400)

WBC 13.4 109/L (4.0 - 11.0)

Mean cell volume (MCV) 90fL (80-95)

CRP 48 mg/L (< 5)

What is the most likely diagnosis?

A.Coeliac disease

B.Giardiasis

C.Hyperthyroidism

D.Irritable bowel syndrome

E.Ulcerative colitis

Answer:Coeliac disease

Explanation:

Coeliac disease may present insidiously with fatigue and non-specific GI symptoms

Important for meLess important

Coeliac disease is correct. It often presents with very generalised symptoms such as fatigue, weight loss and non-specific abdominal pain and in mild cases, may be completely asymptomatic. A personal and family history of autoimmune diseases increases the likelihood of developing coeliac disease. The blood results demonstrate an inflammatory process, with raised white cells and CRP, further supporting this diagnosis. The patient has normocytic anaemia because coeliac disease impairs the absorption of several vitamins and minerals, including iron and vitamin B12, which can result in a mixed picture on blood tests. Greasy and foul-smelling stools indicate steatorrhoea which can develop due to malabsorption of fats in coeliac disease.

Giardiasis is incorrect. Whilst it can present with abdominal pain, weight loss and greasy, foul-smelling diarrhoea, it develops over 2-4 weeks and symptoms would not be expected to persist for 6 months. Inflammatory markers may be raised but it is unlikely to cause anaemia.

Hyperthyroidism is incorrect. It is consistent with symptoms of weight loss, fatigue and diabetes but would not explain the abdominal pain or blood results. Anaemia and raised WCC are not common findings in hyperthyroidism.

Irritable bowel syndrome is incorrect. Despite being the most common cause of diarrhoea and abdominal pain in this age group, the weight loss, raised inflammatory markers and anaemia suggest an alternative diagnosis.

Ulcerative colitis is incorrect. It can present with diarrhoea, abdominal pain, weight loss and fatigue, especially on a background of autoimmune disease. However, it is not the most likely diagnosis because there is no blood or mucus in the patient's stool, which would be unusual for a diagnosis of ulcerative colitis.

Question:

A 51-year-old man has been having constipation recently and this morning after seeing blood in his stool, he decided to visit his GP. He told his GP that he has been having constipation for nearly two months and had only one episode of blood in his stool. His wife who was also accompanying him mentioned to the GP that she thought her husband has lost significant weight recently. The man confirmed that and said that he has not been particularly trying to lose weight. The GP is concerned and orders an investigation to be done urgently. Which is the best investigation to be ordered at this point?

A.Faecal occult blood test

B.Colonoscopy

C.Upper GI endoscopy

D.Abdominal X-ray

E.Abdominal ultrasound scan

Answer:Colonoscopy

Explanation:

This gentleman has been experiencing recent onset constipation with weight loss along with one episode of blood in his stool. The most important diagnosis fitting this set of sign and symptoms is colorectal cancer (CRC), and any further investigation should be aimed at ruling in or out CRC. Based on NICE CG131, colonoscopy should be offered to patients without major comorbidities to confirm a diagnosis of CRC.

An upper GI endoscopy would be appropriate for any upper GI symptoms such as dysphagia, dyspepsia, epigastric pain etc.. A Faecal Occult Blood Test (FOBT) would have been appropriate for the purpose of screening, as is currently done in the UK. An abdominal X-ray is not indicated as there is no evidence to support a likely diagnosis of bowel obstruction, infarction and perforation which would warrant an X-ray imaging.

Question:

A 59-year-old man attends a cardiology outpatient clinic 4 weeks after sustaining a myocardial infarction (MI). He reports feeling a little more tired than previously and has felt his heart racing occasionally. He denies any cough, fever, or chest pain. He has a past medical history of hypertension and hypercholesterolaemia.

On examination, he has bibasal crackles and is noted to have a third and fourth heart sound. His ECG is reported as ST elevation in the precordial leads alongside some well-formed Q waves.

What is the most likely diagnosis?

A.Acute ST elevation myocardial infarction (STEMI)

B.Brugada syndrome

C.Left ventricular aneurysm

D.Papillary muscle rupture

E.Pericarditis

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 patient is presenting 4 weeks following a myocardial infarction (MI) with bibasal crackles (due to heart failure) and additional heart sounds (paradoxical splitting of S2 and a new S3 heart sound). The persistence of ST-segment elevation supports a diagnosis of left ventricular aneurysm. Usually, ST segments return to the near-baseline within the 2 weeks after an MI and T waves may become inverted. Left ventricular aneurysm occurs due to incomplete reperfusion of the left ventricle post-MI and transmural scar formation causing impaired conduction and contractility. Left ventricular aneurysm can lead to ventricular arrhythmias, congestive cardiac failure, and mural thrombus formation.

An acute ST-elevation MI (STEMI) may present in this manner, however, it is not the most likely diagnosis as LV aneurysm will present more classically with these symptoms. A STEMI would not usually have symptoms of bibasal crackles (heart failure), extra heart sounds, and no chest pain. While possible given the ECG changes, the most likely answer should be chosen and, as such, this is an incorrect answer.

Brugada syndrome is a sodium channelopathy. It is a genetic mutation that is characterised by ECG changes alongside clinical features. The ECG typically shows ST-segment elevation >2mm in more than one of the chest leads V1-V3, followed by inverted T waves. The clinical features associated with this condition are a documented ventricular fibrillation or polymorphic ventricular tachycardia episode; ventricular tachycardia induced with electrical stimulation; family history of similar ECG findings or sudden cardiac death in a relative under 45; and nocturnal 'agonal breathing'. While this patient has some ST-elevation (which could be consistent with a Brugada syndrome ECG, this patient has well-formed Q waves and has pulmonary congestion symptoms which should guide the student away from this diagnosis.

Papillary muscle rupture can occur secondary to an acute MI and usually occurs within days of the event. Patients may have murmurs consistent with mitral regurgitation secondary to the muscle rupture (a pansystolic murmur heard best at the apex) and can become acutely hypotensive and develop pulmonary oedema. It is more common in inferoposterior infarctions. While this patient has signs of pulmonary congestion, he would be expected to present earlier with symptoms of chest pain, shortness of breath, and reduced exercise tolerance.

Pericarditis is another example of post-MI complications - it typically occurs in the first 48 hours following a transmural MI. It can affect up to 10% of patients with this MI location. As this patient does not have chest pain that is worse on lying flat or a pericardial rub, this is not the most likely diagnosis.

Question:

You are seeing a 5-year-old girl that has been brought in by her father with a sudden onset of fever and a sore throat this morning. Her father informs you that she is prone to tonsillitis and would like some antibiotics as they had worked well previously.

On examination she is alert, sitting upright and unaided with a slight forward lean. She has a temperature of 38.3 ºC, heart rate of 140/min, respiratory rate is normal. There is no cyanosis or use of accessory muscles, but you do note a mild inspiratory fine-pitched stridor.

What would be the most appropriate next course of action?

A.Arrange an urgent admission to hospital

B.Examine her throat, calculate her CENTOR score and discuss possible admission with the on call paediatrician

C.Examine her throat, calculate her CENTOR score and, if appropriate, prescribe antibiotics

D.Explain that most cases of tonsillitis are viral and should resolve in 1 week and do not prescribe antibiotics

E.Review again in 2-3 days and if still febrile to issue antibiotics at that point

Answer:Arrange an urgent admission to hospital

Explanation:

Do not examine the throat if acute epiglottis is suspected

Important for meLess important

The correct answer is to 'contact the paediatrician on call and arrange a same-day review and admission to hospital'.

This history is suggestive of acute epiglottitis (acute onset, relatively normal respiratory rate, forward lean and stridor), a potentially life-threatening condition that requires urgent assessment and treatment in secondary care. Hospital transfer should be by blue light ambulance.

Throat examination in primary care should not be attempted as it may precipitate airway closure. Definitely not something you want to deal with in a GP setting!

Treatment usually involves intravenous antibiotics once the airway has been secured (which may require intubation). Occasionally nebulised adrenaline is used to stabilise the airway. Often intravenous steroids are also given.

For this reason, it would be clinically unsafe to either advise expectant management for this child or prescribed immediate or delayed antibiotics.

Question:

A 69-year-old man is seen in the respiratory outpatient department. He has chronic obstructive pulmonary disease (COPD) and no other co-morbidities. He smoked 30 cigarettes a day for 40 years but has not smoked since his diagnosis of COPD 3 years ago. His medications are as required salbutamol inhaler and a daily combination inhaler (beclometasone dipropionate, formoterol fumarate and glycopyrronium). He has had his influenza and pneumococcal vaccinations and has attended pulmonary rehabilitation. He was admitted to hospital twice in the last year with exacerbations of COPD. A CT scan 3 months ago showed typical changes of COPD with no other evidence of other lung pathology.

A decision has been made to start azithromycin. A sputum culture has been done prior to clinic and there was no growth.

Pre-clinic bloods are:

Hb 142 g/L Male: (135-180)

Female: (115 - 160)

Platelets 356 \* 109/L (150 - 400)

WBC 10.5 \* 109/L (4.0 - 11.0)

Na+ 142 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 74 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Bilirubin 6 µmol/L (3 - 17)

ALP 46 u/L (30 - 100)

ALT 15u/L (3 - 40)

γGT 56 u/L (8 - 60)

Albumin 42 g/L (35 - 50)

What is the most appropriate test prior to starting azithromycin?

A.ECG

B.Echocardiogram

C.Spirometry

D.Chest X-ray

E.HIV test

Answer:ECG

Explanation:

Before starting azithromycin do an ECG (to rule out prolonged QT interval) and baseline liver function tests

Important for meLess important

Before starting azithromycin an ECG and baseline liver function tests need to be done. Given the normal liver function tests in the question stem, the most appropriate answer is an ECG.

Question:

A 5-year-old male presents to your GP clinic with mumps. You inform the father that mumps is a notifiable disease and requires you to contact the Local Health Protection Team. He asks why this is and which diseases this applies to.

Which of the following can you tell him is an example of a notifiable disease?

A.HIV

B.Acute meningitis

C.Syphilis

D.Ophthalmia neonatorum

E.Herpes simplex

Answer:Acute meningitis

Explanation:

Acute meningitis is a notifiable disease

Important for meLess important

Ophthalmia neonatorum has recently been removed from the list of notifiable diseases. Syphilis, herpes simplex and HIV are not currently notifiable diseases.

There are many diseases which are notifiable and if a patient has a suspected diagnosis with any of these diseases then it is the doctor's responsibility to inform the Local Health Protection Team.

Question:

A 48-year-old male with known liver cirrhosis presents to the emergency department with malaise and abdominal tenderness. On examination he has obvious jaundice and tender hepatomegaly. He mentions that he drinks heavily - around 35 units of alcohol per week.

His blood results are as follows:

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

Female: (115 - 160)

Platelets 140 \* 109/L (150 - 400)

WBC 23 \* 109/L (4.0 - 11.0)

Bilirubin 46 µmol/L (3 - 17)

ALP 120 u/L (30 - 100)

ALT 342 u/L (3 - 40)

γGT 288 u/L (8 - 60)

Albumin 34 g/L (35 - 50)

You suspect a diagnosis of alcoholic hepatitis.

Which is the most appropriate treatment for his liver dysfunction?

A.No treatment required

B.IV antibiotics

C.Liver transplant

D.Prednisolone

E.Chlordiazepoxide

Answer:Prednisolone

Explanation:

Corticosteroids are used in the management of severe alcoholic hepatitis

Important for meLess important

Corticosteroids are the recommended treatment for severe alcoholic hepatitis (determined by a Maddrey discriminant function value >32). The STOPAH trial (Steroids or Pentoxifylline for Alcoholic Hepatitis) determined that treatment with steroids reduced mortality by 39% at 28 days. The typical regimen is prednisolone 40mg/day for 28 days.

IV antibiotics may be used if there is concurrent infection. However, as the basis of alcoholic hepatitis is non-infectious, antibiotics will not treat the hepatitis itself.

Liver transplant is a contentious issue in alcoholic hepatitis as almost all patients with alcoholic hepatitis are active alcohol drinkers at the time of presentation.

Chlordiazepoxide is used in the treatment of alcohol withdrawal.

Question:

A 25-year-old undergoes a cervical smear test as part of the UK cervical screening programme. Her test results return as an 'inadequate sample'.

As such, she undergoes a repeat cervical smear 3 months later, which also returns as an 'inadequate sample'.

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:Colposcopy

Explanation:

Cervical cancer screening: if two consecutive inadequate samples then → colposcopy

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. If the second test also returns as inadequate, then colposcopy should be performed, as you will be unable to obtain hrHPV status or perform cytology so the risk of cervical cancer cannot be assessed.

It would be unsafe to return this patient back to normal recall as this would lead to a repeat smear in 3 years time. This is an unacceptable delay and could lead to a missed diagnosis of cervical cancer.

Repeating the test in 3 months, 6 months or 12 months are all incorrect as again, this may lead to a delayed diagnosis of cervical cancer.

Question:

A 52-year-old man of African descent presents to his general practitioner with a 3-week history of chronic cough and haemoptysis. He has a past medical history of polycystic kidney disease, having received a kidney transplant 16-weeks previously for which he is currently taking azathioprine and prednisolone. He also recalls a similar respiratory disease in his youth. Amongst a series of other investigations, a Ziehl Neelsen stain identifies the presence of acid-fast organisms in the patient's sputum.

Given the likely diagnosis, what is this patient's chest radiograph likely to show?

A.Diffuse fibrosis

B.Isolated lower zone consolidation

C.Lower zone fibrosis

D.Splaying of the carinal angle

E.Upper zone fibrosis

Answer:Upper zone fibrosis

Explanation:

Tuberculosis typically causes upper zone pulmonary fibrosis

Important for meLess important

This patient's presentation, past medical history and African descent all suggest a likely diagnosis of secondary tuberculosis (TB), caused by reactivation of latent TB due to azathioprine-induced immune suppression. This is confirmed by the Ziehl Neelsen stain which identifies the presence of acid-fast organism (Mycobacterium tuberculosis). TB typically causes upper zone fibrosis as the bacteria most commonly reside in the upper lung zones as, due to the effects of gravity on the alveolar ventilation: perfusion ratio, oxygen availability for bacteria is highest in this area.

Diffuse fibrosis is incorrect, although miliary TB (massively disseminated TB) may produce these changes, that diagnosis is unlikely given the absence of extra-pulmonary symptoms.

Isolated lower zone consolidation is incorrect. Mycobacterium tuberculosis most commonly affect the upper lung zones due to the more favourable ventilation/perfusion ratio for bacterial growth.

Lower zone fibrosis is incorrect, some common causes of lower zone fibrosis include idiopathic pulmonary fibrosis, most connective tissue disorders (except ankylosing spondylitis), drug-induced fibrosis (amiodarone, bleomycin, methotrexate) and asbestosis.

Splaying of the carinal angle is incorrect as this is a common finding of left atrial enlargement.

Question:

A 28-year-old man presents with several months of low back pain and stiffness, which is worst in the mornings. He finds that the symptoms improve with exercise, but worsen when sitting at his office desk for extended periods of time.

On examination, there is limited lumbar flexion. A pelvic X-ray is requested which demonstrates sacroiliitis.

What is the most appropriate initial management?

A.Ibuprofen

B.Intra-articular corticosteroid injection

C.Methotrexate

D.Paracetamol

E.Sulfasalazine

Answer:Ibuprofen

Explanation:

Exercise regimes and NSAIDs are the 1st line management for ankylosing spondylitis

Important for meLess important

This patient has characteristic features of ankylosing spondylitis, a HLA-B27-associated spondyloarthropathy typically presenting in men aged 20-30. X-ray of the pelvis is particularly useful as the sacroiliac joints are commonly affected, demonstrating subchondral erosions and sclerosis. First-line management involves the use of an NSAID, such as ibuprofen, along with extensive physiotherapy.

Intra-articular corticosteroid injections are useful for unilateral joint symptoms, such as unilateral sacroiliitis. In this scenario, an NSAID would be more appropriate.

Methotrexate is a disease-modifying drug that may be considered for patients with peripheral joint involvement. There is little evidence supporting its use in patients with solely axial symptoms. Regardless, the first-line management should be with an NSAID such as ibuprofen.

Paracetamol is a useful adjunct if an NSAID alone is not adequate. The first-line option should be ibuprofen.

Sulfasalazine is another disease-modifying agent. Like methotrexate, it is only considered useful in patients with peripheral symptoms. Again, it would not be first-line.

Question:

A 23-year-old man presents as he is concerned about recent hair loss. Examination reveals the following:

What is the most likely diagnosis?

A.Telogen effluvium

B.Alopecia areata

C.Tinea capitis

D.Male-pattern baldness

E.Discoid lupus erythematous

Answer:Alopecia areata

Explanation:

Question:

Which one of the following is least associated with Kartagener's syndrome?

A.Male subfertility

B.Recurrent sinusitis

C.Malabsorption

D.Dextrocardia

E.Bronchiectasis

Answer:Malabsorption

Explanation:

Question:

A 28-year-old woman presents with a persistent cough and feeling of wheeziness after exercising. Which one of the following would make a diagnosis of asthma more likely?

A.Only gets symptoms after having a viral upper respiratory tract infection

B.Peripheral pins and needles during an episode

C.Symptoms worsen after taking aspirin

D.Unexplained neutrophilia on the full blood count

E.Cough productive of small amounts of clear sputum

Answer:Symptoms worsen after taking aspirin

Explanation:

Having a cough productive of sputum, only having symptoms after an URTI and peripheral pins and needles all make a diagnosis of asthma less likely.

Factors that should be considered when considering asthma include:

recurrent episodes of symptoms: may be triggered by viral infection, allergen exposure, NSAIDs/beta-blockers and/or exacerbated by exercise, cold air and emotion/laughter in children

recorded observation of wheeze: due to varying use of language this usually means wheeze documented by a clinician

symptom variability: asthma is generally worse at night or early in the morning

personal history of atopy: e.g. eczema/allergic rhinitis

absence of symptoms of alternative diagnosis: e.g. COPD, dysfunctional breathing or obesity\*

historical record of variable peak flows or FEV1

Question:

A 59-year-old woman presents to the urgent care centre with a 1-day history of facial paralysis. She also complains of some mild ear pain over the last 2 days. On examination, she has a fixed half-smile on the left side of her face. She is unable to raise her left eyelid and has increased sensitivity to sound in her left ear. She denies dizziness or vertigo. The remainder of her cranial nerve examination is normal. ENT examination shows an erythematous left ear canal and vesicles over her soft palate.

Given the likely diagnosis, which of the following is the most appropriate treatment to initiate?

A.Intravenous aciclovir and oral prednisolone

B.Intravenous ganciclovir

C.Oral aciclovir and prednisolone

D.Oral amoxicillin and prednisolone

E.Oral prednisolone

Answer:Oral aciclovir and prednisolone

Explanation:

Treatment of Ramsay Hunt syndrome consists of oral aciclovir and corticosteroids

Important for meLess important

The combination of a facial nerve palsy with a vesicular rash should raise suspicion of Ramsay Hunt syndrome. Vesicles do not necessarily appear in the ear canal and can be present on the anterior 2/3rds of the tongue or the soft palate. Unless the patient is systemically very unwell, oral aciclovir and prednisolone can be given.

Ganciclovir is the treatment of cytomegalovirus.

Amoxicillin would be more appropriate if bacterial otitis media was the cause of her symptoms.

Question:

A 55-year-old man presents to the emergency department with severe pain around his right eye for the past 45 minutes. He explains it came on suddenly and is pulsatile in nature. He has had similar episodes over the last 5 weeks. The patient has myopia and smokes 35 cigarettes daily.

On examination, he is agitated due to the pain. His right eyelid is drooping and his right sclera is erythematous. Visual fields are intact bilaterally. His heart rate is 85 bpm, his blood pressure is 135/75 mmHg, and he is afebrile.

What is the most appropriate immediate step in his management?

A.Intravenous acetazolamide and timolol eyedrops

B.Oral sumatriptan and ibuprofen

C.Oral verapamil

D.Subcutaneous sumatriptan and oxygen therapy

E.Urgent ophthalmology assessment

Answer:Subcutaneous sumatriptan and oxygen therapy

Explanation:

Episodic, intense, unilateral eye pain, lacrimation, restless → ?cluster headache

Important for meLess important

Episodes lasting 15 minutes to 2 hours of intense unilateral pain localised around an eye with restlessness and redness, drooping, and lacrimation suggest a diagnosis of cluster headache, especially if they occur in clusters of 4-12 weeks (in this case, this patient's 'cluster' has been 5 weeks). This patient being male and smoking are also risk factors for the development of cluster headaches.

Subcutaneous sumatriptan and oxygen therapy is correct as this is the most appropriate first step in managing cluster headaches. Giving 100% oxygen has an 80% response rate within 15 minutes and subcutaneous triptans (such as sumatriptan) has a 75% response rate within 15 minutes.

Intravenous acetazolamide and timolol eyedrops is incorrect. This would be appropriate if this patient was experiencing acute angle-closure glaucoma (AACG). Although this can present with unilateral eye pain and redness, there are often associated features such as blurred vision, pupillary changes and nausea, which are not seen here. As well as this, AACG does not happen episodically and if this patient were to have had it, their vision would likely be severely impaired if not lost. This patient has intact visual fields making this unlikely. Furthermore, hypermetropia is a risk factor for AACG, whereas this man has myopia.

Oral sumatriptan and ibuprofen is incorrect. This would be appropriate if this patient was experiencing acute migraine. Although this can also present with severe unilateral pulsatile pain, the pain is usually in the temporal region, not localised at the eye. Episodes usually last at least 4 hours without treatment and typically cause patients to stop their activity and rest in a dark and quiet room. Migraine also has associated features such as nausea, photophobia, and phonophobia, which are not seen here.

Oral verapamil is incorrect. This is used in the prophylaxis of cluster headaches, not its acute management.

Urgent ophthalmology assessment is incorrect. This patient requires urgent treatment and it is unlikely that the pathology is ocular in nature. These features suggest a diagnosis of cluster headache, which is a neurological condition arising from autonomic and trigeminal activation. Arranging an assessment will take up time and leave this patient in discomfort and would be unlikely to be helpful.

Question:

A 55-year-old woman has progressive weakness and fatigue. She can no longer stand for a long time and has difficulty getting up out of a chair. On examination, her hands are extremely dry and cracked, and there are rough erythematous papules and plaques over the extensor surfaces of the fingers. There is reduced power in her hips and shoulders. She has a past medical history of anxiety and admits to regularly washing her hands out of fear of 'spreading germs' in light of the COVID-19 pandemic and she has smoked 40 cigarettes a day for the last 35 years.

What is the next best step in her management?

A.Offer skin emollients + high-potency corticosteroid

B.Offer topical high-potency corticosteroid + vitamin D analogue

C.Referral to psychiatry

D.Urgent referral to dermatology

E.Urgent referral to rheumatology

Answer:Urgent referral to rheumatology

Explanation:

Gottron’s papules, roughened red papules over the knuckles mainly, are seen in dermatomyositis

Important for meLess important

Urgent referral to rheumatology is correct. This patient has signs and symptoms consistent with dermatomyositis. She has proximal muscle weakness, extremely dry hands, and Gottron's papules ( rough erythematous (red) papules and plaques over the extensor surfaces of the fingers), which are characteristic findings of dermatomyositis. Her smoking history also eludes to the fact she may have dermatomyositis, as it is often associated with an underlying malignancy. Although repeated handwashing can cause dry hands, it would not explain the presence of proximal muscle weakness and Gottron's papules. It is also important to remember that not every patient will present with textbook features, such as the presence of a heliotrope rash.

Urgent referral to dermatology is incorrect. This patient has signs and symptoms consistent with dermatomyositis, therefore necessitating an urgent rheumatology referral, not dermatology.

Referral to psychiatry is incorrect. This patient has signs and symptoms consistent with dermatomyositis, therefore necessitating an urgent rheumatology referral, not psychiatry. Although the repeated handwashing attributed to the COVID-19 pandemic may suggest the presence of obsessive-compulsive disorder and can cause dry hands, it would not explain the presence of proximal muscle weakness and Gottron's papules. The stem of the question also does not specify how severe her handwashing is and how much of an impact it has on her life.

Offer topical high-potency corticosteroid + vitamin D analogue is incorrect. This could be offered if the patient had features consistent with psoriasis, however, the presence of Gottron's papules and proximal muscle weakness are red flags for dermatomyositis and they should be urgently referred to rheumatology.

Offer skin emollients + high-potency corticosteroid is incorrect. This could be offered if the patient had features consistent with eczema, however, the presence of Gottron's papules and proximal muscle weakness are red flags for dermatomyositis and they should be urgently referred to rheumatology.

Question:

An 87-year-old woman presents with dysuria and urinary frequency. She also complains that her urine is bubbly. She has been treated for a urinary tract infection (UTI) five times in the last year. Her only previous medical history is hypertension, for which she takes amlodipine.

On examination, her heart rate is 88/min, blood pressure 128/84mmHg, respiratory rate 22/min, temperature 37.3ºC, and saturation 93%. She is very thin with clear tissue wasting and has mild suprapubic tenderness but no other findings.

A urine dipstick shows:

Blood +

Protein +

Leucocytes ++

Nitrites ++

What is the most likely diagnosis?

A.Pyelonephritis

B.Bladder stone

C.Endometrial cancer

D.Aerobic bacterial infection

E.Enterovesical fistula

Answer:Enterovesical fistula

Explanation:

An enterovesical fistula may cause bubbly urine

Important for meLess important

This lady currently has a UTI. However, she has had several in the last year which raises the possibility that there is something else going on. The mention of bubbly urine suggests that she has a fistula between her bowel and her bladder. Importantly, an enterovesical fistula is frequently a result of colorectal malignancy, which is suggested here by tissue wasting, and so these patients should be investigated.

There is no mention of loin pain or other symptoms that would point to pyelonephritis.

Bladder stones might produce some haematuria, but would not result in gas in the urine.

Whilst there are signs of wasting, which could suggest an underlying malignancy, there is no indication that this is endometrial cancer. Typically, endometrial cancer would present with post-menopausal bleeding

Aerobic bacteria are those that use oxygen in respiration. They do not produce large quantities of gas. The most common organism in a UTI is E. coli which is a facultative anaerobe.

Question:

A 22-year-old man suffers 20% partial and full thickness burns in a house fire. There is an associated inhalational injury. It is decided to administer intravenous fluids to replace fluid losses. Which of the intravenous fluids listed below should be used for initial resuscitation?

A.Dextran 40

B.5% Dextrose

C.Fresh frozen plasma

D.Hartmann's solution

E.Blood

Answer:Hartmann's solution

Explanation:

In most units a crystalloid such as Hartmann's (Ringers lactate) is administered initially. Controversy does remain and some units do prefer colloid. Should this leak in the interstitial tissues this may increase the risk of oedema.

Question:

A 39-year-old woman presents to her GP with a history of painful fingers and ankles. These symptoms have come on steadily and she didn't want to come to the GP, but now is worried as her left ring finger has become swollen 'like a sausage' and is very painful.

She otherwise feels well. Past medical history includes polycystic ovarian syndrome, psoriasis, depression and a previous excision of a Wilms' tumour as a child.

On examination of her hands, she has tender swellings at the distal interphalangeal joints. Her left ring finger is diffuse swollen downs it length and is tender to touch.

Given the most likely diagnosis, which of the following is most likely to be present?

A.High serum uric acid levels

B.Onycholysis

C.Positive Rheumatoid Factor

D.Positive nucleic acid amplification test for Chlamydia

E.Tender sacro-iliac joints

Answer:Onycholysis

Explanation:

The vast majority of patients with psoriatic arthropathy will have nail changes such as onycholysis

Important for meLess important

This patient has a polyarthritis affecting the small joints. Examination reveals the presence of distal interphalangeal joint involvement and dactylitis of the ring finger. This picture, alongside a known diagnosis of psoriasis makes psoriatic arthritis the likely diagnosis. The vast majority of patients with psoriatic arthropathy will have nail changes such as onycholysis.

High serum uric acid levels are suggestive of gout. Although dactylitis can develop in up to 5% of patients with gout, it is usually a monoarthropathy.

Positive Rheumatoid Factor is associated mostly with rheumatoid arthritis (RA), although it is associated to a lesser extent with several other diseases. RA often causes a polyarthritis affecting the small joints. However, it classically involves the metacarpophalangeal and proximal interphalangeal joints, whereas in this case the distal interphalangeal joints are involved.

A positive nucleic acid amplification test for Chlamydia paired with an arthritic picture would be suggestive of reactive arthritis. The arthropathy picture is typically one of large joint oligoarthritis, which alongside urogenital tract infection and uveitis characterises the syndrome. It predominantly affects the lower limb joints.

Tender sacro-iliac joints may suggest ankylosing spondylitis. This usually affects large joints, and would be unusual to affect a middle-aged woman. It typically develops in males between 20-30 years of age.

Question:

A 57-year-old man presents to his general practitioner complaining of leg weakness. He has no pain, but he finds it difficult to walk unaided. The symptoms started a week ago and seem to be worsening.

On examination, you notice proximal wasting and weakness of the lower quadriceps and biceps femoris. Tone, reflexes, coordination, and sensation are normal.

He has a past medical history of ulcerative colitis, schizophrenia, and benign prostatic hyperplasia.

What medication is most likely to be causing his symptoms?

A.Clozapine

B.Finasteride

C.Haloperidol

D.Mesalazine

E.Prednisolone

Answer:Prednisolone

Explanation:

Corticosteroids may cause proximal myopathy

Important for meLess important

The correct answer is prednisolone. This patient is presenting with defining features of a proximal myopathy, such as proximal muscle weakness with normal reflexes, tone, and sensation. This can be caused by prolonged usage of corticosteroids. The pathophysiology is unclear, but it may be related to decreased protein synthesis, increased protein degradation, alterations in carbohydrate metabolism, mitochondrial alterations, electrolyte disturbances, and decreased sarcolemmal excitability.

Clozapine is an atypical antipsychotics used to manage treatment-resistant schizophrenia. It can cause acute dystonia, which is described as sustained muscle contraction, but it is very rare. This patient is complaining of weakness rather than contraction, making the option incorrect.

Finasteride is an inhibitor of 5 alpha-reductase, used to manage benign prostatic hyperplasia. It can cause decreased libido, ejaculation disorders, gynaecomastia, and breast tenderness but it does not cause proximal myopathy.

Haloperidol is a typical antipsychotic used to manage schizophrenia which can cause acute dystonia in a considerable number of patients. This would present with sustained muscle contraction and restlessness rather than weakness. The other two side effects which could be caused by haloperidol are akathisia (severe restlessness) and tardive dyskinesia (late-onset of abnormal, involuntary movements). This patient is complaining of weakness rather than contraction and involuntary movements, making this option incorrect.

Mesalazine is an aminosalicylate that can be used to manage ulcerative colitis. It can commonly cause arthralgia, cough, diarrhoea and leucopenia but it does not cause proximal myopathy.

Question:

A mental state examination is performed on a 35-year-old patient. He is asked about what he did during the week and he starts telling a story about his job, then talks about how he wants to be a writer, then talks about his favourite literature teacher in school and then talks about his dog that died when he was eleven and how the book he is writing is based on that. His speech is of a normal rate but he never fully explains what he did during the last week.

What best describes this patient's behaviour?

A.Circumstantiality

B.Derailment of thoughts

C.Flight of ideas

D.Knight's move thinking

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 deviates from the topic of what he did last week and fails to answer the question. Given that there are loose discernible links between each of the ideas he conveys in each sentence, this is the most appropriate description of his behaviour. Tangentiality is where patients wander away from a topic without returning to it, usually with loosely discernible links.

Circumstantiality is incorrect as it is where patients give unnecessary and excessive detail before finally answering a question. This patient has not answered the question, therefore, this option is incorrect.

Flight of ideas is incorrect. This is where patients jump from one topic to the next with discernible links between them and although tangentiality also has this feature, this patient has not answered the question, whereas in flight of ideas the question would've first been answered, then the patient would have jumped to the next topic. In flight of ideas the speech would also be at a faster rate.

Knight's move thinking is incorrect as it is where there are unexpected and illogical and unexpected leaps from one idea to another. While this patient is leaping from one topic to another there are loose associations between each topic.

Derailment of thoughts is incorrect. This is the same as Knight's move thinking and is characterised by illogical leaps from one idea to another.

Question:

Jane, a 16-year-old girl is brought to the GP by her mother as Jane has not had her first period. She is 1.45m tall and weighs 35 Kg. Her heart rate is 55 beats per minute. Blood pressure is 118/88 mmHg. She has not developed any secondary sexual characteristics. There is a strong family history of eating disorder. You suspect that the delayed puberty may be due to anorexia nervosa.

Which of the following supports the diagnosis of anorexia nervosa?

A.Anosmia

B.Hirsutism

C.Hyperkalaemia

D.Hypocholesterolaemia

E.Lanugo hair

Answer:Lanugo hair

Explanation:

Physical findings characteristic of lanugo hair (fine downy hair growth in response to the loss of body fat) may support the diagnosis of anorexia nervosa.

This should be considered with other features of anorexia nervosa e.g. failure of secondary sexual characteristics, bradycardia, cold-intolerance and yellow tinge on the skin (hypercarotenaemia)

Important for meLess important

Anosmia is not a feature of anorexia nervosa. However, anosmia may be relevant in a patient with Kallman syndrome (anosmia + delayed/absent puberty). Hirsutism is indicative of raised testosterone; this is not compatible with anorexia nervosa. Hyperkalaemia is incorrect; hypokalaemia is the commonest electrolyte abnormality in anorexia. Patients with anorexia nervosa usually have high cholesterol level in the blood.

Question:

You are part of the cardiac arrest team and are called to see a 72-year-old man who was admitted to the care of the elderly ward. He presented with shortness of breath, productive cough and hypoxia. He was being treated for community-acquired pneumonia with IV antibiotics. His early warning score has continued to worsen throughout the day and then he became unresponsive. There were no signs of life, therefore, chest compressions were commenced by the ward staff and the crash call was put out. The first rhythm check shows the patient is in ventricular fibrillation.

Apart from restarting chest compressions, what should be the next step taken as part of the advance life support algorithm?

A.Adrenaline

B.Atropine

C.Amiodarone

D.1 shock

E.3 successive shocks

Answer:1 shock

Explanation:

VF/pulseless VT should be treated with 1 shock as soon as identified

Important for meLess important

This man has had a cardiac arrest and at the first rhythm check is in a shockable rhythm. Therefore the next step is to give 1 shock.

Adrenaline is given after the 3rd shock if following the 'shockable rhythm' pathway (AF/pulseless VT) or immediately if on the 'non-shockable rhythm' pathway (asystole or pulseless electrical activity).

Atropine is not used in cardiac arrest. It can be used for the management of bradycardia with adverse features.

Amiodarone is given after the 3rd shock in the algorithm.

3 successive shocks are used where the cardiac arrest is witnessed and in a monitored are such as post-myocardial infarction in a coronary care unit.

Question:

A 27-year-old nulliparous woman is diagnosed with gestational diabetes during her current pregnancy via an oral glucose tolerance test (OGTT). She asks whether her diagnosis will impact future pregnancies.

What is the most appropriate approach to screen for gestational diabetes in future pregnancies?

A.No screening test required

B.OGTT at 24-28 weeks

C.OGTT immediately after booking

D.OGTT immediately after booking, and at 24-28 weeks

E.Random capillary blood glucose at booking, and OGTT at 24-28 weeks

Answer:OGTT immediately after booking, and at 24-28 weeks

Explanation:

Women with gestational diabetes in a previous pregnancy should be offered an OGTT as soon as possible after booking and subsequently at 24-28 weeks

Important for meLess important

OGTT immediately after booking, and at 24-28 weeks is the correct answer. Women who have had gestational diabetes during a previous pregnancy should first be screened with an OGTT immediately after booking. If this test is positive, gestational diabetes is diagnosed and a further OGTT is not required. If this test is negative, then they should have a further OGTT at 24-28 weeks.

No screening test required is not the correct answer. Having gestational diabetes during one pregnancy does not mean it will always occur in future pregnancies. As such, screening tests are still necessary even in those with a history of gestational diabetes.

OGTT at 24-28 weeks is not the correct answer. This is the screening strategy for women who have not previously had gestational diabetes but have at least one risk factor (e.g. previous macrosomia, BMI of > 30 kg/m²).

OGTT immediately after booking is not the correct answer. While the first OGTT is performed immediately after booking in women with a history of gestational diabetes, those that test negatively on this require a second OGTT at 24-28 weeks.

Random capillary blood glucose at booking, and OGTT at 24-28 weeks is not the correct answer. Gestational diabetes is a disease of insulin resistance. As such, there is no role for random capillary blood glucose measurement in screening for gestational diabetes.

Question:

A 25-year-old patient attends your GP clinic following a spider bite 7 days ago. He describes developing widespread pruritus, urticarial rash, erythema, lip swelling, abdominal pain, and vomiting, within minutes of being bitten. His symptoms have now all resolved with the use of cetirizine daily from a home supply for the last week.

What follow-up plan is indicated for this patient?

A.No follow-up required

B.Re-assess after a further week in case of a late-onset reaction

C.Refer to the emergency department immediately to arrange an adrenaline auto-injector

D.Refer to the medical team to admit for observation

E.Referral to an allergy specialist

Answer:Referral to an allergy specialist

Explanation:

People who've had a systemic reaction to an insect bite should be referred to an allergy specialist

Important for meLess important

This patient appears to have had features of a moderate systemic reaction to an insect bite, which will require an allergy specialist. The reason for this is that they might consider the need for an adrenaline auto-injector and medical identification bracelet.

As this patient's bite was 7 days ago and he is now systemically well it would not be appropriate to refer them to either the emergency department or medical team now.

Late-onset reactions occur several hours after bites rather than a few weeks so an arranged follow-up at the 2-week stage is unnecessary.

Question:

A 23-year-old female presents to her general practitioner complaining of a two-day history of rash at the back of her knee. She has a past medical history of eczema and asthma and is on regular Symbicort and emollients. She is a non-smoker and non-drinker and has recently returned from a camping holiday where she had been doing some hiking through a forested area.

On examination, there is a bulls-eye lesion just above her right popliteal fossa. She is otherwise systemically well and apyrexial.

What is the most appropriate initial management?

A.Oral doxycycline

B.Oral flucloxacillin

C.Serological testing for Borrelia antibodies

D.Skin biopsy

E.Topical steroid

Answer:Oral doxycycline

Explanation:

Lyme disease can be diagnosed clinically if erythema migrans is present → give antibiotics

Important for meLess important

Oral doxycycline is correct. This patient has a clinical diagnosis of Lyme disease and therefore treatment should be started as soon as possible. Doxycycline is the first-line antibiotic choice. NICE recommend a course length of 21 days. Second-line options include amoxicillin and azithromycin.

Serological testing for Borrelia antibodies is incorrect. NICE states that Lyme disease can be diagnosed clinically if erythema migrans is present. Given the typical appearance of the rash and the suggestive clinical history of a recent visit to a forest, we can make a clinical diagnosis in this case. This patient should receive antibiotics in the first instance and we do not need to wait for laboratory results.

Oral flucloxacillin is incorrect. This would be an appropriate choice for cellulitis but this is not the correct diagnosis.

Skin biopsy is incorrect. There is no uncertainty regarding diagnosis.

Topical steroid is the wrong answer. This would be a treatment for a flare of eczema but the description of the rash in association with the clinical history does not fit this description.

Question:

Mrs Salsi, a 22-year-old lady presents to her GP due to abdominal pain and changes to her bowel habits. She has been experiencing loose stool, sometimes with a teaspoon volume of blood. She also has lower abdominal cramps and experiences urgency. She does not report any joint pains but has previously noticed a red eye. Her mother suffers from rheumatoid arthritis.

She has had a rheumatological screen which comes back positive for pANCA. No other antibodies returned above normal levels.

Which condition is most likely responsible for this result?

A.Ulcerative colitis

B.Churg-Strauss syndrome

C.Microscopic polyangiitis

D.Granulomatosis with polyangiitis

E.Rheumatoid arthritis

Answer:Ulcerative colitis

Explanation:

ANCA is not specific to vasculitis. Some inflammatory conditions can cause positive ANCA (usually pANCA)

Important for meLess important

This patient has presented with symptoms typical of ulcerative colitis which can cause a raised ANCA (typically pANCA).

Whilst microscopic polyangiitis can also cause raised pANCA, microscopic polyangiitis usually affects middle aged people and would usually present as tiredness, loss of appetite and joint and muscle aches. Whilst it can present local to one body system, this is certainly not the usual manner of presentation.

Churg-Strauss syndrome can also present with raised pANCA however this condition usually presents as respiratory symptoms and the above symptoms are certainly not typical of Churg-Strauss.

Rheumatoid arthritis can also cause a raised pANCA, however the patient does not report any symptoms consistent with rheumatoid arthritis.

Granulomatosis with polyangiitis more commonly presents with positive cANCA, but can present with positive pANCA. It is also more common in middle aged/older patients and usually affects the ears, nose, sinuses, kidneys and lungs.

Question:

A 38-year-old G5P2 woman presents to antenatal clinic at 35+2 gestation. Her pregnancy so far has been unremarkable apart from some moderate morning sickness experienced in the first trimester. She complains of a number of minor symptoms.

Which of the following symptoms would be cause for concern and warrant further investigation?

A.Tiredness

B.Dysuria

C.Lower back pains

D.Nausea / Vomiting

E.Urinary frequency

Answer:Dysuria

Explanation:

Many symptoms experienced in pregnancy are normal/benign, though it is important to recognise symptoms that are concerning for pathology (i.e. dysuria)

Important for meLess important

Dysuria may be an indication of urinary tract infection which needs to be promptly treated in all stages of pregnancy. UTI is associated with premature birth. It is believed the localised inflammatory mediators associated with UTI trigger pre-term labour by irritating the neck of the uterus and cervix.

Tiredness in pregnancy is multifactorial and totally normal in the third trimester of pregnancy. Lower back pain is associated with increased laxity in the sacroiliac joints due to the hormone relaxin, and increased mechanical load in pregnancy, this is normal. Nausea and vomiting, although more common in the first trimester of pregnancy is still considered normal throughout pregnancy. Urinary frequency, particularly late in pregnancy, is due to the increased mass effect of the expanding uterus on the bladder, also normal.

Question:

A 35-year-old male presents to the emergency department with chest pain and fever for 2 days. He denies any significant past medical history or family history. Last week he returned to the UK from a 4-week holiday in Australia.

On examination, he is in obvious discomfort but is able to speak in full sentences. His observations show a heart rate 120 beats/minute, blood pressure 120/85 mmHg, respiratory rate 22 breaths/min, oxygen saturation 97% on room air, temperature 38.2ºC.

On auscultation of his chest you hear clear lung fields and a pericardial friction rub.

What is the most likely cause of this patient's chest pain?

A.Acute pericarditis

B.Community-acquired pneumonia

C.Dressler's syndrome

D.Tuberculosis

E.Pulmonary embolism

Answer:Acute pericarditis

Explanation:

Pericarditis can sometimes present with a pericardial friction rub

Important for meLess important

Pericarditis can sometimes present with a pericardial friction rub.

Community-acquired pneumonia (CAP) might present with fever and chest pain but the patient does not have any respiratory symptoms and CAP would not explain a pericardial rub.

Though a type of pericarditis and therefore may have a rub, Dressler's syndrome is the result of recent myocardial infarction, of which there is no mention in the vignette.

Pericardial pathology can occur due to tuberculosis but is rare. Australia is low risk for tuberculosis.

Pulmonary embolism can cause chest pain and tachycardia but does not explain why the patient has a pericardial rub.

Question:

A 36-year-old male presents to the Emergency Department with a 24 hour history shortness of breath and cough. His heart rate is 126 beats per minute with a blood pressure of 103/57 mmHg. His respiratory rate is 28 breaths per minute with oxygen saturations at 93% on air and his temperature is 39.6ºC. 8 months previously he underwent an emergency laparotomy and splenectomy following trauma.

What is most likely diagnosis?

A.Severe sepsis with pneumococcus

B.Pulmonary embolus

C.Severe sepsis with Staphylococcus aureus

D.Bowel obstruction secondary to adhesions

E.Tension pneumothorax

Answer:Severe sepsis with pneumococcus

Explanation:

The risk of overwhelming post splenectomy infection (OPSI) is greatest in the first two years following splenectomy

Important for meLess important

The combination of pyrexia, hypotension, tachycardia and a recent splenectomy make sepsis the most likely diagnosis. From the organisms given, Pneumococcus is encapsulated and therefore the most likely pathogen. The risk of OPSI is life long, but is greatest in the first two years following the operation. It is a serious life-threatening condition that can proceed rapidly to multi organ failure and death.

The risk of PE is also elevated in post splenectomy patients compared to the general population. A proportion of patients will also present with pyrexia (9.7%) but this generally tends to be low grade (<39ºC) compared to an infective cause.

Bowel obstruction would present with a combination of abdominal pain, bloating, absolute constipation and vomiting.

A tension pneumothorax would produce haemodynamic instability and shortness of breath, but would be rare without a history of trauma and would not produce pyrexia.

Question:

Patients taking amiodarone are at an increased risk of thyroid dysfunction. What problems may long-term amiodarone use cause?

A.Thyrotoxicosis

B.Hypothyroidism

C.Hypothyroidism + thyroid cancer

D.Hypothyroidism + thyrotoxicosis + thyroid cancer

E.Hypothyroidism + thyrotoxicosis

Answer:Hypothyroidism + thyrotoxicosis

Explanation:

Question:

A 24-year-old man was referred to clinic with an enlarged testicle. The patient reports that he was examining himself in the shower last week and noticed that his left testicle was markedly larger than the right. He has no specific symptoms, but does describe 4kg weight loss in the last 4 months, which he had previously attributed this to a new diet. Furthermore, he has also suffered with general fatigue over the last month.

He has no past medical history and takes no regular medication. In terms of social history, he is sexually active with his partner, with whom he has been in a relationship for 3 years now. He does not drink alcohol and smoke, and denies any recreational drug use.

There are no other symptoms of note on systems enquiry.

Other than an enlarged, non-tender, left testicle, clinical examination did not reveal any abnormality. Specifically, there was no palpable lymphadenopathy and no gynaecomastia.

What is the most appropriate next step in evaluating this patient?

A.Ultrasound testes

B.Lactate dehydrogenase

C.MRI testes

D.α-FP

E.β-hCG

Answer:Ultrasound testes

Explanation:

The first-line investigation of a testicular mass is an ultrasound

Important for meLess important

It is normal to have some degree of difference between the size of the two testes.

Ultrasound examination should first be performed to characterise the lesion and confirm the presence of a mass.

If the mass is suspicious for cancer, then tumour markers should be measured.

Imaging with MRI may be required for patients with equivocal ultrasound findings.

Question:

A 54-year-old man presents to the Emergency Department with left flank pain. For the past 3 days he has been having intermittent pain in that area but now the pain is continuous.

Dipstick urine shows blood+++, protein+.

A CT of the abdomen is arranged:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Splenic abscess

B.Autosomal dominant polycystic kidney

C.Splenic rupture

D.Hydronephrosis

E.Acute pyelonephritis

Answer:Hydronephrosis

Explanation:

The CT shows massive hydronephrosis and a small calculus in the left kidney. A single large calculus is present distally in the left ureter with accompanying hydroureter.

Question:

A 50-year-old man presents to the GP with a 3-month history of worsening lower back pain radiating into his buttocks. The pain is worse on exertion and straining and is not relieved when lying down. He has a history of hypercholesterolaemia and recently had a few episodes of haemoptysis and weight loss. He has smoked 35 cigarettes daily for the last 30 years and works as a builder.

On examination, power in the lower limb is reduced, and there is diminished pinprick sensation. The anal sphincter tone is intact.

What is the most appropriate next step for the GP to take?

A.Arrange lumbar spine MRI

B.Arrange lumbar spine x-ray

C.Give dexamethasone and arrange urgent hospital admission

D.Prescribe clopidogrel and arrange exercise training

E.Prescribe oral NSAID and arrange physiotherapy

Answer:Give dexamethasone and arrange urgent hospital admission

Explanation:

Spinal cord compression - back pain is the earliest and most common symptom

Important for meLess important

The presence of progressive back pain that is not relieved when lying down and worse when straining should raise suspicion of spinal cord compression, for which the most common and earliest symptom is back pain. The presence of reduced lower limb power and diminished pinprick sensation supports this diagnosis. The patient's long smoking history and recent episodes of haemoptysis and unexplained weight loss suggest that the underlying cause may be lung cancer metastases to the spine.

Give dexamethasone and arrange urgent hospital admission is correct. NICE recommends that all patients with suspected neoplastic spinal cord compression should be given an immediate dose of dexamethasone and referred to secondary care for an urgent MRI within 24 hours of presentation and an urgent oncological assessment for consideration of surgery or radiotherapy. Given that this consultation is taking place in a GP setting, the most appropriate action for the GP to take is to give an immediate dose of dexamethasone as long as this does not delay patient transport to hospital and admission for a full workup.

Arrange lumbar spine MRI is incorrect. Although MRI scans are used in cases of neoplastic spinal cord compression, NICE recommends a whole MRI spine within 24 hours of presentation, not just the lumbar region, as other potential metastases may be missed. As well as this, they recommend giving all patients with suspected neoplastic spinal cord compression high-dose oral dexamethasone. Arranging an MRI in primary care would not likely be possible within 24 hours.

Arrange lumbar spine x-ray is incorrect. X-rays are of limited value in the setting of neoplastic spinal cord compression as they cannot effectively visualise soft tissue, which may mean bone metastases are missed. As mentioned above, NICE also recommends urgent imaging of the whole spine using MRI within 24 hours, not just the lumbar region, as other potential metastases may be missed.

Prescribe clopidogrel and arrange exercise training is incorrect. This would be appropriate if the patient had peripheral arterial disease (PAD), which can have back pain radiating to the buttocks. However, the lack of intermittent claudication (aching or burning in the leg muscles when walking) and features such as lower limb pallor make PAD less likely. PAD would not explain the fact this patient's back pain is worse when lying down and when straining.

Prescribe oral NSAID and arrange physiotherapy is incorrect. This would be appropriate if the patient had ankylosing spondylitis (AS); however, the pain typically improves with exertion and worsens with rest, and patients often have early morning stiffness that may last up to hours. The pain that is worse on straining would not be explained by AS, and AS is more commonly seen in young men.

Question:

You review some recent results for one of your patients in general practice. A vaginal swab has returned a positive result for Chlamydia trachomatis .

The patient is 22 years old and has a past medical history of asthma. She has a penicillin allergy. She is 12 weeks pregnant.

You contact the genitourinary clinic for appropriate contact tracing and treatment for the patient's partner and now wish to prescribe her treatment.

What would be the most appropriate prescription?

A.Amoxicillin

B.Co-amoxiclav

C.Doxycycline

D.Erythromycin

E.Metronidazole

Answer:Erythromycin

Explanation:

Azithromycin, erythromycin or amoxicillin may be used to treat Chlamydia in pregnancy

Important for meLess important

Erythromycin would be the most appropriate prescription from those listed. In pregnancy, amoxicillin (500mg three times daily for seven days), azithromycin (1g single dose followed by 500mg daily for two days) or erythromycin (500 mg four times daily for seven days) are appropriate prescriptions to consider. This patient is penicillin allergic and therefore amoxicillin is contraindicated. Whilst doxycycline is used first-line for the treatment of uncomplicated Chlamydia trachomatis infection, it’s use is contraindicated in pregnancy. This is due to teratogenic effects which can lead discolouration to discolouration of baby’s teeth and impairment of long bone growth.

Amoxicillin is used to treat infection with Chlamydia trachomatis in pregnancy, however, this is contraindicated in this patient due to penicillin allergy.

Co-amoxiclav would not be the most appropriate treatment in this case. It is not indicated for the treatment of Chlamydia trachomatis and is contraindicated in this patient due to penicillin allergy.

Doxycycline would not be appropriate in this case. It is the first-line treatment for uncomplicated Chlamydia trachomatis infection in non-pregnant individuals, however, it is contraindicated in pregnancy (and therefore in this patient) due to its teratogenic effects on foetal long bone growth and potential to cause teeth discolouration in the baby.

Metronidazole would not be an appropriate prescription here. It is not commonly used to treat Chlamydia trachomatis ; however, it is a first-line treatment for some other genitourinary infections including bacterial vaginosis and those caused by Trichomonas vaginalis.

Question:

A 65-year-old woman has right thigh pain and an inability to weight bear after falling. There was a 1-month prior history of vague bilateral thigh and groin pain. Investigations show a right incomplete atypical femoral fracture and left stress fractures but no metastatic spread to the femurs.

She has a past medical history of bony metastatic breast cancer, heart failure, depression, and hypertension, and has been taking spironolactone and furosemide for 3 years, Herceptin, and alendronic acid for 6 years, and sertraline for 10 years.

What medication is likely to have contributed to her presentation?

A.Alendronic acid

B.Furosemide

C.Herceptin

D.Sertraline

E.Spironolactone

Answer:Alendronic acid

Explanation:

Bisphosphonates are associated with an increased risk of atypical stress fractures

Important for meLess important

Alendronic acid is correct. This patient has bony metastatic breast cancer and is taking Herceptin (trastuzumab) for cancer itself, and alendronic acid as a treatment for the bony metastases. Patients with a history of cancer presenting with bony pain or signs of fractures should ring alarm bells for increased activity of bony metastases. The investigations in the stem rule out bony metastases to the femurs, so other causes must be sought. Of the medications listed, alendronic acid (a bisphosphonate) is most associated with atypical stress fractures, which often present as vague thigh and groin pain prior to an actual fracture occurring. The proposed explanation for this is that prolonged bisphosphonate use decreases the activity of osteoclasts which inhibits bone remodelling, leading to changes and damage in the bone that would normally have been repaired, leading to brittle bones and increased fragility.

Furosemide is incorrect. Furosemide is not associated with an increased risk of atypical stress fractures.

Herceptin is incorrect. Herceptin is not associated with an increased risk of atypical stress fractures.

Sertraline is incorrect. Sertraline is not associated with an increased risk of atypical stress fractures.

Spironolactone is incorrect. Spironolactone is not associated with an increased risk of atypical stress fractures.

Question:

A 19 year-old woman attends her GP for a repeat prescription of her combined oral contraceptive pill (COCP). Since starting it, she has been suffering from severe left sided headaches with changes in her vision before the headache begins. Clinical examination is normal. What is the most appropriate step in her management?

A.Stop the COCP and start treatment on a progesterone only contraceptive pill.

B.Immediately refer her to the emergency department

C.Refer her to a neurologist

D.Commence a different COCP

E.Stop the COCP and start an oestrogen only contraceptive pill

Answer:Stop the COCP and start treatment on a progesterone only contraceptive pill.

Explanation:

The woman is having migraines with aura - a condition that can increase using the COCP. Women who have migraine with aura should stop the pill immediately - this is because the oestrogen component of the COCP can increase the risk of the women having an ischaemic stroke. A progesterone-only contraceptive pill is therefore the only alternative contraceptive medication that can be prescribed, as the others have oestrogen.

Question:

A 67-year-old man is being treated in the ENT ward for cancer of the oral cavity. He has undergone multiple cycles of radiotherapy that have been ineffective and now he is being treated palliatively. This morning, he complains about sore ulcers in his mouth that prevent him from eating and drinking normally.

On examination of the inside of his mouth, three white lesions with central ulceration can be seen, each one around 1mm wide. He is otherwise pain-free due to regular maximal doses of morphine.

Which one of the following options would help him with his pain?

A.Benzydamine hydrochloride

B.Ibuprofen

C.Metronidazole

D.Oral prednisolone

E.Usage of dental floss

Answer:Benzydamine hydrochloride

Explanation:

Benzydamine hydrochloride mouthwash or spray may be useful in reducing the discomfort associated with a painful mouth that may occur at the end of life

Important for meLess important

The correct answer is benzydamine hydrochloride. This patient is presenting with mucositis, an inflammation of the oral mucosa often accompanied by painful ulcerations. Risk factors for the development of this condition include radiation to the head and neck, and this patient underwent multiple cycles of radiotherapy of the oral cavity for his cancer. He is being treated palliatively now and benzydamine hydrochloride (mouthwash or spray) is the drug of choice in palliative care for reducing the discomfort of a painful mouth.

Ibuprofen is a non-steroidal anti-inflammatory medication commonly used in the management of cold sores. In this case, the patient is already on regular maximal dose morphine, making this option incorrect.

Metronidazole is an antibiotic used to treat multiple conditions ranging from cellulitis to gingivitis. It has no role in the pain management of oral mucositis.

Oral prednisolone is an incorrect option. This medication has no role in the treatment of oral mucositis, even if it can be used in palliative care for other needs, such as improving appetite.

Usage of dental floss is discouraged in patients during the end of life care. This indication arises from the fact that dental floss can create micro-lesions that allows bacteria to enter the gingiva, causing infections in an immunosuppressed patient.

Question:

A 6-month-old baby is brought to the emergency department by his parents. He has been vomiting profusely for several hours. The vomit is thick and green in colour. He has not had any wet nappies over the last 24 hours. On examination, the baby is crying and seems distressed. An abdominal examination reveals a distended abdomen and absent bowel sounds.

He has an unremarkable past medical history and the pregnancy and delivery were uneventful.

What is the most likely diagnosis?

A.Biliary atresia

B.Intestinal malrotation

C.Intussusception

D.Oesophageal atresia

E.Pyloric stenosis

Answer:Intestinal malrotation

Explanation:

Infant with bilious vomiting & obstruction → ?intestinal malrotation

Important for meLess important

The correct answer is intestinal malrotation. This baby is presenting with bilious vomiting associated with signs of obstruction (distended abdomen and absent bowel sounds). The differential diagnoses for bilious vomiting are limited, as the green colour of the vomit is caused by conditions that cause intestinal obstruction distal to the ampulla of Vater. After this point, the bile is mixed with the intestinal contents, giving the vomit the classical green colour.

Intestinal malrotation is caused by a failure of the bowel to loop efficiently during development, most classically leading to the caecum being confined to the right upper quadrant rather than to the lower. This leads to an increased risk of volvulus and obstruction, as happened in this case.

Biliary atresia is a paediatric condition where the extrahepatic biliary system does not develop normally, resulting in an obstruction in the flow of bile. It would cause jaundice and dark urine with pale stools, rather than bilious vomiting and obstruction.

Intussusception is a condition commonly defined as telescoping bowel. This condition causes ischaemia of the affected bowel segment, leading to acute cyclical colicky abdominal pain and 'currant jelly” stools. It may also present with vomiting, which in later stages may become bilious, but this is a rare and late feature, rather than being the presenting feature as in this case.

Oesophageal atresia is a developmental disorder in babies which causes the upper oesophagus to not be continuous with the lower oesophagus but ends blindly instead. It is associated with pooling of secretions, choking, drooling and inability to feed accompanied by vomiting, but the vomit will not be bilious.

Pyloric stenosis is a condition caused by the idiopathic thickening of the pyloric sphincter muscles, making it difficult for the food to pass through, leading to projectile vomiting after feeding. As this defect occurs proximal to the ampulla of Vater, the vomit will be non-bilious.

Question:

A 76-year-old man presents to the emergency department with worsening shortness of breath. He has no associated chest pain. He has a history of hypertension and hyperlipidaemia and is currently on perindopril and atorvastatin.

On examination his vitals are normal. There is a collapsing pulse in the carotids and a murmur is detected on cardiovascular examination.

What is the most likely clinical sign to be found in this patient?

A.Ejection click murmur

B.Narrow pulse pressure

C.Quincke's sign

D.S4 heart sound

E.Soft S2

Answer:Quincke's sign

Explanation:

Quincke's sign (nailbed pulsation) is a clinical sign of aortic regurgitation

Important for meLess important

This patient has a collapsing pulse, shortness of breath, and a cardiac murmur, which is consistent with aortic regurgitation. Of the listed clinical signs, only Quincke's sign (nailbed pulsation) is associated with aortic regurgitation.

Narrow pulse pressure is associated with aortic stenosis, not aortic regurgitation. Contrastingly, aortic regurgitation results in wide pulse pressure.

Soft S2 is associated with severe aortic stenosis, not aortic regurgitation. S2 is the sound that is made when the aortic valve closes. It is soft in aortic stenosis because the valve leaflets that would usually forcefully oppose each other to make the sound are stiff and are limited in movement.

S4 heart sound is a result of blood flow against a stiff walled ventricle when the atria contract and is present in conditions such as hypertrophic cardiomyopathy and hypertension, not aortic regurgitation.

An ejection click murmur is associated with aortic stenosis. An aortic regurgitation murmur is more likely to be an early diastolic murmur.

Question:

You notice that you have accidentally prescribed a patient 40 mg of Simvastatin rather than 20 mg for the last 4 days. Mrs Y suffers from extreme anxiety and she has previously refused medication as she fears being poisoned. There has been no ill effect from this mistake. What is the best thing to do?

A.Her cholesterol levels have reduced slightly since starting on the higher dose, so leave it at 40 mg as it is beneficial

B.Change the prescription to the correct dose and ask one of the medical students to practice breaking bad news

C.Change the prescription to the correct dose, and explain to her the mistake

D.Change the prescription to the correct dose, and stay quiet as this is in her best interest

E.Ask the pharmacist, being more qualified that you, to explain the medication mistake to her

Answer:Change the prescription to the correct dose, and explain to her the mistake

Explanation:

This can be a tricky question because there are several principles of 'best interest', 'honest' and 'integrity' which could sway you anyway.

Patients all have the right to receive an apology from the most appropriate team member, regardless of who they may be and what role they played. It is not necessarily your decision to decide that a patient should not get this right not to know. As a result option 3 is the best answer.

Option 5, although ending in the same way is avoiding responsibility of your actions and is not fair on the pharmacist,

Option 4 may be seen as correct as you are fixing the mistake and not causing any undue distress to the patient, but as mentioned this is not your decision to have,

Finally option 1 is incorrect as that may not be the aim of the treatment and it isn't sorting the mistake out; and option 2 is just totally inappropriate as you are putting them in an awkward situation.

http://www.gmc-uk.org/guidance/ethicalguidance/27246.asp

http://www.gmc-uk.org/static/documents/content/DoCguidanceenglish.pdf

Question:

A 59-year-old gentleman was admitted with an acute right middle cerebral artery (MCA) infarct and received thrombolysis having presented within 4.5 hours and had no other contraindications. 24 hours later Aspirin 300mg was commenced. Several hours later he has a sudden drop in his GCS to 8/15 on the ward, becoming more drowsy with worsening focal neurology on the left-hand side. An urgent repeat CT head is requested and showed haemorrhagic transformation within the region of the initial right MCA infarct. What is the most appropriate initial management?

A.IV Alteplase & control BP

B.Stop Aspirin 300mg

C.Continue Aspirin 300mg & control BP

D.Stop Aspirin 300mg & control BP

E.Commence Clopidogrel 75mg & control BP

Answer:Stop Aspirin 300mg & control BP

Explanation:

Intracerebral haemorrhage is an uncommon but serious complication of thrombolysis in an acute ischemic stroke. Prompt diagnosis and early correction of the coagulopathy remains the principal form of treatment. Aspirin, Clopidogrel and IV Alteplase all increase the risk of further bleeding and clinical deterioration. Therefore, stopping any anticoagulant medications is vital to prevent further bleeding. Maintain systolic blood pressure to a target of 140mmHg following an acute intracerebral haemorrhage.

Question:

A 45-year-old man has recently been diagnosed with stage 5 chronic kidney disease (CKD) by a nephrologist. He started taking a new medication 6 weeks ago to treat symptoms that have developed because of his CKD. Over the last 3 weeks, he has developed abdominal pain, back pain, muscle weakness and is feeling quite anxious.

Which of the following medications would explain his symptoms?

A.Alendronic acid

B.Folic acid

C.Calcium acetate

D.Ramipril

E.Sevelamer

Answer:Calcium acetate

Explanation:

Patient with CKD taking calcium-based binders can have problems including hypercalcaemia and vascular calcification

Important for meLess important

Calcium acetate is a calcium-based binder used to treat hyperphosphataemia. This patient is suffering from symptoms of hypercalcaemia as a result of a side effect of using a calcium-based binder. Patients with chronic kidney disease (CKD) may suffer from hyperphosphataemia since the kidneys are unable to excrete excess phosphate. Calcium-based binders are used to reduce phosphate levels in patients with CKD. Symptoms of hypercalcaemia include 'bones, stones, groans and psychic moans'.

Alendronic acid is used to prevent or treat osteoporosis and bone disorders in patients with CKD. This may cause hypocalcaemia.

Folic acid is offered to patients who are at risk of folic acid deficiency due to nutritional intake. This would not cause hypercalcaemia but may cause abdominal distention.

Ramipril is used to control blood pressure in patients with CKD. This would not cause hypercalcaemia but may cause abdominal discomfort.

Sevelamer is a non-calcium based phosphate binder that is used to treat hyperphosphataemia in patients with CKD. This would not cause hypercalcaemia but may cause gastrointestinal discomfort.

Question:

A 25-year-old man presents to the emergency department with a 1-day history of abdominal pain, beginning in the umbilical region, and then spreading to the right iliac fossa. The pain is worse on movement. He has had some associated nausea but no vomiting and he has had no urinary or bowel symptoms. His height is 1.93m and his weight is 74kg. His respiratory rate is 25 breaths/min, his oxygen saturations are 97% on room air, his heart rate is 98 beats/min, his blood pressure is 130/75 mmHg, and his temperature is 38.3 ºC. On palpation, his abdomen is grossly tender.

What is needed in order to confirm the most likely diagnosis?

A.CT abdomen with contrast

B.MRI scan of abdomen

C.Non-contrast CT abdomen

D.None - clinical diagnosis

E.Ultrasound scan of abdomen

Answer:None - clinical diagnosis

Explanation:

Thin, young male patients with a high likelihood of appendicitis may be diagnosed clinically

Important for meLess important

None - clinical diagnosis is correct. This patient is a thin (his BMI is 19.9 kg/m²), young male patient with a high likelihood of appendicitis due to the classic central abdominal pain that localises to the right iliac fossa. Thin, young males with a high likelihood of appendicitis can be diagnosed clinically, so investigations are not necessary and may delay time for treatment.

MRI scan of abdomen is incorrect. This test would be expensive and time-consuming and not of particular use in this scenario as it would delay treatment. This patient can be diagnosed clinically without investigations being required, as they are a thin, young male with typical signs and symptoms of appendicitis.

Non-contrast CT abdomen is incorrect. CT scans are not commonly used in the UK for diagnosing appendicitis due to the risk of unnecessary exposure to ionising radiation. Appendicitis can be diagnosed clinically or with an ultrasound scan if there is diagnostic doubt, so there is no need for using a CT scan and the exposure to radiation it carries. This patient can be diagnosed clinically, however, without an ultrasound scan being required, as they are a thin, young male with typical signs and symptoms of appendicitis.

CT abdomen with contrast is incorrect. CT scans are not commonly used in the UK for diagnosing appendicitis due to the risk of unnecessary exposure to ionising radiation. Appendicitis can be diagnosed clinically or with an ultrasound scan if there is diagnostic doubt, so there is no need for using a CT scan and the exposure to radiation it carries. As well as this, using contrast carries an increased and unnecessary risk of complications such as nephrotoxicity. This patient can be diagnosed clinically, however, without an ultrasound scan being required, as they are a thin, young male with typical signs and symptoms of appendicitis.

Ultrasound scan of abdomen is incorrect. Ultrasound scans can be used, particularly in female patients where pelvic organ pathology is suspected (e.g. ovarian torsion), however, this patient is a thin, young male with a high likelihood of appendicitis, and so, can be diagnosed clinically. An ultrasound scan in this scenario would delay treatment.

Question:

A 27-year-old female presents with lethargy throughout the day where she is able to do her job effectively in the morning but is extremely tired towards the end of the workday. Serum antibody receptor testing leads to a diagnosis of myasthenia gravis. She is prescribed pyridostigmine amongst other agents.

What is the mechanism of the aforementioned drug?

A.Short acting acetylcholinesterase inhibitor

B.Long acting acetylcholinesterase inhibitor

C.Muscarinic agonist

D.Calcineurin inhibitor

E.Dihydrofolic acid reductase inhibitor

Answer:Long acting acetylcholinesterase inhibitor

Explanation:

Pyridostigmine is a long-acting acetylcholinesterase inhibitor that reduces the breakdown of acetylcholine in the neuromuscular junction, temporarily improving symptoms of myasthenia gravis

Important for meLess important

Symptomatic patients with myasthenia gravis (MG) are treated with immunosuppression and pyridostigmine, a long-acting acetylcholinesterase inhibitor.

Immunosuppressive agents for MG include azathioprine (purine analogue), ciclosporin (calcineurin inhibitor), cyclophosphamide (alkylating agent) and methotrexate (dihydrofolate reductase inhibitor).

Muscarinic agonists stimulate cholinergic receptors. Drugs of this class include cevimeline and pilocarpine.

Question:

Georgia has presented herself to the GP practice as she is looking to start contraception. She has opted to use the implantable contraceptive rod as she wished to avoid taking pills for her contraception. She had the rod implanted in her arm after obtaining informed consent.

What is the primary mechanism of action of this form of contraception?

A.Inhibition of ovulation

B.Prevention of ova implantation

C.Thickening of cervical mucous

D.Decreasing sperm viability

E.Prevents uterine lining proliferation

Answer:Inhibition of ovulation

Explanation:

The primary mode of action of the contraceptive implant is inhibition of ovulation

Important for meLess important

The implantable rod contains the hormone progesterone and the hormone will be slowly released into the systemic circulation. This typically lasts 3 years before replacement. Its primary function is to inhibit ovulation as progesterone inhibits the secretion of FSH and LH from the pituitary. While the rod also has an additional effect of increasing the thickness of mucous within the cervical lining, this is not the predominant mode of action of the rod.

Increasing cervical mucous thickening is also caused by the progesterone-only pill.

Decreasing sperm viability is the main mechanism of action of the intrauterine copper device.

The intrauterine system predominantly provides contraception by providing exerting local progesterone onto the uterine lining. This prevents the proliferation of the uterine lining and prevents implantation of the ovum.

Question:

A 2-year-old child comes in to see you with his mother at the GP surgery. The mother tells you that for the past few months the child has been suffering from diarrhoea. On further questioning, she denies that it is foul smelling but does confirm it sometimes contains undigested food. There are no other symptoms such as abdominal pain or bloating. You plot their height and weight, and it is appropriate for their age.

What's the most likely diagnosis?

A.Toddler's diarrhoea

B.Giardiasis

C.Coeliac disease

D.Gastroenteritis

E.Lactose intolerance

Answer:Toddler's diarrhoea

Explanation:

Toddler's diarrhoea is a benign condition that causes the child no problems. It is due to the fast transit through their digestive system and often contains undigested food. It requires no treatment. It is prudent to plot their height and weight to ensure no severe underlying diagnosis is present such as coeliac, which would present with the child falling centiles on the growth chart.

Gastroenteritis wouldn't last for months and it is likely that others in the household would be suffering from it too.

Lactose intolerance would also have abdominal pain and bloating as symptoms and the diarrhoea would be linked to eating dairy.

Giardiasis is a parasitic infection, and the child typically has watery stools, nausea and fever.

Question:

You are called to review a 64-year-old man on the ward who is in new-onset respiratory distress. He was admitted 2 days ago with weight loss and melena of 3 months. His background history includes hypertension only.

The nursing staff inform you that he received an IV iron infusion about one hour ago and in the last 5 minutes has become dyspnoeic at rest. His observations are as follows; blood pressure 84/41 mmHg, pulse 99 bpm, respiratory rate 32/min, temperature 37.6 deg C.

On examination, he is visibly in distress. On auscultation, a high-pitched noise can be heard on inspiration and there is expiratory wheeze throughout the lung fields. An urticarial-like rash is seen on his torso.

What medication should immediately be administered?

A.IV antibiotics

B.Nebulised salbutamol

C.IM adrenaline 1mg (10ml of 1 in 10,000)

D.IV hydrocortisone 200mg

E.IM adrenaline 500mcg (0.5ml of 1 in 1,000)

Answer:IM adrenaline 500mcg (0.5ml of 1 in 1,000)

Explanation:

Anaphylaxis - adult adrenaline dose = 500 mcg (0.5 ml of 1 in 1,000)

Important for meLess important

This patient is experiencing anaphylaxis and requires immediate IM adrenaline.

IV antibiotics - incorrect. IV antibiotics are of no benefit in the treatment of anaphylaxis. The clues to this being a case of anaphylaxis include; acute onset hypotension and respiratory distress, urticarial rash, wheeze, stridor and a triggering event (the IV iron infusion).

Nebulised salbutamol - incorrect. Nebulised salbutamol can be used in the treatment of anaphylaxis to relieve bronchoconstriction, but the most important initial treatment is immediate IM adrenaline.

IM adrenaline 1mg (10ml of 1 in 10,000) - incorrect. This dose is incorrect. 1mg (10ml of 1 in 10,000) is used in the treatment of cardiac arrest. However, in cardiac arrest adrenaline is given IV, not IM.

IV hydrocortisone 200mg - incorrect. IV hydrocortisone is important in the treatment of anaphylaxis to decrease the risk of further attacks, again, however, it is not the most important initial treatment.

IM adrenaline 500mcg (0.5ml of 1 in 1,000) - correct. Adrenaline is given IM to the anterolateral thigh. The dosage is 500 mcg (0.5 ml of 1 in 1,000).

Question:

You are the doctor on-call overnight. You are called at 1am by the nursing staff to review an 88-year-old woman who is distressed and “acting out of character.” The patient underwent a hemiarthroplasty for a fractured neck of femur 12 days ago, and is now having physiotherapy until suitable discharge can be arranged.

On arrival at the ward, the patient is trying to get out of bed, despite the reassurance of the nursing staff. She is shouting incomprehensible words and appears to be distressed. You are unable to gain a history from the patient or to examine her, but the nurses tell you that up until this evening she had been her usual self, quiet and well-mannered.

Nursing staff manage to take observations: heart rate 85/min, blood pressure 140/85mmHg, oxygen saturations 98% on air, respiratory rate 22/min, temperature 36.5ºC and blood glucose 6.3.

From the medical notes, you note the patient has a past medical history of alzheimer’s dementia, gout and type 2 diabetes. Her drug chart includes the following medications: codeine 30mg QDS (started on admission), paracetamol 1g QDS, donepezil, allopurinol, metformin, and ondansetron as needed for nausea.

The fluid chart shows good oral intake and output.

Her stool chart is not completed.

Bloods taken earlier in the day:

Hb 115 g/L Male: (135-180)

Female: (115 - 160)

Platelets 250 \* 109/L (150 - 400)

WBC 8.5\* 109/L (4.0 - 11.0)

Na 143 mmol/L (135 - 145)

K 3.7 mmol/L (3.5 - 5.0)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

CRP 6 mg/L (< 5)

Of the options listed below, which is the most likely cause of the patient's presentation?

A.Constipation

B.Hypoglycaemia

C.Pain

D.Progression of Alzheimer's dementia

E.Urinary tract infection

Answer:Constipation

Explanation:

Constipation can cause delirium in the elderly

Important for meLess important

This patient has developed an acute confusional state, also known as delirium.

This is characterised using the Confusion Assessment Method as an acute onset of a change in mental state from the patient's baseline with inattention, in addition to either disorganised thinking or altered consciousness. Sleep-wake cycle is often reversed.

There are many causes of an acute delirium:

Pain

Infection

Constipation

Urinary retention

Metabolic: hypercalcaemia, hypoglycaemia, hyperglycaemia, dehydration

Medications: e.g. opioids

Hypoxia

In this case, there is limited information available from the patient, however the medical charts available on the ward can often point to the most likely underlying cause of a delirium.

Her observations are stable including blood glucose, therefore hypoglycaemia is not the underlying cause.

She is not febrile and her bloods are all within normal limits, which points away from an infectious cause.

The patient is 2 weeks post-op, and her pain is likely to have stabilised, which makes this a less likely cause.

The key to this question is spotting that the patient has been prescribed two highly constipating medications (codeine and ondansetron) without laxatives. Her stool chart does not demonstrate any bowel movements, therefore she is likely to be constipated. This is the most likely cause of the delirium in this case.

Question:

A 19-year-old is brought into the emergency department with a paracetamol overdose. The overdose consisted of 60 tablets with half a bottle of rum. They broke up with their partner earlier today and took the overdose impulsively.

Their past medical history is significant for epilepsy treated with carbamazepine, and depression treated with citalopram. In terms of social history, they regularly smoke 10 cigarettes a day and normally drink 4 units a week.

Which part of their medical history puts them at the highest risk for hepatotoxicity?

A.Alcohol intake

B.Depression treatment

C.Epilepsy treatment

D.History of smoking

E.Impulsive nature

Answer:Epilepsy treatment

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 main medical concern with a paracetamol overdose is hepatotoxicity. This is influenced by a wide variety of factors, including normal liver functioning, medication use, and nutritional status.

Carbamazepine is a liver enzyme-inducing drug that is classically quoted as placing individuals at high risk of hepatotoxicity following an overdose. This may be due to the drug accentuating the toxicity of paracetamol, or due to long-term treatment with the drug reducing the liver's store of protective substances. Therefore, this is the correct answer.

Acute alcohol intake is, contrary to popular belief, not associated with an increased risk of hepatotoxicity. This may be due to alcohol inhibiting pathways that break down paracetamol into more toxic substances. Chronic alcohol use is a risk factor, but this is because chronic use weakens the liver over time.

Treatment with citalopram has no influence on the hepatotoxicity of paracetamol following overdose. Whilst citalopram is metabolised and excreted by the liver, it does not cause any liver changes and would therefore not be expected to increased hepatotoxicity.

A history of smoking will not affect the liver to any extent which damages it long term. Therefore, this is not the correct answer.

The impulsive nature of the overdose is more of a concern from a psychiatric point of view, rather than medically being related to hepatotoxicity.

Question:

A 12-year-old girl comes into the emergency department with an acute asthma exacerbation. She has been needing to use her as-needed salbutamol inhaler more regularly over the course of the day. You treat her with salbutamol and ipratropium in the emergency department, and she appears to improve over the next hour. You perform a peak expiratory flow (PEF), which gives a result of 65% of predicted.

Which of these is required for a safe discharge once the patient is asymptomatic?

A.After administration of oral antibiotics

B.Cleared by paediatric ICU team

C.Arterial blood gas oxygen in normal range

D.Monitored for at least 6 hours

E.Peak expiratory flow >75% best or predicted

Answer:Peak expiratory flow >75% best or predicted

Explanation:

Prior to discharge, following an acute asthma attack, PEF should be >75% of best or predicted

Important for meLess important

Peak expiratory flow >75% best or predicted is a criterion for a safe discharge following an asthma exacerbation. However, this is not the only requirement that should be sought out.

Antibiotics are not routinely used in the treatment of asthma exacerbations. In children, a preceding viral illness commonly precipitates an asthma exacerbation.

Clearance by the paediatric ICU team is not required unless this was a severe asthma exacerbation that needed more intensive treatments.

Arterial blood gases are rarely required for a patient who presents clinically with acute asthma, and should not be used as a criterion for discharge.

Usually, one to two hours is enough time to monitor a patient in the emergency department with acute asthma. 6 hours is excessive in someone who has responded well to treatment and should not be a requirement for discharge.

Question:

A 38-year-old lifeguard presents to the Emergency Department with intense right-sided eye pain and reports the sensation of a foreign body, despite having removed his contact lenses.

On examination, the right eye has conjunctival injection. His visual acuity is 6/6 in the left eye and 6/12 in the right eye. His ocular reflexes are intact, although he displays photophobia; tearing and discharge are also noted. Inspection under a slit lamp reveals mild, regular ulceration of the right eye.

What is the most likely diagnosis?

A.Acanthamoeba keratitis

B.Anterior uveitis

C.Conjunctivitis

D.Herpes simplex virus keratitis

E.Scleritis

Answer:Acanthamoeba keratitis

Explanation:

Contact lense wearing is associated with acanthamoeba infection

Important for meLess important

Acanthamoeba keratitis is correct as this is a cause of contact lens-associated eye disease commonly associated with contact lens use in bodies of water such as the sea or swimming pools. However, soil and ponds can also harbour the amoeba. This patient is a contact lens wearer as indicated in the stem, and his job as a lifeguard means he is likely exposed to bodies of water frequently, putting him at an increased risk of amoeba infection of the eyes. Patients often report eye pain out of proportion to clinical findings, reduced visual acuity, redness, photophobia, and discharge. The treatment is through antiamoebic such as combined biguanide and diamidine therapy.

Anterior uveitis is incorrect. From the history, this is a reasonable differential, however anterior uveitis is classically associated with HLA-B27 conditions such as Crohn's disease. Furthermore, patients may display synechiae on inspection, as well as hypopyon and ciliary flush.

Conjunctivitis is incorrect. While conjunctivitis may produce discharge and reddening of the eye as in the stem, the findings of ulceration and reduced visual acuity should point towards a more serious pathological condition.

Herpes simplex virus keratitis is incorrect. Herpes keratitis presents as a painful red eye with dendritic ulceration on fluorescein staining (unlike the regular ulceration seen). Visual acuity loss can occur, but the history of contact lens use and the patient's occupation should point more towards acanthamoeba infection.

Scleritis is incorrect. Scleritis is a potential differential but is incorrect as it would not usually present with ulceration. The significant occupation history and contact lens use make an amoebic cause more likely.

Question:

A 42-year-old man is brought to the emergency department by ambulance. The crew found him outside a pub. You smell alcohol on his breath. He is disoriented and clearly intoxicated. The crew witnessed him retch coffee ground vomit in the ambulance. During your assessment, he passes a large amount of melaena. His heart rate is 170 bpm and his blood pressure is 70/35 mmHg. A venous blood gas shows a Hb of 56. He is very pale and passing in and out of consciousness.

You want to activate the major haemorrhage protocol and refer for urgent endoscopy. However, he refuses to be treated.

How should you proceed?

A.Do not treat, as this would be battery

B.Have a discussion with him to see if he can understand, weigh, retain and communicate his decision

C.Refer him for Mental Health Act assessment

D.Treat under common law

E.Wait for him to sober up for a formal capacity assessment

Answer:Treat under common law

Explanation:

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

Important for meLess important

Treat under common law - this is the correct answer. This man is intoxicated with alcohol, disoriented, and lacks the capacity to refuse treatment. He is haemodynamically unstable and requires immediate emergency treatment in his best interest. There are three frameworks for treating patients who lack capacity: common law, the Mental Capacity Act, and the Mental Health Act. Common law and the Mental Capacity Act may both be used in emergency situations.

Do not treat, as this would be battery is incorrect. If he had capacity, you could not treat him against his will. However, he clearly does not have the capacity to refuse treatment, and therefore it would be in his best interests to treat him.

Having a discussion to see if he can understand, weigh, retain and communicate his decision is not the most appropriate answer here. Normally, this would be the best way to assess whether or not someone had capacity (using the Mental Capacity Act framework), and then afterwards you could decide whether or not they are able to refuse treatment. However, this man is almost peri-arrest, and immediate emergency action is required. From his mental state and clear intoxication, it is reasonable to assume that he lacks capacity. Therefore the most appropriate thing would be to proceed with emergency treatment, using common law.

Refer him for Mental Health Act assessment is not the most appropriate action as the Mental Health Act is used in patients who require treatment for mental disorders. This man's primary problem is physical.

Wait for him to sober up for a formal capacity assessment would be inappropriate as this is an emergency situation and requires immediate action. If the situation was not life-threatening or very time-sensitive, then waiting for the patient to become sober may be appropriate.

Question:

A 35-year-old woman presents to the GP with an unsightly mark on her abdomen. On examination, a linear raised dark lesion in the suprapubic location. It is in keeping with a Pfannenstiel incision. She reports no pain. The woman insists on some treatment as it is affecting her self-confidence.

She has no family history of skin cancer. However, she recalls her mother having a similar mark following an open appendectomy.

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

A.Cryotherapy

B.Intralesional steroid

C.Laser treatment

D.Radiotherapy

E.Surgical excision

Answer:Intralesional steroid

Explanation:

Intra-lesional steroids may be a useful treatment for keloid scarring

Important for meLess important

The woman presents with a keloid scar due to the overproduction of collagen and abnormal proliferation of fibroblasts. The risk factors in this scenario include trauma to the skin due to a caesarean section and a family history of a keloid scar in her mother. The first-line treatment is intralesional steroids. Surgery is not recommended as one of the initial treatments due to the high chances of recurrence of keloid scars following surgery.

Intralesional steroid is the correct answer in this scenario. Intralesional steroid injection helps shrink the keloid scar and is the first line of treatment and is usually repeated monthly for 4-6 months.

Cryotherapy is incorrect in this scenario. It can be used to treat the keloid scar, but it may cause loss of skin pigment that is undesirable and, therefore, is not the first line of treatment. It can be used alone or in combination with other treatments. This woman is already uncomfortable with the appearance of the scar hence, it may not give her the desired outcome.

Laser treatment is incorrect in this scenario. It is only helpful if used in combination with other treatments like intralesional steroids; therefore, it is not the right option in this case. It is not the first line of treatment.

Radiotherapy is incorrect in this scenario. It is usually used after surgery, but it leads to skin irritation and hypopigmentation, and there is also a small risk of skin cancer. Hence, it is rarely used and not as the first line of treatment.

Surgical excision is incorrect in this scenario because she developed the keloid scar due to the surgery in the first place. Therefore there is a high risk of recurrence of a larger than initial size scar. Surgical excision is usually reserved as the last option.

Question:

A 46-year-old man is seen by his GP. Since this morning he has felt the room spinning, causing him to feel very nauseous and vomit five times. He admits to a mild ringing in his right ear and says his hearing sounds muffled.

He has no significant medical history and has not felt like this before, although he does admit to feeling run down with a 'bit of a cold' for the last few days.

There is horizontal nystagmus towards the left side. Rinne's test shows air conduction to be louder than bone conduction bilaterally. Weber's test lateralises to the left side. He is unsteady when walking.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Meniere's disease

C.Transient ischaemic attack

D.Vestibular neuronitis

E.Viral labyrinthitis

Answer:Viral labyrinthitis

Explanation:

Acute viral labrynthitis: sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo

Important for meLess important

Viral labyrinthitis is the correct answer. This presents with sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo. Hearing loss and tinnitus are also features of this disease and may vary in severity. This patient's history of a recent URTI is a useful clue pointing towards viral labyrinthitis, as this often precedes the disease or is present concurrently. In this case, the patient's right ear is more affected, implying right viral labyrinthitis. Rinne's and Weber's tests show sensorineural hearing loss on the right side. This is seen as air conduction > bone bilaterally and Weber's test lateralises to the unaffected ear. Therefore, the horizontal nystagmus will be towards the unaffected side - in this case, the left side.

Benign paroxysmal positional vertigo is incorrect. This causes vertigo brought on by movement, does not cause hearing loss and presents with rotatory nystagmus. Episodes are short and not present when not moving.

Meniere's disease is incorrect. This presents with similar features, although it usually is a recurrent condition. The recent URTI also leads us towards viral labyrinthitis as a diagnosis. Meniere's commonly presents with a sensation of aural fullness which is not present here.

Transient ischaemic attack (TIA) is incorrect. A posterior circulation TIA or stroke can present with sudden onset vertigo, however, the lack of cardiovascular risk factors present and the recent URTI makes this a less likely diagnosis in this case.

Vestibular neuronitis is incorrect. This also presents after a viral infection with similar features - vertigo, nausea, vomiting, and horizontal nystagmus. The key differentiating point here is the hearing loss and tinnitus seen in the history and examination. These would not be present in vestibular neuronitis as hearing is not affected.

Question:

A 48-year-old woman presents to her GP after finding a suspicious lump in her left breast. After referral to a breast surgeon, she is found to have a 1.5cm HER2+ carcinoma. On clinical examination she has no palpable axillary lymph nodes, but her pre-operative axillary ultrasound shows several suspicious looking nodes.

What next step should be taken to manage the patient's axilla?

A.No treatment required

B.Letrozole for 5 years

C.Axillary radiotherapy

D.Sentinel node biopsy

E.Axillary node clearance

Answer:Sentinel node biopsy

Explanation:

In women with breast cancer and no palpable lymphadenopathy, if a pre-operative axillary ultrasound is positive then they should have a sentinel node biopsy to assess the nodal burden

Important for meLess important

Breast cancer patients with a suspicious node identified on pre-operative axillary ultrasound need to have surgical staging of the axilla to identify the extent of the metastatic burden. Sentinel node biopsy (SNB) is performed as a first step, as it is less invasive than a total axillary node clearance1.

Letrozole is indicated to control recurrence of the primary tumour in ER+ disease.

Axillary radiotherapy can be used as an alternative to axillary node clearance with extensive nodal burden identified at SNB.

Axillary clearance is not an appropriate first step in managing this patient’s axillary metastases, although it may be necessary if the sentinel node biopsy demonstrates a large number of involved nodes.

References:

1. Nice guideline NG101 (2018).

Question:

A 66-year-old man is recovering in hospital after a massive GI bleed. He develops acute onset breathlessness with no associated chest pain. He has hypertension and osteoarthritis, but no other conditions.

On examination, there is bilateral pitting oedema to his shins, dual heart sounds with no murmurs and an elevated JVP. The apex beat is in the 5th intercostal space in the mid-clavicular line. His abdomen is soft and non-tender without ascites.

Hb 69 g/L Male: (135-180)

WBC 5.0 \* 109/L (4.0-11.0)

Na+ 140 mmol/L (135 - 145)

K+ 5.3 mmol/L (3.5 - 5.0)

Creatinine 110 µmol/L (55 - 120)

What is most likely to be causing this patient's presentation?

A.Anaemia

B.Hyperkalemia

C.Liver disease

D.Myocardial infarction

E.Valvular disease

Answer:Anaemia

Explanation:

Severe anaemia is a cause of high-output heart failure

Important for meLess important

This is a classical presentation of heart failure with fluid overload; however, the cause is not as clear. This patient has had a massive GI bleed, which appears to be a cause of his severe anaemia. This can result in a high-output of blood from the heart to compensate for inadequate perfusion of blood to the peripheries. In some patients, this can cause high-output heart failure, resulting in the symptoms that this patient has.

His hyperkalemia is only very mild. Furthermore, hyperkalemia can cause arrhythmias which can result in sudden cardiac arrest but would not cause sudden onset of heart failure symptoms as has occurred in this patient.

Liver disease can result in swelling in the ankles; however, is less likely to cause shortness of breath unless fluid overload is severe. Other symptoms of liver disease would present before this, so the absence of ascites on abdominal examination makes this diagnosis unlikely.

Myocardial infarction is unlikely in this patient given the absence of chest pain and absence of diabetes which could result in a silent infarct. Although this should be kept as a differential; it is less likely to be the cause of this patient's clinical deterioration.

Lastly, in order for valvular disease to be significant enough to cause heart failure, it would be expected that the murmur would be auscultated on clinical examination. Although more mild-moderate valvular disease can be missed by clinical examination, the sudden onset of heart failure symptoms and normal position of the apex beat makes valve disease less likely.

Question:

A 22-year-old woman presents to her GP having had abdominal pain and a positive pregnancy test, despite having an intrauterine system. She is referred urgently to the emergency department where an ultrasound scan is performed, confirming a tubal ectopic pregnancy with a visible heartbeat.

The patient has never been pregnant before but wants to have a family sometime in the future. There is no previous history of sexually transmitted infections.

What is the most appropriate management?

A.Expectant management

B.Methotrexate

C.Misoprostol

D.Salpingectomy

E.Salpingotomy

Answer:Salpingectomy

Explanation:

Ectopic pregnancy requiring surgical management: salpingectomy is first-line (rather than salpingotomy) for women with no other risk factors for infertility

Important for meLess important

Salpingectomy is correct. This patient has an ectopic pregnancy requiring surgical management due to the presence of pain and a visible foetal heartbeat. Salpingectomy is the first-line treatment because she has no other risk factors for infertility.

Expectant management is incorrect. It would be inappropriate because she is symptomatic and has a foetal heartbeat, meaning there is a risk of life-threatening ectopic rupture, and this patient requires surgical management.

Methotrexate is incorrect. This would be appropriate for ectopic pregnancies which are suitable for medical management. This is not suitable in this case, as she has pain and there is a visible foetal heartbeat, and instead requires surgical management with salpingectomy.

Misoprostol is incorrect. This is used for the management of incomplete miscarriages. She is not having an incomplete miscarriage, as there is a foetal heartbeat visible, and the location of the foetus requires surgical management of her ectopic pregnancy.

Salpingotomy is incorrect. This is used if surgical management is indicated and the woman has other risk factors for infertility such as a previous PID or contralateral tubal surgery. In this scenario, this patient does not have any such risk factors, so salpingectomy is more appropriate.

Question:

A 33-year-old female has known secondary progressive multiple sclerosis and sees her neurologist for her regular 3-monthly follow-up appointment. She complains of clumsiness when walking and falling over regularly for no reason. On examination her gait is ataxic and the neurologist proceeds to check for other cerebellar signs.

Which of the following is a typical cerebellar sign?

A.Hypotonia

B.Dysgraphia

C.Hypertonia

D.Dysphasia

E.Resting tremor

Answer:Hypotonia

Explanation:

Hypotonia is a feature of cerebellar disease

Important for meLess important

Question:

A GP incidentally discovers a murmur in an 8-year-old girl. The murmur is described as a 'continuous blowing noise' heard below both clavicles.

What is the most likely type of murmur diagnosed?

A.Aortic stenosis

B.Mitral stenosis

C.Venous hum

D.Still's murmur

E.Pulmonary flow murmur

Answer:Venous hum

Explanation:

Venous hum is a benign murmur heard in children and sounds like a continuous blowing noise heard below the clavicles

Important for meLess important

This description is classical of a venous hum. A Still's murmur is benign but is heard as a low-pitched sound on the lower left sternal edge. A pulmonary flow murmur is also benign but heard on the upper left sternal border. The other murmurs are pathological.

Question:

A 66-year-old man presents to clinic with increasing breathlessness, weight loss and peripheral oedema over the past 2 months. His family are concerned that he has also become a bit more confused over the past week.

His past history includes hypertension and a 30 pack-year smoking history. An echocardiogram from last year showed good biventricular contraction.

His blood tests show the following:

Haemoglobin (Hb) 150 g/L Male: (135-180)

Female: (115 - 160)

Platelets 230 \* 109/L (150 - 400)

White cell count (WCC) 4.6 \* 109/L (4.0 - 11.0)

Na+ 124 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Urea 2.0 mmol/L (2.0 - 7.0)

Creatinine 62 µmol/L (55 - 120)

C reactive protein (CRP) 6 mg/L (< 5)

What is the most likely diagnosis?

A.Right-sided heart failure

B.Chronic obstructive pulmonary disease (COPD)

C.Lung cancer

D.Pulmonary fibrosis

E.Sarcoidosis

Answer:Lung cancer

Explanation:

A common endocrine complication of small cell lung cancer is SIADH

Important for meLess important

A history of weight loss and breathlessness in a long-term smoker should prompt investigation for lung cancer.

Right-sided heart failure may be more likely if he hadn't had a normal echo recently.

Though COPD and pulmonary fibrosis can also present with breathlessness, they wouldn't explain the peripheral oedema and hyponatraemia.

Sarcoidosis may present like this but is much less common and is more common in middle-aged Afro-Caribbean women.

Lung cancer is the most likely diagnosis given the breathlessness and weight loss. A common endocrine complication of small cell lung cancer is 'syndrome of inappropriate anti-diuretic hormone' (SIADH), which explains the peripheral oedema and hyponatraemia.

Question:

A 34-year-old woman visits her GP with concerns about her current medication. She was diagnosed with system lupus erythematous 18 months ago and is currently taking azathioprine 130mg/day, in divided doses. Three days ago she took a home pregnancy test which was positive.

What is the best course of management for her medication?

A.Continue azathioprine

B.Continue azathioprine at half the dose

C.Stop azathioprine and start high dose corticosteroids

D.Stop azathioprine and start infliximab

E.Stop azathioprine and start methotrexate

Answer:Continue azathioprine

Explanation:

Azathioprine is safe to use in pregnancy

Important for meLess important

Azathioprine is safe to use in pregnancy and should be continued if on an established dose. The risk of reducing or discontinuing this medication could put the patient at serious risk to her health including disease progression.

The dose of azathioprine would not be reduced as this would leave the patient vulnerable to relapse and further complications.

Stopping azathioprine and starting corticosteroids would not be appropriate as the patient is established on azathioprine, which is safe to continue.

Infliximab should only be used in pregnancy if essential, so continuing azathioprine would be a better option.

Methotrexate is teratogenic and should never be used during pregnancy.

Question:

A 25-year-old female presents to her general practitioner with a 2-month history of polyuria, nocturia and chronic thirst. She suffered a concussion in a car crash, one month prior to the onset of her urinary symptoms. Amongst other investigations, she is referred for a water deprivation test.

Give 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.Low urine osmolality after fluid deprivation, but normal after desmopressin

Answer:Low urine osmolality after fluid deprivation, but high after desmopressin

Explanation:

Water deprivation test: cranial DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: high

Important for meLess important

The symptoms of polyuria, nocturia and chronic thirst, combined with preceding head trauma suggest a diagnosis of cranial diabetes insipidus (DI). Cranial DI results from insufficient anti-diuretic hormone (ADH) secretion, preventing the kidneys from concentrating urine. Causes of cranial DI are numerous, including head trauma, localised infections and post-radiotherapy. 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.

High urine osmolality after both fluid deprivation and desmopressin is incorrect as this would be seen in a healthy individual or primary polydipsia.

Low urine osmolality after both fluid deprivation and desmopressin is incorrect as this is typical of nephrogenic DI. As the patient possesses risk factors specifically for cranial DI, this is not the best answer.

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 normal after desmopressin is incorrect as this would not be commonly seen with any pathological state.

Question:

A 45-year-old woman presents to the GP for a review of her Dupuytren's contracture. She has been having more trouble recently with her job as it requires her to spend a lot of time typing. She has already tried using painkillers such as Naproxen and they have not helped very much. On examination, the metacarpophalangeal joints over the little finger and ring finger of her right hand are bent forwards by 30 degrees and she cannot place her hand flat on the table.

What is the most appropriate next step for the GP in the management of her care?

A.Reassure the person that any painful nodules should improve with time and prescribe a stronger analgesic

B.Corticosteroid injection

C.Injectable enzyme therapy

D.Advise her to attend the emergency department that same day

E.Make a routine referral to orthopaedics to be seen by a hand specialist

Answer:Make a routine referral to orthopaedics to be seen by a hand specialist

Explanation:

Consider surgical treatment of Dupuytren's contracture when the metacarpophalangeal joints cannot be straightened and thus the hand cannot be placed flat on the table

Important for meLess important

Dupuytren's contracture is a condition of the palmar fascia causing it to fibrose and become stiff. This causes contraction of the affected fingers, in this case the ring and little finger of the right hand.

Management of Dupuytren's contracture is dependant on the severity of the condition. If the condition is severe, as is the case here (she can't place a hand flat on the table and she is having trouble at work), you should refer for secondary intervention by a specialist. This can either be in the form of surgery or injectable enzyme therapy. This makes option 5 the correct answer.

Option 3, to inject enzyme therapy, may occur later down the line, however nice recommend that this injectable enzyme therapy only is initiated by a specialist and thus referral to a hand specialist (option 5) is the most correct answer.

If the condition is deemed to be minor, for example, if there is no real effect on quality of life, then you can treat the condition in primary care. This will take the form of reassurance that it may improve with time, regular reviews and advise on when to return to be referred.

Corticosteroid injections have no place in the treatment of Dupuytren's.

As this is not an acute problem, she should not be advised to attend the emergency department

Question:

A 65-year-old man complains of palpitations. He has an ECG which shows atrial fibrillation (AF). When you review him, he tells you that his palpitations have now resolved and he feels back to normal. On examination, his pulse is regular and his observations are within a normal range. A repeat ECG shows sinus rhythm. He has no significant past medical history and takes no regular medications.

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

A.Advise that is his symptoms return, he should call back and have another ECG

B.Start antiplatelet therapy

C.Start warfarin

D.Calculate his CHA2DS2-VASc score and consider a direct oral anticoagulant (DOAC)

E.Arrange a 24 hour ECG

Answer:Calculate his CHA2DS2-VASc score and consider a direct oral anticoagulant (DOAC)

Explanation:

A single episode of paroxysmal atrial fibrillation, even if provoked, should still prompt consideration of anticoagulation

Important for meLess important

This patient has had an episode of paroxysmal atrial fibrillation. According to National Institute of Clinical Excellence (NICE) CKS guidance, his CHA2DS2-VASc score should be calculated, and a DOAC considered if the score is 1 or more. His CHA2DS2-VASc is 1 (as he is 65). Therefore, you should calculate his ORBIT score (to calculate his risk of bleeding). If appropriate, you should then have a conversation with him regarding starting a DOAC.

Although safety netting and asking the patient to return if symptoms persist is important, he is at increased risk of a stroke after an episode of paroxysmal atrial fibrillation. This needs to be discussed with the patient in the context of starting anticoagulant medication. It would not be appropriate not to do anything at this stage and then ask him to return if his symptoms recur.

Antiplatelets (aspirin and clopidogrel) are not usually used in the management of atrial fibrillation but are used in a variety of other cardiovascular problems such as ischaemic heart disease and peripheral vascular disease. In this scenario, the patient is normally fit and well so there is no indication for antiplatelets.

Warfarin is used in atrial fibrillation, but DOACs are the first line in those with atrial fibrillation without valvular heart disease. If the patient also had valvular heart disease and required anticoagulation, they would need to be started on warfarin.

24 hour ECGs are often used for patients with persistent palpitations and no clear cause, as there is a greater chance of catching an abnormal rhythm over 24 hours than in a normal 10 second ECG. However, this patient has already had an ECG that identifies the abnormal rhythm, so a 24 hour ECG would not add anything to his management at this point.

Question:

A 40-year-old woman presents to the emergency department with a 24-hour history of fever, headache, and neck stiffness. She has no significant past medical history and no allergies.

Her observations are currently within normal range, and there are no obvious rashes on visual inspection. Her GCS is 15/15.

After a discussion with a senior, it is decided that a lumbar puncture is needed. However, due to departmental pressures, it is unlikely that a lumbar puncture can be performed within the next hour.

Of the options, which is the most appropriate next step in management?

A.Await lumbar puncture results

B.IV ceftriaxone + IV amoxicillin immediately

C.IV ceftriaxone + IV fluconazole immediately

D.IV ceftriaxone immediately

E.IV ceftriaxone immediately after lumbar puncture, to prevent sterilisation of cerebrospinal fluid

Answer:IV ceftriaxone immediately

Explanation:

Patients with suspected viral meningitis often receive empirical antibiotics until the lumbar puncture results are reported, particularly if elderly or immunocompromised

Important for meLess important

The question stem gives a history in keeping with meningitis, namely a young individual presenting with fever, headache, and neck stiffness. To increase clinical diagnostic confidence, a number of tests may be performed such as attempting to elicit Kernig's or Brudzinski's signs. However, due to the morbidity and mortality associated with bacterial meningitis, the emphasis must be placed on avoiding severe detrimental consequences of such a diagnosis, even if the pre-test probability is relatively low. Hence the need to start treatment prior to diagnostic certainty. Any delay, including until cerebrospinal fluid is collected risks severe consequences for the patient.

Viral meningitis is more common and typically less severe than bacterial meningitis, particularly in younger adults, with an estimated incidence of 2.73 per 100 000 for viral causes and 1.24 per 100 000 for bacterial causes. However, as a viral aetiology cannot be clinically distinguished from bacterial with sufficient specificity, current guidelines suggest that empirical antibiotics should be commenced if lumbar puncture is not able to be performed within an hour. Therefore, intravenous ceftriaxone is correct.

IV fluconazole is used to treat severe fungal infections. This is unlikely in an immunocompetent patient and there is no information in the question stem to suggest that the patient is otherwise. However, antifungals may be started if further investigations, such as a lumbar puncture or blood cultures, suggest fungal infection.

IV amoxicillin is typically reserved for those with either immunocompromise, under the age of 6 months, or over the age of 60 years, due to a need to cover for Listeria monocytogenes.

Question:

Claire, 36, is brought in to the Emergency Department following falling down the stairs at home. On arrival it is noted that she has periorbital and post auricular bruising. What is this highly suggestive of?

A.Nasal fracture

B.Orbital fracture

C.Traumatic brain injury

D.Fracture of the cervical spine

E.Basilar skull fracture

Answer:Basilar skull fracture

Explanation:

The correct answer for this question is basilar skull fracture.

The symptoms that are mentioned in the question are two of the classical signs synonymous with basilar skull fractures; periorbital bruising referring to the bruising around the eye that is otherwise known as Raccoon eyes, and post-auricular bruising referring to bruising of the mastoid otherwise known as Battle's sign.

Question:

A 60-year-old man has just been treated for a peptic ulcer which had evidence of Helicobacter pylori. He is otherwise fit and well, with no other medical problems. He currently takes Helicobacter pylori eradication therapy medication and says he feels much better when he sees his GP. However, the next day the patient experiences palpitations, shortness of breath and dizziness. The patient has no allergies other than metronidazole. The ambulance is called and they perform an ECG on the patient whilst he is awake.

What will the ECG most likely show?

A.Atrial fibrillation

B.Atrial flutter

C.Supra-ventricular tachycardia

D.Torsades de pointes

E.Ventricular fibrillation

Answer:Torsades de pointes

Explanation:

Macrolides can cause torsades de pointes

Important for meLess important

The treatment for Helicobacter pylori is typically a proton pump inhibitor (e.g. omeprazole) + 2 antibiotics; amoxicillin and either clarithromycin or metronidazole. Given the allergy to metronidazole, clarithromycin is the most likely antibiotic to be prescribed. The question requires you to know that this patient has just started a macrolide and one of the side effects of this is torsades de pointes. Macrolides can cause prolongation of the QT interval (long QT interval) which has serious complications including the risk of developing arrhythmias such as torsades de pointes.

Atrial fibrillation is a supraventricular tachycardia and long QT syndrome does not affect the atria, so this would be incorrect.

Atrial flutter is also a supraventricular tachycardia that presents similarly to atrial fibrillation.

Long QT syndrome doesn't affect the atria because the QT interval is associated with ventricular depolarisation, so any of the supraventricular tachycardias are unlikely. This includes atrial fibrillation and atrial flutter, as they arise from above the ventricles.

Torsades de pointes is likely to become ventricular fibrillation if it isn't treated, however, the patient hasn't lost consciousness - meaning ventricular fibrillation is unlikely.

Question:

A 30-year-old man comes for review. He lives with a woman who has recently been diagnosed with having tuberculosis. The man was born in the UK, has no past medical history of note and is currently asymptomatic. What is the most appropriate test to check for latent tuberculosis?

A.Heaf test

B.Mantoux test

C.Sputum culture

D.Chest x-ray

E.Interferon-gamma blood test

Answer:Mantoux test

Explanation:

The two main tests used for screening in the UK are the Mantoux (skin) test and the interferon-gamma (blood) test. Whilst the use of the interferon-gamma test is increasing it is still reserved for specific situations, none of which apply in this case. Please see the NICE guidelines for more details.

The Heaf test is no longer used in the UK.

Question:

A 17-year-old male presents to the Emergency Department having consumed seven paracetamol tablets, three cans of strong cider and three mouthfuls of bleach in an attempt to end his life. He reports feeling very anxious and low in mood the past week leading up to this event following a recent argument with his girlfriend. He feels he has no value in society and says he is 'better off dead' and hopes his girlfriend will understand how low he has been recently now he has almost ended his own life. He takes no regular medication and has no past medical history apart from depression for which he sees his GP. He has no relevant family history. He has attended the emergency department with suicide attempts seven times in the last four months. He has no history of deliberate self harm otherwise.

Which of the following features is needed to make a diagnosis of a personality disorder?

A.The presence of psychotic symptoms

B.The presence of a concurrent physical health condition

C.A history of substance abuse

D.Over 18 years of age

E.A family history of mental health disorders

Answer:Over 18 years of age

Explanation:

Personality disorders involve pervasive undesirable personality traits

Important for meLess important

A personality disorder is a pervasive pattern of behaviour which causes the individual long-term difficulties in their interpersonal relationships and functioning in society. The diagnosis can therefore only be made once a person's personality has fully developed and their adaptive behaviours have become fixed. Because of this, it is generally accepted that a personality disorder can only be diagnosed after the age of 18 but in practice it occurs many years later. The only exception is borderline personality disorder which may be diagnosed before then provided there is sufficient evidence the patient has fully undergone the process of puberty.

A family history of mental health disorders makes the likelihood of a patient having a mental health problem higher but it is not specific for personality disorders. A history of substance abuse is often present as a co-morbidity in those with personality disorders but it is not a diagnostic feature. Psychotic symptoms would point to the underlying condition not being a personality disorder as by definition these do not involve psychosis or persistent mood alterations. While a physical health condition can result in someone developing mental illness, especially a mood disorder, its presence is not a diagnostic feature of any mental health condition.

Question:

A 72-year-old man presents to the haematology clinic after being referred by his general practitioner with facial plethora and splenomegaly. The doctor decides to perform some blood tests that show the following:

Hb 208 g/L Male: (135-180)

Platelets 467 \* 109/L (150 - 400)

WBC 12.1 \* 109/L (4.0 - 11.0)

Haematocrit 0.71 (0.45 - 0.52)

JAK2 mutation positive

Given the most likely diagnosis, which one of the following medications should be prescribed?

A.Aspirin

B.Imatinib

C.Infliximab

D.Prednisolone

E.Warfarin

Answer:Aspirin

Explanation:

Polycythaemia vera: thrombotic events are a significant cause of morbidity and mortality

Important for meLess important

The correct answer is aspirin. This patient has polycythaemia vera, a myeloproliferative disorder caused by clonal proliferation of a marrow stem cell leading to an increase in red cell volume. A mutation in JAK2 is present in approximately 95% of patients. The classic splenomegaly and plethoric appearance, sometimes accompanied by pruritus following hot baths. These patients are at an increased risk of thrombotic events due to blood's hyperviscosity, hence to avoid mortality and morbidity they should be prescribed aspirin.

Imatinib is an inhibitor of the tyrosine kinase used as first-line treatment for chronic myeloid leukaemia (CML). Although splenomegaly could be a sign of CML, the positive JAK2 mutation makes a diagnosis of polycythaemia vera more likely.

Infliximab is a monoclonal antibody used in the treatment of patients with rheumatoid arthritis that had an inadequate response to at least two disease-modifying drugs including methotrexate. Rheumatoid arthritis would present with swollen, painful joints in the hands and feet and stiffness worse in the morning. This patient does not have these features making this diagnosis unlikely.

Prednisolone is used in the management of immune thrombocytopenia in adults. This patient's platelets are elevated, making this option incorrect.

Warfarin is an oral anticoagulant that has no role in the management of polycythaemia vera.

Question:

A 66-year-old woman visits the outpatient department for a review of her osteoporosis, where she is booked in for a DEXA scan. Her T-score from her scan is recorded as -1.6, suggesting reduced bone mineral density. Her consultant wishes to calculate her Z-score.

Which patient factors are required to calculate this?

A.Age, BMI, ethnicity

B.Age, BMI, smoking history

C.Age, gender, BMI

D.Age, gender, ethnicity

E.Age, gender, smoking history

Answer:Age, gender, ethnicity

Explanation:

DEXA scans: the Z score is adjusted for age, gender and ethnic factors

Important for meLess important

DEXA scans: the Z-score is adjusted for age, gender, and ethnic factors. Therefore, option 4 is correct.

DEXA scores are reported as 'T-scores' and 'Z-scores'. The T-score is a comparison of a person's bone density with that of a healthy 30-year-old of the same sex. The Z-score is a comparison of a person's bone density with that of an average person of the same age, sex, and race.

The ethnicity of the patient may impact their overall bone mineral density (BMD). Some studies have shown that Black people tend to have a higher BMD than White and Hispanic people.

Question:

An elderly nursing home resident is admitted to the acute medical unit following a 'collapse'. She is on numerous medications including bisoprolol, lisinopril, furosemide, simvastatin, senna, co-codamol 30/500 and zopiclone. Her admission ECG is shown below:

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

What is suggested by the ECG?

A.Pericarditis

B.Incorrect lead placement by the person taking the ECG

C.Right bundle branch block

D.Wolff-Parkinson White syndrome

E.Hypokalaemia

Answer:Hypokalaemia

Explanation:

This patient is hypokalaemic, probably secondary to furosemide therapy.

The ECG findings are:

prominent U-waves, best seen in precordial leads

T waves have a 'sine wave' appearance

prolonged QTc > 600ms

borderline PR interval

Question:

A 9-month-old boy has been referred to you by the out of hours GP. His parents give a 24-hour history of increased work of breathing, coryzal symptoms, lethargy and reduced oral intake. On examination, you note fine inspiratory crackles and subcostal recessions. He is pyrexial (37.9ºC) and oxygen saturations are 91% in air.

What is the next most appropriate course of action?

A.Admission for full septic screen

B.Discharge with a course of oral antibiotics

C.Admission for intravenous antibiotics

D.Admit for observation and oxygen therapy

E.Discharge as this is a self limiting disease

Answer:Admit for observation and oxygen therapy

Explanation:

This child has bronchiolitis. A lower respiratory tract infection commonly caused by respiratory syncytial virus. The disease is usually self-limiting, but it is important to note that some children deteriorate in the first 72 hours of the illness. NICE recommend admission if any of the following criteria are present:

Apnoea (observed or reported)

Persistent oxygen saturation of <92% in air

Inadequate oral fluid intake (<50% of normal fluid intake)

Persisting severe respiratory distress, for example grunting, marked chest recession, or a respiratory rate of over 70 breaths/minute

Question:

Christine is a 40-year-old lady with a body mass index of 35 kg/m2 who has just found out she is pregnant. She has a background of epilepsy, familial hypercholesterolaemia, type 2 diabetes and sciatica.

Which of her medications should she stop taking in her pregnancy?

A.Paracetamol

B.Lamotrigine

C.Simvastatin

D.Metformin

E.Insulin

Answer:Simvastatin

Explanation:

Pregnancy is a contraindication to statin therapy

Important for meLess important

Paracetamol is safe to use during pregnancy.

Although there is a risk of neurodevelopmental effects in the foetus with all anti-epileptics, lamotrigine appears to have a lower risk than other anti-epileptics and is therefore preferred in pregnancy. All pregnant women on anti-epileptics should take 5mg folic acid prior to conception and at least until the end of the first trimester.

Metformin and insulin are used to treat gestational diabetes and pre-existing diabetes in pregnancy.

According to the BNF, all statins should be avoided in pregnancy as congenital anomalies have been reported.

Question:

A 79-year-old woman with a known history of hypertension, gout, and complex regional pain syndrome is recovering on the ward following a total hip replacement for a subcapital fracture neck of the femur. Drug history includes amlodipine 10mg OD, allopurinol 100mg OD, pregabalin 150mg BD, and paracetamol 1g QDS. She is on patient-controlled analgesia (PCA) pump which she uses for regular administration of IV morphine. She calls the ward sister complaining of suprapubic pain and an inability to pass urine.

Which medication is most likely to have caused these symptoms?

A.Allopurinol

B.Amlodipine

C.Morphine

D.Paracetamol

E.Pregabalin

Answer:Morphine

Explanation:

Opioid analgesia is a common cause of urinary retention

Important for meLess important

Opioids, such as morphine, are a common cause of urinary retention. Given also that morphine is a medication that was newly started, this is more likely to be the cause of this patient's urinary retention. This patient will need a two-way catheter initially to relieve her symptoms. The medications which are known to cause urinary retention include tricyclic antidepressants, anticholinergics, opioids, NSAIDs, and disopyramide.

Allopurinol is known to cause toxic epidermal necrolysis as a rare side effect. It does not cause urinary retention.

Amlodipine is a calcium channel blocker used in the treatment of hypertension. It is not known to cause urinary retention; a common side effect is leg swelling.

Paracetamol is generally a very safe medication and is not known to cause urinary retention. Half dose (500mg QDS) is given to those with renal impairment and those weighing under 50kg.

Pregabalin is primarily used for neuropathic pain. It rarely causes urinary retention but can cause drowsiness, dry mouth and mood disturbances.

Question:

A 71-year-old man presents to the GP with a cough. This has been persistent for the past two months and is non-productive although he has experienced some haemoptysis. Upon further questioning he describes having lost approximately five kilograms in the same time period. He has a fifty year pack history of smoking and drinks four pints of beer a week.

On examination, he appears cachectic and there is bilateral gynaecomastia. There are no abnormalities on auscultation of the chest.

What is the most likely diagnosis?

A.Adenocarcinoma of the lung

B.Carcinoid tumour of the lung

C.Idiopathic pulmonary fibrosis

D.Small cell lung cancer

E.Squamous cell lung cancer

Answer:Adenocarcinoma of the lung

Explanation:

Gynaecomastia - associated with adenocarcinoma of the lung

Important for meLess important

Weight loss and persistent cough in a smoker is suggestive of lung cancer. Out of the cancers listed, adenocarcinoma of the lung is the most likely to be the cause of gynaecomastia.

Adenocarcinoma is the most common lung cancer in non-smokers but is still heavily smoking-associated. The paraneoplastic syndromes most associated with this cancer are gynaecomastia and hypertrophic pulmonary osteoarthropathy.

Carcinoid tumour of the lung is unlikely in this case due to this being a very rare subtype of lung cancer and differing in presentation. The most likely presentation of a carcinoid tumour would be carcinoid syndrome, which is characterised by recurrent episodes of flushing and diarrhoea due to the release of serotonin and other hormones by the tumour.

Idiopathic pulmonary fibrosis would be unlikely to present with haemoptysis and would likely have fine inspiratory crackles on auscultation. This patient's history is more suggestive of cancer.

Small cell lung cancer (SCLC) is a common cause of paraneoplastic syndromes but gynaecomastia is more associated with adenocarcinoma. SCLC more commonly causes SIADH, ectopic ACTH secretion and Lambert-Eaton myasthenic syndrome.

Squamous cell lung cancer is another common subtype of non-small cell lung cancer, but is less associated with gynaecomastia. It more commonly causes clubbing, hypercalcaemia and hypertrophic pulmonary osteoarthropathy.

Question:

You review a 70-year-old woman four days after she was admitted with a suspected stroke. Unfortunately she has been left with right sided sensory loss affecting her arms more than the legs and a right sided homonymous hemianopia. Functionally she has difficulty dressing her self. Examination of her cranial nerves is unremarkable. What area is the stroke most likely to have affected?

A.Middle cerebral artery

B.Lacunar

C.Anterior cerebral artery

D.Posterior cerebral artery

E.Posterior inferior cerebellar 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

Question:

A 19-year-old motorcyclist is involved in a road traffic accident. His chest movements are irregular. He is found to have multiple rib fractures, with 2 fractures in the 3rd rib and 3 fractures in the 4th rib. What is the underlying diagnosis?

A.Simple rib fractures

B.Flail chest injury

C.Cardiac tamponade

D.Pneumothorax

E.Aortic rupture

Answer:Flail chest injury

Explanation:

Multiple rib fractures with > or = 2 rib fractures in more than 2 ribs is diagnosed as a flail chest. This is associated with pulmonary contusion.

Question:

A 50-year-old man presents with significant pain in the right first metatarsophalangeal joint that started quickly overnight. He has tried taking paracetamol but this failed to reduce the pain sufficiently. On closer inspection, there appears to be much effusion around the joint, which is also tender to palpation. The patient is at the end of his second month of being treated for tuberculosis.

The patient’s pulse is 89 bpm, respiratory rate is 14/min, temperature is 37.1oC, and blood pressure is 130/82 mmHg. A joint aspirate sample is taken.

What will inspection of the joint aspirate likely reveal?

A.Needle-shaped negatively birefringent crystals on microscopy

B.Needle-shaped positively birefringent crystals on microscopy

C.Rhomboid-shaped negatively birefringent crystals on microscopy

D.Rhomboid-shaped positively birefringent crystals on microscopy

E.Yellow/green and cloudy aspirate

Answer:Needle-shaped negatively birefringent crystals on microscopy

Explanation:

Joint aspiration in gout shows needle-shaped negatively birefringent monosodium urate crystals under polarised light

Important for meLess important

The correct answer is Needle-shaped negatively birefringent crystals on microscopy. This patient has an acute flare of gout, with the risk of developing a gout flare increased due to his age. It is also significantly increased due to his use of anti-tuberculous medications; he is likely being treated using rifampicin, isoniazid, pyrazinamide, and ethambutol, of which pyrazinamide and ethambutol can increase uric acid levels.

Needle-shaped positively birefringent crystals on microscopy is incorrect as urate crystals are negatively birefringent.

Rhomboid-shaped negatively birefringent crystals on microscopy is incorrect as urate crystals are needle-shaped.

Rhomboid-shaped positively birefringent crystals on microscopy is incorrect as this refers to calcium pyrophosphate deposition disease, commonly referred to as 'pseudogout'. Given the clinical history and the risk factors for developing gout, pseudogout is less likely.

A yellow/green and cloudy aspirate is incorrect as this describes a septic joint, which is unlikely to be the case here given the lack of systemic illness.

Question:

An overweight 12-year-old boy presents to clinic for review of treatment for diabetes mellitus. He originally presented with polyuria and polydipsia. It is written in the previous notes that there is no clear consensus as to whether the diagnosis is type 1 or type 2 diabetes mellitus. Maturity onset diabetes of the young (MODY) is considered unlikely as there is no parental history of diabetes. Which of the following investigations is most useful at this stage to help differentiate between these diagnoses?

A.C-peptide

B.Random glucose

C.Glomerular filtration rate

D.Full blood count

E.Genetic testing

Answer:C-peptide

Explanation:

NICE guideline:

Consider measuring C-peptide after initial presentation if there is difficulty distinguishing type 1 diabetes from other types of diabetes. Be aware that C-peptide concentrations have better discriminative value the longer the interval between initial presentation and the test.

C-peptide will be low in individuals with type 1 diabetes mellitus (as the pancreas is not making enough insulin precursor, which breaks down to form C-peptide and insulin) , and normal or high in individuals with type 2 mellitus.

Source: https:www.nice.org.uk/guidance/ng18/chapter/1-Recommendations#diagnosis

Question:

A 62-year-old woman presents with painful 'bruises' on her shins and forearms.

© Image used on license from DermNet NZ

She cannot remember knocking herself. What is the most likely diagnosis?

A.Idiopathic thrombocytopenic purpura

B.Erythema ab igne

C.Thrombotic thrombocytopenic purpura

D.Erythema nodosum

E.Cellulitis

Answer:Erythema nodosum

Explanation:

Question:

A 24-year-old woman presents to the emergency department with intermittent abdominal pain and vaginal bleeding. She thinks her last period was 6 weeks ago but cannot be certain. She has never been pregnant before and has no previous gynaecological history.

She is systemically well with a blood pressure of 130/85 mmHg and pulse 79 bpm. A pregnancy test performed in the department is positive and transvaginal ultrasound confirms a pregnancy in the adnexa with a fetal heart beat present. What is the most appropriate management in this case?

A.Reassure and discharge with routine follow-up appointment

B.Mifepristone and misoprostol

C.Admit and observe

D.Surgical management - salpingectomy or salpingotomy

E.Methotrexate

Answer:Surgical management - salpingectomy or salpingotomy

Explanation:

This patient has a confirmed ectopic pregnancy. There is no evidence the pregnancy has ruptured but definitive treatment is still the safest course.

Expectant management of ectopics may be an option in those without acute symptoms and declining beta-HCG levels. Close monitoring is essential and intervention is advised if symptoms manifest or beta-HCG levels begin to rise.

The presence of a fetal heart beat makes both conservative and medical management unlikely to be successful and also risky in terms of rupture, which would be a medical emergency.

Surgical removal of the ectopic is the most appropriate option here. If the contralateral tube is healthy then salpingectomy may be the best option. However, if the contralateral tube is damaged, salpingotomy preserves the functional tube and helps minimise the risk of future infertility.

Question:

A 34-year-old female presents to her GP for advice regarding contraception. She recently began seeing a new partner following a divorce and wants to begin the combined oral contraceptive pill. Her body mass index is 32 kg/m² and she is an ex-smoker, previously smoking 20 per day quitting 2 years previously. Her medical history is significant for frequent migraines as a teenager with no preceding aura, factor V Leiden disease and gestational hypertension during the pregnancy of her 2-year-old daughter. Which element of her history is the most significant contraindication to the combined oral contraceptive?

A.History of gestational hypertension

B.High BMI

C.Smoking history

D.Factor V Leiden

E.Migraine history

Answer:Factor V Leiden

Explanation:

This question focuses on the different contraindications for the combined oral contraceptive. From NICE guidelines, the only absolute contraindication in the patients history is factor V leiden (a UKMEC 4 level, - unacceptable health risk) whereas the other elements of the history fall into UKMEC 3 - where the disadvantages generally outweigh the benefits. However, it should also be noted that some concurrent UKMEC 3 contraindications may, in combination, be absolute contraindications. Guidelines should therefore be studied carefully prior to prescribing.

Question:

Which of the following checks is not a part of the WHO (World Health Organisation) Surgical Safety Checklist before the induction of anaesthesia?

A.Does the patient have any allergies?

B.Is the pulse oximeter on the patient and functioning?

C.Does the patient have 12-lead ECG monitoring in place?

D.Is the site marked?

E.Is the anaesthesia machine and medication check complete?

Answer:Does the patient have 12-lead ECG monitoring in place?

Explanation:

Checklists have been identified as a hugely effective tool to reduce mistakes in medicine and also in other fields, such as the aviation industry. A Surgical Safety Checklist has been developed by the World Health Organisation (WHO) to reduce the occurrence of the most common surgical mistakes.

The checklist identifies three phases of an operation:

1) Before the induction of anaesthesia (sign in)

2) Before the incision of the skin (time out)

3) Before the patient leaves the operating room (sign out).

In each phase, a checklist coordinator must confirm that the surgery team has completed the listed tasks before proceeding with the operation.

Before the induction of anaesthesia, the following must have been checked:

Patient has confirmed: Site, identity, procedure, consent

Site is marked

Anaesthesia safety check completed

Pulse oximeter is on patient and functioning

Does the patient have a known allergy?

Is there a difficult airway/aspiration risk?

Is there a risk of > 500ml blood loss (7ml/kg in children)?

You can see the full checklist here:

http://www.who.int/patientsafety/safesurgery/toolsresources/SSSLChecklistfinalJun08.pdf?ua=1

Question:

A 71-year-old man who is known to have atrial fibrillation comes for review. He had a transient ischaemic attack two weeks ago and takes bendroflumethiazide for hypertension but is otherwise well. His latest blood pressure is 124/76 mmHg. You are discussing management options to try and reduce his future risk of having a stroke. What is his CHA2DS2-VASc score?

A.1

B.2

C.3

D.4

E.5

Answer:4

Explanation:

One point for hypertension, one point for being over the age of 65 years (but under the age of 75 years) and two points ('S2') for the recent TIA.

Question:

The mother of a 4-year-old boy comes to surgery as she is concerned he is still wetting the bed at night. This is in contrast to his older brother who was dry at night by the age of 3 years. She is wondering if there is any treatment you can offer. What is the most appropriate management?

A.Trial of oral desmopressin

B.Enuresis alarm

C.Discourage fluids at night

D.Trial of intranasal desmopressin

E.Reassurance and advice on fluid intake, diet and toileting behaviour

Answer:Reassurance and advice on fluid intake, diet and toileting behaviour

Explanation:

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

Important for meLess important

Nocturnal bedwetting is still very common at 4 years and the mother should be reassured

Question:

A 45-year-old woman presents to the emergency department after noticing some twitching and cramping in her arms and legs. She has also noticed some tingling around her mouth and has no past medical history.

On examination, she is afebrile, her heart rate is 65 bpm, and her blood pressure is 132/75 mmHg. When measuring her blood pressure, her wrist flexes and her fingers are drawn together. No other abnormalities are noted.

Initial tests show:

Na+ 140 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Calcium 1.9 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

The ECG shows sinus rhythm with a QTc of 605 ms.

What is the most appropriate next step in her management?

A.IV 0.9% sodium chloride

B.IV calcium chloride

C.IV calcium gluconate

D.Oral calcium resonium

E.Oral cholecalciferol

Answer:IV calcium gluconate

Explanation:

Intravenous calcium gluconate is used for the acute management of hypocalcaemia

Important for meLess important

Muscle twitching, cramping, spasms, perioral tingling, and the presence of Trousseau's sign (carpal spasms when measuring blood pressure characterised by wrist flexion and the fingers being drawn together) suggest neuromuscular excitability secondary to hypocalcaemia. Hypocalcaemia can also cause QT prolongation as seen in this patient (QTc is prolonged if >440ms in men or >460ms in women), and the result is confirmed on her blood tests. It requires urgent treatment due to the risk of complications such as arrhythmia, which can be potentially life-threatening.

IV calcium gluconate is correct as the BNF recommends that it should be given to patients with acute severe hypocalcemia or hypocalcaemic tetany. ECG and serum calcium monitoring should also be performed due to the risk of arrhythmia if given too rapidly.

IV 0.9% sodium chloride is incorrect. This is the first-line step in managing hypercalcaemia, which would present differently with features that can be remembered using 'bones (bone pain), stones (renal stones), abdominal groans (nausea and constipation), and psychiatric moans (low mood and depression)'. These features are not present in this patient. This may also be used if there are signs of dehydration, however, its use alone is unlikely to address this patient's hypocalcaemia.

IV calcium chloride is incorrect. Although this may also be used, it is more irritant and can cause tissue necrosis if it is extravasated (leakage from the vein into surrounding tissues). Calcium gluconate is used in preference as it is not as strongly associated with this effect.

Oral calcium resonium is incorrect as it does not play a role in the management of hypocalcaemia. It is instead used in hyperkalaemia to remove potassium from the body.

Oral cholecalciferol is incorrect. Although this may be given to prevent future episodes of hypocalcaemia, this would not address her acute hypocalcaemia as effectively, which requires more urgent treatment due to the risk of complications mentioned above.

Question:

A 65-year-old active builder presents to the emergency department. He presents with a 2-day history of fever and left-sided scrotal pain with swelling. Prior to this 10 days ago he had a urinary tract infection which seemed to subside after antibiotics. Past history includes a diagnosis of benign prostatic hyperplasia (BPH) where he is on the waiting list for transurethral resection of the prostate. He is still sexually active with his wife and he states that he has never had a sexually transmitted disease.

What is the most likely causative organism of his condition?

A.Enterococcus faecalis

B.Neisseria gonorrhoea

C.Chlamydia trachomatis

D.Klebsiella pneumoniae

E.Escherichia coli

Answer:Escherichia coli

Explanation:

Epididymo-orchitis in individuals with a low STI risk (e.g. married male in 50s, wife only partner) is likely due to enteric organisms (e.g. E. coli)

Important for meLess important

The pain, swelling and previous UTI point towards epididymitis.

Escherichia coli is the most common causative organism in older adults especially with a prior diagnosis of BPH. Neisseria gonorrhoea and Chlamydia trachomatis are the most likely cause in younger men. Klebsiella pneumoniae and Enterococcus faecalis are enteric organisms that rarely cause epididymitis.

Question:

A 32-year-old woman presents to the obstetric department in the early stages of labour. She is 36+4 weeks gestation and the current pregnancy has been complicated by polyhydramnios. On examination, the foetal head can be palpated at the right side of the maternal pelvis and the buttocks can be palpated at the left side of the maternal pelvis. The amniotic sac is intact.

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

A.Conservative management

B.Offer elective caesarean section

C.Offer external cephalic version

D.Offer immediate caesarean section

E.Offer oxytocin

Answer:Offer external cephalic version

Explanation:

You can attempt external cephalic version for a transverse lie if the amniotic sac has not ruptured

Important for meLess important

The correct answer is to offer external cephalic version (ECV). This patient is presenting in early labour at 36+4 weeks gestation with a transverse foetal lie. Despite the patient being in the early stages of labour, there is no contra-indication to ECV as the amniotic sac is intact. This should therefore be initially offered before other management options are considered.

Conservative management is incorrect as this patient is going into labour with a transverse foetal lie. This is very dangerous and could result in both maternal and foetal death.

Offer elective caesarean section is inappropriate. While the patient may need a caesarean section, ECV should be offered initially and a caesarean section is unlikely to be scheduled on an elective basis for a patient in early labour.

Offer immediate caesarean section is incorrect as there is no contraindication to ECV which should therefore be offered initially.

Offer oxytocin is incorrect and very dangerous as this would increase the strength of uterine contractions.

Question:

Nicorandil is most useful in the management of:

A.Hypertension

B.Heart failure

C.Angina

D.Atrial fibrillation

E.Acute coronary syndrome

Answer:Angina

Explanation:

Nicorandil is a potassium channel activator which has a vasodilatory effect on the coronary arteries. Side-effects include headache, flushing

and anal ulceration.

Question:

An 8-year-old boy is reviewed in the Enuresis clinic. He is still wetting the bed at night despite using an enuresis alarm for the past three months. There are no problems with micturition during the daytime and he passes one soft stool everyday. Which one of the following treatments is most likely to be offered?

A.Lactulose

B.Desmopressin

C.Cognitive behavioural therapy

D.Imipramine

E.Duloxetine

Answer:Desmopressin

Explanation:

Question:

A 10-year-old boy is brought to the general practitioner by his mother. She is concerned that he is not quite himself at the moment. She thinks he is looking paler than usual and over the last few weeks, he has been much more tired than usual despite no change in his daily routine. She says that he has also had several coughs and colds in the last month which is unusual for him. His vital signs are all normal and on examination, you note some pallor but no other abnormalities. What should be the next step to investigate this patient?

A.Routine FBCs within 2 weeks

B.FBC to be performed within 48 hours

C.Bone marrow biopsy to be performed within 48 hours

D.Lymph node biopsy to be performed within 2 weeks

E.Bone marrow biopsy to be performed within 2 weeks

Answer:FBC to be performed within 48 hours

Explanation:

Very urgent full blood count to assess for leukaemia in children and young people (0-24yrs) with features suspicious of leukaemia

Important for meLess important

This child has features suspicious of leukaemia including pallor, persistent fatigue and unexplained persistent infections. The most urgent differential to rule out is leukaemia which should be investigated for initially by a full blood count. This should be performed within 48 hours.

A lymph node biopsy and bone marrow biopsy might be relevant down the line, but for the time being are not necessary.

Question:

A 29-year-old woman with type 1 diabetes attends her GP complaining that, despite carefully monitoring, her blood glucose readings have been persistently high for the past few days. Her past medical history includes asthma, for which she uses salbutamol PRN, and hay fever, treated with loratadine. She is also 8 weeks pregnant and is taking daily folate. Earlier this week, she attended the emergency department due to an asthma attack and was prescribed a 5-day course of prednisolone.

Which of the following is likely to be causing this patient's hyperglycaemia?

A.Folate

B.Pregnancy

C.Salbutamol

D.Loratadine

E.Prednisolone

Answer:Prednisolone

Explanation:

Use of corticosteroids can worsen diabetic control due to their anti-insulin effects

Important for meLess important

Corticosteroids oppose the action of insulin and stimulate hepatic gluconeogenesis. Even a short course of corticosteroids can adversely affect glycaemic control.

Pregnancy can affect diabetic control and increase insulin requirements, however, this isn't typically seen until the second half of pregnancy thus steroid use is the more likely culprit. There are reports of large doses of IV salbutamol causing hyperglycaemia but small inhaled PRN doses are unlikely to be significant. Folate and loratadine are not known to have any effect on glycaemic control.

Question:

A 6-week-old male baby is brought to their GP for the 6-week check up. The GP notices that one side of his scrotum is larger than the other. On palpation, there is a soft smooth swelling anterior to and below the testis, that transilluminates. The baby's mother thinks it has always looked like that. There is no erythema or signs of infection, and the baby is otherwise well and looks comfortable.

Given the likely diagnosis, what is the most appropriate management plan?

A.Arrange for urgent surgical repair

B.Therapeutic aspiration

C.Reassurance, and surgical repair if it does not resolve within 1-2 years

D.Reassurance, and surgical repair if it does not resolve within 4-5 years

E.Arrange for routine surgical repair in the next 6 months

Answer:Reassurance, and surgical repair if it does not resolve within 1-2 years

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 baby has a congenital hydrocele, which is common in newborn male babies. They usually resolve within a few months, so reassurance and observation is usually the only management necessary. If it doesn't resolve, you would need elective surgery once the child reaches 1-2 years of age, to avoid complications such as an incarcerated hernia.

Urgent surgical repair is not necessary, from the description it sounds like a simple hydrocele which does not require urgent surgery. This would however be the case if there was a suspicion of testicular torsion or a strangulated hernia.

Therapeutic aspiration is incorrect. This is sometimes an option in elderly men with hydrocele who are not fit for surgery, or in very large hydroceles.

Reassurance and surgical repair if it does not resolve within 4-5 years is incorrect, as you would usually start thinking about surgery at 1-2 years.

Arrange for routine surgical repair in the next 6 months is incorrect. This baby is only 6 weeks old and hydroceles often resolve on their own within a few months, so it would be unnecessary to arrange surgery so early on.

Question:

A 54-year-old man is admitted to the hospital following a four-day history of diarrhoea.

He has type II diabetes mellitus, hypertension, and chronic renal impairment. His regular medications include metformin, gliclazide, ramipril, and amlodipine.

On assessment, he is confused, hypotensive with a blood pressure of 84/44 mmHg, and tachycardic with a heart rate of 110 bpm. Venous blood gas was performed.

pH 6.9 (7.35 - 7.45)

Bicarbonate 8 mmol/L (22 - 28)

Base excess -16 (-2 - 2)

Lactate 11.2 mmol/L (< 1.0)

Na+ 148 mmol/L (135 - 145)

K+ 5.0 mmol/L (3.5 - 5.0)

Cl- 97 mmol/L (95-105)

Glucose 12.4 mmol/L (3.9 - 5.8)

What is the most likely cause of his metabolic derangement?

A.Acute renal impairment

B.Adrenal insufficiency

C.Diabetic ketoacidosis

D.Diarrhoea

E.Lactic acidosis

Answer:Lactic acidosis

Explanation:

Although rare, lactic acidosis is an important side-effect of metformin

Important for meLess important

Lactic acidosis is the correct answer. This is likely the result of metformin therapy, for which lactic acidosis is a recognised adverse event. This diagnosis is supported by the raised anion metabolic acidosis (43, normal range 4 - 12 mmol/L), markedly raised venous lactate, and features of haemodynamic compromise. Lactic acidosis in this scenario has little to do with tissue hypoxia or hypoperfusion. Instead, it results from activation of the alternate metabolic pathway of pyruvate, which leads to hyperlactatemia. Lactate acid dissociates immediately into lactate and hydrogen ions, driving acidosis.

Acute renal impairment is not correct. Whilst this patient may have an acute kidney injury on a background of chronic renal impairment, the significantly raised lactate would suggest another driving aetiology.

Adrenal insufficiency is not correct. Whilst this diagnosis should be considered in any patient with hypotension and metabolic disturbances, the electrolyte pattern seen here would be atypical for acute adrenal insufficiency. Classically, you would expect to find hyponatraemia as a result of aldosterone deficiency. Furthermore, you would expect a normal anion gap metabolic acidosis rather than the raised anion gap demonstrated in this scenario.

Diabetic ketoacidosis is not correct. DKA is an uncommon finding in patients with type II diabetes mellitus. The venous blood glucose, in this case, is also not markedly raised, meaning an alternative cause for the metabolic disturbances should be sought.

Diarrhoea is not correct. Diarrhoea, if severe, can cause metabolic disturbances. Generally, this would be a normal anion gap metabolic acidosis with hyponatraemia and hypokalemia. You would typically not expect to find a venous lactate value as high as 11.2 mmol/L with diarrhoea.

Question:

A 26-year-old woman who is known to have type 1 diabetes mellitus presents with a three-month history of diarrhoea, fatigue and weight loss. She has tried excluding gluten from her diet for the past 4 weeks and feels much better. She requests to be tested so that a diagnosis of coeliac disease is confirmed. What is the most appropriate next step?

A.Check her HbA1c

B.No need for further investigation as the clinical response is diagnostic

C.Check anti-endomysial antibodies

D.Arrange a jejunal biopsy

E.Ask her to reintroduce gluten for the next 6 weeks before further testing

Answer:Ask her to reintroduce gluten for the next 6 weeks before further testing

Explanation:

Patients must eat gluten for at least 6 weeks before they are tested

Important for meLess important

Serological tests and jejunal biopsy may be negative if the patient is following a gluten-free diet. The patient should eat some gluten in more than one meal every day for at least 6 weeks before further testing.

Question:

Which one of the following drugs is contra-indicated whilst breast feeding?

A.Aminophylline

B.Carbamazepine

C.Sodium valproate

D.Methyldopa

E.Amiodarone

Answer:Amiodarone

Explanation:

Amiodarone in breastfeeding must be avoided

Important for meLess important

Question:

A 56-year-old man is admitted with acute retention of urine. He has had a recent urinary tract infection. An USS shows bilateral hydronephrosis. What is the best course of action?

A.Antegrade ureteric stents

B.Retrograde ureteric stents

C.Urethral catheter

D.Bilateral nephrostomy

E.Suprapubic catheter

Answer:Urethral catheter

Explanation:

Establishing bladder drainage will often correct the situation. These patients often have a significant diuresis with associated electrolyte disturbance. The urethral route should be tried first.

Question:

You are attending a morbidity and mortality meeting after a child has died on the 20th day after birth. As a result of this patient's death a debate occurs over the classification of their death.

Which of the following the correct classification of the death in this case?

A.Late perinatal death

B.Neonatal death

C.Puerperal death

D.Inevitable miscarriage

E.Early perinatal death

Answer:Neonatal death

Explanation:

Neonatal death is defined as babies dying between 0-28 days of birth

Important for meLess important

Neonatal death is defined as a death in the first 28 days of life.

Although classification of death seems a niche topic, this is crucial for public health interventions and is a common topic of exams.

Neonatal death is defined as death within the first 28 days of life, whereas miscarriage (in the UK) is death in utero before 24 weeks of gestation. Globally, miscarriage is defined as a death in utero before 28 weeks, as there is a higher threshold for viability.

Puerperal death refers to a maternal death within the puerperal period (first 6 weeks after birth).

Perinatal death is a term sometimes used to classify deaths that are a result of obstetric events, the term encompasses stillbirths and deaths within the first week of life.

It is neonatal deaths not perinatal deaths that are further categorised as 'early' or 'late'. An early neonatal death refers to a death within the first week of life. A late neonatal death refers to death after 7 days of life, but before 28 days.

Question:

Dawn, a 14-year-old with learning difficulties, attends her GP surgery. After a practice meeting, it is deemed that Dawn lacks the capacity to make decisions about her own medical treatment. When making decisions on Dawn's behalf, which of the following principles are most important?

A.Discouraging her involvement in the decision-making process as she has learning difficulties and is under 16

B.Consent may be given by one parent for the treatment that is in her best interests

C.The decision which will make both her parents most content is the most important

D.If one parent consents to treatment, that treatment may be given to Dawn in any situation

E.Both parents must consent to any decision made in Dawn's best interests

Answer:Consent may be given by one parent for the treatment that is in her best interests

Explanation:

The GMC guidance on consent in children is extensive. In short, when a child lacks capacity, consent from one parent is sufficient to administer treatment as long as it is in the best interests of the child. Additionally, though Dawn may lack capacity, encouraging her involvement in the decision-making process is important.

Question:

A 27-year-old male presents to the emergency department with a 4-day history of bilateral calf myalgia and constant, high fevers. This was accompanied by a similar duration of vomiting and non-bloody diarrhoea. He also reports eye pain and reddening in both eyes. He has recently returned from a trip to Ibiza 2 weeks ago, where he had unprotected sex with multiple female partners. He has been a sewage worker for 4 years.

His observations are as follows:

BP = 118/74mmHg, heart rate = 94 beats per minute, temperature = 39.4ºC, oxygen saturations = 96% on room air, respiratory rate = 24 breaths/min.

On examination, he is sweating profusely. His sclera are anicteric but red bilaterally. His abdomen is tender throughout, with no guarding or rebound tenderness. His calves were tender to touch but there was no swelling nor redness. There was no rash.

What is the most likely diagnosis?

A.Malaria

B.Enteric fever

C.Leptospirosis

D.Hepatitis A

E.Campylobacter enteritis

Answer:Leptospirosis

Explanation:

Bilateral conjunctivitis, bilateral calf pains and high fevers in a sewage worker suggests leptospirosis

Important for meLess important

This is a classical description of mild/anicteric leptospirosis. Fulminant leptospirosis (10% of mild disease develop severe diseases) involves hepatitis, jaundice, pulmonary haemorrhage and acute kidney injury. Transmission typically occurs by contact of broken skin with urine of infected rodents, hence why it is more common in those farmers or sewage workers.

Option 1: incorrect - while malaria would cause fevers, abdominal pain and gastro-intestinal symptoms, it typically would cause swinging fevers as a result of the rupture of erythrocytic schizonts, as opposed to a constant one. It also does not typically cause bilateral conjunctival suffusion seen here.

Option 2: incorrect - enteric fever is an excellent thought in the setting of abdominal pain and fevers, it is typically associated with a 'rose spot' macular rash and a relative bradycardia. Again, bilateral conjunctival suffusion is a distinguishing feature of leptospirosis.

Option 3: correct - the most likely diagnosis is leptospirosis. Bilateral calf (and sacral) myalgia is commonly seen. Given the broad incubation time of 2-26 days, it is hard to pin down the exact point it will have been transmitted. The diagnosis is typically done by serological agglutinin tests or PCR.

Option 4: incorrect - hepatitis A is a good differential given its faeco-oral transmission, and can cause very non-specific symptoms in its prodrome, before going on to cause hepatitic jaundice. Without any hepatitic symptoms e.g. right upper quadrant pain or hepatomegaly, it is unlikely to be hepatitis A, however conducting viral serology would be a good idea.

Option 5: incorrect - Campylobacter infection is a common cause of fever with abdominal pain, however, it is associated with consumption of raw/uncooked foods (common exam questions include a BBQ or some indication of poorly cooked food). While not all cases include bloody diarrhoea, it is a common feature in exam questions.

Question:

A 25-year-old female who is 39+0 weeks pregnant has an artificial rupture of membranes in an attempt to expedite slow labour. Shortly after this is performed, foetal bradycardia is noted on cardiotocography (CTG) and the umbilical cord can be palpated at the vaginal introitus.

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

A.Apply external suprapubic pressure

B.Ask the mother to 'go on all fours'

C.Attempt to return the umbilical cord to the uterus

D.Perform an episiotomy

E.Perform an instrumental vaginal delivery

Answer:Ask the mother to 'go 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 correct answer is to ask the mother to 'go on all fours'.

The patient has developed signs of foetal distress of CTG after an artificial rupture of membranes and the umbilical cord can be palpated vaginally. This makes a diagnosis of cord prolapse most likely. Cord prolapse involves the umbilical cord descending ahead of the presenting part of the fetus. For the management of cord prolapse, the presenting part of the fetus may be pushed back into the uterus to avoid compression. Tocolytics may be used. If the cord is past the level of the introitus, it should be kept warm and moist but should not be pushed back inside. The patient is asked to go on 'all fours' until preparations for an immediate caesarian section have been carried out.

Apply external suprapubic pressure is incorrect as this is also part of the initial management of shoulder dystocia.

Attempt to return the umbilical cord to the uterus is incorrect as this risks vasospasm and may worsen foetal hypoxia, this should therefore never be performed in clinical practice.

Perform an episiotomy is incorrect, this is used if there is suspicion the mother is at high risk of perineal trauma and is commonly used in shoulder dystocia and during instrumental vaginal deliveries. It has no role in the initial management of cord prolapse.

Perform an instrumental vaginal delivery is incorrect, in cases of cord prolapse, delivery of the foetus must be performed as soon as possible, this is usually done by caesarean section. It is also an inappropriate answer as while delivery may provide definitive management, it should not the first step taken in the management of cord prolapse.

Question:

You review a patient who has been taking citalopram for the past two years to treat depression. He has felt well now for the past year and you agree a plan to stop the antidepressant. How should the citalopram be stopped?

A.Can be stopped immediately

B.Withdraw gradually over the next 3 days

C.Withdraw gradually over the next week

D.Withdraw gradually over the next 2 weeks

E.Withdraw gradually over the next 4 weeks

Answer:Withdraw gradually over the next 4 weeks

Explanation:

When stopping a SSRI the dose should be gradually reduced over a 4 week period

Important for meLess important

This not necessary with fluoxetine due to its longer half-life.

Question:

You are clerking a 67-year-old man who has been admitted with chest pain. His past medical history includes hypertension, angina and he continues to smoke 20 cigarettes / day. Blood tests done in the Emergency Department show the following:

Na+ 133 mmol/l

K+ 3.3 mmol/l

Urea 4.5 mmol/l

Creatinine 90 µmol/l

Which one of the following factors is most likely to explain the abnormalities seen in the electrolytes?

A.Enalapril therapy

B.Felodipine therapy

C.Bendroflumethiazide therapy

D.His smoking history

E.Spironolactone therapy

Answer:Bendroflumethiazide therapy

Explanation:

Bendroflumethiazide causes both hyponatraemia and hypokalaemia. Spironolactone is associated with hyperkalaemia. His smoking would only be relevant if he had lung cancer cause syndrome of inappropriate ADH secretion - there is no indication of this from the question.

Question:

A 52-year-old lady presents to her general practitioner. She is concerned about a lump which she has noticed on her left breast associated with a green nipple discharge. On examination, she has a tender lump on her left breast next to her areola. It is not discoloured or hot to touch. Which one of the following conditions would be most likely to cause this presentation?

A.Breast abscess

B.Duct ectasia

C.Duct papilloma

D.Fibroadenosis

E.Fibroadenoma

Answer:Duct ectasia

Explanation:

Duct ectasia: non-malignant breast disease with thick green nipple discharge, occurring with breast involution

Important for meLess important

This lady has presented with typical symptoms of duct ectasia: greenish nipple discharge with a peri-areolar lump. This is a common condition, typically occurring around menopause as the breasts undergo involution. Duct ectasia reflects a shortening and widening of the terminal breast ducts around the nipple.

A breast abscess would be more common in lactating women and would be red and hot to touch.

A duct papilloma usually affects the large mammary ducts and leads to bloodstained nipple discharge.

Fibroadenosis also presents in middle-aged women but would present as 'lumpy' breasts which can cause pain.

A fibroadenoma is mostly seen in women aged <30 years of age. They are discrete, non-tender, highly mobile lumps.

Question:

You are an FY2 working in the emergency department. A 77-year-old man, with a history of COPD, has presented with right upper quadrant abdominal pain. He has felt somewhat fatigued and dizzy for the past 24 hours. On examination of his abdomen, you feel an enlarged liver in the right upper quadrant. It is tender to touch, and it feels firm but smooth. You also feel it pulsing under your hand. He has smoked for 50 years and drinks approximately 10 units of alcohol per week.

Based on this information, what is the most likely cause of hepatomegaly in this particular case?

A.Viral hepatitis

B.Alcoholic liver disease

C.Liver metastases

D.Liver abscess

E.Right heart failure

Answer:Right heart failure

Explanation:

Right heart failure is associated with a firm, smooth, tender and pulsatile liver edge

Important for meLess important

Right heart failure is actually one of the most common causes of hepatomegaly. It is characterised by a firm, smooth and tender to touch liver edge. The real clue in this question is that it is also pulsatile, which is due to the back-up of blood due to the failure of the right side of the heart to work effectively. The fact that it is pulsatile, distinguishes it from the other possible answers.

COPD is a common cause of right-sided heart failure. This is often referred to as cor pulmonale. Some other features of right-sided heart failure include; a raised JVP, ascites, and peripheral oedema.

The reasons as to why the other answers are incorrect here are as follows:

1 - Viral Hepatitis - the patient may be systemically unwell. Also, there may be other features of acute liver failure e.g. jaundice, hepatic encephalopathy

2 - Alcoholic Liver Disease - The alcohol history in this particular case is highly unlikely to cause alcoholic liver disease. In the early stages of alcoholic liver cirrhosis, however, hepatomegaly can occur, which tends to be associated with a non-tender, firm liver. But, this is not in keeping with this case.

3 - Liver metastases - associated with a hard, irregular liver edge.

4 - Liver abscess - patient tends to be feverish.

Ultimately though, none of the above incorrect answers are associated with a pulsatile liver.

Question:

A 61-year-old woman presents to the emergency department with morning headaches, nausea and vomiting. An urgent CT head reveals a mass within the right frontal lobe. An MRI head is performed which shows what is likely a glioblastoma surrounded by oedema.

What medication is used in this context to treat oedema?

A.Hydrocortisone

B.Dexamethasone

C.Hypertonic saline

D.Mannitol

E.Furosemide

Answer:Dexamethasone

Explanation:

Dexamethasone is used to treat cerebral oedema in patients with brain tumours

Important for meLess important

Dexamethasone is a potent steroid with predominantly glucocorticoid effects. It is used to treat vasogenic oedema that occurs due to the break down of the blood-brain barrier. A common use within neurosurgery is to treat oedema caused by brain tumours.

Question:

You get phoned about a patient's potassium result:

K+ 6.3 mmol/l

Which one of the following would not explain this result?

A.Delay in transport to the laboratory

B.Losartan therapy

C.Addison's disease

D.Acute renal failure

E.Conn's syndrome

Answer:Conn's syndrome

Explanation:

Conn's syndrome is associated with hypokalaemia.

Question:

Which one of the following vaccinations should be avoided in patients who are HIV positive?

A.Rabies

B.BCG

C.Hepatitis B

D.Pertussis

E.Diphtheria

Answer:BCG

Explanation:

Live attenuated vaccines

BCG

MMR

oral polio

yellow fever

oral typhoid

Important for meLess important

Question:

A 70-year-old lady presents to your GP clinic complaining of ankle swelling. The swelling is present throughout the day but worse in the evenings and is causing significant discomfort to the patient. The swelling began last month. She has no other symptoms. There is no past medical history of cardiovascular disease, diabetes mellitus or hyperlipidaemia. The patient has never smoked. The patient began treatment last month with amlodipine 5mg once daily for stage 2 hypertension. On examination her blood pressure is 135/90 mmHg, heart sounds are normal, jugular venous pulse is non-elevated, and respiratory examination is normal. Examination of the lower limbs reveals bilateral peripheral oedema with no other abnormalities.

What is the best treatment for the patient's ankle oedema?

A.Prescribe furosemide

B.Swap amlodipine to furosemide

C.Prescribe indapamide

D.Recommend lifestyle modifications

E.Swap amlodipine to indapamide

Answer:Swap amlodipine to indapamide

Explanation:

Peripheral oedema is a common side effect of calcium blockers and the clinical picture is very suggestive of this. As the oedema is causing the patient concern then it would be appropriate to swap the amlodipine for a second line anti-hypertensive diuretic agent (e.g. indapamide). This helps to prevent polypharmacy and any further side effects/complications from adding an additional drug. If this does not resolve the oedema then further investigations would be required to identify the cause.

Recommending lifestyle modifications would likely offer partial relief to the patient, but since it is affecting her throughout the day and night this is not a practical solution as would substantially affect her quality of life. However, lifestyle recommendations would also be advisable in addition to swapping amlodipine to indapamide.

Question:

A 47-year-old man presents to his general practitioner (GP) with a longstanding sensation of a lump in his throat and that food 'sticks'. He describes a longstanding cough, and intermittent hoarseness of the voice when speaking. He also describes chest discomfort associated with mealtimes. The throat often feels uncomfortable and sensitive, sometimes with an unpleasant acidic taste at the back. He has had no weight loss, nor fever, nor night sweats. He denies dysphagia and odynophagia. He is a non-smoker and takes no regular medication, nor does he have any significant past medical history.

The GP refers him for a chest X-ray:

Chest X-ray No abnormalities seen.

He is subsequently referred to the ear, nose and throat team (ENT), who perform a laryngoscopy:

Laryngoscopy Some erythema of the pharynx. Otherwise unremarkable, no abnormalities seen.

Which of the following is the most likely diagnosis?

A.Globus hystericus

B.Laryngopharyngeal reflux

C.Oesophageal candidiasis

D.Pharyngeal pouch

E.Pharyngitis

Answer:Laryngopharyngeal reflux

Explanation:

Globus, hoarseness and no red flags → ?laryngopharyngeal reflux

Important for meLess important

The correct answer is laryngopharyngeal reflux. The history, lack of red flags, and normal investigations (plus erythema being seen on endoscopy) are suggestive of this diagnosis, colloquially known as 'silent reflux'. It is relatively common and thought to account for approximately 10% of ENT referrals. As well as lifestyle measures, proton pump inhibitors such as omeprazole are commonly used.

Globus hystericus is incorrect. This is the sensation of a lump being stuck in the throat, with no physical findings present. Whilst the patient has this symptom, it would not be accurate to say that this is the diagnosis, given the other findings of hoarseness and erythema visualised on laryngoscopy. The diagnosis of laryngopharyngeal reflux is therefore more likely.

Oesophageal candidiasis is incorrect; this would have presented differently - difficulty swallowing, history of steroid use, and white plaques seen in the pharynx. It would be treated with antifungal medication such as fluconazole.

Pharyngeal pouch is incorrect. This would present with dysphagia, halitosis and regurgitation of undigested food, rather than the symptoms seen in this scenario. A management option for this would be surgical correction - diverticulectomy.

Pharyngitis does not fit with the history in this scenario. It would present with an infective picture and be treated with phenoxymethylpenicillin if treatment was warranted.

Question:

Nicci, a 36-year-old woman presents to the emergency department with a 12-hour history of severe, sharp pain in her left side that radiates to the lower abdomen and groin. The pain fluctuates and comes in waves. She also describes an increased frequency and a burning sensation while urinating. A urine dip shows haematuria but no signs of infection. You order the following blood test.

Calcium 3.1 mmol/L (2.1-2.6)

Corrected Calcium 3.2 mmol/L (2.1-2.6)

Phosphate 0.5 mmol/L (0.8-1.4)

Magnesium 0.75 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 5.4 mU/L (0.5-5.5)

Free thyroxine (T4) 9.3 pmol/L (9.0 - 18)

Parathyroid hormone 81 pg/mL (10-65 )

The long term use of which of these drugs is responsible for Nicci's condition?

A.Amitriptyline

B.Clozapine

C.Lithium

D.Sertraline

E.Sodium valproate

Answer:Lithium

Explanation:

Long-term lithium use can result in hyperparathyroidism and resultant hypercalcaemia

Important for meLess important

Amitriptyline is a tricyclic antidepressant. It is sedative and dangerous in overdose. Its anticholinergic effects can cause urinary retention but it is unlikely to cause nephrolithiasis. It would not explain the patient's hypercalcaemia or hyperparathyroidism.

Clozapine is a second-generation antipsychotic. Its anticholinergic effects can cause urinary retention but it is unlikely to cause nephrolithiasis. It would also not cause the patient's calcium and parathyroid hormone levels to be raised.

Long term use of lithium results in hyperplasia of the parathyroid gland leading to hyperparathyroidism, causing hypercalcaemia, which can lead to nephrolithiasis due to excessive concentration of calcium in the kidney. It can also lead to hypothyroidism, and so looking at TFTs may also be informative.

Sertraline is a selective serotonin reuptake inhibitor (SSRI). Side-effects are mainly experienced when starting and stopping SSRIs rather than with long term use. Side-effects include sexual dysfunction and gastrointestinal upset.

Sodium valproate is a mood stabilizer and anti-epileptic drug, which is extremely teratogenic. It has many side effects including causing tremor, alopecia and thrombocytopenia; but would not cause the case described.

Question:

A 67-year-old woman is reviewed in the afternoon GP surgery. She describes a 20 minute episode heavy central chest pain shortly after getting up from bed this morning, about 7 hours ago. This has not happened before and she has been pain free since the morning. Clinical examination is normal but the ECG shows T wave inversion in the inferior leads. What is the most appropriate action?

A.Refer for an exercise tolerance test

B.Give aspirin + arrange for same-day hospital assessment

C.Calculate her estimated risk of having coronary artery disease

D.Start aspirin + check troponin I level

E.Give aspirin + arrange an emergency admission (immediate ambulance)

Answer:Give aspirin + arrange an emergency admission (immediate ambulance)

Explanation:

Question:

A 41-year-old man presents with left shoulder pain following a rugby injury. An x-ray is taken:

© Image used on license from Radiopaedia

What is the diagnosis?

A.No abnormality seen

B.Left-sided pneumothorax

C.Partial anterior dislocation of the humeral head

D.Acromioclavicular joint injury

E.Clavicular fracture

Answer:Acromioclavicular joint injury

Explanation:

Question:

You are a doctor working in the emergency department. Your next patient is a 22-year-old woman who presents with bleeding from her mouth. She had a tonsillectomy 7 days ago, which was uncomplicated. She is otherwise well and takes no regular medications. She has no allergies. On examination, she looks well and her airway is patent. Her blood pressure is 123/82 mmHg, heart rate 82/min, sats 99%, temperature 37.6ºC. On inspection of the surgical site, you note bright red blood originating from a specific site. The bleeding is not heavy.

What is the most appropriate initial management of this patient's bleeding?

A.Admit to hospital for observation

B.Advise that this is self-limiting and discharge with safety-netting advice

C.Immediate return to theatre

D.Prescribe antibiotics and admit to hospital

E.Prescribe tranexamic acid and admit to hospital

Answer:Prescribe antibiotics and admit to hospital

Explanation:

Haemorrhage 5-10 days after tonsillectomy is commonly associated with a wound infection and should therefore be treated with antibiotics

Important for meLess important

Prescribe antibiotics and admit to hospital is the most appropriate option. This patient is having a secondary haemorrhage, which occurs over 24 hours post-tonsillectomy (usually around day 5-10). Secondary haemorrhage is usually caused by a wound infection, so should initially be treated with antibiotics and admission for observation.

Admit to hospital for observation is incorrect. Secondary haemorrhage is commonly caused by infection and should be treated with antibiotics. The patient should be admitted during treatment to ensure their bleeding resolves.

Advise that this is self-limiting and discharge with safety-netting advice is incorrect. After tonsillectomy, small specks of dark blood in saliva may be normal, but fresh red blood isn't normal. This kind of bleeding 5-10 days after tonsillectomy is most often caused by infection, and therefore should be treated with antibiotics and admission to hospital.

Immediate return to theatre is incorrect. Secondary haemorrhage is usually caused by infection so should be treated with antibiotics and admission. In severe bleeding, surgery may be required but this case is not currently severe so it is appropriate to treat with antibiotics and monitor the patient closely. In primary haemorrhage (within the first 24 hours post-tonsillectomy), the appropriate management would be an immediate return to theatre.

Prescribe tranexamic acid and admit to hospital is incorrect. Tranexamic acid is useful in surgical bleeding to reduce blood loss and the need for blood transfusion. However, secondary haemorrhage post-tonsillectomy is usually caused by infection, therefore the most appropriate treatment for the bleeding in this situation is antibiotics.

Question:

A 28-year-old man has a 3-hour history of headaches, sweating, and blurred vision. He has not opened his bowels over the last 5 days but has had no problems with passing urine. On examination, there is no abdominal tenderness and he is sweaty and anxious. His blood pressure is 198/150 mmHg, his heart rate is 52 /min, his respiratory rate is 20 /min, and his temperature is 37.2ºC.

He has a past medical history of complete transection of the spinal cord at the T6 level following a motor vehicle accident and has had to use a wheelchair since.

What is the most appropriate initial step in his management?

A.Admit, monitor, and provide supportive treatment

B.Examine rectum and remove faecal matter

C.Insert catheter and drain urine

D.Prescribe glyceryl trinitrate spray

E.Prescribe oral nifedipine

Answer:Examine rectum and remove faecal matter

Explanation:

Management of autonomic dysreflexia involves removal/control of the stimulus and treatment of any life-threatening hypertension and/or bradycardia

Important for meLess important

Examine rectum and remove faecal matter is correct. This patient has presented with signs and symptoms consistent with autonomic dysreflexia, which often occurs in patients with spinal cord injuries at or above the T6 level. A stimulus (most commonly a distended bowel or bladder) that occurs below the level of the spinal cord injury leads to afferent signals being sent to the spinal cord which is unable to ascend past the region of the spinal cord that is injured, leading to a massive unbalanced sympathetic reflex, leading to hypertension and other signs and symptoms of sympathetic stimulation (such as sweating and agitation). This patient has not opened their bowels for 5 days, which may be the trigger causing autonomic dysreflexia. The first and easiest step in managing autonomic dysreflexia is the removal or control of the stimulus, which is sufficient in most cases and this case, would involve removing faecal matter. Further options may involve the use of oral nimodipine or glyceryl trinitrate spray.

Admit, monitor, and provide supportive treatment is incorrect. It would be inappropriate not to initiate treatment of autonomic dysreflexia due to the potentially life-threatening complications that may emerge (e.g. haemorrhagic stroke). The first and easiest step in managing autonomic dysreflexia is the removal or control of the stimulus, which is sufficient in most cases and this case, would involve removing faecal matter. Further options may involve the use of oral nimodipine or glyceryl trinitrate spray.

Insert catheter and drain urine is incorrect. While this would be appropriate if the stimulus were a distended bladder, this patient has been passing urine normally. The stimulus in this scenario is possibly faecal impaction, as this patient has not opened their bowels in 5 days. The first and easiest step in managing autonomic dysreflexia is the removal or control of the stimulus, which is sufficient in most cases and this case, would involve removing faecal matter. Further options may involve the use of oral nimodipine or glyceryl trinitrate spray.

Prescribe glyceryl trinitrate spray is incorrect. This may be used as a treatment option later on, however the first and easiest step in managing autonomic dysreflexia is the removal or control of the stimulus, which is sufficient in most cases and this case, would involve removing faecal matter. Further options may involve the use of oral nimodipine or glyceryl trinitrate spray.

Prescribe oral nifedipine is incorrect. This may be used as a treatment option later on, however the first and easiest step in managing autonomic dysreflexia is the removal or control of the stimulus, which is sufficient in most cases and this case, would involve removing faecal matter. Further options may involve the use of oral nimodipine or glyceryl trinitrate spray.

Question:

A 42-year-old accountant presents for laparoscopic cholecystectomy. Her medical history includes appendicectomy at age 13, asthma, and pneumonia requiring hospitalisation 3 years ago. She uses a SABA and a steroid for her asthma with good control. She is a current smoker.

The anaesthetist uses propofol for the induction and maintenance of anaesthesia. The patient maintains oxygen saturation during bag-mask ventilation, but once the endotracheal tube is placed, she desaturates. No ECG leads are in place. Her heart rate and blood pressure are stable.

What is the most likely reason for her desaturation?

A.Laryngospasm

B.Oesophageal intubation

C.Propofol-induced bronchospasm

D.Propofol-induced respiratory depression

E.The saturation probe has become detached from the patient

Answer:Oesophageal intubation

Explanation:

Dropping sats following intubation → ? oesophageal intubation

Important for meLess important

Oesophageal intubation is correct. The endotracheal tube has most likely been accidentally misplaced into the oesophagus resulting in a drop in oxygen saturation. This is a common complication during the intubation process, especially amongst inexperienced practitioners, and where visualisation of the vocal cords is not easily obtained. The use of video laryngoscopy and capnography (measurement of expired carbon dioxide) can decrease the risk of unrecognised oesophageal intubation and the risk of major airway complications.

While laryngospasm is a vital complication to be aware of in airway management during anaesthesia induction, maintenance, and emergence, it would not be the reason for a patient to drop their oxygen saturation once correctly in place because the tube travels entirely through the larynx into the trachea. Therefore, this answer is less likely.

Propofol is not associated with acute bronchospasm or respiratory depression. Therefore both of these answers are incorrect. In fact, propofol is associated with a decreased risk of bronchospasm on mechanical irritation of the airway in asthmatic patients. A situation in which propofol may cause bronchospasm would be an anaphylactic response to the medication, but this is much less likely than oesophageal intubation.

Irritation of the airway can cause bronchospasm in patients with asthma, COPD, and smokers, so this would be important to consider however is less likely than oesophageal placement of the endotracheal tube. Bronchospasm can occur during intubation or extubation, where mechanical stimulation of the airway triggers a bronchospasm response. The risk is lower if a laryngeal mask airway is used compared to an endotracheal tube.

We know that the saturation probe is still attached, because we have a stable pulse without ECG leads, and the drop in saturation has occurred following intubation without any other change. However, this would still be important to check when investigating a cause for an otherwise unexplained drop in oxygen saturation.

Question:

A 23-year-old woman is brought to the emergency department after a 3-minute episode of collapse. She has a past medical history of emotionally unstable personality disorder (EUPD). She is accompanied by her friend, who describes that during the episode the patient lost consciousness and exhibited jerky arm movements. The patient tells the emergency department doctor that she feels ‘groggy’ and she is quite tearful.

She has no family or personal history of epilepsy or seizures. She does not drive.

A serum prolactin is taken immediately on admission (approximately 15 minutes after the event).

Prolactin 1023 mIU/L (<700)

Six hours after the event she feels much improved. She has no neurological dysfunction and her observations are all within normal range. At this time, the prolactin result is repeated.

Prolactin 610 mIU/L (<700)

What is the most appropriate management for the patient?

A.Discharge with referral to a ‘first fit’ clinic

B.Re-assurance and discharge with no follow up

C.Admit the patient for further investigation and management

D.Discharge with referral for counselling/psychotherapy

E.Referral to the psychiatric team

Answer:Discharge with referral to a ‘first fit’ clinic

Explanation:

Prolactin can be used to differentiate between a true seizure and a pseudoseizure

Important for meLess important

Despite the patient's history of emotional dysregulation, the rise in serum prolactin should raise suspicion of a seizure (rather than a pseudoseizure). A more detailed history would be helpful, which should gather information about other features typical to a seizure, such as tongue biting or loss of urinary continence.

Given the suspicion of a seizure, the patient should be seen in a 'first fit' clinic to be assessed by an epilepsy specialist.

She does not need to be admitted as she is clinically well and has no ongoing neurological dysfunction. However, she should be carefully safety-netted about what to do if she has a further seizure and advice regarding driving should be given.

It would not be appropriate to discharge without follow up as the patient has not been fully investigated for possible epilepsy.

If further investigations/specialist opinion suggests that the episode was a pseudoseizure, referral for counselling or psychiatric input may be warranted. However, given the suspicion of a seizure she should be seen first by an epilepsy specialist.

Question:

A 38-year-old man comes into the emergency department in extreme pain. He is pacing up and down the room and so it is hard to get a history. You notice that his left eye is watery and he is clutching that side of his head. You see him stop to vomit just once.

Given the most likely diagnosis, how long can episodes like these typically last?

A.2 seconds - 3 minutes

B.3 - 12 hours

C.4 - 72 hours

D.12 - 24 hours

E.15 minutes - 2 hours

Answer:15 minutes - 2 hours

Explanation:

A cluster headache can last between 15 minutes to 2 hours

Important for meLess important

The correct answer is 15 minutes to 2 hours. This man has a one sided headache. His pacing points towards a cluster headache and away from migraine (where patients often need to lie still). A watery red eye and vomiting are also seen in cluster headaches.

2 seconds - 3 minutes - this is more typical of a trigeminal neuralgia. Even light touch (like the wind) can cause sharp, shooting pain. The patient would not be clutching the pain.

3 - 12 hours & 12 - 24 hours - both answers are just about too long. Occasionally the longer cluster headaches can last up to 3 hours however.

4 - 72 hours - these are migraine timings. Patient’s would be lying still with potential photo- and phonophobia. Vomiting can be, and one sided headaches are, features of migraines.

Question:

A 70-year-old man presents to his general practitioner with recurrent headaches. He has brought his ambulatory blood pressure readings which show an average of 150/98 mmHg. His regular medications include ramipril, amlodipine, and indapamide.

Fundoscopy shows no retinopathy and his CT head done a few days ago shows no acute bleeds or infarcts.

Blood results are as follows:

Hb 160 g/L Male: (135-180)

Platelets 190 \* 109/L (150 - 400)

WBC 5.4 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 5.1 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

CRP 1 mg/L (< 5)

What is the next best management step?

A.Amiloride

B.Bendroflumethiazide

C.Bisoprolol

D.Losartan

E.Spironolactone

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

Spironolactone is correct as this is next on the NICE treatment algorithm for hypertension. The drug to be considered after triple therapy has failed to be effective and the potassium is found to be less than 4.5, as it is a potassium-sparing diuretic.

Amiloride is incorrect as this is not an option in the NICE guidelines for the treatment of hypertension.

Bisoprolol is an incorrect option for treating this case of hypertension. If the potassium was greater than 4.5 then this could be considered a viable option for treatment.

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.

Question:

A 28-year-old lady is reviewed in a follow-up appointment at the sexual health clinic. Twelve months ago she was diagnosed with syphilis and was given intramuscular benzathine penicillin. Blood tests were taken a week prior to the follow-up appointment and the serology results are shown below:

TPHA positive

VDRL negative

What is the most likely explanation for the serology results shown above?

A.She has been re-infected and has developed syphilis

B.She is HIV positive

C.She is pregnant

D.She has been successfully treated for syphilis

E.She has been suboptimally treated for syphilis

Answer:She has been successfully treated for syphilis

Explanation:

Following treatment for syphilis: TPHA remains positive, VDRL becomes negative

Important for meLess important

VDRL becomes negative following treatment of syphilis. TPHA remains positive despite successful treatment of syphilis.

Her serology is consistent with previous syphilis infection, for example after successful treatment. Therefore 4 is the correct answer.

Options 1 and 5 suggest active infection with syphilis, in which case the VDRL would be positive.

Options 2 and 3 are causes of a false-positive VDRL test, which would not explain the negative VDRL but positive TPHA in the question.

Question:

A 73-year-old male presents for his annual abdominal aortic aneurysm (AAA) screening test. He has a past medical history of a small AAA, which has consistently measured 3.2cm in width on annual follow up scans since it was discovered 8 years ago. On assessment, it is discovered the patient's AAA has grown by 1.6cm, to a new width of 4.8cm since his last assessment one year ago. He is asymptomatic and feels well at the time of assessment.

Which of the following is the most appropriate management of this patient?

A.Immediate transfer to hospital for urgent surgical repair

B.2-week-wait referral for surgical repair

C.Repeat scan in 3 months

D.Repeat scan in 6 months

E.Repeat scan in 12 months

Answer:2-week-wait referral for surgical repair

Explanation:

Rapidly enlarging aneurysms of any size should be repaired even if asymptomatic

Important for meLess important

This patient's AAA has moved from a small aneurysm (3-4.4cm) to a medium-sized aneurysm (4.5-5.4cm). Normally, this would warrant an increase in ultrasound screening to once every three months. However, as his aneurysm has grown more than 1cm in the past year, this is classified as rapidly enlarging. All rapidly enlarging aneurysms should be referred via a 2-week-wait for consideration for surgical repair.

Immediate transfer to hospital for urgent surgical repair would only be indicated if there was suspicion that the patient's AAA had ruptured.

Repeat scan in 3 months is the management recommended for non-rapidly enlarging, medium-sized AAAs.

Repeat scan in 6 months is not indicated in any case of AAA.

Repeat scan in 12 months would be the management of non-rapidly enlarging, small-sized AAAs.

Question:

A 38-year-old female diabetic patient has called her general practitioner for some advice. She reports having diarrhoea and vomiting for the past 24 hours and has been unable to tolerate solid foods but is drinking without issue.

As she has not been eating, she is concerned about her insulin regime and wants to clarify if she should continue to take it.

What advice should be given to the patient?

A.Withhold insulin until tolerating solid foods again

B.Continue normal insulin regime

C.Double the insulin dose throughout the illness

D.Half the insulin dose throughout the illness

E.Patient should be swapped from insulin to metformin for the duration of the illness

Answer:Continue normal insulin regime

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

Insulin administration on sick days should be continued due to the risk of diabetic ketoacidosis.

This patient is experiencing diarrhoea and vomiting and is at risk of electrolyte derangement, ketosis, and dehydration. It is important that she:

Maintains good fluid intake (minimum of 3 litres in 24 hours)

Consider taking sugary drinks to maintain carbohydrate intake as she is unable to tolerate solids

Monitor blood glucose at least every 4 hours

Ensure there are people in the house, patient has a mobile phone, or neighbours are aware that the patient is unwell in case of the patient becoming unconscious

If the patient is unable to keep fluids down, diarrhoea is persistent, or there is severe derangement in ketone and/or blood glucose levels then the patient may require admission to hospital.

Infection causes a stress response in the body with the increased release of cortisol and adrenaline which work against insulin, leading to increased glucose production in the body causing high blood glucose levels. As such, it is inappropriate to withhold insulin during illness. It would also be inappropriate to blindly double or half the insulin dose as this could cause hypoglycaemia.

Metformin should be stopped during illness - this is due to the increased risk of lactic acidosis with dehydration.

Question:

A 51-year-old man presents four weeks after being discharged from hospital. He had been admitted with chest pain and thrombolysed for a myocardial infarction. This morning he developed marked tongue and facial swelling. Which one of the following drugs is most likely to be responsible?

A.Atorvastatin

B.Isosorbide mononitrate

C.Atenolol

D.Aspirin

E.Ramipril

Answer:Ramipril

Explanation:

ACE inhibitors are the most common cause of drug-induced angioedema.

Question:

A 32-year-old lady presents with hair-loss which she thinks started after the birth of her second child 7 months ago. She is normally fit and well and is not on any regular or over the counter medication. On examination, you notice patches of hair loss around her occiput. The skin looks normal and a few short broken hairs are obvious at the edges of two of the patches. What condition is most likely?

A.Trichotillomania

B.Alopecia areata

C.Tinea capitis

D.Early scarring alopecia

E.Telogen effluvium

Answer:Alopecia areata

Explanation:

Question:

A 45-year-old woman presents to the emergency department with a 1-hour history of severe headache that is different to her usual headaches which normally require her to lie in a quiet, dark room and are relieved with rest. The pain is at the back of her head and she states it reached its worst around 3 minutes after starting.

Her pulse is 85 bpm, her blood pressure is 128/75 mmHg, and she is afebrile. No focal neurological defects including problems with speech, vision, or hearing are present. No features of meningism are present.

What is the most appropriate next step in her management?

A.Lumbar puncture within 12 hours after symptom onset

B.Lumbar puncture within 6 hours after symptom onset

C.Urgent CT head with contrast

D.Urgent CT head without contrast

E.Urgently refer to neurosurgery

Answer:Urgent CT head without contrast

Explanation:

A sudden-onset headache, reaching maximum intensity within 5 minutes, is a red flag requiring further evaluation to exclude a subarachnoid haemorrhage

Important for meLess important

An acute headache reaching maximal intensity within 5 minutes, even if it does not occur in the classical occipital location of the head, is a red flag for subarachnoid haemorrhage (SAH). Many patients describe the pain as the worst headache in their life.

Urgent CT head without contrast is correct as this is the first-line investigation in all patients with features suggestive of SAH. This is sensitive and can be used to quickly rule out other diagnoses such as intracranial masses and shows hyperdensity in the basal cisterns, sulci, and ventricular system. NICE recommends the use of a non-contrast CT first rather than an MRI or contrast-enhanced CT scans, due to the increased availability and faster nature of a non-contrast CT head.

Urgent CT head with contrast is incorrect. NICE recommends that the first-line investigation is a CT head without contrast as it is sensitive, quick, and more readily available, removing the need to unnecessarily administer a contrast medium. Further on down the line a contrast-enhanced CT angiography may be performed to identify vascular abnormalities (such as arteriovenous malformations or fistulae), however, this is not yet necessary.

Lumbar puncture within 12 hours after symptom onset and lumbar puncture within 6 hours after symptom onset are incorrect as the first investigation in SAH before a lumbar puncture (LP) is a non-contrast CT head in all patients, regardless of the timeframe after which they present. Furthermore, NICE updated their guidelines in 2022 stating that an LP should only be done if the CT head is performed after 6 hours of symptom onset and is normal. If this patient's CT head were to be normal, then an LP would not be indicated as they have presented within 6 hours of symptom onset and an alternate diagnosis is more likely.

Urgently refer to neurosurgery is incorrect as NICE states a referral to neurosurgery should be made if SAH is confirmed on a non-contrast CT head to discuss management. This person has not yet had a non-contrast CT head, therefore, a referral cannot yet be made as a SAH has not been diagnosed.

Question:

A 3-year-old boy presents with a painful and swollen left knee. He has difficulty walking. He is fully immunised but his mother reports that he had significant bruising after his vaccinations.

On examination, he is afebrile and has a reduced range of motion of the left knee.

What is the most likely underlying diagnosis?

A.Haemophilia

B.Immune thrombocytopaenic purpura

C.Kawasaki disease

D.Septic arthritis

E.Von Willebrand disease

Answer:Haemophilia

Explanation:

Haemoarthroses are a common feature of haemophilia

Important for meLess important

The presentation of this boy is consistent with haemarthrosis, a common feature of haemophilia. Haemophilia is a deficiency in one of the clotting factors, resulting in prolonged bleeding. The severity depends on the degree of deficiency, and in severe cases, patients may have spontaneous haemarthrosis. The typical presentation of haemarthrosis is a painful swelling and reduced range of motion of the affected joint.

Immune thrombocytopaenic purpura can affect children, typically following a viral illness. It presents with spontaneous bruising and petechiae but does not cause haemarthrosis.

Kawasaki disease is a febrile illness affecting young children. It typically causes a red rash, strawberry tongue, neck swelling and desquamation of the fingers and toes. It does not typically cause joint swelling.

Septic arthritis causes an acutely red and swollen joint with a restricted range of movement. It is good to have a high suspicion for septic arthritis in patients with this presentation, however, the lack of fever and the history of significant bruising after previous immunisations makes this diagnosis less likely.

Von Willebrand disease is another bleeding condition, typically presenting with milder symptoms and affecting females later in life. It would be unlikely to cause haemarthrosis in children.

Question:

A 23-year-old woman is referred to the surgical assessment unit. She complains severe, slow onset, left iliac fossa pain. On examination left iliac fossa pain is confirmed. She denies being sexually active. There is some clinical evidence of peritonitis.

Which of the following investigations should you ask for next?

A.Abdominal x-ray

B.Chlamydia swab

C.Pregnancy test

D.CT abdomen

E.Ultrasound abdomen

Answer:Pregnancy test

Explanation:

In any case of acute abdomen in a female of child-bearing age, a pregnancy test is mandatory.

Question:

A 62-year-old man was brought to the emergency department by his friends. He had noticed a sudden onset of right facial numbness associated with nausea while he was jogging. He phoned his friend, who noticed his speech was slow and slurred, but there was no word-finding difficulty. These symptoms lasted for an hour. On arrival at the hospital he is asymptomatic. He has been taking warfarin for recurrent deep vein thrombosis for the last 2 years. On examination, his pulse rate appears to be regular and in the normal range.

Which is the most appropriate next step in management?

A.Specialist review within 24 hours

B.CT head

C.Carotid imaging

D.Neuro-observation

E.Clopidogrel

Answer:CT head

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

A case of suspected TIA should be admitted and CT head performed to exclude haemorrhage in patients taking an anticoagulant like warfarin/direct oral anti-coagulant or with a bleeding disorder.

A specialist review should be done within 24 hours after ruling out a haemorrhage in a patient currently taking an anticoagulant. Patients with suspected TIA that occurred within less than a week should be assessed by a specialist physician within 24 hours. Patients with suspected TIA that occurred more than a week prior should be assessed by a specialist physician as soon as possible, within seven days.

All patients with TIAs, following a specialist assessment, should be considered to have urgent carotid imaging (in those who may be ideal candidates for carotid endarterectomy).

Patients with a confirmed diagnosis of TIA should receive clopidogrel (300 mg loading dose and 75 mg daily thereafter) and high-intensity statin therapy (eg. Atorvastatin 20-80 mg daily) started immediately.

Question:

A 23-year-old man presents to general practice with back pain that has been ongoing for two weeks. This pain is located 'between the shoulder blades' and typically occurs throughout the day. He says that he is fearful that this may be something serious and has been avoiding activity as a result.

What features of this patient's history is a red flag?

A.Avoiding activity

B.Patient's age

C.Lack of trauma

D.Location of pain

E.Time of day

Answer:Location of pain

Explanation:

Thoracic pain is a red flag in patients presenting with back pain

Important for meLess important

This patient reports back pain between the shoulder blades, in the thoracic area. Thoracic back pain is a red flag that warrants further intervention to exclude serious underlying causes such as degenerative disc disease (a prolapsed disc), skeletal disorders, traumatic or spontaneous vertebral fractures, vascular malformations, and metastasis.

Fear-avoidance behaviour and reduced activity is a 'yellow flag' suggestive of psychosocial factors that may indicate the potential for the back pain to become chronic.

An age of <20 or >50 is suggestive of a red flag back pain.

The presence of trauma in the history is a red flag.

This patient has back pain throughout the day. If the pain was worst at night then that would be a red flag suggestive of a most serious underlying cause.

Question:

A 29-year-old woman of Afro-Caribbean descent presents to her GP complaining of fatigue, generalised musculoskeletal pain, low mood, and swollen lumps in her neck and armpit. Her blood results are below:

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

Female: (115 - 160)

Platelets 135\* 109/L (150 - 400)

WBC 3.4\* 109/L (4.0 - 11.0)

Na+ 137mmol/L (135 - 145)

K+ 3.9mmol/L (3.5 - 5.0)

Urea 13.0mmol/L (2.0 - 7.0)

Creatinine 160µmol/L (55 - 120)

CRP 120mg/L (< 5)

Antinuclear antibodies Positive

Anti-double-stranded DNA Positive

Due to her abnormal renal function results, renal biopsy is performed and visualised under electron microscopy, no mesangial deposits are seen.

Given her likely diagnosis, what medication should this patient be started on?

A.Cyclophosphamide

B.Hydroxychloroquine

C.Methotrexate

D.Prednisolone

E.Tacrolimus

Answer:Hydroxychloroquine

Explanation:

Hydroxychloroquine is the treatment of choice for SLE

Important for meLess important

This patient is presenting with fatigue, musculoskeletal pain, low mood, and lymphadenopathy. Her blood results showed anaemia, leukopenia, thrombocytopenia, and the tests that were carried out showed positive results for antinuclear antibodies and double-stranded DNA antibodies. These symptoms and results suggest a diagnosis of systemic lupus erythematosus (SLE), for which the mainstay of treatment is hydroxychloroquine. Hydroxychloroquine is a disease-modifying anti-rheumatic drug (DMARD) that increases lysosomal pH in antigen-presenting cells, interfering with activity and downregulating the inappropriate autoimmune response.

Cyclophosphamide is an alkylating agent used in the treatment of many cancers but also plays a role in SLE, specifically used in cases of lupus nephritis (when there is renal involvement). As the results of her renal biopsy show no signs of lupus nephritis this would be inappropriate management. Stage 1 lupus nephritis is diagnosed when there is evidence of mesangial deposits under electron microscopy.

Methotrexate is a DMARD that inhibits folate metabolism and is used in some cancers and autoimmune conditions. Its role in SLE is that of a steroid-sparing agent. If the patient's symptoms are not being controlled with NSAIDs and hydroxychloroquine they may be started on prednisolone, methotrexate can be used in conjunction with this steroid which will allow the patient to be on a lower dose of steroids, thus reducing long-term risks.

Prednisolone is a corticosteroid typically reserved for patients with internal organ involvement or if their symptoms are not controlled by NSAIDs and hydroxychloroquine. This is due to the long-term risks associated with steroid use.

Tacrolimus is another drug used for lupus nephritis and it belongs to the drug class called calcineurin inhibitors. Both cyclophosphamide and tacrolimus play a role in downregulating autoimmune response but are reserved for when there is evidence of internal organ involvement.

Question:

A 7-year-old girl is seen in the medical admissions unit following a referral from her GP. She is presenting with a faint red rash affecting her trunk and thighs. The rash is very pale and appears to be made up of numerous rings. The mother tells you that her daughter has been complaining of pain in her knees, shoulders, and hips over the last week.

She is normally fit and well except for a sore throat 2-weeks previously. No relevant travel history.

On examination, a rash resembling that of erythema marginatum is seen and a pan-systolic murmur is heard.

Given the likely diagnosis, what treatment should be initiated?

A.IM benzylpenicillin / oral penicillin V

B.IV ceftriaxone + oral azithromycin

C.IV ribavirin

D.One-off dose of doxycycline

E.Supportive management alone

Answer:IM benzylpenicillin / oral penicillin V

Explanation:

Recent sore throat, rash, arthritis, murmur → ?rheumatic fever

Important for meLess important

IM benzylpenicillin / oral penicillin V is correct. This patient is presenting with a likely diagnosis of rheumatic fever. The development of erythema marginatum (the rash), combined with arthritis and a pan-systolic murmur, following a recent sore throat, is indicative of rheumatic fever. This question asks about the treatment of rheumatic fever. The first-line treatment for rheumatic fever is a one-off dose of IM benzylpenicillin. However, if this is refused, a course of oral penicillin V can be given instead.

IV ceftriaxone + oral azithromycin is incorrect. This is the recommended first-line treatment for typhoid fever. Although a patient with typhoid fever can present with arthralgia and a rose spot rash, they would normally also have symptoms such as a fever, constipation, and abdominal pain. This patient has a history much more classical of rheumatic fever, with a Streptococcus pyogenes infection (the sore throat), followed by the development of erythema marginatum, arthritis, and a pan-systolic murmur.

IV ribavirin is incorrect. Ribavirin is an antiviral used in the treatment of viral haemorrhagic fever. Viral haemorrhagic fever can present with a rash and systemic symptoms e.g. arthralgia and fever. However, the lack of travel history makes this less likely than a diagnosis of rheumatic fever.

One-off dose of doxycycline is incorrect. This is the recommended treatment for Lyme disease caused by Borrelia burgdorferi. Although Lyme disease can present with systemic symptoms such as arthralgia, you would expect to see an erythema migrans rash at the site of the tick bite, rather than a more general widespread rash (like the one seen in this patient). The history here is much more in keeping with rheumatic fever than Lyme disease and so this answer is incorrect.

Supportive management alone is incorrect. This child has a likely diagnosis of rheumatic fever with cardiac involvement (due to the presence of the pan-systolic murmur). She, therefore, requires immediate treatment. Supportive management is important i.e. analgesia. However, this patient also requires antibiotic treatment.

Question:

An 18-year-old man presents due a number of itchy skin lesions on his arms and trunk. On examination the lesions are coppery brown in colour and scaly. A diagnosis of pityriasis versicolor is suspected. Which one of the following is the most appropriate treatment?

A.Topical dapsone

B.Topical fusidic acid

C.Topical ketoconazole

D.Topical hydrocortisone

E.Phototherapy with UVB

Answer:Topical ketoconazole

Explanation:

Ketoconazole shampoo is used to treat pityriasis versicolor

Important for meLess important

Question:

You are doing the annual review for a 67-year-old man who has type 2 diabetes. His glycaemic control is reasonable with metformin therapy; the latest HbA1c is 54 mmol/mol (7.1%). A few weeks ago he was noted to have a clinic blood pressure reading of 152/90 mmHg. A 24 hour blood pressure monitor was requested. The report shows his average blood pressure was 142/88 mmHg. What is the most appropriate course of action?

A.Do nothing for now, monitor his blood pressure regularly

B.Start an ACE inhibitor

C.Start a calcium channel blocker

D.Repeat the 24 hour blood pressure monitor in 4-8 weeks time

E.Request an ultrasound of his kidneys

Answer:Start an ACE inhibitor

Explanation:

Hypertension in diabetics - ACE inhibitors/A2RBs are first-line regardless of age

Important for meLess important

This patient has stage 1 hypertension as defined by NICE. He should however be treated because he has underlying diabetes.

The first-line treatment for a patient aged > 55 years is a calcium channel blocker. However, in patients with diabetes ACE inhibitors are used first-line due to their renoprotective effect.

Question:

A 78-year-old man presents to the Emergency Department with severe abdominal pain which had developed over the past 2 hours. He has also vomited on two occasions and feels nauseated. He last opened his bowels prior to the onset of pain and passed a bloody stool.

His past medical history includes hypertension and coronary heart disease.

His observations are: heart rate 110/min irregular, respiratory rate 20/min, blood pressure 110/75 mmHg, temperature 37.2º, saturations 99% on air.

On examination he appears to be in pain. His abdomen is tender on palpation with involuntary guarding. No masses are felt. Digital rectal examination does not reveal any masses.

He undergoes an arterial blood gas (ABG) which shows:

pH 7.35

Pa O² 12.5 kPa

Pa CO² 4.0 kPa

HCO³ 18mmol/l

BE -2.4

An abdominal x-ray reveals no free air under the diaphragm however does show thumb printing of the small bowel. ECG demonstrates atrial fibrillation.

What is the most likely diagnosis?

A.Strangulated hernia

B.Colon cancer

C.Ischaemic colitis

D.Aortic aneurysm

E.Diverticulitis

Answer:Ischaemic colitis

Explanation:

Ischaemic colitis is a result of decreased blood flow through the mesenteric circulation resulting in pain, ischaemia and ultimately - gangrene. It has numerous causes including: embolism, thrombosis, atherosclerosis or decreased perfusion secondary to hypovolaemia and septic shock.

Natural history usually includes abdominal pain, nausea and vomiting and the speed of onset is determined by the pathophysiology. In this case a gentleman with vascular disease, the cause could be thrombosis or atherosclerosis but it is the speed of onset and new onset atrial fibrillation (AF) that points to a likely embolic cause. Examination reveals tenderness and an irregular pulse, confirmed as AF on ECG.

Investigations that are useful to diagnose ischaemic colitis include ABG - metabolic acidosis, elevated lactate and imaging. x-ray may show thumb printing although CT is the gold standard investigation.

Initial management includes analgesia, fluids and keeping the patient nil by mouth. Definitive treatment includes thrombolytic therapy, angioplasty or surgery.

Question:

A 19-year-old lady presents to the GP clinic. She has a past medical history of asthma for which she is taking inhaled salbutamol PRN. She was recently started on a new drug which after a few weeks of intake, she has noticed several white patches in her mouth accompanied by a loss of taste. Which of the following medications is most likely to be causing her new symptoms?

A.Inhaled beclometasone

B.Oral montelukast

C.Inhaled prednisolone

D.Oral prednisolone

E.Inhaled tiotropium

Answer:Inhaled beclometasone

Explanation:

Patients taking inhaled steroids to treat asthma are advised to rinse their mouth straight after intake to prevent development of oral candidiasis

Important for meLess important

Due to the history of asthma and use of inhaled steroids, the most likely cause is oral candidiasis. It can be prevented by rinsing the mouth or brushing the teeth straight after use.

The causative agent is most likely to be the inhaled beclometasone as this is an inhaled steroid. Prednisolone is not commonly given as an inhaled drug, instead it is administered orally if the asthma is still uncontrolled after inhaled bronchodilator and steroid therapy

Tiotropium is not a steroid and so is unlikely to cause oral candidiasis.

Oral candidiasis, also known as thrush, is caused most commonly by the fungal organism Candida albicans . It produces white spots on the mucous membranes of the mouth and it can lead to a loss of taste sensation. They are mostly painless although can be accompanied by a burning sensation.

Predisposing factors include: immunosuppression, endocrine disorders such as diabetes, use of broad-spectrum antibiotics and also inhaled steroid use.

Topical antifungals such as nystatin or miconazole are normally used to treat it.

Question:

A 25-year-old male attends his GP with myalgia and flu-like symptoms. He has no past medical history and is usually fit and well.

He has blood results:

Anti-Toxoplasmosa IgG Positive

Anti-Toxoplasmosa IgM Positive

What is the correct management for this patient currently?

A.Amoxicillin

B.Anti IgM

C.No treatment

D.Pyrimethamine

E.Pyrimethamine and sulphadiazine

Answer:No treatment

Explanation:

Immunocompetent patients with toxoplasmosis don't usually require treatment

Important for meLess important

Toxoplasmosis is a parasitic disease whose main reservoir is cats. It is caused by Toxoplasmosis gondii protozoa. It can cause a flu-like illness in humas with symptoms of malaise, lymphadenopathy and myalgia or may be asymptomatic. Most healthy individuals will clear the infection but it can cause complications such as anaemia, seizure or chorioretinitis. These complications mainly occur in neonates (born to mothers with acute infection) or immunocompromised patients.

The blood results given indicates current infection.

This patient is immunocompetent so will not require treatment at present.

Pyrimethamine and sulphadiazine are management options for immunocompromised patients.

Question:

A 24-year-old man is brought to the emergency department have suffered a crush injury to his forearm. Assessment demonstrates that the arm is tender, red and swollen. He is experiencing significant pain in the forearm. There is clinical evidence of an ulnar fracture and the patient cannot move their fingers and complains they are numb. Which is the most appropriate course of action?

A.Application of an external fixation device

B.Closed reduction

C.Debridement

D.Discharge and review in fracture clinic

E.Fasciotomy

Answer:Fasciotomy

Explanation:

The combination of a crush injury, limb swelling and inability to move digits should raise suspicion of a compartment syndrome that will require a fasciotomy

Question:

A 47-year-old man presents to the emergency department with sudden painless loss of vision on the left side. This was preceded by dark 'floaters' in his vision and a 'red hue' prior to total loss of vision on the affected side. This was worst when lying flat. He has a history of poorly controlled type 1 diabetes, proliferative diabetic retinopathy, hypertension and a metallic aortic valve for which he is on warfarin.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Central retinal vein occlusion

C.Posterior vitreous detachment

D.Vitreous haemorrhage

E.Retinal detachment

Answer:Vitreous haemorrhage

Explanation:

Vitreous haemorrhage is an important differential for sudden visual loss in diabetics

Important for meLess important

This patient presents with painless loss of vision with floaters and 'red hue' which is typical of vitreous haemorrhage. Furthermore, this is worst when lying flat as this causes the blood to pool on the macula, thereby worsening central vision. He has several risk factors for this including proliferative retinal disease, hypertension and use of anticoagulants.

Acute angle-closure glaucoma presents with painful loss of vision associated with red-eye. This may be associated with halos seen around lights and a semi-dilated non-reactive pupil. This patient denies pain and there is no mention of a red eye, making this diagnosis less likely.

Although central retinal vein occlusion does cause sudden loss of vision, this would unlikely be preceded by floaters and a red hue. This would also not be worst when lying flat.

Posterior vitreous detachment presents with flashes of light (photopsia) in the peripheral field of vision and floaters, which are often on the temporal side of the central vision. It does not cause loss of sight.

Retinal detachment presents with a dense shadow that starts peripherally and progresses towards the central vision. This is often described as a 'veil' or 'curtain', which occurs over the field of vision. Retinal detachment may also cause straight lines to appear curved.

Question:

A 25-year-old female comes to see her GP with a positive pregnancy test following a missed period. Given her last menstrual period it is estimated that she is 4-5 weeks pregnant. Although the news is unexpected, she is happy to continue with the pregnancy, however she is a known epileptic and is concerned about her medication.

Which of the following medications are recommended for epileptics in pregnancy?

A.Sodium valproate

B.Phenytoin

C.Lamotrigine

D.Primidone

E.Phenobarbitone

Answer:Lamotrigine

Explanation:

Anti-epileptics in pregnancy can be a tricky subject. Many are known to cause severe congenital defects (both structural and intellectual) and as such the first line of care is good contraceptive advice and planning with the patient in question. This is however, not always possible and there will always be cases where a patient becomes pregnant whilst on anti-epileptic medication prior to consulting with a doctor.

The recent MBRRACE-UK and the NICE clinical guidelines both state that most women with epilepsy and of child bearing age are currently prescribed lamotrigine and during pregnancy this may require a dose increase. Phenytoin, phenobarbitone and sodium valproate are all known to have an adverse effect on cognitive abilities and therefore are usually avoided unless absolutely necessary.

Lamotrigine, carbamazepine and levetiracetam are known to have the smallest effects on the developing foetus, however all epileptics who are either pregnant or are planning to become pregnant should be referred to specialist care as soon as possible.

Question:

A 3-month-old boy is being reviewed by the GP for undescended testis. His left testicle was found to be undescended during the newborn and infant physical examination (NIPE) at birth. On examination today, only one testicle is palpated in the scrotum. He is referred to urological surgeons for review.

What complication is this patient at an increased risk of developing if the abnormality is not corrected?

A.Femoral hernia

B.Hydrocele

C.Orchitis

D.Testicular torsion

E.Varicocele

Answer:Testicular torsion

Explanation:

Undescended testicles are associated with an increased risk of infertility, torsion and testicular cancer

Important for meLess important

Testicular torsion is correct. If one testis has not descended, a watch-and-wait approach can be used for up to three months as it may descend spontaneously. If left untreated, undescended testicles are associated with an increased risk of testicular torsion, infertility, and testicular cancer and necessitate early intervention (by six months of age).

Femoral hernia is incorrect. Femoral hernias are uncommon in childhood. However, an undescended testis may increase the risk of an inguinal hernia.

Hydrocele is incorrect. Hydroceles are common at birth (especially in premature infants) but are benign and resolve spontaneously. There is no known association between a hydrocele and undescended testicles.

Orchitis is incorrect. Orchitis can occur in an undescended testis, but there is no increase in the risk of orchitis due to the lack of descent.

Varicocele is incorrect. Varicoceles are a common, treatable cause of male infertility. Although both varicoceles and undescended testicles increase the risk of infertility, undescended testicles do not increase the risk of varicocele.

Question:

You are called to see a 21-year-old man in the Emergency Department. He had cut his arm, and one of the junior doctors had been attempting to suture the wound. When injecting lidocaine, she had forgotten to draw back on the syringe to ensure she was not in a vessel. He initially started complaining of tongue numbness and a metallic taste in his mouth and has now developed generalised convulsions.

What is the most appropriate treatment?

A.20% lipid emulsion

B.Flumazenil

C.N-acetylcysteine

D.Naloxone

E.Sodium bicarbonate

Answer:20% lipid emulsion

Explanation:

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

Important for meLess important

20% lipid emulsion (IV) can be used to treat local anaesthetic toxicity. This patient has had lidocaine, a local anaesthetic, injected intravenously and has subsequently developed local anaesthetic toxicity. This is a medical emergency. Initial features may be agitation, confusion, dizziness, drowsiness, dysphoria, auditory changes, tinnitus, perioral numbness, metallic taste, and dysarthria. If not promptly recognised and treated, these signs and symptoms can progress to seizures, respiratory arrest, and/or coma.

Flumazenil is a competitive benzodiazepine antagonist that may be used in the treatment of benzodiazepine overdose.

N-acetylcysteine is used for treating paracetamol overdose.

Naloxone is used for treating overdose with opioids.

Sodium bicarbonate can be used in treating patients who have had a tricyclic antidepressant overdose.

Question:

A 29-year-old man presents to the rheumatology clinic. He has been experiencing a dull ache of his lower back, usually commencing on waking first thing in the morning and improving as the day goes on. He also reports significantly reduced movement of the entire spine, especially in the lumbar region.

The patient has also recently been diagnosed with anterior uveitis.

What investigation would be most appropriate to support the likely diagnosis?

A.Chest x-ray to identify apical fibrosis

B.Lumbar x-ray to identify ‘bamboo spine’

C.Pelvic x-ray to identify sacro-iliitis

D.Serum ESR levels

E.Serum HLA-B27 levels

Answer:Pelvic x-ray to identify sacro-iliitis

Explanation:

Diagnosis of ankylosing spondylitis can be best supported by sacro-ilitis on a pelvic X-ray

Important for meLess important

This is a classic case in keeping with ankylosing spondylitis (AS) with features including reduced spinal movement and stiffness affecting a younger patient (normal age of onset is 20-30 years). Symptoms typically are worse on awaking and ease throughout the day. Extra spinal features include anterior uveitis, aortitis, aortic valve insufficiency, and pulmonary fibrosis. Although there is no single test to confirm the diagnosis several investigations can be used to aid make the diagnosis. The most useful investigation to establish the diagnosis is a however a pelvic x-ray to look for sacro-iliitis. The presence of sacroiliitis is both a common feature in AS (even in the early stages of the condition) as well as being relatively specific for the diagnosis. Most other investigative findings either lack specificity, sensitivity or only develop late into the condition.

Although AS is one of only a few conditions that can result in pulmonary apical fibrosis it remains a rare extra-articular manifestation. Apical fibrosis also only develops late in the condition and therefore a chest x-ray is not a particularly useful test when investigating for the disease.

Bamboo spine is a specific characteristic found in cases of AS where the spinal vertebral body fuses by the marginal syndesmophytes. The resultant fused spine resembles a bamboo tree trunk (hence the name) and causes extreme reduction of spinal movement. Although specific for AS, again, it is a very late sign and therefore is less useful for early diagnosis.

Serum ESR, like most inflammatory markers, is typically raised in AS however, this is a very non-specific finding and therefore is not helpful when attempting to diagnose the condition.

Again, a serum HLA-B27 level is not particularly useful when diagnosis AS as, although it is positive in most AS patients, multiple other diseases are associated with the presence of this antigen. Serum HLA-B27 is also found in approximately 10% of the general population meaning it is neither a specific nor sensitive finding.

Question:

A 24-year-old man is seen at his GP surgery with a 3-day history of right ear pain and feeling generally unwell.

His temperature is 38.9ºC, oxygen saturation 96% on air, heart rate 136 beats per minute, respiratory rate 24 breaths per minute and blood pressure 110/76 mmHg.

He has post-auricular inflammation and his right tympanic membrane looks opaque and inflamed.

He has no past medical history or drug history, but he is allergic to penicillin.

Given the likely diagnosis, what is the most appropriate initial action for the GP to take?

A.Arrange same-day admission to hospital

B.Perform a lumbar puncture

C.Prescribe oral amoxicillin

D.Prescribe oral clarithromycin

E.Refer urgently to otorhinolaryngology

Answer:Arrange same-day admission to hospital

Explanation:

Mastoiditis is a medical emergency due to the potential risk of meningitis

Important for meLess important

Arrange same-day admission to hospital is the correct answer. This patient is presenting with acute otitis media complicated by mastoiditis, identified by the post-auricular swelling. Mastoiditis is a medical emergency and requires immediate recognition and admittance to hospital for further assessment and treatment due to the risk of meningitis.

Perform a lumbar puncture is incorrect. While this may form part of the work-up in hospital if meningitis is suspected, it would not be performed in primary care.

The patient is allergic to penicillin, so prescribing oral amoxicillin would be incorrect. In the case of uncomplicated acute otitis media with features suggesting antibiotics would be of benefit, a second line antibiotic should be used instead. However, this patient is at risk of meningitis and therefore needs admission to hospital for assessment and treatment with IV antibiotics.

The patient does require management with antibiotics but prescribing oral clarithromycin without admitting the patient to hospital would be inappropriate as this patient will need an assessment in hospital and treatment with IV antibiotics to prevent complications such as meningitis.

Refer urgently to otorhinolaryngology would be incorrect as this patient requires same-day admission to hospital, rather than within two weeks, as is usually the case with an 'urgent' referral.

Question:

A 28 -year-old is found to have an ectopic pregnancy at 10 weeks gestation. She undergoes surgical management of the ectopic with a salpingectomy. She is known to be rhesus negative. What is the recommendation with regard to anti-D?

A.Anti-D should be given

B.Await results of direct coombs test

C.Anti-D not required

D.Await results of indirect coombs test

E.Anti-D only required if pregnancy is more than 12 weeks

Answer:Anti-D should be given

Explanation:

In surgical management of an ectopic pregnancy then Anti-D immunoglobulin should be administered.

Anti-D is not required in circumstances where a medical management of the ectopic has been used, nor for treatment of pregnancy of unknown location.

Coombs test:

Direct Coombs: Is a investigation used to look for autoimmune haemolytic anaemia,

Indirect: Used antenatally to detect antibodies in the maternal blood that can cross the placenta and result in haemolytic disease of the newborn.

Question:

A 32-year-old male presents to his general practitioner having had several episodes of blood-streaked sputum production. He reports, on further questioning, to have noticed that his clothes are fitting more loosely and he often wakes up in the night soaked through with sweat and needs to change his pyjamas. On examination, the GP notices some cervical lymphadenopathy. Cardiorespiratory examination is unremarkable. He has a known history of HIV and is compliant with antiretroviral therapy. The GP explains she wishes to perform further investigations for tuberculosis.

What is the most appropriate diagnostic test for this patient for active disease?

A.Chest x-ray

B.Interferon gamma release assay (IFGA) blood test

C.Mantoux skin test

D.Sputum culture

E.Sputum microscopy

Answer:Sputum culture

Explanation:

HIV significantly decreases the sensitivity of sputum smear for TB

Important for meLess important

This question is asking for the most appropriate diagnostic test for a patient with known HIV with symptoms suggestive of active TB. All of the answers listed are useful in diagnosing TB however as explained below, many have limited sensitivity or specificity. Symptoms of TB include a cough with haemoptysis, weight loss, and night sweats. There may also be lymphadenopathy on examination (as in this vignette). When assessing patients with HIV, sputum microscopy is shown to be significantly lower in detecting TB than other methods. A study by Matee et al. (2008) showed only slightly over half of sputum culture-positive cases of HIV-associated pulmonary TB (in active cases) were detected on sputum microscopy. This is believed to be due to the organism burden. As such, sputum culture is required for the optimal finding of active cases of HIV-associated TB.

A chest x-ray is a useful first-line investigation for patients with suspected TB however it has poor specificity. Features, such as pleural effusion, lymphadenopathy, and patchy consolidation, are not sufficiently specific to TB and can be seen in other pathologies. This means a chest x-ray is incorrect as it will not be diagnostic.

IFGA blood testing assesses the level of responsiveness when exposed to TB antigens. These are the Quanteferon GOLD test and the T.SPOT-TB test. If the patient has been exposed to TB previously, these will be positive. However, this will not indicate if the patient has latent or active TB so further testing would be indicated (thus this answer is incorrect).

A Mantoux skin test is another test that determines if a person has been exposed to TB antigens but does not specify if the patient has active or latent TB. This is performed by injecting a small amount of tuberculin into the patient's arm skin (subcutaneously) and the patient returning to have an assessment for the size of the wheal 48 to 72 hours after the test is performed.

As previously discussed, sputum microscopy is reduced in sensitivity when the patient has HIV and is, therefore, incorrect.

Question:

A 54-year-old male is brought to the emergency department by his daughter who is worried about his enlarging abdomen, yellowing eyes and skin. Since his wife passed away 5 years ago, he has drunk a bottle of wine and half a bottle of whisky each evening.

He appears unkempt and has a sallow face with angular stomatitis. He has had episodes of dark, tarry stool in the past but has not experienced this for the past month. He denies any haematemesis. He has an ongoing dull ache in his left upper quadrant. On examination, you note that the patient is jaundiced and has shifting dullness, a fluid thrill and palpable liver edge 4cm below the costal margin.

Of those listed, which would be the most appropriate drug therapy for this patient?

A.Paracetamol

B.Prednisolone

C.Pyrazinamide

D.Tetracycline

E.500ml bolus of intravenous 0.9% NaCl

Answer:Prednisolone

Explanation:

Corticosteroids are used in the management of severe alcoholic hepatitis

Important for meLess important

This patient is presenting with signs in keeping with severe alcoholic liver disease - he has ascites (demonstrated with a fluid thrill and shifting dullness), jaundice, and hepatomegaly. He also appears to have nutritional deficiencies, commonly seen in alcoholic patients.

Corticosteroids (e.g. prednisolone) are currently indicated in the management of patients presenting with severe alcoholic hepatitis. This is believed to be through reducing pro-inflammatory cytokines (such as tumour necrosis factor alpha) and increasing anti-inflammatory cytokines such as interleukin 10. There are an increasing number of trials, however, which are demonstrating that there is increased post-treatment infection in these patients - as such, it will be interesting to ascertain changes in guidelines in the coming years regarding steroid use in this disease.

Paracetamol would not improve this patient's presenting condition - there is no indication that the patient is in pain and in need of analgesia.

Pyrazinamide and tetracycline are largely hepatically metabolised and excreted - as such, these drugs are avoided, if possible, in patients with liver disease.

It would be inappropriate to fluid-load a patient with ascites, no shock, and no clinical indications for fluid resuscitation. Regarding fluid balance, it would be more appropriate to consider diuretic therapy to improve the status of this patient's ascites.

Question:

You are working in general practice and your next patient has arrived. Timothy is a 6-year-old boy that has been brought in by his worried mother. She has noticed many dark purple spots on Timothy's legs and buttocks that were not present a week ago. They do not blanch, which is the main source of her concern. Timothy himself feels slightly under the weather, he says that his knees and tummy are sore, and his mum tells you that he had some time off school last week because of a sore throat and runny nose.

How do you most appropriately manage Timothy?

A.Referral to the local hospital's paediatric department

B.Intravenous immunoglobulin (IVIg)

C.Paracetamol

D.Prednisolone

E.Reassurance and safety netting advice only

Answer:Referral to the local hospital's paediatric department

Explanation:

Children with new-onset purpura should be referred immediately for investigations to exclude ALL and meningococcal disease

Important for meLess important

The correct answer is a referral to the paediatric department. The history given by Timothy and his mother sounds suggestive of Henoch–Schönlein purpura (HSP), an immune complex-mediated vasculitis. Although this is the most likely differential at present, the other more serious causes of a non-blanching/purpuric rash must first be considered and excluded. Children with a new purpuric rash should be admitted immediately for investigations as it may be a sign of meningococcal septicaemia or acute lymphoblastic leukaemia (ALL).

Intravenous immunoglobulins (IVIg) are sometimes used in the management of another cause of a non-blanching rash: idiopathic thrombocytopaenic purpura (ITP). They work by decreasing the rate at which macrophages consume antibody tagged platelets. Immunoglobulin therapy would likely be arranged by a specialist, and not by a GP at first presentation.

Paracetamol and analgesics have a role in the management of HSP, as they can be used to manage the symptoms of joint and abdominal pain. But excluding more serious causes of a new-onset purpuric rash still remains the priority in this situation.

Prednisolone plays a role in the management of ITP and can be used sometimes in the management of HSP (although not routinely). But again, excluding more serious causes of a new-onset purpuric rash remains the priority in this situation.

Reassurance and safety netting advice is not appropriate in this situation. Further investigations are required and a referral to paediatrics the most appropriate response.

Question:

A mother brings her 8-month-old to the GP with concern about a rash. The infant became unwell with fever and ‘a cold’ several days ago, and the rash appeared yesterday evening. Of note, mum says that he started nursery two weeks ago. On examination, the child is active and engaged with a good tone. He is afebrile and other vital signs are within normal range. There is some nasal congestion and a papular rash on his trunk which blanches under pressure.

What is the most likely cause of the rash?

A.Eczema

B.Parvovirus B19 (fifths disease)

C.Roseola infantum

D.Scarlet fever

E.Varicella zoster (chickenpox)

Answer:Roseola infantum

Explanation:

Roseola infantum

common 6 months - 2 years

fever followed later by rash

febrile seizures common

Important for meLess important

This child is presenting with a history of febrile illness followed by a rash. This points to an infectious cause. They are well, and examination of the rash shows blanching papules which would be most consistent with roseola infantum. Roseola is a self-limiting illness caused by the human herpes virus type 6.

Eczema is not the most likely cause of the rash. This presents as patches of dry, erythematous skin which can be intensely itchy, rather than the discrete papules described here. It may worsen during periods of acute illness, however, there would likely be a prior history of eczema described.

Scarlet fever is not the most likely cause of the rash. Whilst the rash from scarlet fever also follows a prodromal illness, the child is unwell with fever and symptoms including sore throat, headache, vomiting, and myalgia. The rash is described as being like sandpaper (raised papules on an erythematous base) and begins approximately 48 hours into the illness, affecting the neck and upper body first. The tongue has a characteristic ‘strawberry’ appearance. This child is missing key rash characteristics and is too well for scarlet fever to be the top differential.

Parvovirus B19 (fifths disease) commonly also presents with a history of fever and rhinorrhoea/nasal congestion, however, the rash is usually facial with a characteristic ‘slapped cheek’ appearance rather than the papular rash on the trunk described here.

Varicella zoster (chickenpox) rash may also follow a history of coryzal symptoms however the rash will be itchy and be comprised of a combination of papules, pustules, and scabs.

Question:

A 67-year-old man is investigated for dyspepsia. A gastroscopy reveals a suspicious lesion which is biopsied. Which one of the following findings on biopsy would be most consistent with a diagnosis of gastric adenocarcinoma?

A.Columnar metaplasia

B.Histiocytic infiltration

C.Paneth cell metaplasia

D.Giant cell granulomas

E.Signet ring cells

Answer:Signet ring cells

Explanation:

Gastric adenocarcinoma - signet ring cells

Important for meLess important

Question:

A 56-year-old man presented to the emergency department with a sudden-onset occipital headache and slurred speech. He described a constant throbbing pressure like headache and associated visual disturbances. His past medical history consists of type-2 diabetes mellitus and hypertension.

On examination, he had an irregularly irregular pulse. Assessment of his cranial nerves demonstrated left homonymous hemianopia. Power was grossly intact across the limbs and his gait was normal.

Which of the following initial investigations would be most appropriate?

A.Carotid doppler

B.Echocardiogram

C.T2-weighted MRI head scan

D.Non-contrast CT head scan

E.24-hour holter monitoring

Answer:Non-contrast CT head scan

Explanation:

Non-contrast CT head scan is the first line radiological investigation for suspected stroke

Important for meLess important

Non-contrast CT head (NCCT) scan is the first-line radiological investigation for suspected stroke due to its speed of imaging, widespread availability, and low cost. More importantly, to rule out an intracranial haemorrhage or a large infarct.

Echocardiography (both transthoracic and transesophageal) is an extensively used and versatile technique that gives comprehensive information on thromboembolic risk in patients with stroke but is not a first-line investigation. It does form an important part of stroke work-up.

Conventional MRI sequences such as T2 weighted images offer little benefit over NCCT in their sensitivity to stroke detection within the first hours. However, newer sequences, notably diffusion-weighted MRI and perfusion-weighted imaging offer considerable increases in diagnostic sensitivity and are better validated than CT scanning in defining pathophysiological parameters such as tissue viability in acute ischaemic stroke, which often end up being second-line investigations.

Carotid doppler scanning helps determine stroke risk and the need for preventive measures including surgical intervention but would offer limited value as a first-line investigation. A carotid doppler scan is undertaken if you are considered to be at risk of having a stroke due to reduced blood flow in the carotid arteries.

24-hour Holter monitoring and 12-lead electrocardiogram (ECG) are used to reveal the arrhythmic causes of stroke such as atrial fibrillation but would not be conducted in the acute phase.

Question:

You are seeing a 32 week pregnant woman in the GP surgery. She has widespread rash on her body with periumbilical sparing.

What is the most likely diagnosis?

A.Allergic skin reaction

B.Atopic eruption of pregnancy

C.Intrahepatic cholestasis of pregnancy

D.Pemphigoid gestationis

E.Polymorphic eruption of pregnancy

Answer:Polymorphic eruption of pregnancy

Explanation:

One of the main clinical features of polymorphic eruption in pregnancy is periumbilical sparing

Important for meLess important

Allergic skin reaction can vary depending on the nature of the reaction and the source but does not present with periumbilical sparing.

Atopic eruption of pregnancy presents mainly on the face, neck and chest and the extensor surfaces of the limbs.

Intrahepatic cholestasis of pregnancy presents with itching and results in secondary skin changes due to pruritus.

The skin rash in pemphigoid gestationis usually starts in the periumbilical area and can cause blisters.

One of the main features of polymorph eruption in pregnancy is periumbilical sparing. The condition is more common in nulliparous women and it usually starts in the third trimester with erythematosus, itchy papules located typically in the abdominal striae.

Question:

A 31-year-old man who is known to be HIV positive presents with dyspnoea and a dry cough. He is currently homeless and has not been attending his outpatient appointments or taking antiretroviral medication.

Clinical examination reveals a respiratory rate of 24 / min. Chest auscultation is unremarkable with only scattered crackles. His oxygen saturation is 96% on room air but this falls rapidly after walking the length of the ward. Given the likely diagnosis of Pneumocystis jiroveci pneumonia, what is the most appropriate first-line treatment?

A.Fluconazole

B.Co-trimoxazole

C.Erythromycin

D.Ganciclovir

E.Sulfadiazine and pyrimethamine

Answer:Co-trimoxazole

Explanation:

Pneumocystis jiroveci penumonia is treated with co-trimoxazole, which is a mix of trimethoprim and sulfamethoxazole

Important for meLess important

Question:

An 85-year-old gentleman with a past medical history of atrial fibrillation has been commenced on amiodarone. As his GP, which of the following tests should be performed?

A.CXR every 6 months

B.CXR, TFTS, LFTS every 6 months

C.TFTs, LFTs every 6 months

D.ECG, CXR every 6 months

E.TFTS, LFTS, potassium every 6 months

Answer:TFTs, LFTs every 6 months

Explanation:

Amiodarone is a class III antiarrhythmic medication. It can affect many body systems, including the thyroid, liver and lungs.

Current recommendations include liver and thyroid function tests on a 6 monthly basis. Chest x-rays should be performed prior to starting amiodarone treatment, however they do not need to be performed routinely post treatment unless patients develop respiratory signs or symptoms.

Question:

A 51-year-old male has a blood pressure check at his general practice surgery. He has no significant past medical history and is not currently on any medication. His blood pressure in the clinic is recorded as 168/92mmHg. He is sent home with a home blood pressure monitor (HBPM) for 1 week which reveals an average blood pressure of 155/86mmHg.

His general practitioner discusses the risks of hypertension with him, and he agrees to start ramipril. Blood tests are taken prior to starting ramipril:

Na+ 138 mmol/L (135 - 145 mmol/L)

K+ 3.8 mmol/L (3.5 - 5.0 mmol/L)

Urea 4.2 mmol/L (2.0 - 7.0 mmol/L)

Creatinine 90 µmol/L (55 - 120 µmol/L)

He returns 2 weeks later and his blood tests are repeated, which show:

Na+ 137 mmol/L (135 - 145 mmol/L)

K+ 4.9 mmol/L (3.5 - 5.0 mmol/L)

Urea 5.6 mmol/L (2.0 - 7.0 mmol/L)

Creatinine 115 µmol/L (55 - 120 µmol/L)

What is the most appropriate action?

A.Continue ramipril

B.Perform an ECG

C.Switch to amlodipine

D.Switch to losartan

E.Withhold for 3 months and restart once creatinine <100

Answer:Continue ramipril

Explanation:

An increase in serum creatinine up to 30% from baseline is acceptable when initiating ACE inhibitor treatment

Important for meLess important

Current guidelines state that when starting an ACE inhibitor, renal function and electrolytes should be measured before starting therapy and monitored during treatment. An increase in creatinine up to 30% from baseline and an increase in K+ up to 5.5mmol/L is acceptable after starting an ACE inhibitor. In this case, the creatinine has risen by approximately 28%, and K+ is <5.5mmol/L, therefore it is safe for this patient to continue taking ramipril. Bloods should be repeated in a further 2 weeks.

If K+ was >5.5mmol/L, performing an ECG would be appropriate. ECG changes in hyperkalaemia include tall-tented T waves, a prolonged PR interval, wide QRS complexes and small or absent p waves. As K+ is 4.9mmol/L, there is no indication to perform an ECG.

Switching to amlodipine may have been an appropriate management plan if the blood tests had shown an unacceptable increase in creatinine and/or K+ after starting ramipril.

Losartan is an angiotensin-2 receptor blocker (A2RB), which are most commonly used when patients cannot tolerate the side effects of ACE inhibitors, most commonly a dry cough. A2RBs can also cause hyperkalaemia and therefore switching to this would not resolve the issue if ramipril had caused an unacceptable rise in creatinine and K+.

There is no indication to withhold ramipril in this case- the rise in creatinine and K+ are within acceptable limits and he requires management of his hypertension.

Question:

A 42-year-old man visits his GP, wishing to discuss a problem that he finds embarrassing. For the past few weeks, he has noticed a milky discharge from his nipples. He is otherwise well in himself and has no other concerning symptoms. His past medical history includes hypertension, asthma, migraine, leg cramps and a hiatus hernia. Accordingly, his current medications include spironolactone, salbutamol, beclometasone, metoclopramide, quinine and omeprazole.

Which of his medications is most likely to have caused his symptoms?

A.Beclometasone

B.Metoclopramide

C.Omeprazole

D.Quinine

E.Spironolactone

Answer:Metoclopramide

Explanation:

Metoclopramide may result in galactorrhoea

Important for meLess important

The description is that of galactorrhoea - secretion of milk from breast tissue unrelated to normal breastfeeding. It is caused by raised prolactin, which itself may be raised by a number of medications. From the list given here, the most likely cause is metoclopramide, a dopamine receptor antagonist being used to treat migraines. As dopamine normally inhibits prolactin, the antagonism of dopamine receptors leads to raised prolactin.

Beclometasone is an inhaled steroid being used for the patient's asthma. It is not known to cause galactorrhoea. As it is inhaled, rather than systemic, side effects will be limited - common effects of inhaled steroids include oral thrush and changes in taste.

Omeprazole is a proton-pump inhibitor used to reduce acid secretion - in this scenario, for the patient's hiatus hernia. It is not known to cause galactorrhoea; it commonly causes gastrointestinal upset.

Quinine is used in the management of leg cramps. Among other side effects, it commonly causes diarrhoea and headache.

Spironolactone is an aldosterone antagonist being used here for hypertension. It is important to note that, although not known to cause galactorrhoea, it is well-known to cause gynaecomastia - the enlargement of breast tissue in men.

Question:

A 67-year-old-man presents to his GP with his wife complaining of neck swelling and a chronic cough. This has been troubling him for many years and he has only visited the GP today because his wife insisted he gets his bad breath assessed.

His wife also says he is noisy when eating and drinking and has occasional episodes where he struggles swallowing and regurgitates his food.

His past medical history consists of one hospital admission for pneumonia which occurred after one of these episodes of choking.

Given the likely diagnosis, what is the most appropriate definitive step in his management?

A.Endoscopic balloon dilation

B.Endoscopic mucosal resection

C.Heller cardiomyotomy

D.Prescribe omeprazole

E.Surgical repair and resection

Answer:Surgical repair and resection

Explanation:

Dysphagia, aspiration pneumonia, halitosis → ?pharyngeal pouch

Important for meLess important

Surgical repair and resection is correct. The patient's age, halitosis, and regurgitation should raise suspicion of a pharyngeal pouch. Despite this being the likely diagnosis, all patients with new-onset dysphagia should urgently be referred for endoscopy. Once malignancy is ruled out and a pharyngeal pouch is diagnosed, the definitive step in its management is surgical myotomy and resection.

Endoscopic balloon dilation is incorrect. This is a definitive management step in the treatment of achalasia. Although it can present with regurgitation, the absence of retrosternal chest pain or heartburn makes this diagnosis less likely.

Endoscopic mucosal resection is incorrect. This is a definitive management step in the treatment of Barrett's oesophagus, which is associated with gastro-oesophageal reflux disease (GORD). There is no history of dyspepsia or retrosternal chest pain, making this diagnosis less likely.

Prescribe omeprazole is incorrect. This is a treatment option for the management of GORD. Since there is no dyspepsia or retrosternal chest pain, this diagnosis is less likely.

Heller cardiomyotomy is incorrect. This is another definitive step in the management of achalasia. The absence of retrosternal chest pain or heartburn makes this diagnosis less likely.

Question:

A 45-year-old woman presents to her GP with dizziness which started two days ago. She says it feels like the room is spinning around her. The symptoms are constant and are worse when she moves, so she has spent most of her time in bed. She reports feeling nauseous and vomiting once. She also reports hearing ringing in her ears for the past day.

When questioned by the GP, she mentions that she was ill last week with a cold.

On examination, Rinne's test is positive in both ears, but Weber's test localises to the left side.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Labyrinthitis

C.Meniere's disease

D.Vestibular neuronitis

E.Vestibular schwannoma

Answer:Labyrinthitis

Explanation:

Acute viral labrynthitis: sudden onset horizontal nystagmus, hearing disturbances, nausea, vomiting and vertigo

Important for meLess important

Labyrinthitis is correct. This woman is describing the symptom of vertigo, wherein patients feel like the room is spinning or they are spinning. Labyrinthitis is an infection of the membranous labyrinth and affects the vestibular nerve (leading to symptoms of vertigo) and the cochlear end organs (leading to auditory symptoms like tinnitus and hearing loss). In labyrinthitis, vertigo can be made worse by movement but is not triggered by it, as is seen in this case. She also has auditory symptoms in the form of tinnitus (the ringing in the ears) and hearing loss (demonstrated by the results of Rinne's and Weber's tests) which distinguishes this from a diagnosis of vestibular neuronitis, where there is no auditory symptoms. Rinne's and Weber's tests in this woman demonstrate a right sensorineural hearing loss, which is consistent with the type of hearing loss seen in labyrinthitis. Hearing loss can be uni- or bilateral. Usually, labyrinthitis is viral and occurs after a viral upper respiratory tract infection (as is seen in this case).

Benign paroxysmal positional vertigo is incorrect. In BPPV, episodes are very short (only 10-20 seconds) and are triggered by head movement. In this case, the vertigo is much longer lasting and while worsened by movement, it is not triggered by it, as is seen in BPPV.

Meniere's disease is incorrect. Meniere's disease presents with similar symptoms (vertigo, tinnitus, hearing loss), but tends to occur in episodes that last for minutes to hours, rather than the more continuous symptoms seen in labyrinthitis. Meniere's disease may also have additional symptoms like aural fullness that are not reported in this patient. The presence of a recent upper respiratory tract infection also points more towards labyrinthitis as a diagnosis.

Vestibular neuronitis is incorrect. Although vestibular neuronitis presents similarly to this case (vertigo with nausea and vomiting in the context of recent viral illness), it is distinguished from viral labyrinthitis by the absence of hearing symptoms. This is because, in vestibular neuronitis, only the vestibular nerve is affected, whereas, in labyrinthitis, both the vestibular nerve and labyrinth are affected, leading to effects on both balance and hearing. The woman has sensorineural hearing loss and tinnitus, which is more consistent with labyrinthitis than vestibular neuronitis.

Vestibular schwannoma is incorrect. Though vertigo, hearing loss and tinnitus are all symptoms of vestibular schwannoma, you would expect the symptoms to develop much more slowly and insidiously. This woman has an acute presentation of vertigo and hearing loss, which, with the additional history of recent viral illness, fits more with a diagnosis of labyrinthitis.

Question:

A 5-year-old boy is brought to the GP by his father. The father is concerned as he has noticed some hair growing in his son's armpits, and although he has not shown any distress or had any other noticeable symptoms, the father is worried that something is wrong as he is too young to begin going through puberty. On examination, the child has axillary hair growth bilaterally, and his testicles are of appropriate size for his age.

Gonadotrophin assays show the following:

FSH 0.3 IU/L Age 6 months - 10 years old: (1 - 3)

LH 0.2 IU/L Age 6 months - 10 years old: (1 - 5)

Which of the following is the most likely cause of this child's axillary hair growth?

A.Neurofibroma

B.Adrenal hyperplasia

C.Tuberous sclerosis

D.Craniopharyngioma

E.Primary hypothyroidism

Answer:Adrenal hyperplasia

Explanation:

FSH and LH are both low in gonadotrophin independent precocious puberty

Important for meLess important

This scenario describes a case of gonadotrophin independent precocious puberty (GIPP).

In gonadotrophin dependent precocious puberty (GDPP), or 'central' precocious puberty, the levels of the gonadotrophins LH and FSH would be high and testes would be large for age.

In GIPP symptoms are caused by increased levels of sex hormones, for example, testosterone, leading to the suppression of LH and FSH. Increased sex hormone secretion may be due to ovarian, testicular or adrenal causes like congenital adrenal hyperplasia. In boys, the testicular volume will tend to be normal or small.

Adrenal hyperplasia is the only option which is a cause of GIPP. All other options would instead cause GDPP and be associated with increased levels of FSH and LH.

Question:

A fit and well 26-year-old male is referred to the genetics clinic to undergo genetic screening for hereditary non-polyposis colorectal cancer (HNPCC) due to a strong history of cancer in his family. His sister, aged 32, was recently diagnosed with colorectal cancer and his mother and maternal grandfather both died of bowel cancer.

After testing, he is found to be a carrier of the MSH2 gene and is subsequently diagnosed with HNPCC.

Aside from colorectal cancer, which of the following is the patient at greatest risk of developing?

A.Endometrial cancer

B.Lung cancer

C.Medulloblastoma

D.Pancreatic cancer

E.Thyroid cancer

Answer:Pancreatic cancer

Explanation:

Hereditary non-polyposis colorectal cancer (HNPCC) is associated with an increased risk of pancreatic cancer

Important for meLess important

There is an increased risk of pancreatic cancer with HNPCC.

HNPCC is associated with an increased risk of endometrial cancer, however this patient is male.

Medulloblastoma, lung cancer and thyroid cancer are not caused by HNPCC.

Question:

A 67-year-old woman presents with a rash. For the past two weeks she has felt tired and 'achey'. She also has a dry cough and some pleuritic chest pain. She is most concerned however with a new rash on her face:

© Image used on license from DermNet NZ

Which drug is most likely to cause this presentation?

A.Procainamide

B.Digoxin

C.Sodium valproate

D.Methyldopa

E.Allopurinol

Answer:Procainamide

Explanation:

Question:

Herbert is a 64-year-old man who comes to see you regarding his recent diagnosis of heart failure. He has been reading about his condition on the internet and would like to know more about what vaccinations he requires because of this diagnosis. Herbert also suffers with hypertension and type 2 diabetes.

Which of the following vaccinations would you recommend?

A.Annual influenza vaccination, single meningococcal vaccination

B.Annual influenza vaccination, single pneumococcal and single meningococcal vaccination

C.Annual influenza vaccination, single pneumococcal vaccination

D.Single pneumococcal vaccination, single meningococcal vaccination

E.Annual influenza vaccination, 2 yearly pneumococcal vaccination

Answer:Annual influenza vaccination, single pneumococcal vaccination

Explanation:

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

Important for meLess important

Annual influenza vaccination and single pneumococcal vaccination should be given to patients with chronic respiratory and heart conditions, including severe asthma, chronic pulmonary disease, and heart failure.

Meningococcal vaccination is not given routinely to patients in heart failure. It is indicated in patients with asplenia or splenic dysfunction (including due to sickle cell and coeliac disease) as well as those with complement disorder.

Pneumococcal vaccination is given as a booster every 5 years after the first dose for patients with splenic dysfunction and chronic kidney disease.

Question:

A 40-year-old female presents to her GP with a 6-week history of epigastric pain. This is described as a sharp pain associated with nausea and typically comes on within minutes of eating. Her bowel habit and stools were normal. Physical examination was unremarkable.

Which of the following is the most likely diagnosis?

A.Gastritis

B.Chronic pancreatitis

C.Duodenal ulcer

D.Gastric ulcer

E.Biliary colic

Answer:Gastric ulcer

Explanation:

Gastric ulcers cause pain when, or shortly after, eating

Important for meLess important

Gastric ulcer is the correct answer here. The key difference in terms of symptoms is that gastric ulcers typically causes pain when, or shortly after, eating whereas the pain in duodenal ulcer comes on an hour or two after meals. Hydrochloric acid secretion in the stomach is triggered by receptors in the gustatory centre in the brain and mouth when food is detected. The acid only reaches the duodenum and causes irritation later on when the digested food travels there.

Gastritis is typically associated with not having regular meals rather than alongside meals.

Chronic pancreatitis would present with more constant pain, exacerbated by meals, and also pale, hard to flush stools (steatorrhoea).

Biliary colic causes episodic right upper quadrant pain associated with meals.

Question:

A 34-year-old woman visits her GP regarding the appearance of her legs. This is her first presentation to the doctor. For several years, she has had visible, tortuous veins on both legs, which she feels are unsightly. They are sometimes itchy, although not painful. She has never noticed any bleeding, nor any swelling of the legs themselves. She is otherwise fit and well, with no past medical history, nor family history. She does not take any regular medication.

On examination, there are dilated, tortuous, superficial veins in both legs. There is no tenderness on palpation, nor any swelling. No skin changes are visible, nor bleeding, nor ulcers.

Given the likely diagnosis, what would be the most appropriate management?

A.Referral for endothermal ablation

B.Referral for foam sclerotherapy

C.Compression stockings

D.Avoidance of physical activity

E.Ropinirole

Answer:Compression stockings

Explanation:

Graduated compression stockings may reduce symptoms in patients with varicose veins

Important for meLess important

The correct answer is compression stockings. Current guidelines do not advocate referral to secondary care unless there are significant lower limb symptoms including pain and swelling, or bleeding, significant skin changes, ulcers or thrombophlebitis. First-line management for a patient with mild symptoms such as this should include stockings, which may reduce symptoms, as well as weight loss, regular exercise and leg elevation.

Referral for endothermal ablation and foam sclerotherapy are incorrect - these would be used in more severe cases, at the discretion of vascular surgeons, and are not first-line approaches.

Avoidance of physical activity is incorrect - good advice would be to engage in light-to-moderate physical activity, as this has been demonstrated to reduce symptoms.

Ropinirole is incorrect - this is used in the management of restless legs syndrome, not varicose veins.

Question:

A 36-year-old female with a BMI of 34 kg/m^2 is reviewed after managing to lose 3 kg in the past month. She asks about the possibility of starting a drug to help her lose weight. What is the primary mode of action of orlistat?

A.Leptin antagonist

B.Pancreatic lipase inhibitor

C.Prevents intestinal absorption of low-density lipoproteins

D.HMG-CoA reductase inhibitor

E.Centrally-acting appetite suppressant

Answer:Pancreatic lipase inhibitor

Explanation:

Orlistat works by inhibiting gastric and pancreatic lipase to reduce the digestion of fat

Important for meLess important

The primary mode of action of orlistat is to inhibit pancreatic lipases, which in turn will decrease the absorption of lipids from the intestine

Question:

A 35-year-old woman presents to the clinic with differently sized pupils. When shining light into her eye, the right pupil is 4mm larger than the left. When the room is darkened, the right pupil is still larger than the left, but by 2mm. Both pupils are regular in shape. She denies any pain, her sclerae appear normal and a slit-lamp examination is unremarkable. Eye movements are also unaffected. Her father passed away due to a brain tumour and she is worried that she may have the same.

What is the most likely underlying cause?

A.Adie's tonic pupil

B.Argyll-Robertson pupil

C.Horner syndrome

D.Oculomotor nerve palsy

E.Physiological variant

Answer:Adie's tonic pupil

Explanation:

Anisocoria worse in bright light implies a problem with the dilated pupil

Important for meLess important

Adie's tonic pupil is correct. This patient has presented with anisocoria, and it is essential to determine whether this is a result of a problem with dilation (due to sympathetic innervation) or constriction (due to parasympathetic innervation). The anisocoria is worse in bright light, suggesting that the pupil is unable to constrict properly and that the parasympathetic innervation is not working properly. Problems with the parasympathetic innervation of the eye can involve the parasympathetic nervous system entirely, the oculomotor nerve, the ciliary ganglion, or the iris itself. Of the options listed, Adie's tonic pupil is the only option that is characterised by impaired pupil constriction, as it is due to ciliary ganglion dysfunction.

Argyll-Robertson pupil is incorrect. Classically associated with neurosyphilis or diabetes mellitus (which do not apply to this patient), an Argyll-Robertson pupil is typically small, irregular, and unresponsive to light. This patient's pupils are regular and responsive to light.

Horner syndrome is incorrect. This is associated with miosis due to impaired pupil dilation due to sympathetic dysfunction. In this scenario, the patient's pupil is dilated and has problems with constriction, meaning an element of the parasympathetic nervous system is dysfunctional, not the sympathetic nervous system.

Oculomotor nerve palsy is incorrect. This could cause a dilated pupil as the oculomotor nerve carries parasympathetic input, however, the eye would be abducted and depressed (deviated 'down and out') which is not present in this case.

Physiological variant is incorrect. If this were to be the case, the anisocoria would be the same between both eyes (i.e. consistently the same difference) irrespective of bright light and darkness, and the anisocoria would be <1 mm.

Question:

A 28-year-old lady presents to the emergency department with her 3 day-old son. He was born at term and was reported to have an innocent murmur and otherwise normal newborn examination. His mother reports that over the last day he has become breathless, lethargic and is struggling to feed. On examination, he is tachypnoeic, tachycardic and shows increased work of breathing. He is found to have reduced lower extremity pulses to palpation. A systolic murmur is detected under the left clavicle and over the back under the left scapula.

Which of the following types of congenital heart disease is he likely to be suffering from?

A.Patent ductus arteriosus

B.Transposition of the great arteries

C.Tetralogy of Fallot

D.Coarctation of the aorta

E.Pulmonary stenosis

Answer:Coarctation of the aorta

Explanation:

Coarctation of the aorta: acute circulatory collapse at 2 days of age when the duct closes- heart failure & absent femoral pulses. Systolic murmur heard under the left clavicle and over the back

Important for meLess important

This patient has presented with acute circulatory collapse at 2 days of age. This is typical of coarctation of the aorta. This is because the duct is supplying blood flow to the descending aorta, but when the duct closes at 2 days of age, blood flow becomes cut off. Hence the blood pressure drops in the lower limbs, and a murmur is often heard on the left side under the left clavicle and over the left scapula as in this case.

Question:

You are on the morning ward round with your consultant on the labour ward. You come across a patient who has just given birth to a healthy baby boy. You notice several excoriated nodules on her face and neck.

What is the likely cause of the presented dermatosis?

A.Intrahepatic cholestasis of pregnancy

B.Pemphigoid gestationis

C.Atopic eruption of pregnancy

D.Striae gravidarum

E.Melasma

Answer:Atopic eruption of pregnancy

Explanation:

The most common dermatosis in pregnancy is atopic eruption of pregnancy

Important for meLess important

Intrahepatic cholestasis of pregnancy presents with pruritus and results in secondary skin changes. This is not a dermatosis.

Pemphigoid gestationis is a very rare but serious blister forming condition, affecting 1 in 1700 to 1 in 50000 pregnancies.

Atopic eruption of pregnancy is the most common dermatosis in pregnancy with an incidence of 1 in 300. It presents most commonly in the second or third trimester with itchy, erythematosus papules on the face, neck, chest and extensor surfaces of the limbs. It is a usually benign condition without any adverse effects on the mother or the baby.

Striae gravidarum and melasma are physiological skin changes in pregnancy.

Question:

You are asked to review an agitated patient in the emergency department (ED). They are complaining of nausea, headache and palpitations and appear distressed. While taking a history you notice that they appear to be responding to visual stimuli that you cannot see and accuse you of trying to poison them. On examination you note hyperreflexia. An ECG shows sinus tachycardia. Their observations are as follows:

Heart rate 140 beats per minute

Respiratory rate 22 per minute

Oxygen saturation 98% on air

Blood pressure 157/102 mmHg

Temperature 38.1ºC

Which of the following is the most likely cause of their presentation?

A.Cocaine toxicity

B.Lithium toxicity

C.Lysergic acid diethylamide (LSD) intoxication

D.Salicylate overdose

E.Tricyclic overdose

Answer:Lysergic acid diethylamide (LSD) intoxication

Explanation:

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

Important for meLess important

The correct answer is LSD intoxication.

This patient is likely to be suffering from LSD intoxication. They are presenting with typical symptoms of nausea, headache, palpitations, visual hallucinations and paranoia. As well as typical signs, including hyperreflexia, tachycardia, hypertension and pyrexia.

Cocaine toxicity can present very similarly to LSD intoxication. Common signs and symptoms include agitation, psychosis, hypertonia, tachycardia and seizures. However, the ECG would be more likely to show QRS widening and QT prolongation rather than sinus tachycardia.

Lithium toxicity would present with hyperreflexia, acute confusion and polyuria. The lack of a coarse tremor, which is commonly seen in lithium toxicity makes this unlikely.

A salicylate overdose would generally cause hyperventilation, tinnitus and sweating. However, patients would present with lethargy as opposed to agitation.

Patients who have taken an overdose of tricyclic antidepressants would also present with agitation and tachycardia. However, they would also have a dry mouth, dilated pupils and blurred vision. Additionally, the ECG may show widened QRS complexes or a prolonged QT interval.

Question:

A 37-year-old female has a cervical smear test at her general practice, as part of the UK cervical cancer screening programme. The results come back as hrHPV positive. Cytology shows normal cells.

In accordance with current guidelines, the cervical smear test is repeated 12 months later, which is still hrHPV positive. Cytology is repeated, which again shows normal cells.

A cervical smear test performed a further 12 months later, is still hrHPV positive, and cytology remains normal.

What is the most appropriate action?

A.Colposcopy

B.Return to routine recall

C.Repeat the test 3 months later

D.Repeat the test 6 months later

E.Repeat the test 12 months later

Answer:Colposcopy

Explanation:

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

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 the sample returns as 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 hrHPV positive and cytology normal, the test should be repeated in a further 12 months. If this second repeat test is still hrHPV positive and colposcopy normal, colposcopy should be performed.

Returning this patient to routine recall is not appropriate in this case as she has had 3 tests over 3 years which have all returned as hrHPV positive, therefore she requires a colposcopy.

Repeating the test in 3, 6 or 12 months is not appropriate- she requires a colposcopy.

Question:

A 35-year-old woman comes to your clinic to discuss starting contraception. Her BMI is 31 kg/m2, having lost significant weight following gastric sleeve placement 1 year ago. She is a non-smoker and has never been pregnant. Her blood pressure is 119/78mmHg.

The patient is open to long-acting reversible contraceptives though doesn't want a coil. She would also like a contraceptive that can be stopped relatively quickly should she decide to want to start a family.

What contraceptive option would be most appropriate?

A.Combined hormonal contraceptive patch

B.Combined oral contraceptive pill (COCP)

C.Depo-Provera injectable contraceptive

D.Nexplanon implantable contraceptive

E.Progesterone-only pill (POP)

Answer:Nexplanon implantable contraceptive

Explanation:

Patients who have had a gastric sleeve/bypass/duodenal switch cannot have oral contraception ever again due to lack of efficacy, including emergency contraception

Important for meLess important

The implantable contraceptive is the best option here given it is not taken orally and fertility returns relatively promptly following removal.

A combined hormonal contraceptive patch with a BMI of 30-35 kg/m2 and a history of bariatric surgery is UKMEC 2. If the patient was against an implant this may be a suitable option.

The COCP and POP options are inappropriate as oral options will have low efficacy in patients with gastric sleeves. It is worth noting this is not reflected in their UKMEC category as this is primarily focussed on safety rather than efficacy.

Injectable contraceptives are a reasonable option however are associated with varying times for return to fertility. This would not be ideal given the patient wants a contraceptive that can be stopped relatively quickly.

Question:

A sixty-eight-year-old man on a colorectal surgery ward is recovering from a right hemi-colectomy 5 days previously for a tumour in the ascending colon. He is eating and drinking as normal and has been able to mobilise with a walking aid during his physiotherapy sessions.

During the night he complains to the nurse that he is experiencing palpitations and feels very unwell. He has no significant past medical history and no previous surgery prior to this operation. Following her initial assessment, the nurse contacts the foundation year one doctor on call to assess the patient.

On examination:

Heart rate: 124/minute and irregularly irregular; Respiratory rate: 16/minute; Temperature: 38.2 ºC; Blood pressure: 132/82 mmHg; Oxygen saturations levels: 98%; Capillary refill time: <2 seconds.

Heart sounds normal. Lungs clear.

Abdomen distended. Wound on right flank healing well. No erythema or suppurative exudate. Firm and non-tender. No organomegaly. Kidneys non-ballotable. No pulsatile mass. Bowel sounds absent. No renal bruit.

There is feculent material present in the abdominal wound drain.

What of the following is the most likely cause of this patient’s symptoms?

A.Ischaemic colitis

B.Anastomotic leak

C.Ruptured abdominal aortic aneurysm

D.Myocardial infarction

E.Septic shock

Answer:Anastomotic leak

Explanation:

An anastomotic leak is a potential, and serious, cause of new onset atrial fibrillation following gastrointestinal surgery

Important for meLess important

This patient has developed fast atrial fibrillation (AF) 5 days following a right-hemicolectomy. This is a procedure that involves the formation of an anastomosis. It is therefore important to rule out anastomotic leak (2) as the cause of this, particularly in a patient with no prior history of AF or any other cardiac issues. As anastomotic leak usually presents around days 5-7, the fact that this patient is 5 days post-op is another red flag. As is the fact that there is feculent material in the wound drain.

Ischaemic colitis (1) classically presents with severe abdominal pain and the passage of bloody stools. This patient is not currently complaining of either of these issues and the recently anastomosis formation makes anastomotic leak the most likely cause.

Whilst ruptured abdominal aortic aneurysms (3) classically present in this age group, this is less likely than anastomotic leak to the be the cause of this patient’s symptoms due to his recently surgery.

A myocardial infarction would typically present with chest pain that radiates to the left arm and up into the jaw and shortness of breath. This patient does not have any of these features.

Septic shock is inadequate tissue perfusion due to sepsis (as a result of infection). Whilst sepsis is an important differential to consider (and is part of the sequelae of anastomotic leak), this patient’s blood pressure is currently stable meaning that a current diagnosis of septic shock is unlikely.

Question:

A 20-year-old man with a history of epilepsy is seen by his GP regarding some tingling in the fourth and fifth digits of his left hand. As the patient leaves the room he suddenly drops stiffly to the floor and begins seizing. His arms and legs begin jerking rapidly.

The GP presses the emergency alarm on his computer and staff come to assist. A receptionist dials for an ambulance. The patient is placed in the recovery position, but the seizure continues for more than five minutes. The ambulance is five minutes away. There are no cannulas in the surgery.

What should the GP do next?

A.Give IM midazolam

B.Give IM lorazepam

C.Give PR diazepam

D.Go to a different consulting room to see his next waiting patient

E.Wait for the ambulance to arrive

Answer:Give PR diazepam

Explanation:

Status epilepticus in the prehospital setting: PR diazepam or buccal midazolam may be given

Important for meLess important

PR diazepam is correct. The patient has been seizing for more than five minutes, therefore he is in status epilepticus. This is an emergency that may lead to permanent brain damage or death. He requires prehospital treatment. According to the BNF, prehospital treatment of convulsive seizures lasting more than 5 minutes is PR diazepam or buccal midazolam.

IM midazolam is incorrect. Whilst it is sometimes used in hospitals for agitated patients, it is not typically used in the prehospital setting in the UK. With the risk of needlestick injury from a seizing patient, the PR administrative route is preferred.

IM lorazepam is incorrect. It is sometimes used in hospitals for agitated patients but is not often used in the pre-hospital setting. The option of PR diazepam is more desirable.

Go to a different consulting room to see the next waiting patient is incorrect. Even though the ambulance is arriving shortly and other staff are present, it would be deemed inappropriate for the GP to go to a different consulting room to see his next waiting patient . Emergencies can happen within the GP setting and it is a given that patients may have to wait if the clinician is dealing with one. Leaving the patient alone may not be compatible with the GMC's 'Duties of a Doctor'.

Waiting for the ambulance to arrive is incorrect. At this point, the patient is in established status epilepticus and further seizure activity significantly increases the risk of morbidity and mortality. It is important the GP acts now to reduce this risk, therefore waiting a further five minutes is not the most appropriate option.

Question:

A 79-year-old man presents with severe central chest pain which started around 90 minutes ago. He is known to have ischaemic heart disease and had a coronary artery bypass graft (CABG) five years ago. On arrival in the Emergency Department he is clammy and vomiting. An ECG is taken:

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

What is the most accurate description of what is shown on this ECG?

(MI = myocardial infarction, STEMI = ST elevation myocardial infarction, NSTEMI = non-ST elevation myocardial infarction)

A.Normal ECG

B.Current inferior NSTEMI

C.Current anterior NSTEMI

D.Current inferior STEMI

E.Current anterior STEMI

Answer:Current anterior STEMI

Explanation:

Ischaemic changes in leads V1-V4 - left anterior descending

Important for meLess important

In the anterior leads (V2-4) ST elevation can clearly be seen indicating a STEMI. Angiogram revealed an acutely occluded saphenous vein graft to the left anterior descending which was opened with percutaneous coronary intervention.

In the inferior leads there is a pathological Q wave in lead III and non-diagnostic Q waves in leads II and aVF (see below for definitions). These changes suggest that this patient has previously had an inferior MI.

The older and simpler definition of a pathological Q wave:

Q-wave of >=0.04 s and an amplitude >=25% of the R-wave in that lead

The new (and much more complicated) Joint European Society of Cardiology/American College of Cardiology definition of a pathologic Q wave is:

any Q-wave in leads V2 - V3 >= 0.02 s or QS complex in leads V2 and V3

Q-wave >= 0.03 s and > 0.1 mV deep or QS complex in leads I, II, aVL, aVF, or V4 - V6 in any two leads of a contiguous lead grouping (I, aVL,V6; V4 - V6; II, III, and aVF)

R-wave >= 0.04 s in V1 - V2 and R/S >= 1 with a concordant positive T-wave in the absence of a conduction defect

Question:

A 35-year-old man presents with anaemia. On further questioning, you find that he has a lifelong history of recurrent, severe nosebleeds and characteristic erythematous spots around his lips, which blanch when pressed. What is the most likely diagnosis?

A.von Hippel-Lindau

B.Peutz-Jeghers syndrome

C.Neurofibromatosis type 1

D.Hereditary haemorrhagic telangiectasia

E.Granulomatosis with polyangiitis

Answer:Hereditary haemorrhagic telangiectasia

Explanation:

The key is in the recognition of the telangiectasias, which are often found on the skin of the lips, nose and fingers. With this and the epistaxis, two of the three criteria to diagnose Hereditary Haemorrhagic Telangiectasia (HHT) are met. Anaemia is a common complaint in those with HHT. It is due to epistaxis or otherwise asymptomatic GI tract bleeding. Another finding could be hypoxia due to pulmonary arteriovenous malformations. The exact features vary, depending on where the arteriovenous malformations are located.

Von Hippel-Lindau disease is caused by a faulty tumour suppressor gene resulting in the development of multiple unusual tumours including haemangioblastoma, phaeochromocytoma or renal cell carcinoma. At least two tumours must be present to make the diagnosis in someone without a family history (compared to just one when a family history is present).

Peutz Jeghers syndrome is a disorder causing large numbers of polyps in the intestine which become cancerous in a majority of patients. They have pigmented lesions around the lips which are not telangiectasia. There is no history of epistaxis.

Neurofibromatosis Type 1 is benign tumour disorder. Despite the non-malignant nature of the tumours, they can have severe consequences depending on the location. Optic gliomas can lead to blindness, neurofibromas (found in the peripheral nervous system) can lead to learning disabilities and epilepsy. Other characteristic findings include caf-au-lait spots (flat, hyperpigmented, brown cutaneous lesions), axillary freckling, Lisch nodules (on the iris) and dermal neurofibromas (small, rubbery, cutaneous lumps).

Granulomatosis with polyangiitis is a small- and medium-vessel vasculitis which primarily affects the sinuses, kidneys and lungs. Sinus dysfunction is the most common initial symptom causing nasal congestion or epistaxis. If a rash is present, it is usually made up of palpable purpura from small vessel inflammation.

Question:

A 35-year-old woman presents with vaginal bleeding at 36 weeks gestation (gravida 3, parity 2). The patient denies any abdominal pain but is concerned that she is having a miscarriage.

She has previously had two caesarean sections, without complication.

Given the likely diagnosis, what is the most appropriate initial investigation?

A.Bimanual examination

B.CT abdomen and pelvis

C.Hysteroscopy

D.Transabdominal ultrasound

E.Transvaginal ultrasound

Answer:Transvaginal ultrasound

Explanation:

Transvaginal ultrasound is used to investigate suspected placenta praevia

Important for meLess important

This patient has suspected placenta praevia. This occurs when the placenta is fully or partially in the lower uterine segment, with the potential to block the cervical os. Therefore, it typically presents with painless vaginal bleeding and a high foetal presenting part. The investigation of choice is a transvaginal ultrasound .

Bimanual examination is incorrect and should be avoided in suspected placenta praevia due to the risk of causing worsening bleeding, which can lead to hypovolaemic shock in severe cases.

Hysteroscopy is incorrect as this may worsen the bleeding and it is not used for the diagnosis of placenta praevia.

CT abdomen and pelvis is incorrect as they have no diagnostic use in cases of suspected placenta praevia and would expose the foetus to unnecessary radiation.

Transabdominal ultrasound is useful for diagnosis if transvaginal ultrasound is not available, however, the image quality will often be inferior.

Question:

A 55-year-old gentleman has had some pulmonary function tests carried out, after presenting to the respiratory clinic with breathlessness. His results are as follows:

FEV1/FVC 65%

Total gas transfer (TLCO) Raised

Transfer coefficient (KCO) Raised

Which of the following conditions is he likely to be suffering from?

A.Emphysema

B.Pulmonary oedema

C.Pulmonary fibrosis

D.Asthma

E.Left to right cardiac shunt

Answer:Asthma

Explanation:

Normal/raised total gas transfer with raised transfer coefficient: Asthma or pulmonary haemorrhage

Important for meLess important

There are three components involved to get this question correct:

1. FEV1/FVC: The FEV1/FVC of a normal healthy lung is 70-80%. A result of 65% indicates that this condition is an obstructive lung condition, which narrows the options down to asthma or emphysema. You would expect a raised FEV1/FVC with pulmonary fibrosis and pulmonary oedema. A left to right cardiac shunt does not affect lung compliance and hence you would expect a normal FEV1/FVC with this.

2. The total gas transfer (TLCO) is an overall measure of gas transfer for the lungs from the alveoli into the capillaries and reflects how much oxygen is taken up into the red cells. You would only expect to find a raised TLCO in asthma or a left-to-right cardiac shunt. This is because in these conditions, the problem is not affecting the alveoli directly or gas exchange and so the lungs try to compensate for the problem by improving gas exchange. The other conditions are all associated with a lower TLCO.

Hence, asthma is the only answer listed above with would present with he FEV1/FVC and TLCO above, making it the correct answer.

3. KCO is TLCO divided by the alveolar volume, which makes it a measure of how efficient gas exchange is in relation to the alveolar-capillary surface to volume ratio. In asthma, this is increased because there is increased pulmonary blood flow which increases the number of cells which come into contact with the gas.

Question:

You are a junior doctor in the cardiology clinic. A 57-year-old woman is referred due to chest pain. She is currently free of chest pain but has experienced a constricting discomfort in front of the chest in the past 2 months. She could only walk for 200m before getting breathless on walking due to her COPD. She does not think that walking triggers the chest discomfort as the pain starts randomly and does occur at rest. She suffers from hypertension, COPD and type 2 diabetes mellitus. There is a family history of premature coronary artery disease'. She is an ex-smoker.

She is apyrexial. On examination, heart sounds are normal with no murmur. Resting ECG shows non-dynamic T-wave inversion in the lead V1-4. Auscultation of the lungs reveals reduced breath sound and scattered wheeze throughout. Palpation of the chest does not reveal any tender areas.

What is the next step in the investigation of this lady's chest discomfort?

A.Exercise ECG

B.Holter monitor

C.Exercise stress echocardiogram

D.Contrast-enhanced coronary CT angiogram

E.Calculate Framingham risk score

Answer:Contrast-enhanced coronary CT angiogram

Explanation:

NICE recommends contrast-enhanced CT coronary angiogram for someone presenting with non-cardiac chest pain but whose resting ECG shows signs of ischaemia e.g. Q wave abnormality, ST-T wave changes

Important for meLess important

NICE no longer recommends the use of exercise ECG to exclude or diagnose CAD. Exercise ECG is also inappropriate given that her mobility is greatly reduced by her COPD. Likewise, exercise echocardiogram may not be suitable. Dobutamine echocardiogram is appropriate (but is not an option).

Holter monitor records continuous ECG for a period of 24, 48 or 72 hours; this is typically used for investigation of atrial fibrillation (not CAD). Framingham risk score is used to estimate the 10-year risk of heart attack. This information may be used to determine if Statin should be prescribed. However, it is never used to diagnose CAD.

This lady's chest pain would be classified as non-cardiac chest pain (only 1 of 3 criteria for angina is met). However, her resting ECG shows T-wave inversion in V1-4. Therefore, she meets the criteria for investigation of stable chest pain of suspected CAD origin. Besides, she has several risk factors for CAD. Contrast-enhanced coronary CT angiogram (CTCA) is the first-line investigation.

NICE recommends the use of contrast-enhanced CT coronary angiography for patients with:

Typical angina

Atypical angina

Non-cardiac chest pain but a positive resting ECG e.g. Q wave abnormalities, ST-T wave changes

Question:

A 53-year-old gentleman is 1 week post right-hemicolectomy for colorectal cancer and formation of ileostomy. He complains of intermittent shortness of breath and an arterial blood gas sample was taken. The results showed the following;

Normal range

pH: 7.25 (7.35 - 7.45)

pO2: 11.1 (10 - 14)kPa

pCO2: 3.2 (4.5 - 6.0)kPa

HCO3: 11 (22 - 26)mmol/l

BE: -15 (-2 to +2)mmol/l

Normal range

Na: 110 135-145 mmol/l

K: 3 3.5-5 mmol/l

Given the above information, what should form part of the most likely differential diagnosis for this gentleman?

A.Loss from high output stoma post-operatively

B.Uraemia

C.Lactic acidosis

D.Hospital acquired pneumonia

E.Pulmonary embolism

Answer:Loss from high output stoma post-operatively

Explanation:

When considering acid-base disorders in post-operative patients, it is important to consider the potential side effects related to the specific procedure. In this case, this gentleman has an ileostomy for a stoma bag to drain bowel contents post-operatively. These patients may develop significant volume depletion, electrolyte and acid-base disturbances (metabolic acidosis) if the ileostomy output increases or if dietary intake is disrupted or altered. Hence, it is important to monitor fluid balance including stoma output in these patients.

Question:

A 62-year-old man with intermittent claudication is reviewed. He is currently taking clopidogrel and simvastatin. Despite regular exercise he is still symptomatic. Clinical examination shows no signs of critical limb ischaemia. Which one of the following interventions should be considered next?

A.Angioplasty

B.Amlodipine

C.Amputation

D.Isosorbide mononitrate

E.Compression stockings

Answer:Angioplasty

Explanation:

Question:

A 78-year-old female presents to the emergency department with several episodes of haematemesis in the last hour. In the last month, she has noted increased fatigue, weight loss and anorexia. She has a background history of peptic ulcer disease and atrial fibrillation. Her medications include; rivaroxaban 20mg OD and omeprazole 40mg OD.

On examination, she looks unwell. She is very pale and is short of breath at rest. Her observations are as follows:

Blood pressure 97/48 mmHg

Pulse 105 bpm

Temperature 37.1 deg C

Respiratory rate 24/min

Her full blood count returns as:

Hb 69 g/L Male: (135-180)

Female: (115 - 160)

Platelets 110 \* 109/L (150 - 400)

WBC 11.2 \* 109/L (4.0 - 11.0)

Which of the following is the most appropriate agent to reverse her anticoagulant?

A.Andexanet alfa

B.Idarucizumab

C.Protamine sulphate

D.Prothrombin complex concentrate (PCC)

E.Vitamin K

Answer:Andexanet alfa

Explanation:

Rivaroxaban and apixaban can be reversed by andexanet alfa

Important for meLess important

This patient presents with symptoms suggestive of an upper GI bleed. She requires urgent resuscitation with fluids as well as reversal of her anticoagulant - rivaroxaban.

Andexanet alfa - correct. Andexanet alfa is a recombinant modified Factor Xa protein used as an antidote of apixaban and rivaroxaban when reversal of anticoagulation is needed due to uncontrolled bleeding.

Idarucizumab - incorrect. This is the agent used for the reversal of dabigatran. Dabigatran was the first approved direct oral anticoagulant (DOAC) and is a direct thrombin inhibitor. Rivaroxaban (the DOAC that this patient is on) and apixaban are factor Xa inibitors.

Protamine sulphate - incorrect. This agent is used for the reversal of heparin.

Prothrombin complex concentrate (PCC) - incorrect. This agent is also used for the reversal of warfarin. When specific antidotes for reversal of direct oral anticoagulants are not available, PCC may be used.

Vitamin K - incorrect. This is the agent used for the reversal of warfarin. Warfarin would be the agent of choice if this patient had valvular atrial fibrillation.

Question:

All newborn babies should have their hearing checked by the health visitor as part of the 'Newborn Hearing Screening Programme'. If this is abnormal they go on to have which hearing test?

A.Otoacoustic emission test as a newborn/infant

B.Otoacoustic emission test at 6-9 months old

C.Auditory Brainstem Response test as a newborn/infant

D.Auditory Brainstem Response test at 6-9 months old

E.Pure tone audiometry as a newborn

Answer:Auditory Brainstem Response test as a newborn/infant

Explanation:

If a newborn baby has an abnormal hearing test at birth they are offered the auditory brainstem response test

Important for meLess important

All newborn babies should have an acoustic emission test, it is often done in the hospital prior to discharge home following birth. A soft earpiece is placed in the baby's ear and quiet clicking sounds are played through it; the earpiece picks up the response from the inner ear and a computer analyses the results.

If this is abnormal an auditory brainstem response test is carried out as a newborn/infant. This involves three small sensors being placed on the baby's head and neck, and soft headphones are used to play quiet clicking sounds; the sensors detect how your baby's brain and hearing nerves respond to the sound and a computer analyses the results. Therefore, the correct answer is 3, if a newborn baby has an abnormal hearing test at birth they are offered the auditory brainstem response test as a newborn/infant.

A distraction test is carried out at 6-9 month of age.

Pure tone audiometry is done at school entry in most areas of the UK.

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:

Hank, 76, presents to his GP with jaundice. He is a heavy drinker, consuming approximately 35-40 units per week. There is no history of abdominal pain, and pain is not elicited on abdominal examination. However, examination does reveal a palpable gallbladder. Bloods are taken and the results are:

Albumin 30 g/L

Alk Phos 342 U/L

ALT 95 U/L

Bilirubin 102 umol/L

INR 1.4

GGT 123 U/L

Which of the following is the likely diagnosis?

A.Alcoholic hepatitis

B.Pancreatic cancer

C.Primary biliary cirrhosis

D.Paracetamol overdose

E.Gallstones

Answer:Pancreatic cancer

Explanation:

The correct answer for this question is pancreatic cancer.

Courvoisier's sign states that in a patient with a painless, enlarged gallbladder and mild jaundice the cause is unlikely to be gallstones. Furthermore, it is more likely to be a malignancy of the pancreas or biliary tree.

Alcoholic hepatitis and primary biliary cirrhosis are a reasonable differentials. However, an examination finding of a painless, enlarged gallbladder makes both of these differentials less likely.

The scenario does not suggest paracetamol overdose, as this would not cause a painless, palpable gallbladder. Furthermore, jaundice is not usually seen in paracetamol overdose.

Question:

A 41-year-old man is admitted with left-sided pleuritic chest pain. He has a dry cough and reports that the pain is relieved by sitting forward. For the past three days he has been experiencing flu-like symptoms. Given the likely diagnosis of acute pericarditis, what is the most likely finding on ECG?

A.Large S wave in lead I, a large Q wave in lead III and an inverted T wave in lead III

B.Atrial fibrillation

C.Widespread ST elevation

D.ST segment depression in the anterior leads

E.Hyperacute T waves

Answer:Widespread ST elevation

Explanation:

Question:

A 9-year-old girl attends the emergency department accompanied by her mother. She is struggling to breathe and is unable to speak in full sentences. Her mother states that this has been going on for the last 2 hours. She has a past medical history of asthma and a renal transplant.

On examination, she is using her accessory muscles to breathe and no breath sounds are audible on auscultation. Her observations show a heart rate of 130bpm, blood pressure of 120/90mmHg, respiratory rate of 18/min, oxygen saturation of 93% and temperature of 37.6ºC.

What in her presentation makes this a life-threatening asthma attack?

A.Duration of attack

B.Examination findings

C.Her age

D.Her observations

E.Past medical history of renal transplant

Answer:Examination findings

Explanation:

A silent chest is a life-threatening feature of an asthma attack

Important for meLess important

Examination findings is the correct answer. This child is suffering a life-threatening asthma attack because her examination findings show a silent chest, indicating absent ventilatory effort and respiratory exhaustion. Additionally, a respiratory rate of 18/min, although in the normal range of adults, is not a normal finding in someone having an asthma attack as you would expect the respiratory rate to rise significantly to highlight compensation for airway obstruction. Thus, a normal respiratory rate is worrying as it indicates respiratory exhaustion and inability to compensate. The fact that the patient is also using her accessory muscles to breathe also supports this. Other features of a life-threatening asthma attack include:

SpO2 < 92%

PEF < 33% best or predicted

Poor respiratory effort

Altered consciousness

Cyanosis

Duration of attack is incorrect. This does not affect the severity of the asthma attack although it is known that if there is a long duration from the onset of symptoms without any treatment given, there is a very increased risk of development of respiratory exhaustion and progression to a life-threatening asthma attack.

Her age is incorrect. Her age does not affect the severity of her asthma attack, although if she was less than 5 years old her observation ranges would be different. Younger children also present differently with a higher risk of exhaustion and thus life-threatening features much earlier in their presentation. However, age in itself is not a feature of a life-threatening attack.

Her observations is incorrect. A heart rate of more than 125 bpm is consistent with a severe asthma attack. However, given that she has a silent chest on examination, which is a feature of a life-threatening asthma attack, she should be managed as such.

Past medical history of renal transplant is incorrect. Although this is important to be aware of given that she is most likely on immunosuppressants and therefore immunocompromised, it is not a feature of a life-threatening attack. Her history of immunosuppression is also important to consider in her management, as for example, there may be a lower threshold for starting antibiotics.

Question:

A 27-year-old man attends his GP with increasing weakness in his legs. He is otherwise well, although he had an episode of diarrhoea and vomiting from a barbecue outing with his friends 3 weeks ago. He does not have any other medical conditions.

On examination, there are reduced ankle reflexes and ascending distal paraesthesia of his legs.

What is a common feature seen in patients with the likely diagnosis?

A.Back pain

B.Diarrhoea

C.Diplopia

D.Fasciculations

E.Papilloedema

Answer:Back pain

Explanation:

Back/leg pain is seen in the majority of patients with Guillain-Barre syndrome

Important for meLess important

Back pain is the correct answer. The patient's recent history of gastroenteritis followed by peripheral nerve symptoms suggests Guillain-Barre syndrome, an immune-mediated peripheral neuropathy that often occurs 1-3 weeks post-infection. Pain, particularly in the back and legs, is a common early feature due to nerve root inflammation and may precede motor symptoms such as weakness. This pain, described as deep, aching or cramping, serves as an important early clinical clue in diagnosing Guillain-Barre syndrome, especially when coupled with a history of recent infection and symptoms of ascending weakness.

Diarrhoea is incorrect. Diarrhoea is not a specific feature of Guillain Barre syndrome itself. Although our patient in this scenario suffered from diarrhoea following a barbecue, it is a feature of a preceding gastrointestinal infection that can precipitate Guillain-Barre syndrome due to stimulation of the immune system.

Diplopia is incorrect. This can also be seen in Guillain-Barre syndrome due to demyelination of the lower motor neurone nuclei of the oculomotor nerve in the brainstem. However, this is also not as commonly seen as back pain.

Fasciculations is incorrect. Fasciculations occur when innervation from the peripheral nervous system to the muscle is not working correctly and a muscle is triggered involuntarily. This is a rare sign seen in Guillain-Barre syndrome as the loss of innervation to the muscles often only lasts 4-6 weeks, thus not long enough to result in fasciculations. Fasciculations are commonly seen in neuromuscular disorders such as motor neurone disease.

Papilloedema is incorrect. This is not a feature of Guillain-Barre syndrome. Papilloedema is a condition in which the optic disc swells due to increased intracranial pressure. The exact mechanism of papilloedema is not fully understood, but it is believed to be related to impaired axoplasmic flow within the optic nerve due to increased pressure on the nerve. This increased pressure can be caused by various conditions, such as brain tumours, hydrocephalus, or idiopathic intracranial hypertension.

Question:

A 14-year-old boy is brought to the general practice by his mother with a 24-hour history of left-sided ear pain. He is systemically well and has not noticed any fever.

On otoscopic examination, the right ear appears normal, but the left ear has a bulging tympanic membrane with loss of the light reflex. The child appears in pain.

Given the most likely diagnosis, what is the most appropriate management?

A.Admit to hospital for intravenous (IV) antibiotics

B.Analgesia only

C.Prescribe oral antibiotics

D.Refer to ear, nose and throat (ENT) clinic urgently

E.Refer to paediatrics for same-day review

Answer:Analgesia only

Explanation:

Acute otitis media - the majority of patients don't require antibiotics - only analgesia is required

Important for meLess important

The most likely diagnosis in this patient is otitis media. He is presenting with typical symptoms of acute onset ear pain and typical examination findings of a bulging tympanic membrane with loss of the light reflex. The majority of patients with otitis media will recover well without antibiotics and will only need analgesia.

This patient is systemically well, so admission to hospital for IV antibiotics would not be necessary.

Oral antibiotics are normally only given if symptoms have been present for more than 4 days, the patient is systemically unwell (but not unwell enough to require admission), the patient is at high risk of complications, the patient is under 2 years of age with bilateral otitis media, or if the tympanic membrane has perforated. In this case, oral antibiotics are not currently required.

Referral to the ENT clinic would be inappropriate for acute management of otitis media and would only be required long-term if the patient suffered from recurrent infections or complications.

Referral to paediatrics for same-day review would also be inappropriate as the patient is systemically well and does not appear to be suffering from any complications of otitis media. There is also no mention of significant medical history that may increase their risk of these.

Question:

A 59-year-old smoker presents with a 3 month history of dyspepsia and weight-loss. He denies any vomiting, change in bowel habit or abdominal pain. He is not known to have gastro-oesophageal reflux disease

What is the most appropriate first step in management?

A.Trial proton pump inhibitor and review in 4 weeks

B.Trial Helicobacter-Pylori (H-Pylori) eradication therapy and review in 4 weeks

C.Upper Gastrointestinal (GI) endoscopy

D.Barium swallow

E.Computerised tomography (CT) scan of thorax and abdomen

Answer:Upper Gastrointestinal (GI) endoscopy

Explanation:

Red flag symptoms for gastric cancer includes

new-onset dyspepsia in a patient aged >55 years

unexplained persistent vomiting

unexplained weight-loss

progressively worsening dysphagia/

odynophagia

epigastric pain

Although a CT scan would be used to help stage a malignancy should this be the case, the diagnostic test i would be an Upper GI biopsy. This would be performed as an urgent case. In a younger man you may consider a trial of a PPI or testing for H-Pylori is this does not resolve his symptoms. A barium swallow would be indicated if you suspected a oesophageal motility disorder

Question:

A 31-year-old female presents to the genitourinary medicine clinic due to four fleshy, protuberant lesions on her vulva which are slightly pigmented. She has recently started a relationship with a new partner. What is the most appropriate initial management?

A.Oral aciclovir

B.Topical podophyllum

C.Topical salicylic acid

D.Topical aciclovir

E.Electrocautery

Answer:Topical podophyllum

Explanation:

Genital wart treatment

multiple, non-keratinised warts: topical podophyllum

solitary, keratinised warts: cryotherapy

Important for meLess important

Cryotherapy is also acceptable as an initial treatment for genital warts (see below)

Question:

A 41-year-old woman presents to ED with 3 days of increasing lower limb weakness, to the point where she can no longer walk. She reports some sharp back pain which started 2 days ago. She does not report any incontinence. On examination, she has symmetrically reduced muscle power, with depressed patellar and ankle reflexes on both sides. Sensory and upper limb examination is normal.

She is otherwise well, but reports that 2 weeks ago she had a diarrhoeal illness which she attributes to food poisoning.

What is the most likely diagnosis?

A.Anterior circulation stroke

B.Cauda equina syndrome

C.Guillain-Barré syndrome

D.Intracranial space-occupying lesion

E.Lumbosacral intervertebral disc protrusion

Answer:Guillain-Barré syndrome

Explanation:

Progressive peripheral polyneuropathy with hyporeflexia suggests Guillain-Barre syndrome

Important for meLess important

The correct answer is Guillain-Barré syndrome. Progressive, gradual onset of weakness starting in the lower limbs is typical of acute inflammatory demyelinating polyneuropathy (AIDP), the most common form of Guillain-Barré syndrome. The disease involves an inflammatory response against Schwann cells and results in demyelination of peripheral nerves, with symptoms occurring over days to weeks. It can progress to include upper limbs and cranial nerves, and facial nerve palsies occur commonly in patients with AIDP. Sensation abnormalities are usually not as severe as weakness. Patients can also present with a variable amount of back pain. Guillain-Barré syndrome typically occurs around four weeks after an upper respiratory tract or gastrointestinal tract infection, most commonly Campylobacter jejuni gastroenteritis. Features of Guillain-Barré syndrome present in this patient include symmetrical lower limb weakness and back pain.

Anterior circulation stroke is incorrect. This would present with a sudden onset of unilateral weakness, involving a variable extent of the lower limb, upper limb, and face. Patients may also have sensory disturbance as well, depending on the extent of the arterial occlusion or haemorrhage. As the patient has bilateral lower limb weakness with onset over several days, and a convincing antecedent event, Guillain-Barré is more likely than a stroke.

Cauda equina syndrome is incorrect, as the sensory examination is normal and she does not report any autonomic symptoms. If a lesion occurs below the level of the conus medullaris of the spinal cord, it is more likely to affect multiple nerve roots as these collect together in the cauda equina. Involvement of both the lumbar and sacral nerves results in weakness and sensory dysfunction in the corresponding myotomes and dermatomes, urinary and/or faecal incontinence, and sexual dysfunction. This patient’s presentation is more suggestive of Guillain-Barré syndrome rather than cauda equina syndrome.

Intracranial space-occupying lesion is incorrect, as the history is more suggestive of Guillain-Barré syndrome. A focal intracranial lesion would be more likely to present with unilateral weakness, other neurological signs, and raised intracranial pressure. It would however be important to consider this in your differential diagnosis for a patient presenting with new neurological symptoms.

Lumbosacral intervertebral disc protrusion is incorrect. The protrusion of an intervertebral disc against the spinal cord can cause nerve root injury which affects the peripheral nerves associated with that level of the spinal cord. 90-95% of radiculopathies from disc protrusion happen between L4 and S1. Common clinical presentations include back pain with associated paraesthesia, sensory loss, and weakness. This patient has a progressive and gradual onset of bilateral symmetrical weakness after a gastrointestinal illness which is more suggestive of Guillain-Barré syndrome.

Question:

A 27-year-old woman presents to the emergency department with a 2-day history of crampy abdominal pain, bloody diarrhoea, and a fever. She denies any previous episodes. She has returned from Ghana two months ago. In Ghana, she volunteered as a teaching assistant for three months. She tells you that she has also attended a barbecue four weeks ago.

What is most likely to be underlying her symptoms?

A.Campylobacter

B.Salmonella

C.Shigella

D.Amoeba

E.Giardia

Answer:Amoeba

Explanation:

Amoebiasis should be considered in the presentation of dysentery after a long incubation period

Important for meLess important

This patient is presenting with bloody diarrhoea two months following a trip to Ghana. Amoebic dysentery is the most likely cause in this patient given this history.

Giardia is incorrect because it does not present with bloody diarrhoea but rather with bloating, belching, and non-bloody diarrhoea.

Campylobacter, Salmonella and Shigella are all unlikely in this patient. Despite her attending a barbecue, a four-week incubation period would be unusually long for these infections. Campylobacter usually has an incubation period of 48-72 hours.

Salmonella has an incubation period of 12-48 hours.

Shigella has an incubation period of 48-72 hours.

Question:

A 70-year-old man who is known to have atrial fibrillation presents with abdominal pain and rectal bleeding. A diagnosis of ischaemic colitis is suspected. Which part of the colon is most likely to be affected?

A.Hepatic flexure

B.Descending colon

C.Splenic flexure

D.Ascending colon

E.Rectum

Answer:Splenic flexure

Explanation:

The splenic flexure is the most likely area to be affected by ischaemic colitis

Important for meLess important

Question:

A 25-year-old woman presents has a 7-month history of crampy abdominal pain with diarrhoea. She has been passing watery stools with some mucus and her symptoms improve with opening her bowels or passing flatus. There is no rectal bleeding or black tarry stools. An abdominal examination is unremarkable and she has no significant family history.

When asked, she mentions that diarrhoea is the most bothersome symptom and would like some help.

Investigations are performed:

Hb 117 g/L (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 5.3 \* 109/L (4.0 - 11.0)

ESR 15 mm/hr (<17)

CRP 8 mg/L (<10)

What is the next best step in her management?

A.Offer bulk-forming laxative

B.Offer hyoscine butylbromide

C.Offer loperamide

D.Refer to gastroenterology for endoscopy

E.Test for anti-tissue transglutaminase

Answer:Test for anti-tissue transglutaminase

Explanation:

Full blood count, ESR, CRP, antibody testing for coeliac disease – endomysial antibodies or tissue transglutaminase are first-line investigations which are expected to be normal in patients with suspected irritable bowel syndrome.

Important for meLess important

Test for anti-tissue transglutaminase is correct. This patient has signs and symptoms suggestive of irritable bowel syndrome (IBS), due to her abdominal pain, bloating and stools with mucus. Her symptoms improving with opening her bowels and passing flatus support this diagnosis. All of her investigation findings are normal, however, this does not rule out coeliac disease, which may present in a similar way. This may be an early presentation of coeliac disease therefore autoantibody testing should be performed to detect it in its early stages. Even though the patient is requesting help for her diarrhoea at this moment, all patients with suspected IBS should have their full blood count, ESR or CRP, and coeliac disease serology tested. Offering her treatment now may mask the signs and symptoms of coeliac disease until complications develop (e.g. anaemia or malabsorption). The antibody test is anti-tissue transglutaminase (anti-TTG), which we would expect to be negative in IBS.

Offer bulk-forming laxative is incorrect. Although this is an appropriate first-line option for patients with IBS, particularly where constipation is the main problem, all patients with suspected IBS must have coeliac disease ruled out first, as this may mask its signs and symptoms and lead to complications down the line (e.g. anaemia secondary to malabsorption). Therefore serology testing for coeliac disease should be performed first.

Offer hyoscine butylbromide is incorrect. Although this is an appropriate first-line option for patients with IBS where abdominal cramping is the main problem, this patient must have coeliac disease ruled out first, as this may mask its signs and symptoms and lead to complications down the line. Serology testing for coeliac disease should be performed first.

Offer loperamide is incorrect. While this is an appropriate first-line option for patients with IBS where diarrhoea is the main problem, this patient must have coeliac disease ruled out first, as this may mask its signs and symptoms and lead to complications down the line. Serology testing for coeliac disease should be performed first in all patients with suspected IBS.

Refer to gastroenterology for endoscopy is incorrect. There are no red flag features that warrant referral such as rectal bleeding, unexplained weight loss, a family history of bowel or ovarian cancer, or her age being over 60 years old. She should have coeliac serology testing performed first, and if this is positive, then a referral may be needed to confirm the diagnosis of coeliac disease. In cases of IBS, a referral is not necessary.

Question:

A 35-year-old man presents to the Emergency Department complaining of a several-week history of dry cough, fevers, night sweats, weight loss and reduced exercise tolerance due to breathlessness.

The patient is a known intravenous drug user who does not engage with medical services.

Examination of the patient's chest is unremarkable. His heart rate is 75 beats per minute and his respiratory rate is 22 breaths per minute. Although he appeared breathless walking to the clinic, his saturations are 96% on air at rest. On oral examination, a white coating is noted on his tongue.

What is the likely diagnosis?

A.Mycoplasma pneumoniae pneumonia

B.Pneumocystis jirovecii pneumonia

C.HIV seroconversion

D.Pulmonary embolism

E.Pulmonary tuberculosis

Answer:Pneumocystis jirovecii pneumonia

Explanation:

Pneumocystis jiroveci pneumonia causes desaturation on exercise

Important for meLess important

Pneumocystis jirovecii pneumonia (PCP) typically presents with gradual progression of fever, constitutional symptoms, non-productive cough and breathlessness. It classically causes desaturation on exercise, as suggested in this patient, who has reduced exercise tolerance but normal saturations at rest. It typically has few chest signs. PCP is typically seen in immunocompromised patients - classically patients with HIV. This patient's history is most suggestive of PCP and his weight loss, oral candidiasis, history of intravenous drug use, and poor engagement with healthcare services all suggest undiagnosed HIV as the cause of PCP.

Mycoplasma pneumoniae pneumonia is another atypical cause of pneumonia. Whilst it also causes prolonged symptoms, dry cough, and breathlessness, it is not specifically associated with exercise-induced desaturations. It is instead associated with a rash (typically erythema multiforme), sore throat, and complications such as pericarditis, hepatitis, and haemolytic anaemia. Furthermore, the history of intravenous drug use, weight loss, night sweats, and oral candidiasis all suggest underlying HIV, which is associated with PCP. HIV is not a strong risk factor for mycoplasma pneumonia, which is instead associated with younger age and community settings, such as schools.

HIV seroconversion, rather than established underlying HIV, is a possibility in a patient with constitutional symptoms and risk factors for HIV (in this case, intravenous drug use). Whilst seroconversion may cause severe symptoms, the most common symptoms are sore throat, rash, and fever - not cough or breathlessness. Seroconversion would not cause exercise-induced desaturation. Furthermore, weight loss, night sweats, and oral candidiasis all develop later in the course of HIV as the immune system weakens. This history is not typical for HIV seroconversion.

Whilst pulmonary embolism is important to rule out in breathless patients and can cause exercise-induced desaturation, it is not associated with prolonged symptoms and would not cause weight loss, night sweats, or oral candidiasis. It is instead associated with chest pain, tachycardia, and signs and symptoms of deep vein thrombosis. None of these features is present in this patient.

Pulmonary tuberculosis may also be seen in patients with a history suggestive of underlying HIV and also causes a gradual onset of chest symptoms with night sweats, fever, and weight loss. Factors suggesting that this is PCP, not tuberculosis, include exercise-induced desaturations, dry cough (the cough in tuberculosis is typically initially dry but becomes productive), and shortness of breath (this is less common in patients with tuberculosis).

Question:

A 50-year-old woman presents to the emergency department with severe left eye pain over the last 4 hours. She has no changes in her vision, nausea, or vomiting and has a past medical history of systemic lupus erythematosus and takes hydroxychloroquine. She has myopia and wears glasses.

Her pulse is 92 bpm, her blood pressure is 123/75 mmHg, and she is afebrile. The left eye is deep red and injected throughout. When palpating the eye, the injected vessels are immobile and her eye is tender. The right eye is normal and visual fields and acuity are intact.

What is the most likely diagnosis?

A.Acute angle-closure glaucoma

B.Acute keratitis

C.Anterior uveitis

D.Episcleritis

E.Scleritis

Answer:Scleritis

Explanation:

Scleritis is a cause of red eye that is classically painful and may be associated with reduced visual acuity and blurred vision

Important for meLess important

Scleritis is correct. An extremely painful and deep red injected eye in a patient with a systemic connective tissue disease such as systemic lupus erythematosus (SLE) should raise suspicion of scleritis. Pain on palpating the eye is often present and visual acuity and pupillary responses may be abnormal depending on which parts of the globe are affected and how severe the symptoms are.

Acute angle-closure glaucoma (AACG) is incorrect. Although this can cause acute severe ocular pain, patients usually have features of systemic upset such as nausea and vomiting, and visual acuity is reduced from the start, as many patients have blurred vision. Patients may also notice halos around lights and the cornea may appear cloudy on examination. These features are not seen here. Furthermore, hypermetropia increases the risk of AACG, not myopia. Myopia increases the risk of primary open-angle glaucoma.

Acute keratitis is incorrect. Although this can cause a painful red eye, since this affects the cornea, patients describe a foreign body-like gritty sensation, blurring of vision, discharge, and photophobia. An examination may reveal a corneal ulcer. These features are not seen here and acute keratitis is also more common in people wearing contact lenses, which is not the case in this scenario.

Anterior uveitis is incorrect. This can cause a painful red eye, however, the pain is generally worse when using the eye, such as when reading or moving the eye. As well as this, a ciliary flush is present, which is a ring of red spreading outwards, which is not seen here as the entirety of this patient's eye is deep red and injected. Anterior uveitis may also have a hypopyon present (pus in the anterior chamber leading to a visible level) and the pupil may be small and irregular due to irregular sphincter muscle contraction.

Episcleritis is incorrect. Although this can cause acute eye redness in people with systemic connective tissue diseases including SLE, it is classically not painful or less painful than in scleritis. As well as this, the injected vessels are mobile when gentle pressure is applied, which is not the case here.

Question:

A 75-year-old man presents to the emergency department with acute onset shortness of breath and fatigue.

On examination: the patient appears to be working hard to breathe. His temperature is 37ºC, oxygen saturation 93% on air, heart rate is 105 beats per minute with a new irregularly irregular pulse, respiratory rate of 25 breaths per minute, and blood pressure 160/95 mmHg. There are bibasal crackles present on auscultation, as well as an S3 heart sound.

The patient lives alone and is a current smoker of 20 per day.

What is the most important investigation to achieve a definitive diagnosis?

A.Chest X-Ray

B.Echocardiogram

C.Electrocardiogram

D.NT-pro BNP blood test

E.Spirometry

Answer:Echocardiogram

Explanation:

Acute heart failure: echocardiography is indicated in new-onset heart failure, cardiogenic shock, suspected valvular or post-MI problems

Important for meLess important

The correct answer is echocardiogram . The patient is likely suffering from acute heart failure, potentially due to an arrhythmia, as he has a new irregularly irregular pulse. Acute heart failure is likely in this patient due to the symptoms of acute onset breathlessness and clinical signs (bibasal lung crackles and S3 heart sound). Although an NT-proBNP blood test would be done in this scenario, the question specifies the most important investigation for a definitive diagnosis, which would be an echocardiogram.

Chest X-Ray is the wrong answer. Although it would be useful to look for signs of acute heart failure (such as alveolar oedema, Kerley B lines, and cardiomegaly), these signs cannot be used alone for diagnosis.

Electrocardiogram is the wrong answer. This would be a useful investigation to look for signs of ventricular hypertrophy and to assess the heart rhythm, due to his irregularly irregular pulse. Though this may help diagnose an underlying cause, patients with suspected heart failure should have a transthoracic echocardiogram for a definitive diagnosis.

NT-pro BNP blood test is the wrong answer. This test would be important to do; however, it is not a diagnostic investigation. This test may also be raised in cardiac ischaemia, tachycardia, PE, COPD, sepsis, older age and more.

Spirometry is the wrong answer. This may be indicated in patients presenting with a longer history of shortness of breath and smoking history; however, in this case, due to the acute onset and high suspicion of a cardiac cause, it is less useful.

Question:

A 45-year-old man is concerned about pain management during a planned radical prostatectomy he is scheduled to undergo next month. The consultant discusses different options available to him including general and regional anaesthesia. Which of the following is an absolute contraindication to the use of regional anaesthesia such as spinal, epidural or plexus block?

A.Adverse reaction to general anaesthesia

B.The need for post-operative intermittent positive-pressure ventilation

C.Pre existing neurological deficit

D.Concurrent administration of therapeutic dose of warfarin

E.Long history of back pain

Answer:Concurrent administration of therapeutic dose of warfarin

Explanation:

Therapeutic anticoagulation is an absolute contraindication to the use of regional anaesthesia due to the risk of bleeding and the severity of a hematoma within the rigid space of the central nervous system.

Warfarin is usually stopped 5 days pre-operatively and substituted with a Low Molecular Weight Heparin (dose is dependent on the individual thrombosis risk stratification, e.g. CHADs score, time from pulmonary embolism etc). INR should be checked as well, and ideally <1.4, without other coagulation abnormalities.

Question:

A 26-year-old woman presents to the GP with a lump on her left calf. She tells her GP that she does not use sunscreen on her legs when she goes out into the sun, but does not stay out long enough to burn. She shaves her legs once a week and occasionally gets small scrapes from the shaver, one of which was in the location in which this lump has now formed. Her medical history and family history reveal nothing of note.

The lump is a firm, non-tender nodule measuring 5x5mm. There are no noticeable overlying skin changes. The nodule dimples when pinched (positive retraction sign).

What is the most likely diagnosis?

A.Basal cell carcinoma

B.Dermatofibroma

C.Lipoma

D.Nodular melanoma

E.Sebaceous cyst

Answer:Dermatofibroma

Explanation:

Solitary firm papule/nodule that dimples on pinching → dermatofibroma

Important for meLess important

Dermatofibroma is the correct answer. This is a solitary firm papule/nodule that dimples when pinched. Dermatofibromas occur following injury, which in this case is a cut whilst shaving.

Basal cell carcinomas do not commonly occur in this location, nor does this presentation sound like a typical BCC, which on darker skin often looks like a lump that is brown or glossy black and has a rolled border.

Lipomas are slow-growing, fatty tumours located just below the skin, which feel fluctuant to palpation.

Nodular melanomas appear as a lump with black to red pigmentation which changes over time. They are most common on the head and neck, chest or back, and may also bleed or ooze.

Sebaceous cysts are skin-coloured, tan, or yellowish lumps that are often soft to touch. They do not dimple when pinched.

Question:

A 35-year-old woman presents to the GP with a 2-month history of severe fatigue.

She reports feeling extremely tired and having difficulty concentrating. She states that her symptoms started after a viral illness and she now finds it difficult to perform her usual daily activities.

Initial blood tests are performed:

Test Result Normal range

Hb 130 g/L Female: (115 - 160)

WBC 5.1 \* 109/L (4.0 - 11.0)

Na+ 138 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

Vitamin B12 250 ng/L (200 - 900)

Thyroid-stimulating hormone (TSH) 5.0 mU/L (0.5-5.5)

Free thyroxine (T4) 15 pmol/L (9.0 - 18)

What is the next most appropriate action?

A.Commence a trial of levothyroxine sodium

B.Commence a trial of sertraline

C.Reassurance, self-help information and follow up in 1 month

D.Refer for cognitive behavioural therapy

E.Refer to a specialist chronic fatigue syndrome service

Answer:Reassurance, self-help information and follow up in 1 month

Explanation:

Chronic fatigue syndrome: the symptoms should be present for 3 months before making a diagnosis

Important for meLess important

The clinical history, in this case, points towards a potential diagnosis of chronic fatigue syndrome (CFS), also known as myalgic encephalomyelitis. For diagnosis of CFS, the symptoms should be present for at least 3 months, in the absence of an identifiable organic cause. However in this patient symptoms have only been present for 2 months, therefore the correct answer is reassurance, self-help information, and follow-up in 1 month. It would be useful to explain the results and possible diagnosis to the patient and offer them some resources to help manage the psychological consequences and contributing factors. It may also be useful to complete some further tests, such as ESR, coeliac screen, glucose, urinalysis, etc. If symptoms are still present at follow-up, and no organic cause can be identified, it would be appropriate to refer to a chronic fatigue syndrome specialist service.

Commence a trial of levothyroxine is the wrong answer and would not be indicated in this patient as thyroid function tests are normal.

Commence a trial of sertraline is the wrong answer and would not be indicated in this patient, as there were no other symptoms of depressive illness, such as low mood, anhedonia, feelings of worthlessness and guilt, and suicidal thoughts.

Refer for cognitive behavioural therapy is the wrong answer. CBT could be a potential part of the future management plan to help manage any psychological consequences and contributing factors of chronic fatigue syndrome. However, it is not the most appropriate option as, for diagnosis of chronic fatigue syndrome, symptoms should be present for 3 months. The patient is also not expressing any mood changes at present.

Refer to a specialist chronic fatigue syndrome service is the wrong answer. For diagnosis of chronic fatigue syndrome symptoms should be present for at least 3 months.

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 19-year-old woman presents to the emergency department with new-onset chest pain and shortness of breath.

The pain started today and is centrally located, sharp in nature and doesn't change with breathing or position.

She has been unwell for the past week, with fever and joint pains.

She has no past medical history of note.

On examination, she has bibasilar crackles, with dull heart sounds with no added sounds. Her vital signs are normal apart from a respiratory rate of 24/min.

An ECG is performed and shows diffuse T-wave inversion.

What is the most likely diagnosis?

A.Cardiac tamponade

B.Coronary artery vasospasm

C.Dilated cardiomyopathy

D.Myocarditis

E.Pericarditis

Answer:Myocarditis

Explanation:

Myocarditis should be a differential in young people with new onset chest pain with a recent history of viral illness

Important for meLess important

This young woman presents with new-onset chest pain and shortness of breath following a recent viral illness. The chest pain does not appear ischaemic in nature and does not change with position or breathing. This is a typical presentation of myocarditis, which is an inflammation of the heart muscle itself. There may be non-specific ECG changes to the ST segment or to the T wave. The dull heart sounds are due to the myocardium being inflamed and thickened. The shortness of breath and bibasilar crackles are likely due to myocardial dysfunction causing pulmonary congestion.

Cardiac tamponade is incorrect. This usually presents in much more of an acute scenario where fluid in the pericardial sac causes compression of the heart. The fluid leads to muffled quiet heart sounds, not dull heart sounds. There also would be low blood pressure, and tachycardia expected. An examination may reveal signs of venous congestion and an ECG may show electrical alternans. There are no obvious risk factors for tamponade.

Coronary artery vasospasm is incorrect. This would be uncommon in a young person and would present with more of an ischaemic picture (i.e. crushing chest pain, ischaemic ECG changes and abnormal vital signs). Coronary vasospasm may be caused by cocaine use.

Dilated cardiomyopathy is incorrect. This may be a late sequela of myocarditis, but otherwise would not be related to a recent viral illness. This is a less common diagnosis than something such as myocarditis. ECG changes would be expected as well a low blood pressure. An examination may also reveal new murmurs of mitral and tricuspid regurgitation.

Pericarditis is incorrect. This is the main differential of myocarditis but presents differently. The pain classically is changed with movement and breathing, which this patient doesn't have. There may also be classical ECG changes of saddle-shaped ST elevation seen.

Question:

Which one of the following is the most common cause of recurrent first trimester spontaneous miscarriage?

A.Factor V Leiden gene mutation

B.Polycystic ovarian syndrome

C.Hyperprolactinaemia

D.Antithrombin III deficiency

E.Antiphospholipid syndrome

Answer:Antiphospholipid syndrome

Explanation:

Antiphospholipid antibodies (aPL) are present in 15% of women with recurrent miscarriage, but in comparison, the prevalence of aPL in women with a low risk obstetric history is less than 2%

Question:

A 59-year-old man is diagnosed with Parkinson's disease after being referred with a tremor and bradykinesia. His symptoms are now affecting his ability to work as an accountant and are having a general impact on the quality of his life. What treatment is he most likely to be offered initially?

A.Levodopa

B.MAO‑B inhibitor

C.COMT inhibitor

D.Dopamine antagonist

E.Dopamine agonist

Answer:Levodopa

Explanation:

Levodopa should be offered for patients with newly diagnosed Parkinson's who have motor symptoms affecting their quality of life

Important for meLess important

Question:

A 65-year-old man complains of a 1-month history of abdominal pain and constipation as well as feeling generally fatigued and low in mood. Past medical history includes hypertension and ischaemic heart disease. Routine bloods were taken showing:

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

Female: (115 - 160)

Platelets 350 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

Neuts 7.0 \* 109/L (2.0 - 7.0)

Na+ 140 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Urea 3.5 mmol/L (2.0 - 7.0)

Creatinine 85 µmol/L (55 - 120)

eGFR 80 ml/min/1.73m2

Thyroid stimulating hormone (TSH) 2.5 mU/L (0.5 - 5.5)

Free thyroxine (T4) 15 pmol/L (9.0 - 18)

Calcium 4.4 mmol/L (2.1 - 2.6)

Parathyroid hormone 10 pmol/L (1.6 - 6.9)

Phosphate 0.65 mmol/L (0.8-1.4)

What is the most likely cause of his symptoms?

A.Multiple endocrine neoplasia 2a

B.Renal failure

C.Solitary adenoma

D.Squamous cell lung cancer

E.Vitamin D deficiency

Answer:Solitary adenoma

Explanation:

Primary hyperparathyroidism is most commonly due to a solitary adenoma

Important for meLess important

The patient is displaying some of the classic symptoms of primary hyperparathyroidism, remembered by the mnemonic 'stones, bones, moans, groans'. A low phosphate and high PTH and calcium level indicates primary hyperparathyroidism as opposed to secondary (which would have a low calcium level) or tertiary (which would have a high phosphate level). The most likely cause of primary hyperparathyroidism is a solitary adenoma.

In multiple endocrine neoplasia 2a, patients can have the triad of medullary thyroid carcinoma, phaeochromocytoma and parathyroid hyperplasia. Whilst many develop parathyroid hyperplasia, only a relatively small proportion have hypercalcaemia as a result.

Renal failure is a cause of secondary hyperparathyroidism by increasing levels of serum phosphorus which complexes with serum calcium forming deposits; secondly, there is also decreased renal production of 1,25 (OH)2 vitamin D which is responsible for aiding calcium absorption in the gut. Secondary hyperparathyroidism therefore results in low calcium levels and high PTH levels which does not match this patient's blood tests. The patient also has relatively normal renal function.

Some squamous cell lung cancers produce parathyroid hormone-related protein which mimics PTH resulting in high calcium levels. However, this protein is not detected in assays and the the PTH level is therefore low.

Vitamin D deficiency is also another cause of secondary hyperparathyroidism as it is required to aid calcium absorption in the gut therefore, as with renal failure, results in low calcium levels and high PTH levels, which this patient does not have.

Question:

A 55-year-old man presents to the emergency department with neck stiffness, headache, nausea, and fever. The symptoms started yesterday and appear to be worsening with time. He is otherwise well and takes no medications.

His observations are heart rate 90 beats/min, blood pressure 125/84 mmHg, respiratory rate 14/min, oxygen saturation 97% on room air, and temperature 38.1ºC. His GCS is 15/15 and neurological examination is otherwise unremarkable.

The team decides to perform a lumbar puncture for suspected meningitis that shows the following:

WBC 80/µL (0-5)

WBC type lymphocytes

RBC 8/mm³ (0-10)

Protein 0.41g/L (0.15-0.45)

Glucose 2.9mmol/L (2.6-4.2)

Which one of the following organisms is the most likely cause of his symptoms?

A.Mycobacterium tuberculosis

B.Neisseria meningitidis

C.Streptococcus pneumoniae

D.Coxsackievirus

E.Herpes simplex virus (HSV)

Answer:Coxsackievirus

Explanation:

The most common causes of viral meningitis in adults are enteroviruses

Important for meLess important

The correct answer is coxsackievirus. The patient is presenting with classical signs and symptoms of meningitis, such as fever, nausea, headache, and neck stiffness. The lumbar puncture results (increased white blood cell count, lymphocytes-predominance, normal glucose, and normal protein) all point towards a viral cause. Hence, the coxsackievirus is the correct answer, because enteroviruses are the most common causes of viral meningitis in adults.

Mycobacterium tuberculosis meningitis would cause low glucose on the lumbar puncture findings. Additionally, it is a rare disease that occurs most commonly in immunosuppressed patients. This patient has no comorbidities to suggest immunosuppression.

Neisseria meningitidis is one of the most common causative agents of bacterial meningitis in patients aged 6 - 60 years. However, the lumbar puncture in the vignette shows a viral picture. Additionally, his vitals and neurological examination indicate a mild picture, consistent with viral meningitis rather than bacterial.

Streptococcus pneumoniae is another very common causative agent of bacterial meningitis in the 6 - 60 years age range, but the lumbar puncture here shows a viral picture. Additionally, his vitals and neurological examination indicate a mild picture, consistent with viral meningitis rather than bacterial.

Herpes simplex virus (HSV) now ranks second among the causes of viral meningitis in adolescents and adults in developed countries. In addition to fever and symptoms of meningitis, constitutional symptoms of primary herpes infection may occur, with malaise and clinical features of genital herpes simplex virus infection. As there are no symptoms consistent with HSV, this is a less likely answer than coxsackievirus.

Question:

A 23-year-old patient is admitted to the emergency department after suffering profound vomiting during an ultra-marathon. When asked, he confirms that he has not eaten today, and had instead been drinking copious amounts of regular water. He now cannot keep any water down without vomiting.

His vital signs are all within normal range. An initial blood test shows the following.

Na+ 119 mmol/L (135 - 145)

K+ 5.0 mmol/L (3.5 - 5.0)

Creatinine 150 µmol/L (55 - 120)

Whilst prescribing fluids, the man suffers a seizure. He is promptly given a 150 ml infusion of 3% hypertonic saline over 15 minutes. He is now under a period of observation for any consequence of the rapid fluid resuscitation.

Which of the following would be a sign of this complication?

A.Bradycardia

B.Gaze paresis

C.Hemiballismus

D.Spastic quadriparesis

E.Torsades de pointes

Answer:Spastic quadriparesis

Explanation:

Correcting sodium levels rapidly is dangerous:

Hyponatraemia correction - osmotic demyelination syndrome

Hypernatreamia correction - cerebral oedema

Important for meLess important

Exercise-induced hyponatraemia can occur in athletes who do not eat before exercise and drink excessive hypotonic fluids. Both of these decrease the concentration of sodium in the body. The earliest sign is normally nausea and vomiting, with his resultant seizure being a result of severe hyponatraemia.

Severe hyponatraemia (i.e. <120 mmol/L) is treated with a moderately slow infusion of 150 ml of hypertonic saline (e.g. 2.7% or 3%). Any correction of hyponatraemia must be done slowly in order to not cause osmotic demyelination syndrome (also known as central pontine myelinolysis). This can occur 3-5 days after the correction of sodium levels has occurred.

Symptoms of this syndrome will include symptoms of brainstem damage, such as spastic quadriparesis, pseudobulbar palsy, and emotional lability (i.e. pseudobulbar affect). Therefore, spastic quadriparesis is the correct answer.

Bradycardia may be seen with cerebral oedema, which is a potential complication of correcting hypernatraemia too quickly.

Gaze paresis is the impairment of gaze in various directions and can be found in cerebral oedema, which is a potential complication of correcting hypernatraemia too quickly.

Hemiballismus is a rare movement disorder in which there are uncontrollable and violent movements of the limbs. It is a basal ganglia syndrome resulting from damage to the subthalamic nucleus in the basal ganglia.

Torsades de pointes is a life-threatening ventricular arrhythmia that can be due to low serum potassium, calcium or magnesium. It is not implicated in osmotic demyelination syndrome or rapid sodium correction.

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:

An 84-year-old man presents with loss of vision in his left eye since the morning. He is otherwise asymptomatic and of note has had no associated eye pain or headaches. His past medical history includes ischaemic heart disease but he is otherwise well. On examination he has no vision in his left eye. The left pupil responds poorly to light but the consensual light reaction is normal. Fundoscopy reveals a red spot over a pale and opaque retina. What is the most likely diagnosis?

A.Vitreous haemorrhage

B.Retinal detachment

C.Ischaemic optic neuropathy

D.Central retinal vein occlusion

E.Central retinal artery occlusion

Answer:Central retinal artery occlusion

Explanation:

Question:

A 53-year-old man presents to the Emergency Department with abdominal pain. He has a history of end-stage renal failure and has been established on peritoneal dialysis for two years.

On examination, his abdomen is diffusely tender with guarding. His temperature is 38.2ºC; respiratory rate 19/min; heart rate 102/min; blood pressure 126/74 mmHg; oxygen saturation 97% on air.

Selected investigation results are as follows:

WBC 13.9 \* 109/L (4.0 - 11.0)

CRP 148 mg/L (< 5)

Dialysis effluent:

Appearance Cloudy

Fluid white cell count 160/uL (elevated)

What organism is most likely to be responsible for this presentation?

A.Enterococcus faecalis

B.Escherichia coli

C.Klebsiella pneumoniae

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 correct answer is Staphylococcus epidermidis. Coagulase-negative staphylococci such as Staphylococcus epidermidis are the most common cause of peritonitis in peritoneal dialysis (PD) patients. In the case of Staphylococcus epidermidis, this is often caused by intra-abdominal translocation of this normal skin commensal organism via the dialysis line.

Enterococcus faecalis is a recognised cause of PD-associated peritonitis, but is less frequently implicated than Staphylococcus epidermidis.

Escherichia coli peritonitis is less common than Staphylococcus epidermidis peritonitis in PD patients, but can be clinically challenging to treat, especially when an ESBL-producing E coli organism is involved.

Klebsiella pneumoniae is incorrect. This is one of the more common gram-negative causes of peritonitis in PD patients. It is associated with more severe outcomes than most gram-positive infections but is less common than staphylococcal peritonitis.

Staphylococcus aureus is a coagulase-positive staphylococcus that is less frequently associated with peritonitis in PD patients than Staphylococcus epidermidis (it is not a normal skin commensal, nor a common gut commensal). It can be associated with particularly severe peritonitis in PD patients compared to coagulase-negative staphylococcal infections.

Question:

A 67-year-old male attends the Emergency department with sudden onset dizziness and vomiting, which has been present for the past 2 hours. He has a background of hypertension and hypercholesterolaemia for which he takes ramipril and simvastatin. Examination reveals vertical nystagmus and difficulty standing without support. What is the most appropriate next step in this patient's management?

A.Prochlorperazine 12.5 mg IM

B.Arrange immediate admission for thrombolysis

C.Urgent CT head

D.Sumatriptan 50 mg PO

E.Perform the Epley manoeuvre

Answer:Urgent CT head

Explanation:

This history is suggestive of a cerebellar stroke. Circulation to the cerebellum is impaired due to a lesion of the superior cerebellar artery, anterior inferior cerebellar artery or the posterior inferior cerebellar artery (also known as lateral medullary syndrome). The first step would be determine any evidence of cerebellar haemorrhage, which would contraindicate thrombolysis. MRI will be better able to visualise cerebellar infarction.

Cerebellar stroke may present in a similar fashion to vestibular neuritis. Clinically, vertical nystagmus is suggestive of a central cause of vertigo. Additionally, patients usually cannot stand without support, even with the eyes open, whereas a patient with acute vestibular neuritis is usually able to do so.

Benign paroxysmal positional vertigo (BPPV) is a very common cause of vertigo in older people. It is characterised by severe, brief paroxysms of rotational vertigo provoked by positional changes. In contrast to this case, vertigo usually lasts a few seconds to a minute (typically less than 30 seconds).

Migraine is a another common cause of vertigo, however given this patient's age and cardiovascular risk factors, stroke is more likely and the important diagnosis not to miss.

Question:

What is the mechanism of action of dabigatran?

A.Direct thrombin inhibitor

B.Protein C inhibitor

C.Direct factor Xa inhibitor

D.Direct antithrombin III inhibitor

E.Factor II, VII, IX and X inhibitor

Answer:Direct thrombin inhibitor

Explanation:

Dabigatran is a direct thrombin inhibitor

Important for meLess important

Dabigatran is a direct thrombin inhibitor.

Rivaroxaban is a direct factor Xa inhibitor. Apixaban is also a direct factor Xa inhibitor.

Heparin activates antithrombin III.

Warfarin inhibits clotting factors II, VII, IX and X.

Question:

A 72-year-old man is recovering from an inguinal hernia repair when he suffers from an extensive ischaemic stroke. He is managed on the rehabilitation unit. However, he is still not able to feed safely and repeated swallowing assessments have shown that he tends to aspirate. Which of the following is the best option for long term feeding?

A.PEG tube feeding

B.Feeding jejunostomy

C.Total parenteral nutrition

D.Long term naso gastric tube feeding

E.Withold feeding and palliate

Answer:PEG tube feeding

Explanation:

A PEG tube is the best long term option although they are associated with a significant degree of morbidity. A feeding jejunostomy would require a general anaesthetic. TPN is not a good option. Long term naso gastric feeding is usually unsatisfactory.

Question:

A 53-year-old woman is diagnosed with acute cholecystitis. She is scheduled for a cholecystectomy in 4 days. She currently takes 20 units of long acting insulin in the morning to control her type 1 diabetes.

What should her once-daily dose of insulin be on the day before surgery?

A.10 Units

B.16 Units

C.24 Units

D.32 Units

E.40 Units

Answer:16 Units

Explanation:

Surgery / diabetes: once-daily insulin dose should generally be reduced by 20% on the day before and the day of surgery

Important for meLess important

This woman should take 16 units of insulin on the day before and the day of her surgery. This only applies to once daily long acting insulin.

All other options are not correct, as the correct adjustment is a 20% reduction of insulin. 20-(0.2x20)=16 Units.

Question:

A 46-year-old woman has acute-onset shortness of breath. She has no medical or surgical history. She is not on any regular medication except for the combined oral contraceptive pill. There is no history of trauma or long-distance travel.

She is afebrile, her heart rate is 106 bpm, and her blood pressure is 134/75 mmHg. There is no lower limb tenderness but her right leg is slightly swollen compared to the left. Her chest is clear, and no additional sounds are present. An ECG shows sinus tachycardia and a chest x-ray is normal.

No delays in tests or treatment are anticipated.

What is the best next step?

A.Arrange CT pulmonary angiogram

B.Immediately prescribe enoxaparin

C.Immediately prescribe rivaroxaban

D.Perform D-dimer testing

E.Perform proximal leg vein ultrasound scan

Answer:Arrange CT pulmonary angiogram

Explanation:

The presence of acute-onset shortness of breath, tachycardia, and a clear chest should raise suspicion of pulmonary embolism (PE). Since there are no additional findings, nor does she have any medical history that may predispose her to another diagnosis that would present similarly, and she takes the combined oral contraceptive pill, her Wells score is likely to be 4.5. This is because she has a heart rate >100 bpm, which scores 1.5 points, and an alternative diagnosis is less likely than PE, which scores 3 points (since she has no other history that would predispose her to something that presents similarly such as pneumothorax, pneumonia, acute COPD or asthma, or pericarditis, which have been ruled out by the normal chest x-ray and ECG showing sinus tachycardia. Since her Wells score is more than 4 points, a PE is likely.

Arrange CT pulmonary angiogram (CTPA) is the correct answer. CTPA is the investigation of choice for PE and should be done as soon as possible. As no delays in the investigation are anticipated, interim anticoagulation is not necessary at this point.

Immediately prescribe enoxaparin is incorrect. Anticoagulation would be appropriate if there were delays in arranging tests such as a CTPA; however, the anticoagulant of choice would be a direct oral anticoagulant (DOAC, such as apixaban), and since the question mentions no delays are anticipated, anticoagulation is not necessary at this point. Enoxaparin is a low molecular weight heparin (LMWH), which is recommended in patients with severe renal impairment (usually an eGFR < 15/min).

Immediately prescribe rivaroxaban is incorrect. Although this is a DOAC and would be a suitable anticoagulant, this patient requires a CTPA first to confirm or refute the diagnosis of PE. Similarly to the above, since there are no anticipated delays in investigations and management, this patient does not require interim anticoagulation.

Perform D-dimer testing is incorrect. A D-dimer would be appropriate if the patient's Wells score were less than 4 points. Since the patient in the vignette has a Wells score of 4.5, they should have an immediate CTPA.

Perform proximal leg vein ultrasound scan is incorrect. A proximal leg vein ultrasound scan would be appropriate to rule out deep vein thrombosis if this patient had a negative CTPA. Given that this patient has not yet had any investigations except for a chest x-ray, a CTPA should be done immediately since her Wells score is more than 4 points.

Question:

A 43-year-old female presents to her general practice with multiple red lesions on her hands. She reports that these have developed over the past 24 hours, are slightly itchy but not painful. There is no involvement of the mucous membranes. Clinical examination reveals:

© Image used on license from DermNet NZ

Which of the following drugs is associated with the development of this skin disorder?

A.Co-amoxiclav

B.Levothyroxine

C.Lithium

D.Prednisolone

E.Tamoxifen

Answer:Co-amoxiclav

Explanation:

The history and clinical examination is typical for erythema multiforme. Note the characteristic circular 'target' lesions on the hands. Erythema multiforme has a rapid onset (typically 24-48 hours), lasts for 1-2 weeks and is usually self-limiting. The most common medications associated with the development of erythema multiforme are aminopenicillins (such as co-amoxiclav), sulfonamides, carbamazepine, allopurinol, NSAIDs and the oral contraceptive pill.

Levothyroxine is not associated with the development of erythema multiforme.

Lithium has not been associated with erythema multiforme.

Prednisolone has not been linked to the development of erythema multiforme and may be used to treat it in some situations.

Tamoxifen has not been found to be associated with erythema multiforme.

Question:

A 3-year-old boy presents with 6 days of fever, increasing irritability and a rash. His mother is worried because she has been giving him Calpol and ibuprofen for the last few days but has seen no improvement. On examination his temperature is 38.9°C, respiratory rate is 30 breaths/min, and heart rate is 136 beats/min. On further inspection, the child is noted to have bilateral conjunctivitis with no exudate, cervical lymphadenopathy, erythema of the oral mucosa, and a non-vesicular rash that is spreading from his hands and feet. What immediate treatment should be given?

A.High dose oral non-steroidal anti-inflammatory drugs (NSAIDs)

B.High dose aspirin and a single dose of intravenous immunoglobulin

C.High dose intravenous antibiotics

D.High dose aspirin and a single dose of intravenous prednisolone

E.High dose intravenous aciclovir

Answer:High dose aspirin and a single dose of intravenous immunoglobulin

Explanation:

The child presents with at least five of the six diagnostic criteria for Kawasaki disease. Therefore the correct answer is high dose aspirin and a single dose of intravenous immunoglobulin.

Initial aspirin dose of 7.5-12.5 mg/kg 4 times a day for 2 weeks or until afebrile, then 2-5 mg/kg once daily for 6-8 weeks (source: BNF for Children)

Intravenous immunoglobulin 2 g/kg daily for 1 dose, treatment should be given within 10 days of onset of symptoms (source: BNF for Children)

Question:

A 72-year-old man who is having trouble sleeping is prescribed temazepam. What is the mechanism of action of temazepam?

A.Inhibits the effect of acetylcholine

B.Enhances the effect of gamma-aminobutyric acid

C.Inhibits the effect gamma-aminobutyric acid

D.Inhibits the effect of glutamate

E.Inhibits the effect of noradrenaline

Answer:Enhances the effect of gamma-aminobutyric acid

Explanation:

Benzodiazepines enhance the effect of GABA, the main inhibitory neurotransmitter

Important for meLess important

Question:

Janet is a 30-year-old woman who has a routine urine culture sent at her midwife appointment. She is asymptomatic but has had a history of post-coital cystitis in the past. Janet is currently 10 weeks pregnant.

The urine culture comes back showing the growth of Escherichia coli .

What is the next step in managing this patient?

A.Do not treat as she is asymptomatic

B.Treat with 7 days of nitrofurantoin

C.Treat with 3 days of nitrofurantoin

D.Treat with 7 days of trimethoprim

E.Treat with 3 days of trimethoprim

Answer:Treat with 7 days of nitrofurantoin

Explanation:

Pregnant women with a UTI: nitrofurantoin is first-line unless the woman is close to term

Important for meLess important

It is important to treat both symptomatic and asymptomatic urinary tract infections in pregnant women as it is a risk factor for pyelonephritis and premature delivery. Therefore it is incorrect to do nothing.

The guidelines advise a 7-day course of antibiotics.

The choice of antibiotics depends on the trimester.

In the first trimester, trimethoprim is contraindicated due to its effect on folate metabolism. It is safe to use in the second and third trimester.

Nitrofurantoin is safe to use and is often the first line. However, it is advised to avoid use at term (40 weeks) as there is a small risk of neonatal haemolysis.

As this patient is in her first trimester, a 7-day course of nitrofurantoin is recommended.

Question:

A 68-year-old man who has never been screened for abdominal aortic aneurysm (AAA) wishes to be included in the NHS screening programme for AAA.

He denies having recent abdominal or back pain. He does not have any long term medical condition and is not on any long term medication. He has never smoked and his family history is negative for AAA.

He is offered an aortic ultrasound which reveals an abdominal aorta diameter of 5.7 cm.

Based on the information above, which of the following should be done for this patient?

A.Admit him to the emergency department immediately

B.Allow him to go home as abdominal aorta diameter is considered normal, no further scans required

C.Allow him to go home and come for another ultrasound scan after 1 year

D.Refer him to be seen by a vascular specialist within 2 weeks

E.Refer him to be seen by a vascular specialist within 12 weeks

Answer:Refer him to be seen by a vascular specialist within 2 weeks

Explanation:

People with an abdominal aorta diameter of 5.5 cm or larger should be seen by a vascular specialist within 2 weeks of diagnosis

Important for meLess important

Refer people with an abdominal aorta diameter of 5.5 cm or larger to a regional vascular service, to be seen within 2 weeks of diagnosis [NICE 2018].

Refer people with an abdominal aorta diameter of 3–5.4 cm to a regional vascular service, to be seen within 12 weeks of diagnosis.[NICE 2018].

Repeat scan every year for people with an abdominal aorta diameter of 3cm to 4.4cm.

The patient does not need to be admitted to the emergency department as he is clinically well.

Question:

A 16-year-old patient with cystic fibrosis attends the cystic fibrosis clinic, reporting a worsening of symptoms over the past 2 weeks. He reports that he has developed a persistent cough productive of purulent sputum. A series of tests reveal a diagnosis of allergic bronchopulmonary aspergillosis (ABPA).

Given this diagnosis, what is the single most appropriate first line treatment?

A.Amoxicillin

B.Itraconazole

C.Pirfenidone

D.Prednisolone

E.Surgical intervention

Answer:Prednisolone

Explanation:

Oral glucocorticoids are the treatment of choice for allergic bronchopulmonary aspergillosis

Important for meLess important

Allergic bronchopulmonary aspergillosis (ABPA) is a combination of type 1 and type 3 hypersensitivity reactions to spores from aspergillus fumigatus. It most commonly affects patients with existing lung pathology, particularly cystic fibrosis or asthma. It is diagnosed based on blood results, chest X-ray findings and radioallergosorbent test (RAST) findings. The first-line treatment for ABPA oral glucocorticoids, such as prednisolone.

Amoxicillin can be a useful antibiotics to treat chest infections. However, antibiotics have no role in treating this condition as it is caused by a hypersensitivity reaction to fungal spores, not a bacterial infection.

Itraconazole can be used as a second line agent, once oral glucocorticoids have been tried.

Pirfenidone is an anti-fibrotic. It can be used in idiopathic pulmonary fibrosis. However, it has no role in this condition.

Surgical intervention is a potential treatment option for an aspergilloma. This is another medical problem that can be caused by aspergillus fungus. It occurs when a mass-like fungal ball colonises an existing lung cavity. This is different to allergic bronchopulmonary aspergillosis.

Question:

A 43-year-old woman presents with a non-tender lump in the right groin. She has no altered bowel habits and no abdominal pain. She has a history of asthma and 3 previous vaginal deliveries. On examination, there is a palpable soft swelling with a positive cough impulse. The swelling is inferolateral to the right pubic tubercle, non-tender and fully reducible. Both femoral pulses are palpated separately and are normal.

What is the most appropriate management plan for this patient?

A.Conservative management with a support belt for 4 weeks and review afterwards

B.Consider a duplex scan to assess for peripheral vascular disease

C.No action required currently but review in 4 weeks as the lump may have regressed

D.Prescribe a short course of broad spectrum antibiotics and review if her symptoms persist

E.Refer to the surgical team for consideration of surgical repair

Answer:Refer to the surgical team for consideration of surgical repair

Explanation:

Femoral hernias need to be repaired, regardless of whether they are symptomatic, due to the risk of strangulation

Important for meLess important

The most likely diagnosis here is a hernia with evidence from the history and examination. This patient has had previous vaginal deliveries and the rise in intra-abdominal pressure during childbirth increases the risk of having a hernia. In addition, there is a cough impulse and with the anatomical relation to the pubic tubercle, this is potentially a femoral hernia. As a result, surgical referral for repair is necessary due to the high risk of strangulation with this type of hernia. Surgical repair is considered even when the patient is asymptomatic. Therefore, this option is correct.

A support belt could increase the risk of strangulation in a femoral hernia. This option is, therefore, incorrect.

A duplex scan is a good idea as a femoral artery aneurysm is an important differential diagnosis. However, the history suggests both femoral arteries are normal and the findings strongly suggest a hernia. Therefore, the most appropriate management should be tailored towards managing her hernia. Hence, this option is incorrect.

Due to the risk of strangulation with a potential femoral hernia, no action is an unsafe and incorrect option as surgical management is required even when the patient is asymptomatic.

Antibiotics are not currently indicated for this patient as the history suggests she may have a hernia and there is no evidence of acute infection. Therefore, this option is incorrect.

Question:

Which one of the following is characteristic of ulcerative colitis? (in comparison to Crohn's disease)

A.Lesions anywhere from the mouth to anus

B.Granulomas

C.Skip lesions

D.Pseudopolyps

E.Inflammation in all layers from mucosa to serosa

Answer:Pseudopolyps

Explanation:

Ulcerative colitis - pseudopolyps seen on endoscopy

Important for meLess important

Question:

A 22-year-old mathematics student presents to the sexual health clinic for an assessment for the success of treatment he has received. He has had two sexual encounters in the past three months: one with a male ex-partner of his, and one with a new male partner he has just started seeing. Both encounters consisted of unprotected oral and anal intercourse. He was diagnosed and treated for syphilis 3 months ago.

Below are the results of his syphilis serology tests:

On diagnosis 3 months ago:

Enzyme immunoassay test (EIA) Positive

Treponema pallidum particle agglutination assay (TPPA) Positive

Rapid plasma reagin (RPR) 1 in 2

Today:

EIA Negative

TPPA Positive

RPR 1 in 8

Given these results, which is the single best management for this patient?

A.Benzathine penicillin G, IM STAT dose

B.No treatment required

C.Review response 4 weeks

D.Ceftriaxone, IM STAT dose

E.Repeat the test today

Answer:Benzathine penicillin G, IM STAT dose

Explanation:

Reinfection with syphilis should be suspected if the RPR rises by 4-fold or more

Important for meLess important

Syphilis test results can often be difficult to interpret! The correct answer here is to treat again with benzathine penicillin, as this patient is likely to be reinfected with syphilis from the sexual encounter(s) he has had in the past three months. His RPR has risen by 4-fold. Treatment failure, although an option, is considered only once the possibility of re-infection has been excluded.

The EIA detects an acute IgM antibody to syphilis - it may be negative in reinfection.

The T-pallidum particle agglutination (TPPA) test is a specific test for syphilis and often remains positive in patients who have been previously infected.

The rapid plasma reagin (RPR) test is useful to monitor disease activity and reinfection. It is written as the number of times a sample containing syphilis needs to be diluted before it becomes undetectable. Therefore, 1 in 2 means it needs to be diluted twice, whereas 1 in 32 means it needs to be diluted 32 times (meaning disease activity is higher in the latter). A rise by 4-fold or more in a previously infected patient either indicates no treatment response or reinfection.

Benzathine penicillin G as an intramuscular (IM) STAT dose is recommended as first-line treatment for syphilis.

No treatment would mean his syphilis may progress to a later stage.

Reviewing response in 4 weeks is unlikely to yield anything new, as he has come back within the recommended 3 months and his syphilis serology has reached the cutoff required to suspect reinfection.

Ceftriaxone given as an IM STAT dose is used for gonorrhoea infection.

Repeating the test today is also unlikely to yield anything new.

Question:

A 40-year-old woman presents with a painful 'rash' on her shins:

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

These have been present for the past 2 weeks. There is no past medical history of note and she takes no regular medications. What is the most useful next investigation?

A.Liver function tests

B.HbA1c

C.ECG

D.HIV test

E.Chest x-ray

Answer:Chest x-ray

Explanation:

The likely diagnosis here is erythema nodosum (EN). All these tests may have a place but a chest x-ray is important as it helps exclude sarcoidosis and tuberculosis, two important cause of EN

Question:

A 32-year-old man presents with a 12-day history of abdominal discomfort and bloating, worse after eating foods containing milk. He is opening his bowels 8 times per day and he has noticed his stools have a foul smell and tend to float. He recently returned from a backpacking trip in Thailand.

What diagnosis is most likely in this patient?

A.Amoebiasis

B.Coeliac disease

C.Giardiasis

D.Salmonella infection

E.Shigella infection

Answer:Giardiasis

Explanation:

Lactose intolerance can be caused by Giardia lamblia. It decreases the expression of brush-border enzymes in the small intestines

Important for meLess important

The history of recent travel and the presentation of abdominal symptoms associated with milk is suggestive of infection with Giardia lamblia. Giardiasis can precipitate lactose intolerance that can persist for months after the infection has cleared, as it decreases the expression of brush-border enzymes in the small intestine.

Amoebiasis is another travel-related infection. However, it would typically cause profuse, bloody diarrhoea instead.

Coeliac disease could present with bloating and abdominal discomfort, however, would be worse with eating gluten, rather than milk.

Salmonella infection is another common cause of gastroenteritis, especially in developing countries. It typically presents with a high fever and diarrhoea, which may contain blood. Salmonella may be found in unpasteurized milk, however does not cause symptoms associated with milk intake following infection.

Shigella infection typically causes bloody diarrhoea and it is not known to be associated with post-infective lactose intolerance. It is not the most likely diagnosis here.

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 9-year-old boy is brought to the emergency department by ambulance. For approximately 24 hours he has had nausea and vomiting. However, he has now developed acute abdominal pain and when he arrives in the emergency department his breathing is noted to deep and laboured. He is usually fit and well and is not prescribed any medication. Blood results show the following:

Na+ 130 mmol/l

K+ 4.5 mmol/l

HCO3- 14 mmol/l

What is the most likely cause?

A.Sepsis

B.Rotavirus

C.Intestinal obstruction

D.Meningitis

E.Diabetic ketoacidosis

Answer:Diabetic ketoacidosis

Explanation:

The patient in this scenario has developed diabetic ketoacidosis (DKA). The important pieces of information to consider when answering this question are his acute presentation and the blood results.

This patient has presented to the emergency department with nausea, vomiting and acute abdominal pain. These are all symptoms of diabetic ketoacidosis. Furthermore, the laboured, deep breathing that is mentioned is Kussmaul's breathing, which is witnessed in DKA and metabolic acidosis. Kussmaul's breathing occurs whereby excess CO2 is exhaled as a compensatory mechanism for an increased blood pH. The recognition of Kussmaul breathing in this question is one of the major factors in getting this question correct, as you would not expect to see this phenomenon in the other 4 possible answers.

The blood results are concurrent with a diagnosis of DKA. Bloods will often show a hyponatraemia, low bicarbonate and a hypokalaemia in severe cases. The low bicarbonate in this question gives the indication that there is an acidosis in this patient, which helps in deriving the correct answer.

Taking into account all other answers, they each could explain some of the symptoms of this child. However, the low bicarbonate, his symptoms and Kussmaul's respirations should lead to a working diagnosis of diabetic ketoacidosis in this patient.

Question:

A 67-year-old woman presents to the emergency department with central abdominal pain. She vomited twice since the onset of the pain. She did not pass any wind or faeces in the last twelve hours.

Her past medical history comprises a partial small bowel resection following traumatic perforation.

On examination, her abdomen looks distended and there is generalised tenderness on palpation. Her blood tests show the following:

Hb 153 g/L (115 - 160)

Platelets 312 \* 109/L (150 - 400)

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

Bilirubin 17 µmol/L (3 - 17)

ALP 78 u/L (30 - 100)

ALT 29 u/L (3 - 40)

Amylase 880 U/L (70 - 300)

What is the most likely diagnosis?

A.Acute cholecystitis

B.Acute pancreatitis

C.Ascending cholangitis

D.Large bowel obstruction

E.Small bowel obstruction

Answer:Small bowel obstruction

Explanation:

Serum amylase levels can rise in small bowel obstruction not just pancreatitis

Important for meLess important

The correct answer is small bowel obstruction. This patient is presenting with generalised abdominal pain, vomiting and lack of stool or wind passage. These are all cardinal features of small bowel obstruction. The blood test results can be deceiving as elevated serum amylase is usually associated with acute pancreatitis, especially levels which are near to three times the normal upper limit. But in this case, the patient has the classical features of small bowel obstruction and an important risk factor for it, previous abdominal surgery, hence this is the most likely diagnosis.

Acute cholecystitis classically presents with right upper quadrant pain, fever and signs of systemic upset. It has not been associated with elevated amylase levels. Liver function tests are typically normal, and a full blood count can typically show elevated white blood cells.

Acute pancreatitis is a good differential in this case. It typically presents with severe epigastric pain, worse on leaning forward, systemic upset and vomiting. But it is typically not associated with lack of passage of flatus and faeces, and previous bowel surgery is not a risk factor for its development. Hence, the most likely diagnosis s small bowel obstruction.

Ascending cholangitis usually presents with jaundice, fever and upper quadrant pain. The patient does not complain of fever and her bilirubin is normal, making the diagnosis unlikely.

Large bowel obstruction would present with lack of passage of flatus and faeces, distended abdomen and generalised abdominal pain. But in ti case the patient has vomited as well, making a diagnosis of small bowel cancer more likely. Additionally, previous abdominal surgery is the most common cause of small bowel obstruction, whilst malignancy is the most common cause of large bowel obstruction.

Question:

You are a junior doctor on ward cover. You are reviewing a 65-year-old man with gastroenteritis who has been vomiting, and note that his urine output has only been 400ml over the last 24 hours. He weighs 80kg. You suspect a pre-renal acute kidney injury.

His latest bloods show:

Na+ 144 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 21 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

What finding would be most consistent with the likely diagnosis?

A.Brown granular casts in the urine

B.Good response to fluid challenge

C.High urine sodium

D.Low serum urea:creatinine ratio

E.Low urine osmolality

Answer:Good response to fluid challenge

Explanation:

Prerenal disease - good response to fluid challenge

Important for meLess important

Good response to fluid challenge is the correct answer. Good response to fluid challenge is indicative of pre-renal AKI. In interstitial kidney disease, such as acute tubular necrosis the recovery time is much slower, often taking weeks to months to improve back to baseline kidney function.

Acute kidney injury (AKI) is divided into three broad categories: pre-renal; intrinsic renal, and post-renal. In cases of vomiting, there is decreased blood flow to the kidneys due to absolute fluid loss, resulting in pre-renal AKI. This could in time result in intrinsic renal AKI due to ischaemia, however given the acute picture pre-renal AKI is more likely in this case.

Brown granular casts in the urine are seen in acute tubular necrosis. This is because the necrotic epithelial cells accumulate in the renal tubules. They block the tubules and form brown granular casts which are excreted in the urine. They would therefore not be seen in this case.

High urine sodium is not correct. Low urinary sodium is seen in pre-renal AKI. This is due to activation of the renin-angiotensin-aldosterone system in response to renal hypoperfusion, resulting in the re-absorption of sodium with water from the urine.

Low serum urea:creatinine ratio is incorrect. High serum urea:creatinine ratio is seen in pre-renal AKI as urea is passively reabsorbed with sodium and water. In intrinsic renal AKI, the urea is unable to be re-absorbed, resulting in a lower than normal serum urea:creatinine ratio.

Low urine osmolality is incorrect. High urine osmolality is seen in pre-renal AKI, as the urine becomes concentrated due to the reabsorption of water from the urine.

Question:

A 1-year-old girl is noted to have a continuous murmur, loudest at the left sternal edge. She is not cyanosed. A diagnosis of patent ductus arteriosus is suspected. What pulse abnormality is most associated with this condition?

A.Collapsing pulse

B.Bisferiens pulse

C.Pulsus parodoxus

D.'Jerky' pulse

E.Pulsus alternans

Answer:Collapsing pulse

Explanation:

Patent ductus arteriosus - large volume, bounding, collapsing pulse

Important for meLess important

Question:

A 2 day old baby who was born by a ventouse delivery is noted to have a swelling on the left side of his head in the parietal region. His head appeared normal immediately after delivery. On examination, the baby is well and the swelling does not cross suture lines. The fontanelles and sutures appear normal. What is the most likely diagnosis?

A.Subaponeurotic haematoma

B.Caput succedeneum

C.Craniosynostosis

D.Skull fracture

E.Cephalohaematoma

Answer:Cephalohaematoma

Explanation:

A cephalohaematoma appears as a swelling due to bleeding between the periosteum and the skull. It is most commonly noted in the parietal region and is associated with instrumental deliveries. The swelling usually appears 2-3 days following delivery and does not cross suture lines. It gradually resolves over a number of weeks.

Caput succadeneum is commonly seen in newborns immediately after birth. It occurs due to generalised superficial scalp oedema, which crosses suture lines. It is associated with prolonged labour and will rapidly resolve over a couple of days.

Subaponeurotic haematoma is a rare condition where bleeding occurs that is not bound by the periosteum. It can be life threatening and presents as a fluctuant scalp swelling, which is not limited by suture lines.

Craniosynostosis is uncommon and is where there is premature closure of cranial sutures, causing deformity of the skull. It can be evident at birth and may be associated with genetic syndromes. The shape of the skull will depend upon which sutures are involved. Other clinical features include early closure of the anterior fontanelle and raised ridge along the fused suture.

Question:

A 27-year-old female presents to the labour ward ready to deliver. She is 38-weeks pregnant and her pregnancy was uncomplicated. Her first child, who is now 1-year-old had neonatal sepsis caused by Group B Streptococcus (GBS). She is otherwise well with no relevant past medical history.

Which one of the following is the most appropriate regarding the management of the GBS risk?

A.Administer intravenous benzylpenicillin to the child at birth

B.Prescribe intrapartum intravenous benzylpenicillin

C.Prescribe intrapartum intravenous benzylpenicillin and administer intravenous benzylpenicillin to the child at birth

D.Prescribe intrapartum intravenous ceftazidime

E.Monitor the newborn for signs of sepsis for the next 72 hours

Answer:Prescribe intrapartum intravenous benzylpenicillin

Explanation:

Maternal intravenous antibiotic prophylaxis should be offered to women with a previous baby with early- or late-onset GBS disease

Important for meLess important

The correct option is to prescribe intrapartum intravenous benzylpenicillin to the mother. The Royal College of Obstetricians and Gynaecologists guidelines published in 2017 suggest that mothers who have had a previous baby affected by early- or late-onset GBS are at increased chance of another affected baby. Hence, they should be prescribed intrapartum antibiotic prophylaxis (IAP), either benzylpenicillin or ampicillin.

Administer intravenous benzylpenicillin to the child at birth is incorrect. Antibiotics should only be administered to the child if they present signs and symptoms of neonatal sepsis. Since the child has not been delivered yet and the mother had another child who suffered from the condition, it is appropriate to try and prevent its development by administering antibiotics to the mother.

Prescribe intrapartum intravenous benzylpenicillin and administer intravenous benzylpenicillin to the child at birth is incorrect. Only the mother should be prescribed the antibiotic as the child has not shown signs of neonatal sepsis.

Prescribe intrapartum intravenous ceftazidime is incorrect. The mother should be prescribed intrapartum antibiotics but this is not the antibiotic of choice in these cases. It can be used to manage hospital-acquired pneumonia.

To monitor the newborn for signs of sepsis for the next 72 hours is inappropriate. The mother already had a child that developed neonatal sepsis, putting the new child at risk of developing the same condition. Hence, the guidelines suggest that antibiotics should be administered to the mother, rather than using a watch and wait for approach.

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:

A 56-year-old woman presents with facial asymmetry. Whilst brushing her teeth this morning she noted that the right hand corner of her mouth was drooping. She is generally well but noted some pain behind her right ear yesterday and says her right eye is becoming dry. On examination she has a complete paralysis of the facial nerve on the right side, extending from the forehead to the mouth. Ear, nose and throat examination is normal. Clinical examination of the peripheral nervous system is normal. What is the most likely diagnosis?

A.Ramsey-Hunt syndrome

B.Bell's palsy

C.Stroke

D.Multiple sclerosis

E.Parotid tumour

Answer:Bell's palsy

Explanation:

The pain around the ear raises the possibility of Ramsey-Hunt syndrome but this is actually quite common in Bell's palsy - some studies suggest it is seen in 50% of patients. The normal ear exam also goes against this diagnosis.

Question:

A 45-year-old man has been diagnosed with colorectal cancer. Imaging shows a rectal tumour that is in the mid-rectum, and doesn't extend past the mid-rectum. What is the most appropriate surgical management for a mid-rectal tumour?

A.Abdominoperineal excision of rectum

B.Anterior resection

C.Hartmann's procedure

D.Left-sided colectomy

E.Total colectomy

Answer:Anterior resection

Explanation:

Anterior resection is the most commonly performed operation for rectal tumours, except in lower rectal tumours

Important for meLess important

Mid/high rectal tumours can be managed with anterior resection. Hartmann's procedure is generally for sigmoid tumours, and abdominoperineal excision of rectum is for low rectal or anal tumours.

Question:

A 43-year-old male is scheduled to have an elective laparoscopic cholecystectomy the next day, held in the afternoon. The patient is diabetic, for which he usually takes gliclazide twice a day. The patient asks the doctor if he can still take his medication, as usual, leading up to the operation.

What should the doctor advise?

A.Omit medication on both the day prior to, and of the surgery

B.Omit medication on the day prior to surgery, and take both doses on the day of surgery

C.Reduce doses of medication by 20% on day prior to, and of surgery

D.Take medication as usual

E.Take medication on the day prior to surgery and omit both doses on day of surgery

Answer:Take medication on the day prior to surgery and omit both doses on day of surgery

Explanation:

Surgery / sulfonylureas on day of surgery:

omit on the day of surgery

exception is morning surgery in patients who take BD - they can have the afternoon dose

Important for meLess important

Gliclazide is a sulfonylurea. The correct answer is to take the sulfonylurea doses on the day before admission and omit both doses on the day of surgery itself as per the Joint British Diabetes Guidelines (JBDS). This patient's surgery is scheduled for the afternoon, so both doses should be omitted on the day of surgery. Sulfonylureas are hypoglycaemic medications that specifically triggers insulin production; therefore, taking this medication on the day of the surgery can trigger hypoglycaemia in an already fasting pre-operative patient. The risk of this occurring with sulfonylureas is greater than most other oral antidiabetic medications.

Pioglitazone, DPP-IV inhibitors and GLP-1 analogues can be taken as normal throughout the whole perioperative period. Metformin should be stopped once fasting begins if the patient will miss more than one meal or there is a significant risk of developing acute kidney injury. (See BNF).

Sulfonylureas do not need to be omitted on the day prior to elective surgery as the patient will not be fasting, so there is no increased risk of hypoglycaemia.

As mentioned above, taking sulfonylureas on the day of surgery whilst fasting will likely lead to hypoglycaemia, and so is incorrect.

Medication dosage would be reduced by 20% on the day prior to admission and day of surgery in long-acting insulins, not sulfonylureas.

Question:

A 62-year-old female with a history of mitral regurgitation attends her dentist, who intends to perform dental polishing. She is known to be penicillin allergic. What prophylaxis against infective endocarditis should be given?

A.Oral doxycycline

B.Oral erythromycin

C.No antibiotic prophylaxis needed

D.Oral ofloxacin

E.Oral clindamycin

Answer:No antibiotic prophylaxis needed

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

The 2008 NICE guidelines have fundamentally changed the approach to infective endocarditis prophylaxis

Question:

You are doing the annual review of a 72-year-old man with chronic obstructive pulmonary disease (COPD). Last year he had three exacerbations of his COPD, one of which resulted in him being hospitalised. Today his chest is clear and his oxygen saturations are 94% on room air. According to NICE guidelines, what treatment should you offer him?

A.A home supply of prednisolone and an antibiotic

B.A home supply of prednisolone

C.A home supply of an antibiotic

D.A home nebuliser

E.Home oxygen

Answer:A home supply of prednisolone and an antibiotic

Explanation:

In the 2010 NICE guidelines, there is a recommendation that patients who have frequent exacerbations of COPD should be given a home supply of corticosteroids and antibiotics. It is, of course, good practice to ask the patient to contact you if they are required to use them, at least to ensure that no further action is required. An antibiotic should be only be taken if the patient is coughing up purulent sputum.

Question:

A 30-year-old woman has left knee ligament reconstruction surgery for a torn lateral collateral ligament. During recovery, she notices persistent weakness in her left leg and foot. On examination, she has weakness of dorsiflexion and eversion of the left foot (MRC power grade 2/5). There is a small patch of sensory loss over the first and second toes. What is the most likely diagnosis?

A.L5 radiculopathy

B.Tibial nerve palsy

C.Compartment syndrome

D.Right-sided stroke

E.Common peroneal nerve palsy

Answer:Common peroneal nerve palsy

Explanation:

Common peroneal nerve lesion can cause weakness of foot dorsiflexion and foot eversion

Important for meLess important

Loss of dorsiflexion and eversion suggests a common peroneal nerve lesion as opposed to an L5 radiculopathy (in L5 radiculopathy, eversion tends to be spared while inversion is weak and sensory involvement tends to be greater). This is before the recent risk factor of knee surgery is considered, making common peroneal nerve palsy the more obvious answer.

Question:

A 75-year-old woman presented to her GP with shoulder pain and discomfort. She had a full shoulder examination performed, during which she was unable to abduct her shoulder when it was flat against her body while standing. She was, however, able to fully abduct the shoulder after the doctor passively abducted it during the first 20 degrees. Which muscle is most likely to have been affected?

A.Deltoid

B.Infraspinatus

C.Supraspinatus

D.Subscapularis

E.Teres minor

Answer:Supraspinatus

Explanation:

The rotator cuffs are a group of muscles which stabilise the shoulder joint.

If you need help, try and remember them in this order:

Subscapularis - positioned anteriorly on your chest, helps with internal rotation of shoulder

Supraspinatus - positioned on top of your shoulder and runs parallel to your deltoid. Needed for the first 20° of shoulder abduction, then the rest of abduction is done by the deltoid

Infraspinatus - positioned posteriorly on the superior aspect of your back, helps with external rotation of shoulder

Teres minor - positioned posteriorly on the superior aspect of your back, helps with external rotation of shoulder

Note - infraspinatus and Teres minor are positioned near each other and basically do the same thing

Reference: Oxford Handbook of Clinical Specialties; 9th Edition; Page 662-663

Question:

A 67-year-old male patient attends the emergency department with testicular pain, redness and swelling which is rapidly worsening. His initial observations reveal a temperature of 38.1ºC, heart rate of 104bpm, respiratory rate of 16/min, oxygen saturations of 97% on room air, and a blood pressure of 106/91mmHg.

He has a past medical history of type 2 diabetes, heart failure, osteoarthritis, and benign prostatic hyperplasia.

Which of his medications would be most likely to have caused this presentation?

A.Dapagliflozin

B.Digoxin

C.Metformin

D.Ramipril

E.Tamsulosin

Answer:Dapagliflozin

Explanation:

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

Important for meLess important

Fournier's gangrene is a fulminant form of infective necrotising fasciitis affecting the genitalia and/or perineum. It is caused by aerobic and anaerobic bacterial flora and is most common in diabetic and immune compromised patients. Due to the rapid progression of this condition, it can often cause multiple organ failure and death due to sepsis. Management is with early surgical debridement and antibiotics.

Dapaglifozin is an SGLT-2 inhibitor used in type 2 diabetes. It acts to inhibit sodium glucose co-transporter 2 in the proximal convoluted tubule which reduces glucose reabsorption and increases urinary glucose excretion. One of the important, serious adverse effects of this drug is Fournier's gangrene - outlined in this scenario.

The other options offered in the question are not associated with Fournier's gangrene.

Question:

A 10-year-old girl is seen in the Emergency Department after twisting her right ankle whilst playing hockey. On examination the ankle is swollen, bruised and tender to touch, including over both malleoli.

The x-ray is shown below:

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What is the most accurate description of this injury?

A.Salter-Harris type II

B.Salter-Harris type IV

C.Buckle fracture

D.Greenstick fracture

E.No bony injury seen

Answer:Salter-Harris type II

Explanation:

The radiograph of the right ankle demonstrates a fracture through the posterior metaphysis, extending to the growth-plate which appears disrupted, the epiphysis shifted posteriorly. The ankle joint itself appears normally aligned.

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 42-year-old man presents with a painless lump in the left testicle that he noticed on self examination. Clinically there is a firm nodule in the left testicle, ultrasound appearances show an irregular mass lesion. His serum AFP and HCG levels are both within normal limits. What is the most likely diagnosis?

A.Yolk sack tumour

B.Seminoma

C.Testicular teratoma

D.Epididymo-orchitis

E.Adenomatoid tumour

Answer:Seminoma

Explanation:

Seminomas typically have normal AFP and HCG. These are usually raised in teratomas and yolk sac tumours

Important for meLess important

This mans age, presenting symptoms and normal tumour markers make a seminoma the most likely diagnosis. Epididymo-orchitis does not produce irregular mass lesions which are painless.

Question:

A 62-year-old biology professor is seen after returning from a trip to South America. For the past week he has been investigated for fever, lymphadenopathy, periorbital oedema and headaches. A diagnosis of Chagas' disease is suspected.

During his admission he develops abdominal pain, constipation and distension. An abdominal film is requested:

© Image used on license from Radiopaedia

What complication has developed?

A.Sigmoid volvulus

B.Colon cancer

C.Intussusception

D.Hydronephrosis

E.Ischaemic colitis

Answer:Sigmoid volvulus

Explanation:

You can see the typical 'coffee bean' appearance with three dense lines converging towards the site of obstruction (Frimann Dahl's sign) in keeping with sigmoid volvulus.

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Question:

A 71-year-old male presents to the GP because he is worried about memory loss. Over the last three weeks, he has been very forgetful and absent minded. He does not remember conversations that have happened earlier that day, and has been forgetting to lock the front door. He has also been very tired and has not been wanting to go out for bingo as he usually does. He is concerned about the memory loss as he lives alone, and is worried that he may put himself at risk. Initially he appears to be cheerful, but starts crying during the consultation when talking about his symptoms.

The following blood result is obtained:

TSH 2 mU/L

What is the most likely cause of this presentation?

A.Hypothyroidism

B.Depression

C.Bipolar disorder

D.Alzheimer’s disease

E.Lewy body dementia

Answer:Depression

Explanation:

Depression can be differentiated from dementia due to short history and rapid onset

Important for meLess important

Depression can cause what appears to be memory loss, due to lack of concentration. Combined with symptoms of fatigue and loss of pleasure at usual activities, this makes depression the most likely cause of this presentation. Normal TSH rules out hypothyroidism as a cause of the symptoms.

Dementia progresses much more slowly and it takes times for patients to notice the symptoms. It would not come on over three weeks. Furthermore, it is usually others who notice the symptoms rather than the patient themselves; patients with dementia are not usually worried about their memory loss.

There is no evidence of bipolar disorder, due to no history of manic episode.

Question:

A 5-week-old boy is brought into the GP by his mother with diarrhoea and vomiting for the past 4 days. He also has a new rash that is irritating him and has developed a runny nose. There is no history of any weight loss, pyrexia, or other family members being unwell.

On further questioning, she reports that she has tried to wean him from breast to bottle this week as she is going away with work in 3 weeks time and is anxious about him not feeding well if there is a sudden change. The GP suspects that the infant may have cow's milk protein intolerance.

What is the next most appropriate feed to trial in this infant?

A.Amino acid based formula

B.Extensively hydrolysed formula

C.High-protein formula

D.Lactose free formula

E.Soy based formula

Answer:Extensively hydrolysed formula

Explanation:

If a formula-fed baby is suspected of having mild-moderate cow's milk protein intolerance then a extensive hydrolysed formula should be tried

Important for meLess important

This infant is suspected to have a mild-moderate cow's milk protein intolerance - he is having frequent regurgitations, diarrhoea, and has recently been swapped to a formula feed. If he had more severe features, such as failure to thrive, severe atopic dermatitis, or laryngo-oedema: this would be suggestive of severe cow's milk protein intolerance. With the GP's suspicion, he should be trialled on an extensively hydrolysed formula. This formula is tolerated by 90% of infants with cow's milk protein intolerance. In this formula, the proteins that trigger allergy are hydrolysed into peptides which make them less allergenic.

Amino acid-based formula is appropriate for infants with severe cow's milk protein intolerance. This formula is less palatable, however, it is appropriate for those with severe intolerance as it is composed of free amino acids only.

High protein formula has been used to manage pre-term infants. This is becoming an increasingly specialised use as there are increasing studies showing that high-protein feed (even in prematurity) is associated with increased long-term obesity risk.

Lactose-free formula would be appropriate if the child was considered to be lactose intolerant. The features pointing towards cow's milk protein intolerance are the rash and runny nose. Infants with lactose intolerance will usually have GI symptoms only.

Soy based formula is not typically recommended for infants due to its high phyto-oestrogen content which could potentially give hormonal side effects.

Question:

You review a 68-year-old man who has type 2 diabetes mellitus. He was noted during recent retinal screening to have pre-proliferative changes in his right eye but is otherwise well with no history of cardiovascular disease. What should his target blood pressure be, if using home blood pressure monitoring?

A.< 140 / 90 mmHg

B.< 125 / 70 mmHg

C.< 125 / 75 mmHg

D.< 130 / 75 mmHg

E.< 135 / 85 mmHg

Answer:< 135 / 85 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:

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 13 week pregnant woman is diagnosed with bacterial vaginosis (BV) following high vaginal swab results, which were taken due to offensive vaginal discharge. She is otherwise clinically well and has no drug allergies. Which of the following treatments is recommended?

A.No treatment required

B.Amoxicillin

C.Doxycycline

D.Cefalexin

E.Metronidazole

Answer:Metronidazole

Explanation:

Bacterial vaginosis in pregnancy: still use oral metronidazole

Important for meLess important

BV is characterised by an overgrowth of mainly anaerobic organisms. It is a common cause of vaginal discharge and is not considered to be a sexually transmitted infection.

Approximately 50% of women are asymptomatic. When symptoms are present, BV is characterised by a fishy-smelling vaginal discharge.

Symptomatic BV in pregnancy is associated with late miscarriage and preterm delivery.

Treatment should be offered to all pregnant woman who are symptomatic. This consists of oral metronidazole 400mg twice daily for 5-7 days (2grams stat dose is not recommended in pregnancy).

Treatment is considered on a individual basis for pregnant woman with BV who are asymptomatic. This is because evidence suggests that identification and treatment of asymptomatic pregnant women does not lower the risk of preterm births.

(Source - NICE CKS, bacterial vaginosis)

Question:

A 33-year-old woman presents to her GP with a several-month history of anxiety with no clear trigger which is affecting her sleep and desire to interact with others. She feels restless and agitated. She denies any episodes of panic attacks. Her medical history is otherwise unremarkable.

Which of the following would be the most appropriate option to try first?

A.Amitriptyline

B.Duloxetine

C.Propranolol

D.Sertraline

E.Venlafaxine

Answer:Sertraline

Explanation:

SSRIs are the first-line pharmacological therapy for generalised anxiety disorder

Important for meLess important

The correct answer is sertraline. The picture being described here is that of generalised anxiety disorder, given the symptoms and chronic duration. NICE guidance recommends a selective serotonin reuptake inhibitor (SSRI) as a first-line pharmacological option for this condition. Out of the available SSRIs, NICE suggest sertraline as a preferable initial choice.

Amitriptyline is a tricyclic antidepressant and would be a second- or third-line agent if other methods failed. Generally, SSRIs and serotonin-noradrenaline reuptake inhibitors (SNRIs) are recommended prior to trying TCAs, due to their larger side effect profile.

Duloxetine is an SNRI and would be a suitable alternative if sertraline did not work. However, first-line, sertraline should be tried.

Propranolol is a beta-blocker and used as needed to control acute flare-ups of anxiety and panic attacks. This patient denies such acute episodes and so would not be as useful; propranolol should be prescribed in conjunction with an agent like sertraline, not used as monotherapy.

Venlafaxine is another SNRI, like duloxetine, and would be another suitable alternative to try if sertraline were not effective.

Question:

A 56-year-old man attends the emergency department with a severe headache. This has been going on for a couple of days but has gotten particularly worse over the last day. He is also struggling to turn his head from side to side.

On examination, he is warm to the touch and there is flexion of his hips and knees when he tries to flex his neck. There is also a widespread maculopapular erythematous rash across his torso.

What would be an appropriate initial empirical treatment?

A.IV amoxicillin (or ampicillin) + gentamicin

B.IV benzylpenicillin

C.IV cefotaxime (or ceftriaxone)

D.IV cefotaxime (or ceftriaxone) + amoxicillin (or ampicillin)

E.Oral ciprofloxacin

Answer:IV cefotaxime (or ceftriaxone) + amoxicillin (or ampicillin)

Explanation:

The BNF recommend IV cefotaxime (or ceftriaxone) + amoxicillin (or ampicillin) as empirical therapy for adults > 50 years with suspected bacterial meningitis

Important for meLess important

IV cefotaxime (or ceftriaxone) + amoxicillin (or ampicillin) is the correct answer. This patient is presenting with meningitis. This is supported by a presenting complaint of a headache and neck stiffness as well as a positive Brudzinski sign of an erythematous maculopapular rash on examination. As this patient has presented to his GP it would be necessary for an immediate transfer to the hospital because of the risk of sudden deterioration especially given a widespread rash on his body. Usually, if meningococcal meningitis is suspected intramuscular benzylpenicillin can be given in the interchange. However, when the patient is admitted, as he is over 50 years old, therapy should initially include both cefotaxime and amoxicillin.

IV amoxicillin (or ampicillin) + gentamicin is incorrect. This would be indicated in meningitis caused by Listeria. Although this would present similarly to other types of meningitis it is commonly seen in immunosuppressed individuals.

IV benzylpenicillin is incorrect. This can be used for the treatment of meningococcal meningitis. At the moment, as this patient is above 50 years old and susceptible to further deterioration and we are unaware of what specific organism is causing his meningitis, it would be appropriate to use double antibiotic therapy until blood culture sensitivities return to guide further antibiotic treatment.

IV cefotaxime (or ceftriaxone) is incorrect. This is usually indicated for most cases of meningitis. However as stated above, this patient is above 50 years old and thus at high risk of sudden deterioration hence it would be more appropriate to treat with antibiotics covering different organisms before sensitivities return.

Oral ciprofloxacin is incorrect. This is the treatment for people who have been exposed to a patient with confirmed bacterial meningitis. They should be given prophylactic antibiotics if they have close contact within 7 days before the onset of the infection.

Question:

A 45-year-old man complains of feeling tired all the time to his GP. He has no other symptoms and his examination is normal. Blood tests are arranged which show:

Hb 104 g/l

MCV 69.7 fL

Platelets 304 \* 109/l

WBC 8.7 \* 109/l

Iron low

Ferritin low

TIBC high

Based on the above findings, what would be the most appropriate next step?

A.Routine referral for upper and lower GI endoscopy

B.Routine referral for CT chest, abdomen and pelvis

C.Further bloods including TFTs, bone profile and haemoglobinopathy screen

D.Urgent referral for CT chest, abdomen and pelvis

E.Urgent referral for upper and lower GI endoscopy - under the 2ww pathway

Answer:Urgent referral for upper and lower GI endoscopy - under the 2ww pathway

Explanation:

Men of any age with a Hb below 110g/L should be referred for upper and lower GI endoscopy as a 2ww

Important for meLess important

In accordance with NICE guidelines, men of any age with a Hb below 110g/L should be referred for upper and lower GI endoscopy as a 2ww. These are separate guidelines to the cancer referral guidelines. It is important to note that the cancer referral guidelines are not mutually exclusive and if there are red flag symptoms in people of any age then a pragmatic approach is needed as to the urgency of investigation. A haemoglobin this low is not normal and should ring alarm bells, and needs to be investigated urgently. GI malignancy is the most pressing thing to exclude in this gentleman and as such an OGD and colonoscopy are the most appropriate next tests, given that he has no other symptoms.

See NICE CKS on this subject

https://cks.nice.org.uk/anaemia-iron-deficiency#!scenario

Question:

A 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 barium swallow is arranged for a 40-year-old man with dysphagia.

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What is the most likely diagnosis?

A.Pharyngeal pouch

B.Retrosternal goitre

C.Oesophageal cancer

D.Hiatus hernia

E.Achalasia

Answer:Achalasia

Explanation:

This film demonstrates the classical 'bird's beak' appearance of the lower oesophagus that is seen in achalasia. An air-fluid level is also seen due to a lack of peristalsis.

Question:

A 45-year-old man has a 2-week history of upper abdominal pain, dyspepsia, and occasional reflux. There is no unexpected weight loss or haematemesis, and no abdominal masses were palpated. He undertakes a 1-month trial of omeprazole.

After completing the trial, he is still complaining of the same symptoms and they have not resolved. A stool sample is taken and confirms the presence of Helicobacter pylori.

He has no other past medical history except a penicillin allergy and he does not smoke or drink alcohol.

What is the next best step in his management?

A.Offer proton pump inhibitor + ciprofloxacin + metronidazole

B.Offer proton pump inhibitor + clarithromycin + amoxicillin

C.Offer proton pump inhibitor + clarithromycin + metronidazole

D.Reassure and continue omeprazole, review in 1 month

E.Refer to gastroenterology for endoscopy

Answer:Offer proton pump inhibitor + clarithromycin + metronidazole

Explanation:

H. pylori eradication:

PPI + amoxicillin + clarithromycin, or

PPI + metronidazole + clarithromycin

Important for meLess important

Offer proton pump inhibitor + clarithromycin + metronidazole is correct. This patient has dyspepsia and no red flags or criteria meeting referral as of now (as he is <55 years of age, has no haematemesis, no abdominal masses, and no weight loss). The NICE guidelines recommend trialling a full-dose proton pump inhibitor for 1 month or a 'test and treat' approach for Helicobacter pylori, then trying the other if symptoms persist. Since the patient has already trialled a full-dose proton pump inhibitor for 1 month, Helicobacter pylori testing is indicated and the subsequent positive result indicates treatment. As this patient has a penicillin allergy, he should be offered a proton pump inhibitor, clarithromycin, and metronidazole instead of amoxicillin.

Offer proton pump inhibitor + ciprofloxacin + metronidazole is incorrect. Ciprofloxacin is not an antibiotic that is used in the eradication of Helicobacter pylori. This patient should be offered clarithromycin in its place.

Offer proton pump inhibitor + clarithromycin + amoxicillin is incorrect. Although this is a possible option in the management of H. pylori, there is the presence of a penicillin allergy in this question, so it would not be appropriate to offer amoxicillin. He should be offered metronidazole instead.

Reassure and continue omeprazole, review in 1 month is incorrect. This would be inappropriate as this patient has already trialled 1 month of omeprazole without success, and testing has revealed the presence of Helicobacter pylori. He should be offered eradication therapy, which would be a proton pump inhibitor, metronidazole, and clarithromycin in this scenario.

Refer to gastroenterology for endoscopy is incorrect. This patient has dyspepsia and no red flags or criteria meeting referral as of now (as he is <55 years of age, has no haematemesis, no abdominal masses, and no weight loss). If he were to attempt both a 1-month trial of omeprazole and Helicobacter pylori eradication therapy without success, a referral would be warranted.

Question:

A 54-year-old textiles worker is referred for nerve conduction studies after a trial of conservative management fails to improve symptoms of sensory loss over the palmar aspect of her right thumb, index, middle and ring fingers. Examination reveals thenar wasting of the right hand.

What would be the common findings in nerve conduction evaluation of this patients symptoms?

A.Action potential prolongation in both sensory and motor axons

B.Action potential prolongation in motor axons and shortening in sensory axons

C.Action potential prolongation in sensory axons and shortening in motor axons

D.Normal action potential length in motor axons and prolongation in sensory axons

E.Normal action potential length in sensory axons and prolongation in motor axons

Answer:Action potential prolongation in both sensory and motor axons

Explanation:

Carpal tunnel syndrome causes action potential prolongation in both sensory and motor axons

Important for meLess important

Compression of the median nerve in the carpal tunnel reduces the ability of all neurones to conduct action potentials effectively. As symptoms are due to physical nerve compression, both sensory and motor pathways are affected.

None of the other listed combinations of axon functioning are associated with carpal tunnel syndrome.

Question:

A 70-year-old man who takes warfarin for atrial fibrillation is found to have an INR of 6.2. Which of the following drugs is he most likely to have recently taken?

A.Ciprofloxacin

B.Flucloxacillin

C.St John's Wort

D.Carbamazepine

E.Aspirin

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is a P450 enzyme inhibitor

Important for meLess important

Ciprofloxacin is a known inhibitor of the P450 system and hence may cause an increase in INR.

Question:

You are a doctor on the renal ward. On the ward round you see a patient with chronic kidney disease (CKD). The patient is complaining of pain in his right calf which he noticed after he woke up this morning.

On examination, the calf is mildly erythematous. It is painful and hard to touch. The circumference of the right leg measures as 3.5cm more than the left. A set of physical observations are recorded which demonstrate a respiratory rate of 13 breaths per minute, oxygen saturations of 99% on air, blood pressure 110/85mmHg, heart rate 64 beats per minute, and a temperature of 36.7ºC. The patient is alert and well orientated.

You review the patient's most recent blood results which show the following.

Na+ 141 mmol/L (135 - 145)

K+ 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 184 µmol/L (55 - 120)

eGFR 12 ml/min (>90)

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

A.Rivaroxaban

B.Inferior vena cava filter

C.Treatment dose dalteparin

D.Unfractionated heparin

E.Warfarin

Answer:Unfractionated heparin

Explanation:

Bleeding is significantly more common with LMWH than with Unfractionated Heparin (UFH) among patients with severe renal impairment

Important for meLess important

This patient has a deep vein thrombosis (DVT) on a background of reduced renal function. NICE recommend specific drugs based on the patients eGFR. In patients with an eGFR of 15-50ml/min, a direct oral anticoagulant (DOAC) is recommended. In patients with an eGFR of <15ml/min, unfractionated heparin (UFH) or dose-adjusted low molecular weight heparin (LMWH) is recommended.

Unfractionated heparin is the correct answer. It is the only answer listed which is a NICE recommended treatment for a DVT when eGFR <15ml/min. It has a lower risk of bleeding compared to treatment dose LMWH.

Rivaroxaban is the first-line treatment for a DVT where eGFR is >15ml/min. In this patient, the eGFR is <15ml/min making UFH or dose-adjusted LMWH more suitable.

An inferior vena cava filter is an advanced treatment used for complication prevention in patients who have recurrent DVTs and problems using conventional anticoagulation. It is not used in the acute management of a DVT.

A LMWH such as dalteparin may be used when eGFR <15ml/min but not at treatment dose. Instead, a reduced dose of LMWH or UFH should be used.

Warfarin is prothrombotic in the first few days of treatment. Due to this, patients starting on warfarin should be covered with heparin until their international normalised ratio (INR) is within an acceptable range. Warfarin is more commonly used in the long-term prevention of DVTs in patients who have previously suffered from them. It isn't used in the acute 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:

Which one of the following drugs used in the management of tuberculosis is most associated with peripheral neuropathy?

A.Rifampicin

B.Pyrazinamide

C.Ethambutol

D.Streptomycin

E.Isoniazid

Answer:Isoniazid

Explanation:

Isoniazid causes peripheral neuropathy

Important for meLess important

Question:

A 33-year-old farmer is brought into the emergency department after being found unconscious at home by his brother. He was found with an empty bottle of an unknown substance. There is no past medical history of note and he takes no regular medications.

On examination, he is confused and agitated with a GCS of 11. His eyes and nose are watering and there is dried vomitus around his mouth. There is reduced air entry bilaterally with a respiratory rate of 9 breaths/min and there is evidence of muscle fasciculations.

Given the likely diagnosis, which of the following examination findings is most likely to be present?

A.Bradycardia

B.Dilated pupils

C.Dry mouth

D.Hypertension

E.Urinary retention

Answer:Bradycardia

Explanation:

Organophosphate insecticide poisoning - bradycardia

Important for meLess important

This patient has symptoms of organophosphate poisoning. Organophosphates are common in insecticides. Therefore, with this patient being a farmer, he is more likely to have access to such substances. Organophosphates inhibit the action of acetylcholinesterase with symptoms being those of excessive muscarinic and nicotinic stimulation including salivation, lacrimation, urination, diarrhoea, hypotension, bradycardia, constricted pupils and muscle fasciculations.

Dilated pupils are a sign of sympathetic stimulation and they are not a feature of organophosphate poisoning.

Salivation is a feature of organophosphate poisoning, in contrast to a dry mouth.

Hypotension is a sign of parasympathetic stimulation (e.g. organophosphate poisoning). In contrast, hypertension is a feature of sympathetic stimulation.

Urinary retention is a sign of excessive sympathetic stimulation (e.g. following cocaine abuse), it would not be seen in a patient with organophosphate poisoning.

Question:

A 24-year-old woman attends her GP feeling more fatigued than usual. She has a past medical history of epilepsy, polycystic ovarian syndrome, and depression. She also suffers from occasional irritable bowel syndrome with constipation (IBS-C). Her GP sends a full blood count which shows:

Hb 101 g/L (115 - 160)

Platelets 350 \* 109/L (150 - 400)

WBC 8.0 \* 109/L (4.0 - 11.0)

Mean Cell Volume 100 fl (80 - 96)

Ferritin 150 mcg/L (12 - 300)

Folate 1.2 ng/ml (>4)

Out of her medications listed below, which is likely to have caused this presentation?

A.Combined oral contraceptive pill

B.Fluoxetine

C.Ibuprofen

D.Movicol

E.Phenytoin

Answer:Phenytoin

Explanation:

Phenytoin is a cause of folic acid deficiency

Important for meLess important

This patient has symptoms of anaemia (lethargy) and has a full blood count which shows macrocytic anaemia with a low folate level. It is most likely that phenytoin for her epilepsy has caused her symptoms. Folate deficiency associated with anti-epileptic medications is complex, however, it is believed that phenytoin induces intestinal pH changes affecting the enterohepatic circulation of folate.

The combined oral contraceptive pill is not associated with anaemia or macrocytic anaemia. It is likely to be used by this patient due to her diagnosis of polycystic ovarian syndrome.

Fluoxetine is a selective serotonin reuptake inhibitor (SSRI) that is used in the management of depression. It should be used with caution in epileptic patients, however, it is not contraindicated. While not associated with anaemia, it can be associated with lethargy, sleep disorders, and QT prolongation.

Ibuprofen is not associated with anaemia or lethargy and, therefore, is the incorrect answer.

Movicol is a laxative that is used for the relief of constipation. It has likely been prescribed for her IBS-C. Laxative use can occasionally be associated with vitamin D deficiency - this is mainly due to laxative abuse or excessive consumption. It is not typically associated with folic acid deficiency unless there is a severe reduction in absorption of foods.

Question:

You have been asked by a midwife to complete a newborn examination on a 12-hour old neonate. The parents have noticed that his penis looks abnormal and ask if you could please have a look at this. On examination, you note his urethral meatus is located on the ventral aspect of the glans and he has a hooded prepuce. He has passed urine with a good stream observed by the midwife earlier in the day.

How should the doctor proceed?

A.Refer to a specialist for possible surgery around 12 months of life

B.Refer to a specialist for surgery in the first 1 month of life

C.Refer to a specialist for urgent surgery within 4 hours

D.Tell parents no referral or further review is needed

E.Tell parents they should ensure he is circumcised

Answer:Refer to a specialist for possible surgery around 12 months of life

Explanation:

Hypospadias surgery is typically performed at around 12 months of age

Important for meLess important

Refer to a specialist for possible surgery around 12 months of age is correct. This is considered optimal timing taking many factors into account, including developmental milestones, tolerance of surgery and anaesthesia, size of the penis. It is referred to the specialist at the time of the diagnosis.

Refer to a specialist for surgery in the first 1 month of life is incorrect. This child has anterior hypospadias and is passing urine without problems, and therefore he has no indications for an urgent referral. An indication for a more urgent referral would be failure or difficulty to pass urine.

Refer to a specialist for urgent surgery within 4 hours is incorrect as this is not an urgent or life-threatening issue. An indication for a more urgent referral would be failure or difficulty to pass urine.

Telling parents no referral or further review is needed is incorrect. Hypospadias always requires a specialist referral even if mild. It is the specialist's responsibility alongside the parents to decide whether surgery is required.

Tell the parents they should ensure he is circumcised is incorrect. It is important to tell parents to NOT circumcise their child with hypospadias, as the prepuce may be used during corrective surgery.

Question:

A 37-year-old woman presents to the emergency department with pleuritic chest pain and shortness of breath. There is nil past medical history of note and urine pregnancy test is negative. Her vital signs are all in the normal range. A CTPA shows a small peripheral pulmonary embolism. Her pulmonary embolism severity index (PESI) score is calculated and is class 1 - very low risk. She is keen to avoid a hospital admission.

Which of the following management options is most appropriate at this time?

A.Admit and start low molecular weight heparin

B.Admit for observation

C.Admit for thrombolysis

D.Discharge as the embolism will likely settle without intervention

E.Outpatient management with rivaroxaban

Answer:Outpatient management with rivaroxaban

Explanation:

The Pulmonary Embolism Severity Index (PESI) score is recommended by BTS guidelines to be used to help identify patients with a pulmonary embolism that can be managed as outpatients

Important for meLess important

While it would not be incorrect to admit and begin low-molecular weight heparin, this patient has expressed a preference to avoid hospital admission and BTS guidelines recommend a PESI score may be used to identify patients with PE who may be managed as outpatients. In this patient's case she has small PE and is class 1 or very low risk according to her PESI score. According to the BTS this means she is eligible for outpatient management of her PE. Outpatient management for class 1 and class 2 PEs has been shown to be non-inferior to inpatient management and is associated with a significant cost benefit.

Thrombolysis is not currently indicated as she currently haemodynamically stable and there are no acutely life threatening features mentioned.

Treatment with a DOAC, LMWH, or warfarin is indicated here as a PE is unlikely to resolve spontaneously and she may be at high risk for repeat venous thromboembolism (VTE). She should also ideally be reviewed by a haematologist with a special interest in VTE as per BTS guidelines.

Question:

Nancy is a 29-year-old lady who has given birth to a baby boy 3 days ago and is keen to discuss future contraception. She was previously on the combined pill but is keen to avoid using anything if she can. She is not breast-feeding. How long after giving birth does she not require any contraception?

A.Up to 28 days

B.She needs contraception immediately after giving birth

C.Up to 21 days

D.Up to 2 months

E.Up to 14 days

Answer:Up to 21 days

Explanation:

Nancy can be informed that she does not require contraception up to 21 days after giving birth.

The following guidance has been taken from the Faculty of Sexual and Reproductive Healthcare Guideline on Postnatal Sexual and Reproductive Health:

Prior to Day 21 postpartum no contraceptive methods are required. In non-breastfeeding women, ovulation may occur as early as Day 28. As sperm can survive for up to 7 days in the female genital tract, contraceptive protection is required from Day 21 onwards if pregnancy

is to be avoided.

Women who are breastfeeding and who wish to avoid pregnancy should be advised to use a contraceptive method. As fertility is reduced, any contraceptive method will be more effective when used by a breastfeeding woman. Those women who are fully breastfeeding

may wish to rely on the lactational amenorrhoea method (LAM) alone until breastfeeding reduces or other LAM criteria are no longer fulfilled.

Postnatal Sexual and Reproductive Health - Faculty of Sexual & Reproductive Healthcare Clinical Guidance 2009 - http://www.fsrh.org/pdfs/Ceuguidancepostnatal09.pdf

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:

A 68-year-old female presents to eye casualty with partial loss of vision in her left eye. Upon further questioning, she reports that she has also had a temporal headache for around 2 weeks and has felt generally unwell. She denies any jaw pain when chewing but does have some scalp tenderness. Blood tests are taken which show an ESR of 65mm/hr.

She has a past medical history of type 2 diabetes and she smokes 20 cigarettes per day.

Based on the likely diagnosis, what is the most appropriate initial management?

A.IV methylprednisolone

B.Oral methotrexate

C.Oral prednisolone

D.Oral prednisolone + aspirin

E.Subcutaneous tocilizumab

Answer:IV methylprednisolone

Explanation:

Patients with suspected visual loss secondary to temporal arteritis are usually given IV methylprednisolone initially

Important for meLess important

This patient is presenting with signs and symptoms of temporal arteritis, including temporal headache, scalp tenderness and raised ESR. Her age, sex and smoking history are risk factors for temporal arteritis. Loss of vision in one or both eyes occurs in 20% of cases of temporal arteritis, due to anterior ischaemic optic neuropathy. These patients require urgent IV methylprednisolone therapy, which is given as a once-daily dose for 3 days, followed by standard oral prednisolone.

Methotrexate may be given in patients with recurrent or relapsing temporal arteritis or severe glucocorticoid adverse effects. As this patient has her first presentation of temporal arteritis, and there is vision loss, she requires IV methylprednisolone.

Oral prednisolone is not sufficient for patients with temporal arteritis with ocular involvement. They should first be managed with IV methylprednisolone for 3 days, prior to oral prednisolone.

Aspirin can be used as an adjunct to oral prednisolone in patients with temporal arteritis without eye involvement. However, as this patient has ocular involvement, she requires methylprednisolone.

Subcutaneous tocilizumab is a treatment option for patients with recurrent or relapsing temporal arteritis or severe glucocorticoid adverse effects. Therefore, this is not the correct answer in this case.

Question:

A 33-year-old gentleman comes to see you with right wrist pain three weeks after falling off his bike onto an outstretched hand.

He attended the emergency department that day and had x-rays of his wrist which are reported as normal. He was discharged with analgesia and no follow up.

Today, he is complaining of persistent pain without improvement. On examination the wrist appears normal. There is no gross swelling or erythema. He has slightly limited range of movement in the wrist which appears to be due to pain. He is tender over the anatomical snuff box. What is the appropriate action?

A.Advise on a wrist splint and rest

B.Refer to physiotherapy

C.Book an outpatient x-ray

D.Reassure and further analgesia with review in two weeks

E.Refer to hospital for urgent orthopaedic/emergency department review

Answer:Refer to hospital for urgent orthopaedic/emergency department review

Explanation:

The mechanism and examination are highly suspicious for a scaphoid fracture. Conservative management with splinting, analgesia and physiotherapy are all inappropriate due to the risk of avascular necrosis due to the blood supply to the scaphoid bone.

An outpatient x-ray is a possibility but even at this stage, some scaphoid fractures do not show on x-ray and require CT scan or MRI. This patient therefore needs to be seen in an orthopaedic clinic - you may be able to refer directly or this may need to be via your local emergency department.

Question:

A 55-year-old man presents to the emergency department with acute-onset shortness of breath and cough. He was successfully treated with fibrinolysis for a myocardial infarction two weeks ago.

On examination, his heart rate is 85 bpm, his blood pressure is 80/65 mmHg, and his oxygen saturations are 94% on room air. Crackles are heard bilaterally on auscultation and S1, S2, and S3 heart sounds are heard. No murmurs are present.

An ECG is performed, which shows the following changes:

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

Treatment is initiated, and serial ECGs show the same result.

What is the most likely diagnosis?

A.Dressler's syndrome

B.Left ventricular aneurysm

C.Left ventricular free wall rupture

D.ST-elevation myocardial infarction

E.Ventricular septal defect

Answer:Left ventricular aneurysm

Explanation:

The ECG in the vignette demonstrates sustained ST elevation and deep QRS complexes in leads V1, V2, and V3. The patient in the vignette has presented with acute-onset shortness of breath and cough with crackles on auscultation. Given his presentation and history of myocardial infarction (MI), the patient is likely experiencing acute left ventricular (LV) dysfunction. The S3 heart sound on examination supports this diagnosis, as it is not considered normal in patients >30 years of age and suggests LV dysfunction and heart failure. The ratio of T-wave to QRS amplitude can help differentiate between an LV aneurysm and STEMI. If the T-wave/QRS ratio is <0.36 in all precordial leads, an LV aneurysm is more likely, which is the case here.

Left ventricular aneurysm is the correct answer. LV aneurysm typically occurs 2 weeks after MI with symptoms mimicking heart failure (presenting with shortness of breath, cough, and crackles on auscultation) alongside persistent ST elevation (as the ECGs are not changing). The absence of chest pain or discomfort and other features of MI, such as pallor, make LV aneurysm more likely.

Dressler's syndrome (post-MI pericarditis) is incorrect. Although this can have ST-elevation and present around 2 weeks following MI, it is characterised by acute-onset pleuritic chest pain and shortness of breath that is classically worsened when lying down and improves when leaning forward. The ST-elevation on the ECG would also be 'saddle-shaped' as there is PR depression, and these changes would be seen globally, not just in V1, V2, and V3.

Left ventricular free wall rupture is incorrect. Although Left ventricular free wall rupture can occur around 2 weeks following MI, this typically presents with features of cardiac tamponade, as blood leaks out from the heart into the pericardial space. The patient in the vignette would present with Beck's triad (hypotension, raised jugular venous pressure, and muffled heart sounds), and the ECG would show electrical alternans (QRS complexes with alternating amplitudes). Left ventricular free wall rupture is not associated with ST elevation.

ST-elevation myocardial infarction (STEMI) is incorrect. Although the patient in the vignette has ST elevation on his ECG, the absence of chest pain and discomfort and other associated features such as sweating and pallor make an MI less likely. As mentioned above, the ratio of T-wave to QRS amplitude can distinguish between LV dysfunction and STEMI since this ratio is <0.36 in all of V1, V2, and V3, this, alongside his symptoms, makes STEMI less likely.

Ventricular septal defect is incorrect. Although ventricular septal defect also presents features similar to acute heart failure, it is associated with a pansystolic murmur and is usually seen within the first week following an MI. The patient in the vignette does not have a murmur.

Question:

A 54-year-old man of Asian heritage presents with a slowly enlarging neck lump in the posterior triangle. A biopsy is performed and the histological report is ‘metastatic SCC in a lymph node.’ On inspection, there are no obvious skin lesions present.

Which of the following would be the most likely primary site?

A.Buccal mucosa

B.Tonsillar fossa

C.Larynx

D.Nasopharynx

E.Thyroid

Answer:Nasopharynx

Explanation:

Nasopharyngeal carcinoma may present as a painless lymphadenopathy because of its tendency for early spread

Important for meLess important

Metastatic carcinoma with an occult primary can be found with each of the options mentioned and also the skin.

A thyroid malignancy would not be expected to be a squamous type malignancy. The other options would. The posterior triangle nodes receive drainage from the nasopharynx, and as such a full ENT review with endoscope is warranted to investigate this space. The other remaining options (larynx, buccal mucosa, and tonsillar fossa) would drain to the anterior triangle.

Nasopharyngeal carcinoma is more common in people of Asian origin, and typically presents with epistaxis, headaches, lymph node metastasis or unilateral hearing loss.

Question:

A 55-year-old male presents to the emergency department after a two-day history of non-specific abdominal pain and constipation. His stools have been harder recently, and this morning he had an episode of bleeding per rectum.

His observations show a heart rate of 110 beats per minute, a respiratory rate of 14 breaths per minute, a blood pressure of 128/72 mmHg, and a temperature of 37.8 ºC. He denies any other past medical history.

The team decides to perform a CT scan that shows the following:

© Image used on license from Radiopaedia

Which one of the following is the most likely diagnosis?

A.Acute appendicitis

B.Colorectal carcinoma

C.Diverticulosis

D.Diverticulitis

E.Ulcerative colitis

Answer:Diverticulitis

Explanation:

The correct answer is diverticulitis, an inflammation of a diverticulum. A diverticulum is an out-pouching of the gastric mucosa, usually caused by straining and constipation. This pathology presents with low-grade pyrexia, left inferior quadrant pain, with nausea and vomiting. In some cases, like this one, per rectum bleeding can be present. On the CT scan, we can observe the diverticula, pericolic stranding, enhancement of the colonic wall, and fat enhancement on the patient's left side. On the scan, you can notice this by looking on the upper left side.

Acute appendicitis would present with fever and abdominal pain, but the inflammatory radiographic signs would be on the right side of the bowel. On a CT scan, it would present with appendiceal dilatation, right-sided wall thickening and enhancement, and signs of inflammation around the appendiceal zone such as fat stranding and thickening. This CT underlines left-sided changes and no appendiceal enlargement.

Colorectal carcinoma would lead to less inflammatory change, usually involving shorter segments of the bowel. The majority of them presents as soft tissue density that narrow the bowel lumen, which cannot be observed in this scan. Additionally, the patient has no risk factors for large bowel cancer, other than a recent change in bowel habits that can be attributed to diverticulitis.

Diverticulosis is the presence of multiple outpouchings of the bowel wall, but it is not symptomatic per se. When the diverticula get inflamed, it then becomes symptomatic. The patient has pain, making this diagnosis the wrong one. On a CT scan, you would identify multiple outpouchings, but no inflammatory signs such as pericolic stranding and wall thickening.

Ulcerative colitis causes an inflammatory picture, but it is classically accompanied by diarrhoea and not constipation. Additionally, it usually presents at an earlier age. On a CT scan, you would be able to see circumferential, symmetrical wall thickening with fold enlargement. This is not present in the image of this case. Additionally, you would be able to observe fat deposition around the rectum and a more widespread inflammation that is absent in this CT scan.

Question:

A 24-year-old male presents with a painless testicular lump. On examination the lump is hard and irregular. Which is the most appropriate investigation to request?

A.Testicular ultrasound scan

B.Beta-hCG

C.Surgical biopsy

D.CT pelvis

E.Bone scan

Answer:Testicular ultrasound scan

Explanation:

The first-line investigation of a testicular mass is an ultrasound

Important for meLess important

This patient has typical features of testicular cancer. Testicular ultrasound scan is the first line investigation for suspected testicular cancers.

Beta-hCG may be raised in some testicular cancers, usually non-seminomas. As this test is not sensitive for all types of testicular cancer it is not used as a first line investigation.

Surgical biopsy is unnecessarily invasive at this stage.

A CT scan would expose the patient to unnecessary radiation.

A bone scan is used to help stage some forms of cancers after they have been diagnosed but is not a first line investigation for cancer.

Question:

A 23-year-old woman is brought to the Emergency Department with severe breathlessness and audible wheeze. The patient is known to have a history of asthma with frequent exacerbations and several admissions over the past year. This current episode has developed over the past hour, with her regular inhalers proving ineffective.

On examination, she is visibly distressed and trying to talk but unable to finish her sentences. The words she is managing to say are incoherent and she sounds, and appears, confused. Auscultation of the chest demonstrates widespread wheeze. Her observations are as follows:

Heart rate of 125 beats/min

Respiratory rate of 32 breaths/min

Temperature of 36.9

Oxygen saturation of 93%

Blood pressure of 123/82

She attempts to complete a peak expiratory flow rate (PEFR) measurement, which is 38% of her predicted PEFR.

Given the diagnosis, which element of her presentation would classify this as life-threatening?

A.Confusion

B.Inability to complete sentences

C.Respiratory rate of 32 breaths/min

D.PEFR 38% of predicted

E.Oxygen saturation of 93%

Answer:Confusion

Explanation:

Confusion in an asthma attack is a life-threatening feature

Important for meLess important

The British Thoracic Society stratifies acute asthma into moderate, severe and life-threatening categories. Of the options listed above, the only one which falls into the lattermost category is confusion, and so this is the correct answer here. Other life-threatening signs would include exhaustion, coma, bradycardia, hypotension, silent chest, feeble respiratory effort, 'normal' pCO2 and oxygen saturations <92%, as well as PEFR <33% of predicted.

An inability to complete sentences is classed as a severe feature, rather than life-threatening.

A respiratory rate of 32 breaths/min is also a severe feature, not life-threatening. The same applies to the patient's heart rate.

A PEFR of 38% is another severe feature (PEFR 33-50%). For it to be classed as life-threatening, it would have to be <33%.

The only category which includes oxygen saturation as a criterion is life-threatening - but the level is <92%, whereas this patient has 93%.

Question:

Mrs Wilson, a 47-year-old woman, presents to the emergency department with a 24-hour history of acute epigastric abdominal pain along with nausea and vomiting. Her pain is worse on eating and when she lies down but improves on leaning forward.

She claims this has never happened before but, in the past, has experienced colicky upper abdominal pain.

On general observation she appears to be very sweaty, and appears to have a large body habitus. Mild scleral icterus is also noted in examination.

Routine bloods and a serum amylase have been sent, with results pending.

What is the immediate next investigation you would want to do for this patient?

A.CT abdomen

B.Endoscopic retrograde cholangiopancreatography (ERCP)

C.MRI abdomen

D.Ultrasound abdomen

E.X-ray abdomen

Answer:Ultrasound abdomen

Explanation:

Early ultrasound imaging in acute pancreatitis is important to determine the aetiology as this may affect management (e.g. patients with gallstones/biliary obstruction)

Important for meLess important

The pattern of pain and patient's history suggests acute pancreatitis. The patients past history of colicky upper abdominal pain as well as the presence of scleral icterus would increase suspicions of the presence gall stones/biliary colic. Hence the correct answer in this situation would be an early ultrasound, as it is a rapid bedside investigation that can be carried out while waiting for blood results to be returned. An ultrasound of the abdomen can diagnose the presence of gallstones and help to guide management.

A CT abdomen is not necessarily required to make a diagnosis of pancreatitis if the patient has classical clinical signs of epigastric pain as well as a raised serum amylase/serum lipase. That being said, CT scan would be carried out to confirm pancreatic inflammation if the bloods returned as normal. CT scans are also the preferred modality to assess severity of the disease and to look for complications, such as abscess formations or pseudocyst formations. But would not be the immediate next step in the case of this patient.

ERCP is not indicated at this stage and will only be required if worsening liver function tests are detected or if gallstones are seen on ultrasound imaging.

MRI is not generally used to diagnose acute pancreatitis.

Abdominal x-rays are not the preferred mode of investigation to diagnose pancreatitis, as very few significant changes will be seen with this modality of imaging. The only change of note that may be seen would be pancreatic calcifications - which is not diagnostic of pancreatitis.

Question:

A 20-year-old man presents to the emergency department following a paracetamol overdose. He took 60 tablets over the course of 3 hours and presented within 20 minutes of the last tablet. He appears unwell and is initiated on treatment.

Investigations are performed 24 hours after:

pH 7.28 (7.35 - 7.45)

pCO2 4.6 kPa mmol/L (4.5 - 6.0 kPa)

pO2 12.0 kPa mmol/L (10 - 14 kPa)

Bicarbonate 10 mmol/L (22 - 28 mmol/L)

Lactate 5 mmol/L (<2 mmol/L)

Creatinine 796 μmol/L (55-120 μmol/L)

ALT 2662 IU/L (3-40 IU/L)

Prothrombin time 20 s (2 - 17 s)

Paracetamol level 8 mg/L (<6 mg/L)

What finding in their history would necessitate a liver transplant?

A.Her ALT

B.Her creatinine

C.Her pH

D.Her paracetamol level

E.Her prothrombin time

Answer:Her pH

Explanation:

Liver transplantation criteria in paracetamol overdose: pH < 7.3 more than 24 hours after ingestion

Important for meLess important

Her pH is correct. The criteria for a liver transplant following a paracetamol overdose are an arterial pH <7.3 24 hours after ingestion or all three of a prothrombin time >100 s, creatinine >300 µmol/l, grade III or IV encephalopathy. This patient's arterial pH after 24 hours is 7.28 making them eligible for a liver transplant. Metabolic acidosis can occur with a paracetamol overdose following hepatocyte damage and a subsequent failure to clear it effectively. Mortality rates can be as high as 90% in those with a pH <7.30 who were not offered a liver transplant, making this the most important prognostic factor, and hence, why it alone is sufficient to qualify for a liver transplant. The other aforementioned factors are all associated with a poorer prognosis, however not nearly as much as metabolic acidosis.

Her ALT is incorrect. ALT can vary significantly depending on the degree of hepatocyte damage. In paracetamol overdose, the ALT can rise to >1000. The liver transplant criteria are based on the most important prognostic factors, which are a pH <7.30 24 hours after ingestion or all three of a prothrombin time >100 s, creatinine >300 µmol/l, grade III or IV encephalopathy. ALT is not part of these criteria.

Her creatinine is incorrect. Acute kidney injury can occur secondary to hepatorenal syndrome or multiple organ failure. If treated sufficiently, the renal function of patients typically returns to normal. The liver transplant criteria are based on the most important prognostic factors, which are a pH <7.30 24 hours after ingestion or all three of a prothrombin time >100 s, creatinine >300 µmol/l, grade III or IV encephalopathy. Creatinine alone is not part of these criteria.

Her paracetamol level is incorrect. This can vary significantly depending on how much the individual has taken, when they present after taking the paracetamol, and the individual themselves. The liver transplant criteria are based on the most important prognostic factors, which are a pH <7.30 24 hours after ingestion or all three of a prothrombin time >100 s, creatinine >300 µmol/l, grade III or IV encephalopathy. Paracetamol levels are not part of these criteria.

Her prothrombin time is incorrect. The liver transplant criteria are based on the most important prognostic factors, which are a pH <7.30 24 hours after ingestion or all three of a prothrombin time >100 s, creatinine >300 µmol/l, grade III or IV encephalopathy. This patient's prothrombin time is 20 s and they do not have hepatic encephalopathy. The factor that makes them eligible for a transplant is their pH <7.30.

Question:

A 76-year-old woman is brought into the emergency department by ambulance after collapsing suddenly at home. Initial assessment revealed a heart rate of 42 beats per minute and she is treated according to bradycardia resuscitation guidelines whereupon she stabilises.

Her past medical history includes stable angina for which she is prescribed verapamil, however, she has recently been suffering from bouts of anxiety following a car accident, leading her sister to lend her some of the tablets she takes to 'calm her nerves'.

Which of the following medications may this patient have taken thus leading to her presentation?

A.Propranolol

B.St John's Wort

C.Citalopram

D.Diazepam

E.Sertraline

Answer:Propranolol

Explanation:

Verapamil and beta-blockers should never be taken concurrently - possibility of heart block and fatal arrest

Important for meLess important

Non-dihydropyridine calcium channel blockers (verapamil, diltiazem) and beta blockers are both negatively inotropic and their combined effects can cause severe bradycardia and even asystole. They should never be prescribed concurrently.

The other possible answers are not thought to interact with verapamil with the exception of St John's Wort which is predicted to reduce its effect.

Question:

A 39-year-old woman is referred to an endocrinology clinic. For the past six months, she has complained of fatigue, weight loss and dizziness on standing. She has a range of blood tests and the following result is found to be significant.

9 am cortisol 312 nmol/L (>500nmol/L)

What is the next best step in management?

A.Adrenal antibody test

B.CT abdomen

C.Dexamethasone suppression test

D.Glucocorticoid replacement

E.Short synacthen test

Answer:Short synacthen test

Explanation:

9 am cortisol between 100-500nmol/l is inconclusive and requires further investigation with a short synacthen test

Important for meLess important

Short synacthen test is the correct answer. This needs to be carried out when a patient has a borderline 9 am cortisol reading of 100-500nmol/L to further investigate for adrenal insufficiency. The patient’s cortisol is 312nmol/L so she requires a short synacthen test. The patient's cortisol is measured in the morning both before and after administration of synthetic ACTH. If the cortisol remains <500nmol/L after ACTH administration then adrenal insufficiency is confirmed.

Adrenal antibody test is incorrect. These are generally carried out once a diagnosis of adrenal insufficiency has been confirmed to help determine whether the condition has an autoimmune aetiology. They cannot be used to confirm the diagnosis and do not account for other causes of adrenal insufficiency such as TB or adrenal tumours. They are not 100% sensitive and are only positive in 80% of patients with Addison's disease.

CT abdomen is incorrect. This is only performed if a diagnosis of primary adrenal insufficiency is confirmed to look for rarer causes of adrenal insufficiency such as an adrenal tumour. It would not be the next step in management.

Dexamethasone suppression test is incorrect. It is used to diagnose hyperadrenalism (e.g. Cushing's disease). It would not be useful in this patient with low cortisol.

Glucocorticoid replacement is incorrect. It is the management of primary adrenal insufficiency and would be the next step in management if 9 am cortisol was <100nmol/L but as this patient's cortisol level is inconclusive, it is necessary to confirm the diagnosis before initiating treatment.

Question:

A 67-year-old man has sudden-onset right-sided weakness of both upper and lower limbs in addition to double vision in his left eye. He has a background of poorly controlled hypertension and 25-pack-year smoking history.

On examination, he has 5/5 for power on the left side but 3/5 on the right with sensation preserved on both sides. When conducting a cranial nerve examination, his left eye is found to be in a depressed and abducted position whilst the pupil appears dilated and fixed.

His capillary blood glucose and oxygen saturations are normal and a CT head is ordered.

What is the most likely diagnosis?

A.Gellé syndrome

B.Lacunar stroke

C.Lateral medullary syndrome

D.Total anterior circulation 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

Weber's syndrome is correct. This patient has sudden-onset neurological deficits (weakness and oculomotor palsy) strongly suggestive of a stroke. Strokes can be categorised according to which anatomical region is affected. The oculomotor palsy is present due to the eye being depressed and abducted or 'down and out' and the pupil is dilated and fixed, as the oculomotor nerve carries parasympathetic fibres that constrict the pupil. Overall, this patient has an ipsilateral oculomotor nerve palsy and contralateral weakness of the upper and lower extremity, meaning they have Weber's syndrome, where the branches of the posterior cerebral artery that supply the midbrain are affected.

Gellé syndrome is incorrect. It affects cranial nerves VII, VIII and the corticospinal tracts, leading to ipsilateral facial nerve palsy, ipsilateral hearing loss, and contralateral upper and lower extremity weakness. This patient has an ipsilateral oculomotor nerve palsy and contralateral upper and lower extremity weakness making the diagnosis Weber's syndrome.

Lacunar stroke is incorrect. This is where arteries to deep structures of the brain such as the thalamus or basal ganglia are affected. It presents with one of the following: unilateral weakness and/or sensory deficits of the face and arm, arm and leg, or all 3, a pure sensory stroke, or ataxic hemiparesis. This patient has more than one feature and has an ipsilateral oculomotor nerve palsy and contralateral upper and lower extremity weakness making the diagnosis Weber's syndrome.

Lateral medullary syndrome is incorrect. This is where the posterior inferior cerebellar artery is affected and presents with ipsilateral facial pain and temperature loss, contralateral limb and/or torso pain and temperature loss, as well as ataxia and nystagmus. This does not have any of these features and has an ipsilateral oculomotor nerve palsy and contralateral upper and lower extremity weakness making the diagnosis Weber's syndrome.

Total anterior circulation stroke is incorrect. This affects the middle and anterior cerebral arteries and presents with unilateral hemiparesis and/or hemisensory loss, homonymous hemianopia and higher cognitive dysfunction (e.g. dysphasia). Out of these features, this patient only has hemiparesis alongside their oculomotor palsy which is not part of this syndrome. The presence of an ipsilateral oculomotor nerve palsy and contralateral upper and lower extremity weakness makes the diagnosis of Weber's syndrome.

Question:

You are an FY2 in General Practice reviewing a young man with psoriasis. 2 weeks ago he had a flare and started using his topical steroid cream. On review today his symptoms are well controlled.

What is the best advice to give him regarding his topical steroid use?

A.Continue using topical corticosteroids daily

B.Aim for a 4 week break before considering another course of topical steroids

C.Aim for a 12 week break before considering another course of topical steroids

D.Switch to oral prednisolone

E.Aim to stop corticosteroids completely

Answer:Aim for a 4 week break before considering another course of topical steroids

Explanation:

Aim for a 4 week break in between courses of topical corticosteroids in patients with psoriasis

Important for meLess important

Topical corticosteroids are commonly used to reduce inflammation in psoriasis. You should aim for a 4 week break between courses.

There is currently no need to continue using topical steroids daily as the patient's symptoms are under control.

There is no indication to switch to oral prednisolone.

There's no reason for the patient to stop corticosteroid use completely, as they are an effective treatment to reduce inflammation and excellent for difficult areas such as the scalp and face.

Question:

A 65-year-old male with known nasopharyngeal carcinoma presents with double vision over a few weeks. On examination he is found to have left eye proptosis and it is down and out. He reports pain on attempting to move the eye. There is an absent corneal reflex. What is the most likely diagnosis?

A.Posterior communicating artery aneurysm

B.Cavernous sinus syndrome

C.Optic nerve tumour

D.Migraine

E.Cerebral metastases

Answer:Cavernous sinus syndrome

Explanation:

Cavernous sinus syndrome is most commonly caused by cavernous sinus tumours. In this case, the nasopharyngeal malignancy has locally invaded the left cavernous sinus. Diagnosis is based on signs of pain, opthalmoplegia, proptosis, trigeminal nerve lesion (opthalmic branch) and Horner's syndrome.

Question:

A 75-year-old woman is brought to the Emergency Department by her family. She has been getting more short-of-breath over the last 6 weeks and says her energy levels are low. An ECG on arrival shows atrial fibrillation at a rate of 114 / min. Blood pressure is 128/80 mmHg and a chest x-ray is unremarkable. What is the appropriate drug to control the heart rate?

A.Felodipine

B.Amiodarone

C.Digoxin

D.Flecainide

E.Bisoprolol

Answer:Bisoprolol

Explanation:

Atrial fibrillation: rate control - beta blockers preferable to digoxin

Important for meLess important

This question reiterates an important point which frequently comes up in exams - digoxin is no longer first-line for rate control in atrial fibrillation. Her shortness-of-breath is likely to be rate related and does not necessarily mean that she is in heart failure. This is supported by a normal chest x-ray.

Please see the NICE guidelines for further information.

Question:

A 26-year-old is seen by the on-call psychiatry team at a police station after being brought there as a place of safety following a breakdown in a local supermarket. The patient was attempting to steal alcohol and was caught by the shop security after which they had a panic attack and police were called.

On further questioning they explain they were trying to steal 'because they can' and they have done so many times before. They do not see why they should obey the rules of society if they do not want to. When questioned about their childhood, they state they enjoyed hurting their younger siblings when in their teens and when they were 14 they report having killed the family pet and burying it in a local park to hide the evidence. They report self-harming in the past but there are no scars as evidence of this now.

Which of the following features would be more suggestive of an underlying diagnosis of antisocial personality disorder over borderline personality disorder?

A.The presence of psychotic symptoms

B.Concurrently elevated mood

C.Concurrently low mood

D.Female gender

E.Male gender

Answer:Male gender

Explanation:

Antisocial personality disorders more often affects men

Important for meLess important

Antisocial personality disorder more often affects men than it does women, whereas young women are more likely diagnosed with borderline personality disorder than men.

The features of the two can often overlap with both having impulsivity as a key feature. The important features of borderline personality disorder are an unstable affect with fluctuating self image and recurrent suicidal ideation and self harm. The more important features of antisocial personality disorder are repeated failure to conform to social norms or rules and reckless disregard for their own safety as well as others with a lack of sense of remorse when these actions are discussed.

The presence of a persistent mood alteration or psychotic symptoms would go against the primary diagnosis being a personality disorder.

Question:

A 5-day old infant presents to the paediatric assessment unit with poor feeding, tachypnoea and drowsiness.

He was born at 38 weeks via normal vaginal delivery and was discharged within 24 hours after a newborn check was normal.

On examination, he was also tachycardic with weak femoral pulses bilaterally. The lungs were clear and the liver was enlarged by 2cm.

An echocardiogram was performed which confirmed a diagnosis of coarctation of the aorta.

What is the most appropriate next step in management after resuscitation?

A.Routine transfer to a paediatric cardiac centre for corrective surgery

B.Oesophageal echocardiogram

C.Arrange a routine follow up in paediatric outpatients

D.Immediate administration of IV NSAIDs

E.Immediate administration of prostaglandin

Answer:Immediate administration of prostaglandin

Explanation:

Growth failure, tachycardia and tachypnoea in the context of weak femoral pulses - coarctation of the aorta should be considered

Important for meLess important

Coarctation of the aorta is the most commonly missed congenital heart disease.

As illustrated by this case, a normal newborn examination does not definitively rule out congenital heart disease.

While surgery is the only definitive treatment, IV prostaglandins are used in neonates to maintain a patent ductus arteriosus to allow adequate circulation until it is possible to attempt corrective surgery.

IV NSAIDs are used to close a patent ductus arteriosus.

A transoesophageal echocardiogram would not add to the management plan, especially since the diagnosis is already known.

It would not be appropriate to discharge the child for outpatient review as they are acutely unwell.

Question:

A 41-year-old man is assessed on the orthopaedic ward with pyrexia and shortness of breath. He had an intramedullary nail to fix a fracture of his right tibia 7 days ago. Which of the following is most likely the cause of his delayed (> 5 days) post-operative pyrexia?

A.Venous thromboembolism

B.Pulmonary atelectasis

C.Cellulitis

D.Blood transfusion

E.Urinary tract infection

Answer:Venous thromboembolism

Explanation:

Venous thromboembolism normally presents within 5-10 days post-operatively. The shortness of breath makes a diagnosis of venous thromboembolism more likely than cellulitis or urinary tract infection, whilst pulmonary atelectasis is more likely to occur earlier post-operatively.

Question:

Which of the following groups should be offered human papilloma virus vaccination for the first time?

A.Girls and boys aged 12-13 years

B.Girls and boys aged 14-15 years

C.Girls aged 14-15 years

D.Girls aged 12-13 years

E.Girls aged 10-11 years

Answer:Girls and boys aged 12-13 years

Explanation:

All boys aged 12-13 (school year 8) are now offered the HPV vaccine as well as girls

Important for meLess important

The current vaccine (Gardasil) is given as 2 doses - girls have the second dose between 6-24 months after the first, depending on local policy.

From September 2019, all 12- and 13-year-olds in school Year 8 will be offered the human papillomavirus (HPV) vaccine.

Question:

Katie, a 24-year-old primigravida presents to her GP. She is currently 8 weeks pregnant and has an eight-pack-year smoking history. Her previous attempt to quit, utilising NHS stop smoking services, was unsuccessful. She explains that she understands smoking is harmful to herself and her baby. Despite trying multiple times to quit smoking, she finds herself relapsing during stressful situations and so has decided to consult her GP.

What is the most appropriate management plan for this patient?

A.Arrange a carbon monoxide (CO) test

B.Bupropion

C.Offer nicotine replacement therapy

D.Refer to NHS Stop Smoking services

E.Varenicline

Answer:Offer nicotine replacement therapy

Explanation:

Pregnant women who smoke: nicotine replacement therapy should be offered, varenicline and bupropion are contraindicated

Important for meLess important

Nicotine replacement therapy is the correct step in this scenario, particularly as previous referral to stop smoking services was ineffective. Nicotine replacement therapy is usually done in the form of nicotine patches, with add-on options such as nasal spray and gum available if patches alone are insufficient.

Carbon monoxide tests are routine tests to identify mothers who smoke during pregnancy, as many pregnant women may not declare that they smoke for various reasons. In this scenario, the mother has presented to the GP about her smoking problem so there is no reason to perform this test.

Bupropion is a nicotinic antagonist, that is often prescribed to aid in smoking cessation. However, it is contraindicated in pregnancy as there is some evidence that it may cause miscarriages and heart defects.

Referral to NHS Stop Smoking services are usually the first-line option for smoking cessation in all women, however since this patient has already tried this and it wasn't successful, nicotine replacement therapy is a more suitable option.

Varenicline, like bupropion, is another medication that is widely used to aid in smoking cessation. It is a partial nicotinic receptor agonist, and is contraindicated in pregnancy as the BNF states that there was 'toxicity in animal studies.'

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:

You received a letter from the ophthalmology department regarding Mr Mistry, a 76-year-old gentleman who has been listed for cataract surgery. They report that his blood pressure (BP) is raised at 154/92mmHg and ask you to follow this up, as his BP needs to be well controlled before the operation will be performed.

You have a look at his medication list and see he is already on felodipine 10mg, candesartan 32mg, and bendroflumethiazide 2.5mg.

His most recent renal profile is below.

Na+ 140 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Urea 7.2 mmol/L (2.0 - 7.0)

Creatinine 77 µmol/L (55 - 120)

Assuming he is compliant with his medications, what is the next treatment step for his hypertension?

A.Alpha-blocker or beta-blocker

B.Angiotensin-converting enzyme inhibitor

C.Change bendroflumethiazide to indapamide

D.Refer to cardiology

E.Spironolactone

Answer:Alpha-blocker or beta-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

Alpha-blocker or beta-blocker. Correct, this is the 4th-line option in patients whose potassium is >4.5mmol/L. NICE also suggests checking for postural hypotension, and confirming the raised clinic reading with home/ambulatory BP monitoring, for patients with resistant hypertension.

Angiotensin-converting enzyme inhibitor. This is incorrect as he is already on candesartan, an angiotensin II receptor blocker - the two should not be combined.

Change bendroflumethiazide to indapamide. Incorrect, although indapamide would be the preferred option when starting a thiazide-like diuretic now, there is no need to change patients who are already on bendroflumethiazide to indapamide.

Refer to cardiology. This would be indicated if he remains uncontrolled on a maximum tolerated dose of a 4th antihypertensive.

Spironolactone. Incorrect as his potassium is >4.5mmol/L; if it were 4.5mmol/L or lower spironolactone would be the preferred 4th-line antihypertensive.

Question:

A 50-year-old woman reports pain under her right thumb for the last 2 weeks. There is no history of trauma. She is right-handed and works for a computer software company.

On examination, there is no visible swelling or deformity. There is tenderness over the radial styloid process. On grasping the patient's thumb and ulnar deviating the hand, the patient reports sharp pain in the distal radius.

What is the most likely diagnosis?

A.Carpal tunnel syndrome

B.De Quervain's tenosynovitis

C.Osteoarthritis of base of thumb

D.Scaphoid fracture

E.Trigger thumb

Answer:De Quervain's tenosynovitis

Explanation:

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

Important for meLess important

De Quervain's tenosynovitis is a common condition in which the sheath containing the extensor pollicis brevis and abductor pollicis longus tendons is inflamed. It typically affects females aged 30-50 years old.

Finkelstein's test can be performed to help diagnose this condition. In a patient with De Quervain's tenosynovitis, pulling the thumb of the patient in ulnar deviation and longitudinal traction causes pain over the radial styloid process.

Carpal tunnel syndrome usually manifests as wrist or hand pain and/or numbness which is worse at night. Symptoms are reproduced on tapping over the palmar wrist (Tinel's test) or prolonged wrist flexion (Phalen's test).

Osteoarthritis of the base of the thumb can cause pain, but this is not typically reproduced with the Finkelstein's test.

A scaphoid fracture is less likely in the absence of any trauma.

Trigger thumb manifests as stiffness or clicking when trying to move the affected thumb, or locking in a bent position.

Question:

A 62-year-old female was admitted to the intensive care unit 1 week ago following an anterior myocardial infarction secondary to severe microcytic anaemia. Last night, she was successfully extubated and infused one unit of packed red cells with no complications. On returning to your shift this morning, she appears drowsy. You perform an ABCDE assessment and discover bilateral basal crackles and reduced air entry. The observations and monitor values are given below:

Oxygen saturation: 84% on 2L oxygen via nasal specs.

Respiratory rate: 28 breaths per minute.

Pulse rate: 110 beats per minute.

Temperature: 36.5 Celsius.

Blood pressure (via arterial line): 98/57 mmHg.

Pulmonary capillary wedge pressure: 26 mmHg (2 - 15 mmHg).

Her arterial blood gas (ABG) is given below:

pH 7.23 (7.35-7.45)

PaO2 10.5 kPa (10 - 13 kPa)

PaCO2 7.1 kPa (4.6 - 6.1 kPa)

HCO3- 22 mmol/L (22 - 26 mmol/L)

Glucose 6.2 mmol/L (4.0 - 7.8 mmol/L)

Her chest x-ray shows bilateral ill-demarcated fluffy opacification, especially around the hilar regions, with a horizontal, sharp white line in the right mid-zone.

What is the most likely diagnosis, given the above?

A.Acute respiratory distress syndrome

B.Cardiac pulmonary oedema

C.Amiodarone-related pulmonary fibrosis

D.Transfusion-related lung injury (TRALI)

E.Ventilator-acquired pneumonia

Answer:Cardiac pulmonary oedema

Explanation:

Acute respiratory distress syndrome can only be diagnosed in the absence of a cardiac cause for pulmonary oedema (i.e. the pulmonary capillary wedge pressure must not be raised)

Important for meLess important

This patient has developed an acute pulmonary oedema, as suggested by the bilateral basal crackles and reduced air entry, together with the characteristic x-ray findings. She also has developed an uncompensated respiratory acidosis with type 2 respiratory failure - at 2L (28%) you'd expect the kPa to be 10-%, i.e. 18 kPa. The high CO2 explains her drowsiness. The question is, is this acute respiratory distress syndrome (ARDS), or cardiac-related pulmonary oedema? Let's look at what points us in either direction.

The history of a blood transfusion may support ARDS, although this usually happens within 4 hours of transfusion. It is certainly acute onset, and the radiological criteria are fulfilled (see notes below). However, when looking at the pulmonary capillary wedge pressure, we can see that it is high, suggesting backlog into the veins, which is sensitive in diagnosing cardiac failure. This, coupled with the recent myocardial infarction, makes cardiac pulmonary oedema far more likely than ARDS.

Option 1 - As above - this can't be diagnosed if there is concomitant cardiac failure.

Option 3 - This picture is too acute for fibrosis, and there's no mention of amiodarone in the stem.

Option 4 - TRALI is the specific name given for ARDS occurring within 6 hours of a transfusion, which isn't the case here.

Option 5 - This could be possible, but bilateral pneumonia is uncommon, the patient is afebrile, and the chest x-ray would support pulmonary oedema (fluid in the horizontal fissure; hilar oedema) over consolidation.

Question:

An emergency buzzer goes off on the coronary care unit and you are the first doctor on the scene. A healthcare assistant whilst on an observation round found a 74-year-old man unresponsive. You tilt the head and chin lift and feel for a carotid pulse for 10 seconds whilst listening for breath, you feel neither a pulse nor hear breath sounds.

Telemetry attached to the patient is showing sinus rhythm at a rate of 120bpm. The crash team is being called and the crash trolley is brought bedside. You are not aware of a DNACPR.

What is the most appropriate initial action?

A.Administer 1mg adrenaline

B.Administer 300mg amiodarone

C.Deliver a single synchronised DC shock followed by 2 minutes of 30:2 compressions

D.Deliver three quick successive stacked unsynchronised DC shocks followed by 2 minutes of 30:2 compressions

E.Start chest compressions at a rate of 30:2

Answer:Start chest compressions at a rate of 30:2

Explanation:

In ALS, the ratio of chest compressions to ventilation is 30:2

Important for meLess important

Answer: start chest compressions at a rate of 30:2. This patient is in cardiac arrest with a “non-shockable” rhythm (pulseless-electrical activity). Chest compression should immediately be started at a rate of 30:2 rescue breaths.

Administer 1mg adrenaline is inappropriate as the initial action. Once chest compressions have started adrenaline may be administered as quickly as possible.

Administer 300mg amiodarone is inappropriate. Amiodarone should be given to patients in ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT).

Deliver a single synchronised DC shock followed by 2 minutes of 30:2 compressions is incorrect as the patient is in PEA a non-shockable rhythm. This would be appropriate if the rhythm were shockable (for example ventricular fibrillation or pulseless VT) and the patient was not on telemetry, in which case you would deliver three quick successive stacked shocks.

Deliver three quick successive stacked unsynchronised DC shocks followed by 2 minutes of 30:2 compressions is incorrect as this patient is in PEA and this is a non-shockable rhythm. This would be appropriate if the patient were in a shockable rhythm whilst on telemetry.

Question:

A 32-year-old woman presents to the emergency department with severe left lower quadrant pain. A pregnancy test is positive. Her past medical history is significant for a ruptured appendix requiring an appendectomy when she was 18 years old.

She undergoes a vaginal ultrasound, which shows an unruptured tubal pregnancy on the left side. The right fallopian tube is visualised and adhesions can be seen at the distal end of the tube.

What is the most appropriate management?

A.Methotrexate

B.Monitor for 48 hours

C.Salpingectomy

D.Salpingotomy

E.Vaginal misoprostol

Answer:Salpingotomy

Explanation:

Ectopic pregnancy requiring surgical management: Salpingotomy (rather than salpingectomy) should be considered for women with risk factors for infertility such as contralateral tube damage

Important for meLess important

This woman has a left-sided ectopic pregnancy. It requires surgical management given the severe level of pain she is in. However, this case is complicated by the damage to her right tube. Emergency appendectomy in cases of rupture is a mild risk factor for tubal infertility. Where the fertility of the contralateral tube is compromised, it is more appropriate to opt for a salpingotomy to manage an ectopic pregnancy, in order to preserve the fertility of the tube.

Methotrexate is incorrect. This drug can be used in the medical management of ectopic pregnancies. Medical management is appropriate where there is a low amount of pain in an unruptured ectopic pregnancy. Given the severe amount of pain in this case, medical management would not be appropriate.

Monitoring for 48 hours is incorrect. Expectant management may be useful if an ectopic pregnancy is small in size with no cardiac activity, and is asymptomatic. It would not be appropriate here.

Salpingectomy is incorrect. Since there is contralateral tube damage, it is preferable to attempt to salvage the fertility of the ipsilateral tube, and therefore a salpingotomy is better than a salpingectomy.

Vaginal misoprostol is incorrect. This is not used in the management of ectopic pregnancies, instead, it is used for either termination of pregnancy or medical management of miscarriage.

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 52-year-old female presents to her general practitioner with a 2-month history of polyuria, nocturia and chronic thirst. She has a past medical history of chronic kidney disease (CKD) stage 4, secondary to polycystic kidney disease. Amongst other investigations, she is referred for a water deprivation test.

Give 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.Low urine osmolality after fluid deprivation, but normal 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 symptoms of polyuria, nocturia and chronic thirst, combined with a pre-existing diagnosis of chronic kidney disease (CKD) 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.

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. As the patient has no risk factors for this pathology, it is not the best answer.

Low urine osmolality after fluid deprivation, but normal after desmopressin is incorrect as this would not be commonly seen with any pathological state.

Question:

A woman presents to the GP with a recent history of suddenly having the sensation of smelling roses, which occurred whilst at work in the office and lasted for approximately one minute. She mentions that her work colleagues noticed she seemed to be 'daydreaming' during the episode and that her left arm was twitching. She denies losing consciousness during the event, which she reports remembering clearly.

What is the most likely diagnosis?

A.Absence seizure

B.Atonic seizure

C.Focal aware seizure

D.Focal impaired awareness seizure

E.Generalised tonic clonic seizure

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

This woman is presenting with a short, transient episode of olfactory hallucination (smelling roses when there are none), indicating a focal seizure. The twitching solely being restricted to her left arm also indicates that the event is focal in nature. Given that she does not lose consciousness and is aware throughout the event, this episode is termed 'focal aware seizure'.

Focal impaired awareness seizure is incorrect as in this scenario the patient states they were aware of the event. This would involve a larger extent of the cerebral hemisphere than focal aware seizures, and would therefore cause the patient to have reduced consciousness and confusion, alongside absent awareness for some or all of the seizure event.

Absence seizure is incorrect as they often occur in children, and therefore do not match the demographic of our patient. They would also involve the patient staring blankly into space before instantly returning to their normal self. Even though she seemed to be 'daydreaming', absence seizures typically only last a few seconds and the person may be unaware they are having the seizure. Therefore, the rest of her history is consistent with a focal seizure - hence this answer is incorrect.

Atonic seizures would involve loss of muscle tone causing the patient to 'drop' to the floor - which does not fit with this woman's presentation.

Generalised tonic-clonic seizure is incorrect as this patient presents with a focal problem (olfactory hallucination) rather than generalised problems including tensing / jerking of the limbs, and in addition, there are no indications that she experienced a loss of consciousness, tongue biting, or urinary incontinence.

Question:

A 71-year-old man has been brought in by ambulance and is being reviewed by the team in the emergency department. An hour ago he was shaving in the bathroom mirror when he noticed the left-hand side of his face begin to droop. However, he could still raise both his eyebrows.

On arrival in the department, he still has a visible facial droop. There is also left-sided pronator drift and reduced arm strength. His blood pressure and ECG are normal.

What is the next radiological investigation you should perform?

A.CT head with contrast

B.CT head without contrast

C.CT angiography

D.MR angiography

E.CT perfusion scan

Answer:CT head without contrast

Explanation:

Non-contrast CT head scan is the first line radiological investigation for suspected stroke

Important for meLess important

In this scenario, the history of facial droop with forehead-sparing suggests an upper motor neuron lesion (e.g., a stroke). The priority in the acute management of suspected stroke is to rule out an intracerebral haemorrhage which will show up clearly on non-contrast CT. Non-contrast MRI would also be an appropriate answer although it is not listed as an option here. The CT scanner tends to be more available out of hours. The immediate priority is to rule out a haemorrhage before proceeding to further investigations. Non-contrast CT is therefore the first investigation of choice.

Blood on CT scans appears bright acutely. Adding contrast is unnecessary and could make any haemorrhages less easy to see. A contrast CT scan would therefore not be done in the acute investigation of stroke.

After the non-contrast CT scan has been performed, if there is no evidence of haemorrhage, there will be a role for further investigations to plan intervention for ischaemic strokes. CT angiography helps to determine the level of the obstruction in the arterial tree. If the obstruction is proximal, mechanical thrombectomy might be a viable treatment option. If within the 4.5-hour treatment window and there are no contraindications, thrombolysis may also be given at this point.

MR angiography is a valid alternative to CT angiography although it is less commonly performed. The CT angiogram can be taken immediately after the initial non-contrast CT as the patient is already in the CT scanner - this saves considerable time. Time is crucial in the management of ischaemic stroke: the benefit of thrombolysis declines steadily over time and at 4.5 hours the benefit tends to equal the risk (hence the use of <4.5 hours as the traditional thrombolysis cut-off time).

Finally, CT perfusion scanning is increasingly used in ischaemic strokes to differentiate the dead tissue in the core of the infarct from perhaps still-viable tissue in the 'ischaemic penumbra' - this tissue may still be salvageable after the 4.5-hour time window has elapsed. CT perfusion scanning can therefore be used to extend the thrombolysis window for selected patients. Importantly, CT perfusion scanning, like CT angiography, is only used for planning management in ischaemic strokes (i.e., where there is no sign of haemorrhage on the initial non-contrast CT).

Question:

Please look at the image below:

© Image used on license from DermNet NZ

Which one of the following is LEAST likely to have a role in the management of this patient?

A.Sun block

B.Topical tacrolimus

C.Phototherapy

D.Topical ketoconazole

E.Topical corticosteroids

Answer:Topical ketoconazole

Explanation:

There is no role for antifungal therapy in vitiligo.

Question:

A 27-year-old woman, who is 12 weeks pregnant, presents to her midwife for review. She has no other medical conditions, but her BMI is 33 kg/m². The patient is worried about gestational diabetes as she has heard this is common in larger women. She has one previous child, a boy, born after a lengthy and complicated delivery. His birth weight was 4.6kg and he required no extra post-natal care.

There is no family history of any problems during or after pregnancy.

Given her concerns and past medical history, what test is most appropriate?

A.Fasting blood glucose at 16-20 weeks

B.Fasting blood glucose at 24-28 weeks

C.No test necessary as she has no relevant personal or family history

D.Oral glucose tolerance test at 16-20 weeks

E.Oral glucose tolerance test at 24-28 weeks

Answer:Oral glucose tolerance test at 24-28 weeks

Explanation:

The oral glucose tolerance test remains the investigation of choice for gestational diabetes

Important for meLess important

Oral glucose tolerance test at 24-28 weeks is correct. The investigation of choice for gestational diabetes is the oral glucose tolerance test (OGTT). This patient has risk factors for gestational diabetes (previous baby with macrosomia weighing 4.5 kg or more; raised BMI) and should be offered screening at 24-28 weeks.

Fasting blood glucose at 16-20 weeks is incorrect. Although it may provide supplementary evidence of gestational diabetes, fasting blood glucose is not the investigation of choice for gestational diabetes. Using this would require repeat testing.

Fasting blood glucose at 24-28 weeks is incorrect. Although it may provide supplementary evidence of gestational diabetes, fasting blood glucose is not the investigation of choice for gestational diabetes. Using this would require repeat testing.

No test necessary as she has no relevant personal or family history is incorrect. This patient has relevant risk factors in her personal medical history: her BMI is above 30kg/m², and her previous child had macrosomia (weighed more than 4.5 kg at birth), both of which are risk factors for gestational diabetes.

Oral glucose tolerance test at 16-20 weeks is incorrect. This is the investigation of choice, but screening is offered at 24-28 weeks, not 16-20.

Question:

A 36-year-old lady presents with localised, well demarcated patches of hair loss and small, broken 'exclamation mark' hairs. Which of the following blood tests is most important to do in this case?

A.U&Es

B.Iron studies

C.TFTs

D.Bone profile

E.LFTs

Answer:TFTs

Explanation:

In patients with alopecia areata, it is important to screen for other autoimmune conditions, such as thyroid disease, diabetes and pernicious anaemia

Important for meLess important

In patients with alopecia areata, it is important to screen for other autoimmune conditions, such as thyroid disease, diabetes and pernicious anaemia. TFTs are useful to screen for thyroid disease. Other useful screening tests may include FBC, HbA1c and B12 level.

Question:

A 45-year-old pregnant asylum seeker who has just arrived to the UK from Syria presents to the general practitioner for their first scan at 22 weeks.

An ultrasound scan identifies a 'snow-storm' appearance with no foetal parts.

What is the most likely diagnosis?

A.Incomplete hydatidiform mole

B.Gestational diabetes

C.Incomplete miscarriage

D.Complete hydatidiform mole

E.Multiple gestation

Answer:Complete hydatidiform mole

Explanation:

Hydatidiform mole - 'snow storm' appearance on ultrasound scan

Important for meLess important

A complete hydatidiform mole occurs when all of the genetic material comes from the father. There will be no foetal parts present and snowstorm appearance is seen on ultrasound. Vaginal bleeding early in pregnancy is often the presenting feature.

Incomplete hydatidiform mole occurs due to two sets of paternal chromosomes and one set of maternal chromosomes. There are often foetal parts present and snowstorm appearance is not seen on ultrasound.

Gestational diabetes may cause macrosomia and other foetal structural abnormalities. However, this would not cause a snowstorm appearance on ultrasound.

An incomplete miscarriage may cause vaginal bleeding. Whilst ultrasound scan is the investigation of choice to confirm miscarriage, there would not be a snowstorm appearance.

Multiple gestation would cause a larger-than expected uterus. However, this would not cause snowstorm appearance. However, note that bHCG is raised in hydatidiform mole and this would also be raised in multiple gestation.

Question:

A 17-year-old girl comes to see you at the GP surgery. She complains of excess hair.

On examination she has a very fine layer of soft un-pigmented hair that covers her entire body, apart from her palmar and plantar surfaces. From the list below, what is the most likely cause?

A.Androgen insensitivity syndrome

B.Congenital adrenal hyperplasia

C.Malnutrition

D.Teratoma

E.Polycystic ovarian syndrome

Answer:Malnutrition

Explanation:

This question provides an example of a patient with 'lanugo hair'. This is generally found in newborn babies and those with chronic malnutrition. It is an important sign to remember as it can be found in patients with anorexia nervosa.

Polycystic ovarian syndrome (PCOS) - This condition may cause hirsutism, this differs from lanugo hair in that it tends to affect certain areas of the body such as the face and tends to be thick and dark rather than fine and un-pigmented.

Congenital adrenal hyperplasia - This condition may cause early pubic hair to develop and later excessive facial hair in adolescence.

Teratoma - Hair is often found inside teratoma tumours, though hypertrichosis is not generally a symptom.

Androgen insensitivity syndrome (AIS) - Secondary terminal hair or pubertal hair, is used to distinguish between type 6 and 7 AIS at puberty.

Question:

A 29-year-old male junior doctor sustains a needlestick injury 2 days ago when inserting a cannula into a patient with a known history of HIV.

The patient has an unknown viral load, however, they commenced antiviral therapy 4 months ago and are compliant with treatment.

What is the most appropriate step in their management?

A.Give 2 weeks of antiretroviral therapy and arrange HIV testing at 10 weeks

B.Give 4 weeks of antiretroviral therapy and arrange HIV testing at 12 weeks

C.Give 8 weeks of antiretroviral therapy and arrange HIV testing at 10 weeks

D.No treatment required as the patient with HIV is compliant with treatment

E.They have missed the treatment window, arrange HIV testing at 10 weeks

Answer:Give 4 weeks of antiretroviral therapy and arrange HIV testing at 12 weeks

Explanation:

Post-exposure prophylaxis for HIV: oral antiretroviral therapy for 4 weeks

Important for meLess important

Give 4 weeks of antiretroviral therapy and arrange HIV testing at 12 weeks is correct. Following an occupational exposure (sharps or mucosal splash) from an index case known to be HIV positive with an unknown or detectable HIV viral load, post-exposure prophylaxis (PEP) is recommended. PEP should be initiated as soon as possible after exposure, preferably within 24 hours. PEP should not be initiated beyond 72 hours after exposure. This man has presented approximately 48 hours after exposure meaning he is within the time frame for receiving PEP. The treatment with antiretrovirals is for 4 weeks. Following the completion of PEP, HIV testing should be done. Follow-up testing for HIV can be performed 45 days after the completion of the PEP course. If a 28-day course is completed (such as in this man) this is a minimum of 10.5 weeks post-exposure. Therefore, this is the correct answer. Generally, HIV testing is done at 12 weeks (not 45 days after completion of the course), so other blood-transmitted infections such as syphilis can be tested simultaneously.

Give 2 weeks of antiretroviral therapy and arrange HIV testing at 10 weeks is incorrect. PEP for HIV should be given for 4 weeks, not 2 weeks as this is not a long enough timeframe for treatment. Furthermore, 10 weeks is too soon after exposure for follow-up testing.

Give 8 weeks of antiretroviral therapy and arrange HIV testing at 10 weeks is incorrect. Typically, only a 4-week course of anti-retroviral therapy is required as evidence has shown no increase in treatment success, and generally, people are less compliant with longer treatment courses. Furthermore, 10 weeks is not long enough after exposure to re-test for HIV. It has to be a minimum of 45 days after completion of treatment, which after a 4-week course is 73 days since exposure (10 weeks + 3 days).

No treatment required as the patient with HIV is compliant with treatment is incorrect. If the patient had been receiving antiretroviral therapy for more than 6 months and had an undetectable viral load, then this would be appropriate. However, the viral load is unknown and the patient has only been receiving treatment for 4 months.

They have missed the treatment window, arrange HIV testing at 10 weeks is incorrect. This man has presented within 72 hours (at 48 hours), so is still within the treatment window. Furthermore, follow-up HIV testing is done at a minimum of 45 days after completion of the antiretroviral course, which would be around a minimum of 10.5 weeks after completing a 4-week course of PEP.

Question:

A 23-year-old woman with schizophrenia presents accompanied by her mother for review after discharge from an acute inpatient psychiatry unit. She has been stabilised on quetiapine and requires a repeat prescription. Her mother is concerned about her driving and would like to know what the legal requirements are.

What advice should be given in this case?

A.Do not drive indefinitely

B.Do not drive for 3 months, no need to notify the DVLA

C.Do not drive for 3 months, notify the DVLA, follow-up with psychiatrist

D.Do not drive for 6 months, no need to notify the DVLA

E.Do not drive for 6 months, notify the DVLA, follow-up with psychiatrist

Answer:Do not drive for 3 months, notify the DVLA, follow-up with psychiatrist

Explanation:

Patients with schizophrenia must not drive and must notify the DVLA, until stable and well for 3 months and following a suitable psychiatristy report

Important for meLess important

This patient has just recovered from an acute exacerbation of her illness and she should be advised not to drive for at least 3 months. This should accompany a notification to the DVLA and she will need to follow up with her psychiatrist to obtain a report clearing her of any issues that would affect her driving.

This patient does not need to stop driving indefinitely. If she has good control of her illness with her medication, she can recommence driving.

There is a requirement to inform the DVLA of this condition, this does not need to be done by the doctor and the patient should be encouraged to do so.

6 months is longer than required to not drive; this patient should also inform the DVLA.

Again, 6 months is longer than what is required, although it is correct that she should inform the DVLA and follow up with her psychiatrist.

Question:

A 67-year-old male is admitted to the surgical unit with acute abdominal pain. He is found to have a right sided pneumonia. The nursing staff put him onto 15L O2 via a non rebreathe mask. After 30 minutes the patient is found moribund, sweaty and agitated by the nursing staff. An arterial blood gas reveals:

pH 7.15

pCO2 10.2 kPa

pO2 12.8 kPa

Bicarbonate 32 mmol/l

Base excess - 5.2 mmol/l

What is the most likely cause for this patients deterioration?

A.Acute respiratory alkalosis secondary to hyperventilation

B.Over administration of oxygen in a COPD patient

C.Metabolic acidosis secondary to severe pancreatitis

D.Metabolic alkalosis secondary to hypokalaemia

E.Acute respiratory acidosis secondary to pneumonia

Answer:Over administration of oxygen in a COPD patient

Explanation:

This patient has an acute respiratory acidosis, however this is on a background of chronic respiratory acidosis (due to COPD) with a compensatory metabolic alkalosis (the elevated bicarbonate is the main clue to the chronic nature of the respiratory acidosis). This blood gas picture is typical in a COPD patient who has received too much oxygen; these patients lose their hypoxic drive for respiration, therefore retain CO2 and subsequently hypoventilate leading to respiratory arrest. If the bicarbonate was normal, then the answer would be acute respiratory acidosis secondary to pneumonia.

Question:

A 65-year-old woman presents with a 4-week history of progressive deafness and ringing in the right ear. On examination, there is a normal tympanic membrane and ear canal. Rinne's test was normal on both sides with air conduction better than bone however on Weber's testing the sound is heard best in the left ear.

What is the most likely diagnosis?

A.Otosclerosis

B.Otitis media

C.Presbyacusis

D.Meniere's disease

E.Acoustic neuroma

Answer:Acoustic neuroma

Explanation:

Acoustic neuroma is an important differential diagnosis in patients with unilateral deafness or tinnitus

Important for meLess important

Acoustic neuroma is the correct answer and should always be considered in patients with unilateral sensorineural deafness or tinnitus. Patients may also develop facial palsy. Acoustic neuroma is a slow-growing neurofibroma and requires urgent referral to ENT for surgery.

Presbyacusis and otosclerosis are both causes of deafness but symptoms are bilateral. Additionally, otosclerosis causes a conductive, not a sensorineural deafness.

The normal ear examination and Rinne's/Weber's tests suggesting a sensorineural deafness exclude otitis media.

Meniere's disease would normally present with attacks of vertigo, tinnitus, sensorineural deafness and fullness of the ear.

Question:

A 72-year-old man is admitted to the Emergency Department with palpitations. On admission he drowsy and grey in colour. His blood pressure is 80/48 mmHg, respiratory rate 30/min and pulse is > 200/min. An ECG is taken:

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

What does the ECG show?

A.Ventricular fibrillation

B.Ventricular tachycardia

C.Brugada syndrome

D.Supraventricular tachycardia

E.Atrial fibrillation

Answer:Ventricular tachycardia

Explanation:

As the patient is conscious ventricular fibrillation (VF) can be excluded - the nature of VF means that it is not compatible with a cardiac output. The diagnosis is ventricular tachycardia. Given the peri-arrest nature of the presentation the patient should be immediately cardioverted.

Question:

A 31-year-old pregnant woman attends the emergency department. She complains of a 1-day history of weakness on the right side of her face. When asked, she admits to being sensitive to loud noises for the past few days.

On examination, the left side of her face is intact. The right side of her face is drooping. When asked to raise her eyebrows, she is only able to do this on the left side.

Given the likely diagnosis, what is appropriate management?

A.Aspirin

B.CT head

C.Prednisolone

D.Prednisolone and eye care

E.Prednisolone, amoxicillin and eye care

Answer:Prednisolone and eye care

Explanation:

Eye care is important in Bell's palsy - drops, lubricants and night time taping should be considered

Important for meLess important

Prednisolone and eye care is the correct answer. This patient has Bell’s palsy as seen by the unilateral facial weakness that also affects the forehead (lower motor neurone lesion). The hyperacusis (sensitivity to loud noises), also points towards this diagnosis as a branch of the facial nerve branches is the ‘nerve to stapedius’, responsible for damping excessive noises. Bell's palsy is most common in the pregnant woman between the ages of 20-40 years. Facial nerve palsy can result in an inability to blink due to muscular weakness from the affected facial nerve to orbicularis oculi. Therefore, an important aspect of treatment for patients with Bell’s palsy is eye care with artificial tears, lubricants, taping the eye shut at night, and prednisolone steroid treatment.

Aspirin Is incorrect. 300mg aspirin is the treatment for an acute infarct after the CT head has ruled out a haemorrhage. The affected forehead makes a stroke unlikely as the upper half of the face receives innervation from both hemispheres. Therefore in an upper motor neurone lesion (such as a stroke), the forehead is spared. However, in a lower motor neurone lesion, the forehead is affected as the nerve supply (from both hemispheres) is interrupted.

CT head is incorrect. This is the gold standard investigation for a suspected stroke. In this case, the most likely diagnosis is Bell’s palsy so a CT head is not required as this is a clinical diagnosis.

Prednisolone is incorrect. Although prednisolone is the correct drug of choice in the treatment of Bell’s palsy, eye care is another important aspect of management. Without eye care, the patient is at risk of corneal abrasions, ulceration and in extreme cases impaired vision from exposure keratopathy.

Prednisolone, amoxicillin and eye care is incorrect. Whilst prednisolone and eye care are correct treatment options, there is no role for antibiotics in the management of Bell’s palsy. There is a small indication for antivirals under specialist care. Occasionally, they are started for patients experiencing complete or near-complete paralysis. However, the evidence for this is uncertain due to a lack of high-quality studies.

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 67-year-old woman presents to the emergency department with a 2-day history of fatigue and shortness of breath. She has a past medical history of hypertension, myocardial infarction 3 years ago, heart failure and a recent chest infection which was successfully treated with antibiotics. On examination, the patient has bibasal crepitations and a raised JVP. Her temperature was 37ºC, oxygen saturation 95% on air, heart rate of 95 beats per minute, respiratory rate of 26 breaths per minute and blood pressure 129/86 mmHg.

What is the most appropriate treatment?

A.IV dobutamine

B.IV furosemide

C.IV morphine

D.Oral furosemide

E.Oral spironolactone

Answer:IV furosemide

Explanation:

IV loop diuretic is the treatment for acute pulmonary oedema

Important for meLess important

IV furosemide is correct. This patient is in acute decompensated heart failure, likely precipitated by her recent chest infection. Acute decompensated heart failure causes pulmonary oedema and IV loop diuretic is the primary treatment for acute pulmonary oedema. Administration of IV loop diuretic results in a prompt diuretic effect (typically within 30 minutes). This results in decreased ventricular filling pressures and improvement in symptoms in patients with acute pulmonary oedema.

IV dobutamine is incorrect. Dobutamine is an ionotropic agent which should be considered in patients with severe left ventricular dysfunction who have a potentially reversible cardiogenic shock. This patient's vital signs do not indicate that they are in shock and as such, they do not currently require dobutamine.

IV morphine is incorrect. NICE does not recommend the routine use of opioids in acute heart failure. Opioids were previously used to relieve breathlessness in acute pulmonary oedema; however, some studies have shown that the use of opioids is associated with increased morbidity in acute pulmonary oedema patients.

Oral furosemide is incorrect. Furosemide is a loop diuretic which should be given via the intravenous route as opposed to orally as there is a faster onset of diuresis when administered IV.

Oral spironolactone is incorrect. Spironolactone is an aldosterone antagonist diuretic and has an important place in the management of chronic heart failure; however, they are less useful than loop diuretics in acute decompensation of heart failure.

Question:

A 30-year-old police constable sees you in a routine GP surgery. The patient feels her life is falling apart, barely keeping it all together, but never taken a day off work. She has no history of mental illness. Her spouse noticed her cleaning the house more than usual and the constable is irritated by the apparent lack of cleanliness at home. The patient becomes irritated with others' inability to perform tasks to her personal standards. She has a long history of perfectionism and never spends her money on frivolities.

What is the most likely diagnosis?

A.Anal-retentive personality

B.Anxiety disorder

C.Narcissistic personality

D.Obsessive-compulsive disorder

E.Obsessive-compulsive personality

Answer:Obsessive-compulsive personality

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

Obsessive-compulsive personality - this is the correct answer. Her occupation is consistent with her outlook on life. She is a perfectionist and reluctant to surrender work to others. Many people with obsessive-compulsive personalities are at high risk of burnout and may gravitate towards law-based professions due to their rigid moral standards.

Anal-retentive personality - this is incorrect. An anal-retentive person pays such attention to detail that it becomes an obsession and it may be an annoyance to others. Freud expounded on this term. Although it may fit this profile, this term is no longer used in medical descriptions.

Anxiety disorder - this is incorrect. Job performance, schoolwork, and personal relationships are usually affected. The anxiety must be out of proportion to the situation or inappropriate for the person's age or hinder the ability to function normally. These include generalized anxiety disorder, panic disorder, specific phobias, agoraphobia, social anxiety disorder, and separation anxiety disorder.

Narcissistic personality - this is incorrect. A narcissistic personality is when someone has an inflated sense of self-importance, a deep need for excessive attention and admiration, dysfunctional relationships, and a lack of empathy.

Obsessive-compulsive disorder - this is incorrect. Obsessive-compulsive disorder is a mental illness involving repetitive unwanted thoughts or sensations (obsessions) or urges to do repeat acts over and over again (compulsions). Some people can have both obsessions and compulsions. There must be a functional component and/or impact on normal life to diagnose the disorder.

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?

A.Septic

B.Haemorrhagic

C.Neurogenic

D.Cardiogenic

E.Anaphylactic

Answer:Neurogenic

Explanation:

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:

You see a 65-year-old male teacher who has been experiencing shortness of breath, especially after exertion, and a dry cough over the past month. He has had no haemoptysis and has not felt unwell or been feverish at any occasion. He believes that he has lost approximately 2-3kg of weight over the past month.

He has smoked 20 cigarettes a day for the past 40 years and has no other past medical history and takes no regular medications.

On initial inspection, the patient has finger clubbing.

Based on this information alone up to this point, which of the following is the most likely condition causing finger clubbing in this particular case?

A.Tuberculosis

B.Chronic obstructive pulmonary disease

C.Bronchiectasis

D.Idiopathic pulmonary fibrosis

E.Lung abscess

Answer:Idiopathic pulmonary fibrosis

Explanation:

COPD is not a cause of finger clubbing

Important for meLess important

This question requires the user to be able to differentiate between the presentations of various respiratory conditions.

The case presents a classical presentation of idiopathic pulmonary fibrosis. Key characteristics of this condition include; exertional dyspnoea and a dry cough. Weight loss can also be a feature. It is twice as common in men and typically presents between 50-70 years of age. Examination findings, although not included here are; bibasal inspiratory crackles on auscultation and finger clubbing.

Some of the others are also partially correct, however, the question asks which is the most likely to be correct. Below are classical presentations of the other conditions, explaining reasons as to why they are incorrect in this question:

1 - Tuberculosis - a productive cough, haemoptysis, fevers, night sweats and weight loss.

2 - Chronic obstructive pulmonary disease (COPD) - a productive cough, dyspnoea and wheezing. The smoking history in the case above may persuade some towards this answer, however, the biggest clue as to why this answer is incorrect is that COPD does not cause finger clubbing.

3 - Bronchiectasis - a productive cough with copious amounts of purulent sputum, occasional haemoptysis, wheezing, and is often related to a history of childhood respiratory infections.

5 - Lung abscess - a productive cough, pleuritic chest pain, haemoptysis, malaise, weight loss and a characteristic swinging fever.

Idiopathic pulmonary fibrosis is also more strongly linked to a dry, non-productive cough, strengthening this answer as the most likely cause in this case.

Question:

A 46-year-old man presents to the Emergency Department following the sudden onset of a severe headache. On examination he has marked neck stiffness and is pyrexial at 38ºC. Which one of the following factors in the history would suggest a diagnosis of subarachnoid haemorrhage rather than bacterial meningitis?

A.Previous intravenous drug abuse

B.Diabetes mellitus

C.Zinc deficiency

D.Family history of polycystic kidney disease

E.Acromegaly

Answer:Family history of polycystic kidney disease

Explanation:

ADPKD is a risk factor for subarachnoid haemorrhage

Important for meLess important

Question:

A 21-year-old man collapses whilst playing football with unexplained syncope. He is sent for an echocardiogram which shows an increase in the thickness of the interventricular septum. Which of the following is the best next step in the management of this patient?

A.Refer to cardiology for an implantable cardioverter-defibrillator

B.Refer to cardiology for a transcatheter aortic valve implantation (TAVI)

C.Refer to cardiology for cardiac resynchronisation therapy (CRT)

D.Start of warfarin

E.Start on aspirin

Answer:Refer to cardiology for an implantable cardioverter-defibrillator

Explanation:

An implantable cardioverter-defibrillator can be inserted to reduce the risk of sudden cardiac death in HOCM

Important for meLess important

This question is asking about the management of a young man who has experienced unexplained syncope. His echocardiogram shows an increased thickness of the interventricular septum which is characteristic of hypertrophic obstructive cardiomyopathy (HOCM). HOCM is an autosomal dominant disorder that is a cause of sudden death in young people. Unexplained syncope is one of the indicators that sudden death may occur and thus rapid treatment is required as well as limiting any strenuous exercise.

As stated above, an implantable cardioverter-defibrillator can be inserted to reduce the risk of sudden cardiac death in HOCM and so this is the correct answer.

Referral to cardiology for a transcatheter aortic valve implantation (TAVI) is not the correct answer as this is the surgical treatment for aortic stenosis.

Referral to cardiology for cardiac resynchronisation therapy (CRT) is not the correct answer as this is a surgical management option for heart failure, and not HOCM

Starting warfarin will have no effect as this is an anticoagulant, commonly used in the treatment of atrial fibrillation. Similarly, aspirin will have no effect.

Question:

A 38-year-old woman presents to the haematology clinic after being referred by her general practitioner following abnormal test results. The doctor decides to perform other blood tests that show the following:

Hb 97 g/L (115 - 160)

MCV 75 fl (76 - 95 fl)

Ferritin 250 ng/mL (20 - 230)

Total iron binding capacity 190 µg/dL (250 - 450)

Which one of the following is the most likely diagnosis?

A.Anaemia of chronic disease

B.Haemolytic anaemia

C.Iron deficiency anaemia

D.Myelodysplasia

E.Vitamin B12 deficiency anaemia

Answer:Anaemia of chronic disease

Explanation:

Iron defiency anaemia vs. anaemia of chronic disease: TIBC is high in IDA, and low/normal in anaemia of chronic disease

Important for meLess important

The correct answer is anaemia of chronic disease. This patient's blood results show anaemia (low haemoglobin). Additionally, they show a slightly microcytic picture. Ferritin (the protein that stores iron and releases it) is high, indicating that the body is storing iron outside the blood, as it wants to keep it away from bacteria that can use it to survive or a blood loss. Total iron-binding capacity (TIBC) is low, indicating that all the iron in the body is already bound to avoid being dispersed. These are all features of anaemia of chronic disease, usually secondary to chronic infections, inflammation or neoplasias.

Haemolytic anaemia presents with normocytic anaemia. On blood tests, you would expect to see an increased reticulocyte count, increased lactate dehydrogenase and high bilirubin. It is a very rare form of anaemia, and would not explain the abnormalities in iron studies that are seen.

Iron deficiency anaemia presents with microcytic anaemia. But in that case, you would expect a high TIBC, as there is no iron-bound and the ferritin would be decreased, as there is low iron to store.

Myelodysplasia causes macrocytic anaemia. In this case, we can observe a picture of microcytic anaemia, making the diagnosis unlikely.

Vitamin B12 deficiency anemia causes macrocytic anaemia. In this case, we can observe a picture of microcytic anaemia, making the diagnosis unlikely.

Question:

A 5-year-old boy comes to see you at the GP surgery with his parents for a follow up. He has a six month history of nocturnal enuresis. Four months ago when you first saw him he was wetting the bed six to seven nights a week. At the time you gave his parents advice on reducing excessive fluid intake before bedtime, a toileting routine before bed and starting a reward system for agreed behaviour. His parents have implemented all of these and he is still wetting the bed six to seven nights a week. From the list below What would be the most appropriate next step in the management of his nocturnal enuresis?

A.Oxybutynin

B.Imipramine

C.Terlipressin

D.Enuresis alarm

E.Desmopressin

Answer:Enuresis alarm

Explanation:

An enuresis alarm is generally used first-line for nocturnal enuresis if general advice has not helped

Important for meLess important

A enuresis alarm is the first line treatment in children with nocturnal enuresis following initial lifestyle and behavioural measures. The exception to this is when an alarm is unacceptable or very undesirable to the child and family or if the child is over 8 years old and requires very quick short term reduction in nocturnal enuresis. It is also important to remember that enuresis alarms have a lower relapse rate than Desmopressin after stopping treatment.

Question:

A 53-year-old man is reviewed in clinic. Two months ago he was started on ramipril after being diagnosed with stage 2 hypertension following ambulatory blood pressure monitoring. His clinic readings had decreased from 164/96 mmHg to 142/84 mmHg. Unfortunately he has developed a troublesome, dry cough over the past 4 weeks. What is the most appropriate course of action?

A.Stop ramipril and start amlodipine

B.Stop ramipril and start losartan

C.Stop ramipril and start indapamide

D.Stop ramipril and start lisinopril

E.Reassure him that the cough is unlikely to be related to ramipril given the time of onset

Answer:Stop ramipril and start losartan

Explanation:

Angiotensin-receptor blockers should be used where ACE inhibitors are not tolerated

Important for meLess important

Question:

A 25-year-old man presents to the emergency department with a 3-day history of right-sided chest pain. He initially thought it was a pulled muscle but is now seeking medical attention. He has no shortness of breath. The patient has no past medical history and very infrequently smokes on the weekends when he goes out with his friends.

His pulse is 85 bpm, his respiratory rate is 17/min, his blood pressure is 125/74 mmHg, and his oxygen saturations are 97% on room air. A chest x-ray is performed which shows a visible rim between the lung margin and chest wall that is 1.7 cm in size.

What is the best step in his management?

A.Discharge with safety-netting advice and review

B.Give oxygen and admit for 24 hours

C.Insert a chest drain

D.Perform pleural aspiration

E.Urgent needle decompression

Answer:Discharge with safety-netting advice and review

Explanation:

Management in primary pneumothorax without shortness of breath, and <2cm in size, is discharge and review

Important for meLess important

Right-sided chest pain and radiographic evidence of a rim of air between the lung margin and chest wall suggest a diagnosis of pneumothorax (PTX). Since this patient has no underlying lung disease, their PTX is termed primary. If this patient had an underlying lung disease (such as COPD, this would be a secondary PTX).

Discharge with safety-netting advice and review is correct. Since this patient has a primary PTX with no shortness of breath and the rim of air between the lung margin and chest wall is <2 cm in size, this is the most appropriate step. This is because the PTX is likely to resolve spontaneously. If this patient were to develop worsening symptoms or shortness of breath, they would require treatment, such as pleural aspiration. Safety-netting advice may include telling the patient to seek medical help if they have any new or worsening symptoms such as shortness of breath, cough, chest pain, or haemoptysis. A review generally involves a chest x-ray around 2-4 weeks later.

Give oxygen and admit for 24 hours is incorrect as this is appropriate in patients with a secondary PTX where the rim of air is <1 cm. This patient has no underlying lung disease and therefore does not have a secondary PTX.

Insert a chest drain is incorrect as this is performed in patients with a secondary PTX who are >50 years old and the rim of air is >2 cm and/or they have shortness of breath. This patient is under 50 years of age, their rim of air is <2 cm, and they have no shortness of breath. Furthermore, they have no underlying lung disease. Therefore, they have a primary PTX, not secondary.

Perform pleural aspiration is incorrect. This would be appropriate if this patient had shortness of breath and/or the rim of air was >2 cm. These features do not apply to this patient and their observations are normal, therefore, discharging and reviewing is more appropriate.

Urgent needle decompression is incorrect as this would be appropriate if this patient had a tension PTX, which generally occurs following thoracic trauma. It is characterised by tracheal deviation away from the affected side, which would be hyper-resonant. Furthermore, as a tension PTX worsens, thoracic blood vessels kink and this leads to hypotension and tachycardia. These features do not apply to this patient.

Question:

A 54-year-old woman presents to the dermatology clinic with areas of hypopigmentation on her shoulders and back. Her spouse noted these as the lesions did not tan during a recent holiday to Spain. This is her first episode. She is worried as she is immunosuppressed with prednisolone and azathioprine following a renal transplant. On examination, there are crops of slightly scaly, coalescing patches on her shoulders and upper back. There is no erythema or induration.

What is the most appropriate treatment?

A.Do nothing

B.Oral itraconazole

C.Phototherapy

D.Topical ketoconazole

E.Topical steroids

Answer:Topical ketoconazole

Explanation:

Ketoconazole shampoo is used to treat pityriasis versicolor

Important for meLess important

Topical ketoconazole is the correct answer. This woman has pityriasis versicolor, which is a superficial fungal infection (Malassezia) that leads to hypopigmented macular lesions on seborrhoeic regions of the trunk. It is most common in the summer months, and a common feature is a relapsing disease. Long-term systemic corticosteroids or immunosuppressant use increases the risk of infection. It is primarily a clinical diagnosis that can be easily treated with topical antifungals, such as ketoconazole. Systemic therapy is reserved for extensive disease. In this patient, prophylactic treatment should be considered once this current episode is successfully treated.

Do nothing is incorrect. The physical appearance of pityriasis versicolor can be distressing to some, and given the fact it can be a relapsing disease, treatment should be offered. In this case, that would be in the form of a ketoconazole shampoo.

Oral itraconazole is incorrect. Oral antifungals are reserved for the treatment of lesions that are extensive and resistant to topical therapy. It can sometimes be considered first-line treatment in those who are immunosuppressed and who experience frequent relapses, but this is the first episode for this woman.

Phototherapy is incorrect. In patients with hypopigmented pityriasis versicolor, the resulting dyschromia can be long-lasting, even after eradication. UV phototherapy should be considered after complete eradication of the fungus, not before.

Topical steroids is incorrect. Topical steroids have no role in the treatment of pityriasis versicolor.

Question:

An 82-year-old woman with long-standing rheumatoid arthritis presents with a history of recurrent chest infections over the past 6 months. On examination she is found to have splenomegaly. Her current medications include methotrexate and sulphasalazine. Blood results demonstrate:

Hb 96 g/l

WBC 3.6 \* 109/l

Neuts 0.8 \* 109/l

Lymphs 1.6 \* 109/l

Eosin 0.6 \* 109/l

What is the most likely cause of the neutropenia?

A.Hodgkin's disease

B.Felty's syndrome

C.Non-Hodgkin's disease

D.Chronic lymphocytic leukaemia

E.Methotrexate use

Answer:Felty's syndrome

Explanation:

Felty's syndrome is a condition characterized by splenomegaly and neutropenia in a patient with rheumatoid arthritis. Hypersplenism results in destruction of blood cells which classically results in neutropenia but can also cause pancytopenia.

Although methotrexate use can certainly cause neutropaenia, we would not expect splenomegaly.

Question:

Caution should always be exercised when combining diuretics. However, which one of the following combinations is always contraindicated?

A.Metolazone + bumetanide

B.Bendroflumethiazide + furosemide

C.Amiloride + spironolactone

D.Bendroflumethiazide + triamterene

E.Spironolactone + furosemide

Answer:Amiloride + spironolactone

Explanation:

Amiloride and spironolactone are both potassium-sparing diuretics. Combining the two may result in life-threatening hyperkalaemia.

Question:

A 58-year-old man comes for review in the diabetes clinic. He was diagnosed as having type 2 diabetes mellitus (T2DM) around 10 years ago and currently only takes gliclazide and atorvastatin. Three years ago he was successfully treated for bladder cancer. A recent trial of metformin was unsuccessful due to gastrointestinal side-effects. He works as an accountant, is a non-smoker and his BMI is 31 kg/m². His annual bloods show the following:

Na+ 138 mmol/l

K+ 4.1 mmol/l

Urea 4.3 mmol/l

Creatinine 104 µmol/l

HbA1c 62 mmol/mol (7.8%)

What is the most appropriate next step in management?

A.Add pioglitazone

B.Add exenatide

C.Add acarbose

D.Add repaglinide

E.Add sitagliptin

Answer:Add sitagliptin

Explanation:

Pioglitazone is contraindicated by his history of bladder cancer and may contribute to his obesity. A DPP-4 inhibitor such as sitagliptin is therefore the best option.

Exenatide generally causes weight loss and is therefore useful in obese diabetics but he does not meet the NICE body mass index criteria of 35 kg/m².

Question:

A 62-year-old man presents to his GP with sudden visual loss in his right eye. He is otherwise asymptomatic. Which one of the following conditions is LEAST likely to be responsible?

A.Ischaemic optic neuropathy

B.Occlusion of central retinal vein

C.Occlusion of central retinal artery

D.Optic neuritis

E.Vitreous haemorrhage

Answer:Optic neuritis

Explanation:

Whilst optic neuritis can present with sudden loss, in this 62-year-old man it is the least likely option. Typically there is a unilateral decrease in visual acuity over hours or days. There may be poor discrimination of colours and eye pain on movement

Question:

A 65-year-old man presents to the emergency department with central abdominal pain. He denies any fever, weight loss or recent travel. Past medical history included hypertension and appendicectomy for an inflamed appendix 5 years ago.

On examination, there is a firm mass over the abdominal wall. The overlying skin is dusky with signs of ischaemia and necrosis.

Given the signs of ischaemia, you perform a venous blood gas (VBG).

pH 7.22 (7.35-7.45)

pCO2 3.1kPa (4.5-6.0)

pO2 5.1kPa (4.0-5.3)

HCO3- 15mmol/L (22-26)

Routine work-up to investigate the underlying cause reveals:

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

Female: (115 - 160)

Platelets 200 \* 109/L (150 - 400)

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

Bilirubin 15 µmol/L (3 - 17)

ALP 50 u/L (30 - 100)

ALT 39 u/L (3 - 40)

What is the most likely diagnosis?

A.Ascending cholangitis

B.Richter's hernia

C.Diabetic ketoacidosis

D.Pancreatitis

E.Small bowel obstruction due to adhesions

Answer:Richter's hernia

Explanation:

Richter's hernia can present with strangulation without symptoms of obstruction

Important for meLess important

Richter's hernia is characterised by the absence of symptoms of obstruction even in the presence of strangulation, as the bowel lumen is patent while bowel wall is compromised. The VBG shows a low pH (acidotic) with a low pCO2 (due to partial respiratory compensation) and low bicarbonate (suggesting the cause of acidosis is metabolic) - metabolic acidosis which can occur due to the build-up of lactate.

Small bowel obstruction is possible but would be less likely to cause a firm, erythematous mass over the abdominal wall.

Diabetic ketoacidosis and pancreatitis can cause abdominal pain and metabolic acidosis, but does not explain the firm mass over the abdominal wall and the dusky appearance of the overlying skin.

Ascending cholangitis presents with Charcot's triad - right upper quadrant pain, fever and jaundice, which is not the case here. It can also sometimes cause confusion and hypotension - this is Reynold's pentad.

Question:

A 64-year-old woman presents at the GP practice with increased shortness of breath (SOB). She is SOB on exertion and when lying down at night. Her symptoms have been gradually worsening over the last few weeks. She is an ex-smoker and is on no regular medication. On examination she is comfortable at rest, heart sounds are normal and there are bibasal crackles. She has pitting oedema to the mid-calf bilaterally. Observations are taken and show: pulse 89 bpm, oxygen saturations 96%, respiratory rate 12/min, blood pressure 192/128mmHg.

What is the most appropriate management plan?

A.Arrange an outpatient echocardiogram and chest x-ray

B.Commence a long-acting bronchodilator (LABA)

C.Commence furosemide

D.Refer for acute medical admission

E.Start amlodipine

Answer:Refer for acute medical admission

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

Refer for acute medical admission is the correct answer. Her BP is greater than 180/120 mmHg and she has new signs of heart failure therefore she needs to be admitted for specialist assessment. Other indications for admission with a BP greater than 180/120 include; new-onset confusion, chest pain or acute kidney injury.

Arrange an outpatient echocardiogram and chest x-ray is incorrect. This patient would likely require an echocardiogram and chest x-ray but she should be admitted for specialised assessment and arranging these investigations as an outpatient would be an unnecessary delay.

Commence a long-acting bronchodilator (LABA) is incorrect. The patient is experiencing SOB and is an ex-smoker so COPD could be considered a differential diagnosis. However, the signs of heart failure with new hypertension mean a referral for acute medical assessment is required.

Commence furosemide is incorrect. The patient has new symptoms of heart failure and furosemide may improve her symptoms but not the underlying cause. Therefore she also needs further investigation and treatment most appropriately with an acute medical admission.

Start amlodipine is incorrect. This patient has newly diagnosed hypertension so will require anti-hypertensive treatment. However, due to the symptoms of heart failure, she needs to be admitted for specialist assessment prior to commencing medication.

Question:

Wendy, 48, presents to the Emergency Department after feeling faint earlier that day. She is found to be in atrial fibrillation. She is known to have structural heart disease as a result of an ill-functioning mitral valve, but is otherwise fit and healthy. What is the most appropriate treatment if pharmacological cardioversion is agreed upon?

A.Diltiazem

B.Digoxin

C.Atenolol

D.Flecainide

E.Amiodarone

Answer:Amiodarone

Explanation:

The correct answer for this question is amiodarone.

NICE guidelines recommend:

'f pharmacological cardioversion has been agreed on clinical and resource grounds for new-onset atrial fibrillation, offer:

flecainide or amiodarone if there is no evidence of structural or ischaemic heart disease or

amiodarone if there is evidence of structural heart disease.'

Therefore, amiodarone is the most appropriate medication for this patient, as she is a new-onset atrial fibrillation with structural heart disease.

Atenolol and diltiazem are both methods of rate control, as opposed to pharmacological cardioversion.

Digoxin therapy is only recommended in patients presenting with non-paroxysmal atrial fibrillation only if they are sedentary.

Question:

A 34-year-old male was admitted after being found on the floor. He admitted to drinking too much alcohol, and had taken cannabis and inhaled nitrate based poppers' with his friends. He is a long term heavy smoker, and was admitted before with alcohol toxicity and other illicit drug use but does not have other past medical history. He was admitted to the Acute Medical Unit because his saturations were only 88- 90% on 10L of oxygen despite being asymptomatic. He had a heart rate of 90 beats/min, blood pressure of 118/80 mmHg, respiratory rate of 14/min and was noticed to have peripheral cyanosis. On auscultation, there was very mild scattered wheeze, but otherwise good air entry. The arterial blood gas on air revealed the following:

pH 7.36

pCO2 5.8 kPa

pO2 10.8 kPa

HCO3- 22 mmol/l

BE -2.4 mmol/l

Sats 90%

MetHb 16%

Na 136 mmol/l

K 4.6 mmol/l

Lactate 1.8 mmol/l

What is the most appropriate management?

A.Reduce oxygen from high flow to 28% via venturi mask

B.Nebulised salbutamol

C.Methylene blue

D.Start non-invasive ventilation

E.Desferrioxamine

Answer:Methylene blue

Explanation:

Methaemoglobin is an altered state of haemoglobin in which the ferrous (Fe2+) irons of heme are oxidised to the ferric (Fe3+) state. The ferric haemes of methaemoglobin are unable to bind oxygen. Normal levels are <1.5%

There are congenital and acquired causes ( nitrates/nitrite compounds such as amyl nitrates and glyceryl trinitrates, local anaesthetic, benzene derivatives, sulphonamides)

Treatment is with methylene blue, supportive care and monitoring.

Option 1: Patient should remain on high concentration of oxygen

Option 2: Although the patient is a heavy smoker and has mild wheeze on examination, chronic obstructive pulmonary disease would not explain the ABG results

Option 4: no indication for Desferrioxamine

Option 5: is the antidote for ferrous poisoning.

Question:

A 50-year-old woman comes to see you in clinic complaining of hot flushes which are keeping her up at night. She is still having periods, although they are lighter and not every month.

You counsel her about hormone replacement therapy (HRT) and she decides she would like to try it. She has not had a hysterectomy.

Which of the following HRT regimes would be most appropriate?

A.Systemic combined cyclical HRT

B.Systemic combined continuous HRT

C.Systemic oestrogen only HRT

D.Vaginal oestrogen cream

E.Vaginal oestrogen pessary

Answer:Systemic combined cyclical HRT

Explanation:

This is a question about HRT regimes.

In order to find the correct HRT regime, there are 3 main areas to address - whether there is a uterus or not, whether the patient is perimenopausal or menopausal and whether a systemic or local effect is required.

This patient can be classed as perimenopausal as she is still having periods (menopause is defined as 12 months after the last menstrual period).

Therefore the correct answer is: combined oestrogen and progestogen cyclical HRT.

Cyclical HRT is recommended in perimenopausal women because it produces predictable withdrawal bleeding, whereas continuous regimens often cause unpredictable bleeding.

Systemic oestrogen only HRT is inappropriate in a woman with a uterus as it carries an increased risk of endometrial cancer.

The oestrogen cream or pessary would give a local effect and therefore only be useful for urogenital symptoms such as vaginal dryness or dyspareunia.

Question:

A 52-year-old man with a history of epilepsy is reviewed. Since having his medication change he has experienced a 'numbness' of his hands and feet. On examination he has reduced sensation in a glove-and-stocking distribution associated with a reduced ankle reflex. He is also noted to have lymphadenopathy in the cervical and inguinal region and some bleeding around the gums. Which one of the following medications is he most likely to have been taking?

A.Carbamazepine

B.Phenytoin

C.Topiramate

D.Sodium valproate

E.Lamotrigine

Answer:Phenytoin

Explanation:

Question:

What is the most common presenting feature of Wilms tumour?

A.Recurrent urinary tract infections

B.Abdominal mass

C.Fever

D.Loin pain

E.Haematuria

Answer:Abdominal mass

Explanation:

Question:

Your next patient is a 74-year-old woman who is known to have type 2 diabetes mellitus. Her blood pressure has been borderline for a number of weeks now but you have decided she would would benefit from treatment. Her latest blood pressure is 146/88 mmHg, HbA1c is 58 mmol/mol and her BMI is 25 kg/m^2. What is the most appropriate drug to prescribe?

A.Bisoprolol

B.Bendroflumethiazide

C.Amlodipine

D.Ramipril

E.Orlistat

Answer:Ramipril

Explanation:

Hypertension in diabetics - ACE inhibitors/A2RBs are first-line regardless of age

Important for meLess important

Question:

A 40-year-old man with Marfan's syndrome presents to the Emergency Department with severe tearing chest pain, dyspnoea, and confusion. His vital signs show a heart rate of 130bpm, a respiratory rate of 22/min, a blood pressure of 85/60mmHg, and a temperature of 36°C. The doctors strongly suspect the patient has an aortic dissection. They want to order a CT angiogram for the patient, but feel he may be too unstable for this.

Which of the following investigations would be most appropriate to perform instead?

A.Chest X-ray

B.Magnetic resonance (MR) angiogram

C.Transoesophageal echocardiography

D.ECG

E.Smooth muscle myosin heavy chain protein blood test

Answer:Transoesophageal echocardiography

Explanation:

Transoesophageal echocardiography (TOE) may be a useful investigation in clinically unstable patients with a suspected aortic dissection

Important for meLess important

The correct answer is transoesophageal echocardiography. This investigation is portable and safe to use in unstable patients. It can be used to confirm an aortic dissection.

A chest X-ray is not the best investigation to visualise a suspected aortic dissection. It is better for ruling out pulmonary causes of chest pain.

The patient would be too unstable for an MR angiogram, and it is difficult to obtain this investigation in an acute setting.

An ECG may show ischaemic changes associated with the dissection, but it cannot confirm its presence.

Smooth muscle myosin heavy chain protein is a protein released from damaged aortic smooth muscle. It is not appropriate in the acute setting and cannot confirm a dissection.

Question:

A 67-year-old male presents to the emergency department with a continuous cough that he has been having for a week. The cough is not productive. On examination, his heart rate is 82/min, respiratory rate 18/min, blood pressure 137/94 mmHg, and temperature 38.2 ºC. Examination of the chest is normal. A COVID-19 test is negative and a chest x-ray does not show any abnormalities.

Blood tests show the following:

Hb 147 g/L Male: (135-180) Female: (115 - 160)

Platelets 340 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Urea 5.2 mmol/L (2.0 - 7.0)

Creatinine 84 µmol/L (55 - 120)

CRP 178 mg/L (< 5)

Which one of the following is the most appropriate management option?

A.Administer immediate intravenous fluids and analgesia

B.Admit for intravenous doxycycline

C.Discharge with analgesia

D.Offer a delayed prescription of doxycycline

E.Prescribe doxycycline for five days

Answer:Prescribe doxycycline for five days

Explanation:

The CRP level can be used to guide whether patients with acute bronchitis require antibiotics

Important for meLess important

The correct answer is to offer to prescribe doxycycline for five days. This patient is presenting with the classical signs and symptoms of acute bronchitis. The condition presents with cough, which can be productive or not, and occasionally sore throat, rhinorrhoea, pyrexia and wheeze. Additionally, the chest x-ray is normal, further excluding a diagnosis of pneumonia. The management is usually supportive, but if available it can be guided by the CPR levels. If the patient has a CRP of 20-100mg/L they should be offered a delayed prescription or if they have a CRP >100mg/L you should offer antibiotics immediately. The antibiotic of choice is usually doxycycline. In this case, the CRP is 178, making the option to prescribe doxycycline for five days correct.

Administer immediate intravenous fluids and analgesia is incorrect, as this patient is currently stable with only slightly abnormal vitals and blood results, except for the CRP. There is no reason to keep him in the hospital.

Admit for intravenous doxycycline is incorrect as the patient is systematically well.

Discharge with analgesia is incorrect, as the levels of CRP have been measured and indicate that he needs a prescription.

Offer a delayed prescription of doxycycline is incorrect. The guidelines suggest that we should offer delayed prescriptions if the CRP is 20-100 mg/L. His CRP is 178 mg/L and he has a fever, making an immediate prescription needed.

Question:

A 22-year-old man is brought into the emergency department by ambulance. He had been found hiding in the corner of the supermarket, shouting abuse at shoppers walking by. When questioned in the emergency department, he claimed that the shoppers were trying to kill him. He also reported seeing colourful haloes around the shop shelves. He does not have any other past medical history.

His vital signs show a regular heart rate of 120bpm, a respiratory rate of 20/min, a blood pressure of 130/90mmHg, and a temperature of 38°C. His pupils are dilated despite adequate lighting, he is agitated and clammy to touch, and there is a fine tremor in both hands.

Overdose of which drug is responsible for his signs and symptoms?

A.Temazepam

B.Alcohol

C.Heroin

D.Lithium

E.LSD

Answer:LSD

Explanation:

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

Important for meLess important

The correct answer is LSD. Intoxication with this drug can result in colourful visual hallucinations, depersonalisation, and psychosis, as well as sympathomimetic effects.

Temazepam is a benzodiazepine which in overdose causes confusion, ataxia, respiratory depression, and slurred speech. This patient does not have respiratory depression.

Heroin intoxication causes pinpoint pupils, respiratory depression, and drowsiness - none of which this patient has.

Lithium intoxication may cause tremor, dysarthria, convulsions, and restlessness. As this man has no medical history, it is unlikely that he has taken lithium.

Alcohol intoxication may result in slurred speech, confusion, and lack of coordination. In severe cases, it can result in delirium tremens. It generally does not result in tachycardia or pyrexia.

Question:

Transmission of which type of infection is most likely to occur following a platelet transfusion?

A.Syphilis

B.Malaria

C.Hepatitis B

D.Bacterial

E.HIV

Answer:Bacterial

Explanation:

As platelet concentrates are generally stored at room temperature they provide a more favourable environment for bacterial contamination than other blood products.

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:

A 47-year-old woman is given a red blood cell transfusion in the emergency department following a road traffic collision. After 45 minutes, they develop a fever and start to feel anxious.

The transfusion is stopped and the following observations are recorded: respiratory rate 21 breaths per minute, heart rate 74 bpm, saturations 98% (room air), blood pressure 125/85mmHg, temperature 39ºC. The patient appears comfortable at rest and chest auscultation is normal with no wheeze.

What is the most appropriate treatment for this patient's reaction?

A.Adrenaline IM

B.Broad-spectrum antibiotics

C.Furosemide IV

D.Oxygen and fluids

E.Paracetamol

Answer:Paracetamol

Explanation:

Paracetamol may be used to reduce pyrexia in cases of non-haemolytic febrile transfusion reaction

Important for meLess important

Paracetamol is the correct answer. This patient is experiencing a non-haemolytic febrile transfusion reaction and paracetamol is used to reduce pyrexia in these patients. This is usually a diagnosis of exclusion in clinical practice due to the severe consequences if a more serious reaction is missed. Once other causes are excluded, the transfusion can be resumed (at a slower rate if necessary).

Adrenaline IM is incorrect. This would only be indicated in cases of suspected anaphylaxis. According to Resus Council guidelines, the dose of adrenaline in adults and children aged >12 years old is 500 micrograms IM.

Broad-spectrum antibiotics is the wrong answer. Bacterial contamination of blood products is rare and most commonly affects platelet-containing products. Broad-spectrum antibiotics are used as part of the 'sepsis 6' pathway.

Furosemide IV is incorrect. Diuretic therapy would form part of transfusion-associated circulatory overload (TACO) treatment. This is more common in patients aged 70 or over and doesn't typically cause pyrexia. Furthermore, the patient would typically be hypertensive with low oxygen saturations (and raised JVP on examination).

Oxygen and fluids is the wrong answer. In cases of transfusion-related acute lung injury (TRALI), supportive therapy with oxygen and fluids would form part of the management plan. However, TRALI typically results in hypotension and low oxygen saturation. Although TRALI can cause pyrexia, this would not occur in isolation.

Question:

A 20-year-old man develops sudden facial swelling, urticaria and breathing difficulties after eating some shellfish at a Chinese restaurant. What is the most appropriate treatment?

A.Intramuscular adrenaline - 0.3ml of 1 in 10,000

B.Oral loratidine 10mg stat

C.Intramuscular adrenaline - 0.5ml of 1 in 1,000

D.Intramuscular adrenaline - 0.3ml of 1 in 1,000

E.Intramuscular adrenaline - 0.5ml of 1 in 10,000

Answer:Intramuscular adrenaline - 0.5ml of 1 in 1,000

Explanation:

Anaphylaxis - adult adrenaline dose = 500 mcg (0.5 ml of 1 in 1,000)

Important for meLess important

Question:

A 45-year-old woman presents to the GP with a new rash on her face. On examination, there is a raised purple lesion covering the nose, cheeks and lips. At first, this was diagnosed as rosacea however it has rapidly progressed. The GP also notes axillary and inguinal lymphadenopathy. On further questioning, she notes some fatigue as well as some dyspnoea over the last 6 months. She has smoked 10 cigarettes a day for the last 8 months and drinks 10 units of alcohol a week.

Given the most likely diagnosis, which of the following is associated with her condition?

A.Asbestos exposure

B.Foreign travel

C.Rheumatoid nodules

D.Raised serum calcium

E.Finger clubbing

Answer:Raised serum calcium

Explanation:

Facial rash plus lymphadenopathy think sarcoidosis

Important for meLess important

This question is asking about a woman presenting with facial rash, lymphadenopathy, dyspnoea and fatigue. If we presume from the description the facial rash is fitting with lupus pernio, this presentation typically matches sarcoidosis.

Asbestos exposure is not associated with sarcoidosis, it is more associated with asbestosis or conditions such as mesothelioma. These do not present in this way.

A history of foreign travel is more associated with tuberculosis than sarcoidosis.

Rheumatoid nodules would be present in cases of rheumatoid arthritis. This would present with bilateral symmetrical joint pain as well as similar constitutional symptoms.

Finger clubbing could be associated with idiopathic pulmonary fibrosis. While this is a cause of dyspnoea and fatigue, it would not cause her rash or lymphadenopathy. Other conditions can include lung cancer which again would present differently.

Question:

Doris, a 53-year-old woman with COPD and a 50-pack-year history, recently had a hysterectomy due to uterine fibroids. She had standard induction of anaesthesia with propofol and rocuronium, and maintenance with sevoflurane.

Her post-operative recovery period was complicated by apnoea on extubation and a prolonged stay in the intensive care unit (ICU) until she was weaned from the ventilator.

When she is better, the ICU doctor takes a complete history from her to try and ascertain why this has happened. She says she hadn't thought it was relevant at the time but over the last few months she has been experiencing some double vision, worse at the end of the day, and weakness in movements of her hands and fingers, which again worsens throughout the day. She had put this down to tiredness.

What is most likely to have caused her prolonged reliance on the ventilator?

A.Myasthenia gravis

B.COPD

C.Sevoflurane use

D.Heavy smoking

E.Lambert-Eaton syndrome

Answer:Myasthenia gravis

Explanation:

Patients with myasthenia gravis are very sensitive to non-depolarising agents

Important for meLess important

Non-depolarising agents, such as rocuronium, work by antagonism of nicotinic acetylcholine receptors in the motor end plate, producing paralysis by their blockade. This is in contrast with suxamethonium, which produces paralysis by acting on these receptors. The myasthenic patient has fewer available nicotinic receptors due to autoimmune-mediated destruction, meaning that they are more sensitive to non-depolarising blockade.

While COPD and heavy smoking complicates anaesthesia, causing issues with gas transfer and the respiratory and cardiac systems, they are unlikely to be responsible for prolonged paralysis.

Sevoflurane is an agent for maintenance of anaesthesia, but does not cause paralysis.

Patients with Lambert-Eaton myasthenic syndrome are also more susceptible to non-depolarising agents, but the symptoms that Doris has been experiencing are not consistent with this condition (typically weakness involves the proximal muscles and improves with use). Interestingly, patients with Lambert-Eaton syndrome are more susceptible to both depolarising and non-depolarising paralytic agents.

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:

Daisy is a 62-year-old female who presents to you, her general practitioner, for a general consult. Daisy has recently been diagnosed with hepatocellular carcinoma and is quite tearful during the consult, as the diagnosis came as quite of a surprise to her and her family. Daisy's medical history includes chronic obstructive pulmonary disease caused by alpha-1 antitrypsin deficiency and osteoarthritis. Her medications include paracetamol 1g once daily, hormonal replacement therapy for hot flushes, and a combined salbutamol/salmeterol inhaler. She is a non-smoker, drinks one standard drink of wine each evening, and has never used recreational drugs. In her early thirties, Daisy worked in construction where she was exposed to asbestos.

Which of the following features of Daisy's history has put her most at risk of developing hepatocellular carcinoma?

A.Alcohol use

B.Hormonal replacement therapy use

C.Occupational exposure

D.Paracetamol use

E.Alpha-1 antitrypsin deficiency

Answer:Alpha-1 antitrypsin deficiency

Explanation:

Alpha-1 antitrypsin deficiency is a risk factor for hepatocellular carcinoma

Important for meLess important

Alpha-1 antitrypsin deficiency is the correct answer. Due to the deficiency, there is accumulation of the abnormal, mutant Z protein within hepatocytes. The accumulation of this mutant Z protein triggers apoptosis in some hepatocytes, while other hepatocytes can proliferate to preserve hepatic mass. The chronic, ongoing process of cell death and proliferation leads to liver cirrhosis and significantly increases the risk of developing hepatocellular carcinoma (HCC). Therefore, once alpha-1 antitrypsin deficiency is diagnosed, ongoing surveillance to monitor for HCC development should be undertaken.

Alcohol is an important risk factor for developing HCC, and this risk increases as levels of alcohol intake rise. Chronic excessive alcohol intake is associated with HCC, however alcohol consumption within normal limits is unlikely to have significantly increased Daisy's risk.

Hormonal replacement therapy has not been linked to increased risk of HCC. Instead, HRT is linked to increased breast cancer risk, especially if used for longer than a 5-year period. The risk remains increased for at least 10 years after use is ceased.

Occupational exposure to asbestos is linked to mesothelioma, not HCC. However, there are risk factors for HCC which are linked to certain occupations. In particular, female chemical industry workers have an increased risk. The known carcinogens include a variety of chemicals, including vinyl chloride monomer (VCM), organic solvents, chlorinated pesticides, and arsenic.

Paracetamol overdose is linked to liver failure, however paracetamol use at the level which Daisy has used it is very safe and within normal dosage limits.

Note: other risk factors for HCC include chronic exposure to aflatoxin, obesity, diabetes mellitus, metal storage diseases and glycogen storage diseases.

Question:

A 1-year-old child is brought to the emergency department by his parents. The parents have noticed that he is clutching his stomach. He has not eaten or drank any fluids for the entire day and he has vomited twice. His mother states the vomit was green in colour.

The doctor is suspecting a diagnosis of intestinal malrotation and the abdominal ultrasound shows a whirlpool sign. On examination, the child looks distressed. An abdominal examination shows a distended abdomen and there are absent bowel sounds. He looks unwell.

What is the correct management for this patient?

A.Kasai procedure

B.Ladd's procedure

C.Ramstedt pyloromyotomy

D.Rectal washouts

E.Reduction with air insufflation

Answer:Ladd's procedure

Explanation:

Paediatric intestinal malrotation with volvulus → Ladd's procedure (includes division of Ladd bands and widening of the base of the mesentery)

Important for meLess important

The correct answer is Ladd's procedure. As described in the stem, the patient is presenting with intestinal malrotation accompanied by volvulus. Normally, the midgut herniates during development, rotating 90° in a counter-clockwise direction outside the body. After, it re-enters the abdominal cavity and completes another 180° rotation, for a total of 270°. This allows the cecum to end up in the right upper quadrant and consequently descend into the lower right quadrant.

But sometimes, this process does not complete fully and the caecum remains fixed in the right upper quadrant by peritoneal bands, denominated Ladd bands. This increases the chances of the formation of a volvulus, as happened in this case. The correct management is Ladd's procedure, which involves the untwisting of the volvulus and the removal of Ladd's bands, resection of necrotic bowel if present and removal of the appendix, to prevent future operations.

Kasai procedure is used to manage cases of biliary atresia, rather than malrotation. It involves creating a connection between the liver and the small intestine to allow for bile drainage.

Ramstedt pyloromyotomy is used to manage pyloric stenosis. It consists of a longitudinal incision of the hypertrophic sphincter to split the muscle and allow the passage of food.

Rectal washouts are used as the initial management of Hirschsprung's disease, as they help clean and decompress the bowel, even if these are not part of the definite management.

Reduction with air insufflation is the treatment of choice for intussusception. It involves inflating air to try and reduce the telescoping bowel and manual reduction of the bowel.

Question:

A 69-year-old woman was admitted with a seizure. This was her presentation and has never had seizures before. She has advanced dementia and is currently in a care home. The nursing staff report chronically poor oral intake of both food and fluid.

Blood tests were performed to identify a possible cause for her seizures.

Na+ 119 mmol/L (135 - 145)

K+ 3.4 mmol/L (3.5 - 5.0)

Bicarbonate 16 mmol/L (22 - 29)

Urea 13 mmol/L (2.0 - 7.0)

Creatinine 177 µmol/L (55 - 120)

What would be the most appropriate management in this case?

A.Intravenous dextrose

B.Intravenous hypertonic saline

C.Intravenous normal saline

D.Intravenous plasma-lyte

E.Intravenous 1.28% sodium bicarbonate

Answer:Intravenous hypertonic saline

Explanation:

Hypertonic saline is usually indicated in patients with acute, severe, symptomatic hyponatraemia (< 120 mmol/L)

Important for meLess important

Hypertonic saline is usually indicated in patients with severe hyponatraemia (< 120 mmol/L) which the situation here and the most likely cause for her seizure.

Intravenous normal saline would be appropriate to help with hydration and hyponatraemia but in this case, given the severity of the situation, hypertonic saline is indicated.

Intravenous plasma-lyte is an isotonic solution of electrolytes and whilst it would help hydrate the patient would not add a significant benefit in correcting the hyponatraemia.

Intravenous 1.28% sodium bicarbonate would not be appropriate in this case given that it would not be helping to treat the main underlying issue of hyponatraemia which is the most likely cause of her seizure.

Intravenous dextrose would not be appropriate in this case given that it would not be helping to treat the main underlying issue of hyponatraemia and is often utilised in situations of hypernatraemia.

Question:

A 72-year-old man presents to his GP surgery complaining of a 3-day history of dysuria and urgency. He is systemically well.

It is suspected that he may have a lower UTI, what is the most appropriate investigation to support the diagnosis?

A.Bloods

B.Examination

C.Ultrasound scan of the kidneys ureter and bladder

D.Urine culture

E.Urine dipstick

Answer:Urine culture

Explanation:

Urine dipsticks should not be used for the diagnosis of UTI in women > 65 years, men and catheterised patients

Important for meLess important

This man has clinical features of a lower UTI (dysuria and urinary frequency). The correct answer is urine culture.

Bloods is incorrect as this may be unnecessary unless clinically indicated for another reason such as systemic upset

Examination is incorrect as although it may fit with the clinical picture of a UTI, it would not confirm a UTI and a urine culture would be needed for this.

Ultrasound scan of the kidneys ureter and bladder is incorrect as this would not diagnose a UTI.

Urine dipstick is incorrect as it should not be used in the diagnosis of UTI in men and this patient in this case is male. They should also not be used for the diagnosis of UTI in women > 65 years and catheterised patients.

Question:

You are an FY1 on a general medical ward. One of the patients complains of nausea and vomiting and requests an anti-sickness tablet to ease the symptoms. You would like to prescribe cyclizine. In which of the following conditions should you employ caution when prescribing cyclizine?

A.Asthma

B.Intestinal obstruction

C.Parkinson’s disease

D.Severe heart failure

E.Pregnancy

Answer:Severe heart failure

Explanation:

Cyclizine: use with caution in patients with heart failure as it may cause a fall in cardiac output

Important for meLess important

Nausea and vomiting are common complaints on the wards. It is therefore important to have an awareness of the common anti-emetics.

Cyclizine is a H1-receptor antagonist that acts by blocking histamine receptors in the CTZ. It is safe to use in pregnancy. However, cyclizine can cause a drop in cardiac output and an increase in heart rate. For this reason, caution should be employed in patients with severe heart failure.

Dopamine antagonists, such as metoclopramide, are pro-kinetics and should therefore be avoided in intestinal obstruction. Dopamine antagonists should also be used with caution in patients with Parkinson’s disease.

Question:

You are a foundation doctor working in the emergency department. Your patient, a 17-year-old male, is admitted generally unwell with vomiting and abdominal pain. His mother, who has accompanied him to the emergency department, reports he has not been well for some time, experiencing tiredness and excessive thirst.

His observations are as follows: respiratory rate 32 breaths per minute, saturations 96% on room air, heart rate 94 beats per minute, blood pressure 112/65 mmHg, temperature 36.9ºC, capillary blood sugar 32 mmol/L.

On examination, you note the patient has dry mucous membranes and reduced skin turgor. He also has a 'fruity' smell to his breath.

You decide to perform an arterial blood gas, the results are as follows:

pH 7.32 (7.35 - 7.45)

pCO2 4.9 kPa (4.7 - 6)

PO2 12 kPa (11 - 13)

HCO3 17 mEq/L (22 - 26)

Na+ 143 mmol/L (133 - 146)

Cl- 100 mmol/L (95 - 108)

How would you interpret the arterial blood gas result?

A.Respiratory acidosis

B.Respiratory alkalosis

C.Metabolic acidosis with low anion gap

D.Metabolic acidosis with high anion gap

E.Metabolic alkalosis

Answer:Metabolic acidosis with high anion gap

Explanation:

Diabetic ketoacidosis - raised anion gap metabolic acidosis

Important for meLess important

The young patient in this question is suffering from diabetic ketoacidosis, likely as a new presentation of type 1 diabetes mellitus. In diabetic ketoacidosis you would expect to see a metabolic acidosis on arterial blood gas testing.

The anion gap can be calculated to work out if the metabolic acidosis is due to increased acid production/ingestion or reduced acid secretion/loss of HCO3. Patients with diabetic ketoacidosis usually have a high anion gap.

Question:

A 71-year-old man has been admitted to the orthopaedic ward following a left hemiarthroplasty. He has a history of hypertension, type 2 diabetes and chronic myeloid leukaemia (CML).

A nurse has asked you to review the patient urgently as he is concerned that he is confused. His blood pressure is 96/54 mmHg and his heart rate is 135bpm. He has been passing 10ml of urine an hour through his catheter and the nurse has noticed the urine in the catheter bag is bright red.

On examining the patient, you notice some petechial bruising over his arms and that there is blood slowly oozing from his peripheral cannula.

What would you expect to see in his blood tests?

A.Low platelets, low fibrinogen, raised APTT and PT and raised D-dimer

B.Low platelets, raised fibrinogen, raised APTT and PT and low D-dimer

C.Raised platelets, low fibrinogen, low APTT and PT, raised D-dimer

D.Raised platelets, low fibrinogen, raised APTT and PT and raised D-dimer

E.Raised platelets, raised fibrinogen, raised APTT and PT, raised D-dimer

Answer:Low platelets, low fibrinogen, raised APTT and PT and raised D-dimer

Explanation:

DIC typical blood picture:

↓ platelets

↓ fibrinogen

↑ PT & APTT

↑ fibrinogen degradation products

Important for meLess important

This is the classical presentation of disseminated intravascular coagulation (DIC) which can be triggered by trauma (including surgery). Haematological and solid malignancies are also a known risk factor for developing DIC.

The patient's presentation is highly suggestive of DIC. Oliguria, hypotension and tachycardia are all in keeping with circulatory collapse secondary to DIC. This man also has evidence of bleeding at three unrelated sites (haematuria, petechial bruising and bleeding from his peripheral cannula).

In DIC, the release of procoagulants causes widespread activation of clotting. This consumes platelets and clotting factors (leading to a low platelet count). Bleeding times are also prolonged as a result. Fibrinolysis is also activated resulting in low fibrinogen and high D-dimer (a fibrinogen degradation product). Haemoglobin is low due to bleeding and lysis due to fibrin strands in small blood vessels.

Question:

An 83-year-old female with known severe COPD presents with increasing confusion and worsening breathlessness on minimal activity is brought into the emergency department.

An arterial blood gas was performed and shows:

pH 7.27

PaCO2 14.4 kPa

PaO2 6.9 kPa

HCO3 46.7 mmol/L

BE +22 mmol/L

Lactate 4 mmol/L

A.Acute metabolic acidosis with complete respiratory compensation

B.Acute respiratory acidosis with complete metabolic compensation

C.Acute on chronic respiratory acidosis with partial metabolic compensation

D.Acute on chronic metabolic acidosis with partial respiratory compensation

E.Lactic acidosis

Answer:Acute on chronic respiratory acidosis with partial metabolic compensation

Explanation:

This patient has chronic type II respiratory failure but has developed an acute worsening of her condition. The primary driving force of the acidosis is the carbon dioxide with the elevated bicarbonate showing the chronic compensatory process.

However the deterioration in carbon dioxide with an abnormal pH tells us this is an acute on chronic process with partial metabolic compensation. This patient would have to be discussed early with intensive care for consideration of invasive ventilation or BiPAP.

Question:

A 64-year-old man is referred to the neurological clinic with rapidly progressive dementia. Up until two months ago he was able to carry out most activities of daily life and only had very mild memory issues but now, he has developed features of advanced dementia.

A diagnosis of Creutzfeldt-Jakob disease (CJD) is suspected after an MRI displays hyperintense signals in the basal ganglia and thalamus. An EEG performed also shows biphasic, high amplitude sharp waves in keeping with the sporadic form of the condition.

What is the other most common symptom which characterises this condition?

A.Hemi-spatial neglect

B.Myoclonus

C.Resting tremor

D.Urinary incontinence

E.Visual hallucinations

Answer:Myoclonus

Explanation:

Creutzfeldt-Jakob disease is characterised by rapid onset dementia and myoclonus

Important for meLess important

Creutzfeldt-Jakob disease (CJD) is a fatal, degenerative brain disorder caused by infectious prion proteins. These misfolded proteins can result in normally folded proteins also becoming misfolded. The key features of CJD included rapidly progressive dementia and myoclonus that, although maybe absent at the initial onset of the disease, occurs in approximately 90% of CJD cases.

Hemi-spatial neglect is a neuropsychological condition where a patient develops an attention and awareness deficit of one side of their body/vision. The condition commonly results from damage to one hemisphere with the contralateral side being affected. As such it is most often associated with stroke or trauma. As CJD affects the brain diffusely this feature is very rare.

A resting tremor is the involuntary, often rhythmic movement of the body/a body part affecting patients especially whilst not performing intentional movements (at rest). It can be caused by several neurological issues but is most commonly associated with the degenerative condition Parkinson’s disease. CJD is not a movement disorder and therefore tremors are not commonly associated with the condition.

Urinary incontinence can occur with all forms of dementia however mainly in the advanced stages. It also makes up one of the features in the classic triad found in normal pressure hydrocephalus (the other two features being gait deviation and dementia).

Visual hallucinations can potentially occur in advanced dementia but is most commonly associated with Lewy body dementia where abnormal clumps of proteins form in neurons throughout the brain. Although they may occur in CJD, myoclonus is far more common and one of the key features of the condition.

Question:

A patient undergoes a right total hip arthroplasty (THA) via a posterior approach. Post operatively she complains of inability to dorsiflex her right foot.

What nerve may have been injured during the procedure?

A.Common peroneal nerve

B.Sciatic nerve

C.Tibial nerve

D.Femoral nerve

E.Superficial peroneal nerve

Answer:Sciatic nerve

Explanation:

Sciatic nerve is at risk during a total hip replacement

Important for meLess important

The sciatic nerve is at risk during certain surgical approaches to the hip. Post-operatively this usually manifests as foot drop. The common peroneal nerve and tibial nerve are branches of the sciatic nerve and found more distally in the leg.

The femoral nerve is found anteriorly passing under the inguinal ligament lateral to the femoral artery. It supplies the muscles of the anterior compartment of the thigh and would not present with foot drop.

Question:

A 62-year-old woman presents to the GP complaining of episodes where she 'leaks' small amounts of urine. She first noticed this a week ago and has recently experienced increased urinary frequency. On examination, she has slight suprapubic tenderness. She is worried as she finds this very embarrassing and it is affecting her daily life.

What is the best initial investigation for this patient?

A.Blood cultures

B.Renal ultrasound

C.Urinalysis

D.Urine cultures

E.Urodynamic testing

Answer:Urinalysis

Explanation:

In patients with urinary incontinence, make sure to rule out a UTI and diabetes mellitus

Important for meLess important

In any patient presenting with urinary incontinence or increased urinary frequency, urinalysis should always be the first investigation to rule out a urinary tract infection (UTI) or diabetes mellitus. In patients over 65 years old, urinalysis is not performed to assess for UTIs as asymptomatic bacteriuria is common in this population and therefore urinalysis will not be reliable. As this patient is below 65 years old, urinalysis should be performed.

Blood cultures would be relevant if we were suspecting a systemic infection. In this question the patient is systemically well and has no fever, therefore an uncomplicated UTI or diabetes is more likely, both of which do not require blood cultures for diagnosis.

Renal ultrasound is not generally indicated in the diagnosis of a lower UTI. Imaging may be performed after the initial investigations if the patient has any signs of complicating factors such as urinary tract obstruction.

Urine cultures may be performed after urinalysis findings suggest a UTI. Urine cultures will help to identify the organism and identify the correct antibiotic sensitivities.

Urodynamic testing can be used as an adjunct to investigating urinary incontinence in order to measure detrusor overactivity which would cause urge incontinence.

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:

The police bring in a 39-year-old male with schizophrenia, who was being brought to the hospital under Section 136 of the Mental Health Act when he ate a boiled sweet and sadly choked and died. He last saw a psychiatrist 10 days previously.

Which factor in this case would require it to be reported to the coroner?

A.Diagnosis of schizophrenia

B.Under the age of 65-years-old

C.Being in police custody at time of death

D.Having not been seen by a doctor in the last 7 days

E.Death outside of the hospital environment

Answer:Being in police custody at time of death

Explanation:

Deaths of prisoners or people in police custody should be reported to the coroner

Important for meLess important

Deaths of individuals in police custody should be reported to the coroner.

The presence of a mental illness alone does not warrant a referral, nor does simply being under the age of 65 or the death occurring outside of the hospital.

It is if a patient has not been seen within the last 14 days, rather than 7, in which a referral to a coroner should take place.

Question:

A 29-year-old woman presents with a two-hour history of a severe headache.

She describes the worst headache she has ever had in her life. It was sudden onset and she has vomited twice since it started. She has mild neck stiffness and photophobia.

Her GCS is 15, she has no focal neurology and is afebrile.

What is the most appropriate initial investigation for this patient?

A.CT angiogram

B.CT head with contrast

C.Lumbar puncture

D.MRI brain

E.Non-contrast CT head

Answer:Non-contrast CT head

Explanation:

Non-contrast CT head is the first-line investigation of choice for suspected subarachnoid haemorrhage

Important for meLess important

This patient is describing typical symptoms of a subarachnoid haemorrhage (SAH).

An urgent non-contrast CT head is the most appropriate initial investigation.

A CT head with contrast is not recommended as both blood and contrast appear white on CT, and so the SAH may be masked by the contrast. Contrast CT head is typically used to look for contrast-enhancing lesions such as brain tumours.

If a non-contrast CT is performed within six hours of the onset of the headache and is normal, then the risk of SAH is negligible and an alternative diagnosis should be considered.

If the CT is performed outside the six-hour window and is normal, then a lumbar puncture should be performed to look for xanthochromia.

Once SAH is confirmed with CT or lumbar puncture, a CT angiogram is used to look for an underlying intracranial aneurysm as the cause of the SAH.

MRI brain does not add much information over a CT brain when looking for SAH. It could be used if CT is contraindicated though is often less readily available than CT.

Question:

A 66-year-old man with a past medical history of osteoarthritis, hypertension, and lung cancer attends your clinic. He reports increasing difficulty swallowing and has felt dizzy upon standing. He says he has also been increasingly short of breath and has a longstanding productive cough. He does not report any numbness, pins and needles, or back pain. You note that he has a 'waddling gait' when entering the room.

Which of the following is the most likely cause of his symptoms?

A.Cauda equina

B.Charcot-Marie-Tooth syndrome

C.Guillain-Barré syndrome

D.Lambert-Eaton syndrome

E.Myasthenia gravis

Answer:Lambert-Eaton syndrome

Explanation:

Lambert-Eaton Syndrome is a paraneoplastic myasthenic syndrome most commonly associated with small cell lung cancer. It may precede the cancer diagnosis by a number of years

Important for meLess important

Lambert-Eaton syndrome is correct. Given that the man has a past medical history of lung cancer and is presenting with a long-standing cough and shortness of breath, it is likely that his lung cancer has returned. Small cell lung cancer is associated with Lambert-Eaton syndrome, a rare paraneoplastic syndrome, which features autonomic symptoms, limb-girdle weakness (manifesting as a waddling gait), and hyporeflexia.

Cauda equina is incorrect. It typically presents with back pain, saddle anaesthesia, and leg weakness. It does not cause dysphagia.

Guillain-Barré syndrome is incorrect, as it presents with ascending weakness and paresthesia in the hands and feet.

Charcot-Marie-Tooth syndrome is incorrect. It is a genetic condition that usually starts early in life, and does not feature autonomic symptoms like a dry mouth or postural hypotension.

Myasthenia gravis is incorrect, as it does not feature autonomic symptoms.

Question:

A 22 year-old woman and her male partner present to their GP as they been unsuccessfully trying to conceive for 4 months. Her periods have been regular and there is no obvious cause in her history. What is the most appropriate next step in her management?

A.Refer the patient for a laparoscopy and dye test

B.Address how the couple are having sexual intercourse and reassure the patient

C.Refer the patient for a basal temperature test

D.Refer the patient for a luteal phase progesterone test

E.Refer the patient's partner for semen analysis

Answer:Address how the couple are having sexual intercourse and reassure the patient

Explanation:

A healthy couple can expect to take up to one year to conceive. Investigations are therefore usually performed after one year of regular attempts to conceive. It may however be prudent to address any mechanical reasons that are preventing the couple from conceiving, hence the sexual intercourse history.

Question:

You are working in the oncology ward and you are called to see a patient with advanced lung cancer and bone metastases. The patient informs you that she is suffering pain. On looking at her drug kardex you see that she is prescribed 30mg of oral long acting morphine sulphate twice daily, and has received both doses today. She also takes regular paracetamol and ibuprofen.

What breakthrough analgesia should you prescribe?

A.5mg of oramorph

B.10mg of oramorph

C.15mg of oramorph

D.20mg of oramorph

E.1mg of oramorph

Answer:10mg of oramorph

Explanation:

Breakthrough analgesia should be administered at 1/6th of the total daily opioid dose. In this case the patient takes 60 mg of long acting morphine sulphate in a 24 period. Therefore an appropriate breakthrough analgesia = 60 mg / 6 = 10 mg of short acting morphine (oramorph).

Question:

An 18-year-old male patient presents to his general practitioner with symptoms of weight loss, diarrhoea, bloating and intermittent abdominal pain.

Serology is positive for IgA anti-tissue transglutaminase (anti-TTG) antibodies.

Which of the following is most likely to confirm the diagnosis?

A.Abdominal ultrasound

B.Capsule endoscopy

C.IgA anti-endomysial antibodies

D.Ileal biopsy

E.Jejunal biopsy

Answer:Jejunal 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

This patient has suspected coeliac disease. He has typical symptoms (which are not always present in adults) and has, importantly, returned positive anti-TTG antibodies which have high specificity and sensitivity. Endoscopic intestinal biopsy, however, is the gold standard for the diagnosis of coeliac disease and should be offered to all adult patients if the diagnosis is suspected following serology. Jejunal biopsy is correct, as the duodenum and jejunum are the most affected portions of bowel in coeliac disease, while the ileum is not as affected (unlike in Crohn's disease), and would not be an appropriate place for a biopsy sample from a professional.

Biopsies are taken from the jejunum via a Crosby capsule (which captures 4 samples of the jejunum), or from the duodenum via endoscopic biopsy, to look for the classic features of villous atrophy. Jejunal biopsies are agreed to be better quality, however gastroenterologists may choose to take a duodenal biopsy. Patients must have been consuming gluten for at least 6 weeks prior to the biopsy to avoid a false negative result.

Capsule endoscopy is used to identify a focus of bleeding in the gastrointestinal tract but is not used for the diagnosis of coeliac disease. It cannot take biopsies, and therefore would not be useful in the diagnosis of coeliac disease.

IgA anti-endomysial antibodies are positive in 90% of coeliac patients. However, IgA tissue transglutaminase (TTG) antibodies have largely superseded endomysial antibodies in the diagnosis of coeliac disease, as TTG antibodies are more sensitive and specific. Identifying anti-endomysial antibodies would not be of any additional diagnostic value in this patient.

An ileal biopsy would be used for the diagnosis of Crohn's disease, as the terminal ileum is the commonest site of pathology. In a patient positive for coeliac disease, the duodenum and jejunum would reveal villous atrophy and crypt hypertrophy, however their ileum may very well appear completely normal, giving a false negative result, delaying treatment, and potentially harming the patient. Therefore this is the incorrect answer.

An abdominal ultrasound will not pick up the microscopic pathological changes of coeliac disease and therefore cannot confirm a diagnosis. The diagnosis of coeliac disease hinges on the histopathological diagnosis. It will then be affirmed by a trial of a gluten-free diet and subsequent resolution of symptoms.

Question:

A young, overweight woman is admitted to the medical assessment unit with headaches. Her CT head scan is normal, her lumbar puncture has an opening pressure of 30 cmH2O (reference range 5-25 cmH2O) and papilloedema is found on fundoscopy.

Considering the most likely diagnosis, which of the following medications would be of benefit to this patient?

A.Acetazolamide

B.Aspirin

C.Clopidogrel

D.Gabapentin

E.Dexamethasone

Answer:Acetazolamide

Explanation:

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

Important for meLess important

This patient most likely has a diagnosis of idiopathic intracranial hypertension (IIH). Acetazolamide is a carbonic anhydrase inhibitor that is used in IIH to reduce the production of cerebrospinal fluid in order to reduce intracranial pressure. Topiramate is another medication used in IIH, but otherwise, there is no evidence for other pharmacological therapies in IIH.

Question:

You are reviewing the management of a number of patients with chronic obstructive pulmonary disease (COPD). Which one of the following factors should prompt an assessment for long-term oxygen therapy?

A.FEV1 54% of predicted

B.Haemoglobin of 18.4 g/dl

C.Body mass index 18.8 kg / m^2

D.Oxygen saturations of 93% on room air

E.FEV1/FVC of 0.47

Answer:Haemoglobin of 18.4 g/dl

Explanation:

Question:

A 56-year-old woman attends respiratory clinic for a regular follow-up. As part of follow-up, a chest x-ray is ordered, shown below:

© Image used on license from Radiopaedia

Further, bloods are taken which show:

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

Female: (115 - 160)

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

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

Calcium 2.4 mmol/L (2.1-2.6)

Angiotensin-converting enzyme (ACE) 126 U/L (20 – 70)

She is screened for symptoms such as shortness of breath, chest pain, and palpitations, which she denies. A cardiac MRI performed two months prior was clear.

Given the patient's diagnosis and investigation findings, what is the most appropriate treatment?

A.IV hydrocortisone

B.No treatment indicated

C.Oral azathioprine

D.Oral methotrexate

E.Oral prednisolone

Answer:No treatment indicated

Explanation:

No treatment indicated is correct. This woman has respiratory sarcoidosis. Sarcoidosis is largely a clinical diagnosis based on history and examination, imaging, and biochemistry findings. The chest x-ray here shows marked bilateral hilar lymphadenopathy with some interstitial involvement, indicating stage 2 disease. Further, serum ACE is raised which has a specificity of around 70% for sarcoidosis.

Management of sarcoidosis depends on disease severity and is indicated for both symptom control and to slow the progression of the disease. The mainstay of treatment for sarcoidosis is immunosuppression with glucocorticoids, though steroid-sparing therapy is used in disease refractory to steroid treatment. Steroids are only indicated in patients with stage 2/3 disease who are symptomatic, have hypercalcaemia, or who have heart, eye, or neuro involvement. As this patient has none of these features, treatment is not indicated.

IV hydrocortisone is incorrect. Steroids are not indicated at this stage as the patient is neither symptomatic nor hypercalcaemic. Further, IV hydrocortisone is typically not used in the management of sarcoidosis. Where immediate therapy is required, methylprednisolone is more commonly used.

Oral azathioprine is incorrect. This is used to treat refractory sarcoidosis or in those for whom steroid therapy is contraindicated. As this patient is asymptomatic and does not have hypercalcaemia, no treatment is needed.

Oral methotrexate is incorrect. This is a steroid-sparing immunosuppressive therapy that is used to treat refractory sarcoidosis and occasionally first-line where other organs, such as the heart, are affected. No treatment is required in this patient who is asymptomatic and has normal calcium levels.

Oral prednisolone is incorrect. This is first-line in patients with stage 2/3 sarcoidosis who are also symptomatic, in patients with hypercalcaemia, or in patients with eye, heart, or neuro involvement. However, this patient has none of these features and thus does not require treatment.

Question:

A 36-year-old female teacher presents to emergency eye casualty with unilateral right-sided red eye which is acutely painful. She complains of burning pain around the eye, photophobia and you note her eye is tearing excessively. Fluorescein staining shows a linear, branching epithelial defect. She is not a contact lens wearer and she has no past medical history of note.

Which option below is the most appropriate management?

A.Artificial tears

B.Oral corticosteroids

C.Topical aciclovir

D.Topical chloramphenicol

E.Topical corticosteroids

Answer:Topical aciclovir

Explanation:

Treatment for herpes simplex keratitis is topical aciclovir

Important for meLess important

This patient is presenting with symptoms of herpes simplex keratitis - painful red eye with photophobia and epiphora. This diagnosis is further supported by abnormal fluorescein staining, typical appearance is a linear branching corneal ulcer. The management for this condition is topical aciclovir.

Artificial tears are used to manage the irritation symptoms of conditions that cause dry eyes (such as Sjogren's syndrome, autoimmune thyroid disease, and uveitis).

Topical chloramphenicol is used in the management of bacterial conjunctivitis (which would present with a painful eye with conjunctival injection but fluorescein staining would be unremarkable, usually).

Topical corticosteroids are contraindicated in active herpes simplex keratitis. If the patient presenting using systemic corticosteroids for a different condition, these should not be stopped but the patient must be treated with aggressive, systemic antiviral therapy.

Question:

A 37-year-old woman comes to see you describing ongoing fatigue for years. She says this has been worse in the past month and she has been so tired that she has been unable to go to work. She comes to see you and you conduct a comprehensive tiredness screen all of which comes back as negative. She has been doing some reading online and asks you whether you think she may have chronic fatigue syndrome or fibromyalgia.

How long should the symptoms be present for before a diagnosis of chronic fatigue can be made?

A.1 month

B.3 months

C.9 months

D.1 year

E.2 years

Answer:3 months

Explanation:

Chronic fatigue syndrome: the symptoms should be present for 3 months before making a diagnosis

Important for meLess important

Chronic fatigue syndrome is a diagnosis of exclusion that should only be given once other causes of fatigue have been excluded.

Blood tests for a comprehensive tiredness screen should include FBC, ESR/CRP; U&E, Cr, and eGFR; LFTs and Ca2+, TFTs; random blood glucose; anti-endomysial antibody test (to exclude coeliac disease); CK and ferritin.

Question:

A 56-year-old woman comes for review. Around 4 weeks ago she had a blistering rash under her right breast which extended around to the back. A diagnosis of shingles was made. Unfortunately since that time she has been experiencing severe 'shooting' pains. The skin is also very tender to touch. Neither paracetamol nor ibuprofen have helped her symptoms. What is the most appropriate next step in management?

A.Lidocaine patch

B.Tramadol

C.Amitriptyline

D.Carbamazepine

E.Diclofenac

Answer:Amitriptyline

Explanation:

This lady has developed post-herpetic neuralgia. NICE recommend using amitriptyline, duloxetine, gabapentin or pregabalin first-line.

Question:

A 16-year-old student has recently noticed that the whites of his eyes and his skin have become more yellow in colour than usual. On examination he is jaundiced. His liver function tests are as follows:

Bilirubin 47 µmol/l

ALP 42 u/l

ALT 19 u/l

AST 26 u/l

Albumin 41 g/l

Which is the most useful test to use first-line for helping determine the cause of this patient's jaundice and liver function tests?

A.FBC

B.U&Es

C.Ceruloplasmin

D.Abdominal ultrasound

E.MRCP (Magnetic resonance cholangiopancreatography)

Answer:FBC

Explanation:

Important points:

FBC is useful for determining whether the cause of the isolated hyperbilirubinaemia is due to haemolysis or Gilbert's syndrome.

Ceruloplasmin levels are used when considering Wilson's disease, which would usually cause a raised ALT and AST.

The normal ALP makes biliary obstruction unlikely so MRCP is not indicated at this stage.

U&Es and abdominal ultrasound would not be as useful as FBC as a first-line diagnostic investigation in isolated hyperbilirubinaemia

Question:

A 53-year-old Caucasian male presents to his GP for a blood pressure review. He is known to have hypertension and is currently taking ramipril and indapamide. Blood pressure taken in the GP clinic is 155/90mmHg.

What is the appropriate management?

A.Add amlodipine

B.Add bisoprolol

C.Add doxazosin

D.Add spironolactone

E.Replace ramipril with losartan

Answer:Add amlodipine

Explanation:

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

Important for meLess important

Patients with hypertension who are <55 years old and Caucasian should first be started on an ACE inhibitor. If blood pressure is still not under control, either a calcium channel blocker or thiazide-like diuretic should be added. If the blood pressure remains high, then an ACE inhibitor, calcium channel blocker and thiazide-like diuretic should be used in combination. As this patient is already on an ACE inhibitor (ramipril) and thiazide-like diuretic (indapamide), the correct answer is to add amlodipine.

Bisoprolol is a beta-blocker and may be used as fourth-line management if K+ is >4.5mmol/L.

Doxazosin is an alpha-blocker may be used as fourth-line management if K+ is >4.5mmol/L.

Spironolactone is an aldosterone antagonist and is used as fourth-line management if K+ is <4.5mmol/L.

If ACE inhibitors are not tolerated, then it should be replaced with an angiotensin 2 receptor antagonist such as losartan. The most common side effect of ACE inhibitor is a dry cough.

Question:

A 10-year-old boy is brought to the GP by his mother after two weeks of a productive cough and fevers. The GP who saw him last week sent him away advising to come back in a week if he was still no better. The patient is documented to be allergic to penicillin. Which antibiotic should be used to treat his respiratory infection?

A.Flucloxacillin

B.Co-amoxiclav

C.Ciprofloxacin

D.Cefuroxime

E.Clarithromycin

Answer:Clarithromycin

Explanation:

This patient was likely sent away initially due to the high probability he had a self-limiting viral illness. Due to the persistence of his symptoms the GP would be justified in treating the child for a bacterial lower respiratory tract infection. Without penicillin allergy then amoxicillin is the first choice treatment, however in this case this must be avoided, clarithromycin is the antibiotic of choice instead.

Question:

A 79-year-old man is about to undergo a valve replacement due to severe, symptomatic aortic stenosis. A mechanical valve is being used. He is otherwise well and denies any past medical history.

Which one of the following anticoagulation options is the most adequate for this patient following the procedure?

A.Aspirin

B.Dabigatran

C.No anticoagulation needed

D.Rivaroxaban

E.Warfarin

Answer:Warfarin

Explanation:

Warfarin is still used in preference to DOACs for patients with mechanical heart valves

Important for meLess important

The correct answer is warfarin. Mechanical heart valves have a higher risk of causing a thromboembolic event, so anticoagulation is needed. The safety of direct oral anticoagulants (DOACs) has not been established yet for patients with prosthetic valves, so they should not be prescribed. Warfarin remains the anticoagulant of choice, with aspirin co-prescribed in cases of necessity such as ischaemic heart disease.

Aspirin is not indicated as monotherapy following valvular replacement, it is co-prescribed with warfarin in cases of concomitant diseases, such as ischaemic heart disease.

Dabigatran is incorrect as it is a DOAC prescribed for prophylaxis of venous thromboembolism following hip or knee replacement surgery and following a pulmonary embolism.

If the patient had a biological valve implanted, then he would have not needed anticoagulation, as these valves have a low thromboembolic risk. But the patient had a mechanic one implanted, making it necessary to prescribe anticoagulation.

Rivaroxaban is incorrect as it is a DOAC prescribed for prophylaxis of venous thromboembolism following hip or knee replacement surgery and following a pulmonary embolism.

Question:

A 25-year-old male presents to his general practitioner with a 3-day history of haematuria and oliguria, which developed 2 days after suffering from coryzal symptoms and a cough. He has no significant past medical history. Observations are:

Respiratory rate of 15 /min

Pulse of 83/min

Temperature of 37.1ºC

Blood pressure of 146/116 mmHg

Oxygen saturation of 97% on room air

What is the most likely diagnosis?

A.Focal segmental glomerulosclerosis

B.IgA nephropathy

C.Membranous glomerulonephritis

D.Post-streptococcal glomerulonephritis

E.Rapidly progressive glomerulonephritis

Answer:IgA nephropathy

Explanation:

IgA nephropathy classically presents as visible haematuria following a recent URTI

Important for meLess important

The patient presents with the classic triad of nephritic syndrome (haematuria, oliguria, and hypertension). Given the very recent history of an upper respiratory tract infection, this is likely caused by IgA nephropathy, a condition that results from immune complex deposition in the glomeruli. IgA nephropathy histologically produces mesangial hypercellularity with positive immunofluorescence for C3 on microscopy.

Focal segmental glomerulosclerosis is incorrect. This is more likely to produce a nephrotic type presentation of hypoalbuminaemia, proteinuria, and oedema.

Membranous glomerulonephritis is incorrect as this also is more likely to produce a nephrotic-type presentation. For reference, there is a classical spike and dome appearance on electron microscopy.

Post-streptococcal glomerulonephritis is incorrect. While this would also produce a nephritic syndrome, it is more likely in younger patients and occurs 7-14 days after upper respiratory tract infection.

Rapidly progressive glomerulonephritis is incorrect. This condition describes a rapid loss of renal function secondary to conditions, including systemic lupus erythematosus (SLE) and Goodpasture's syndrome. It is, therefore, unlikely given the patient's lack of any significant past medical history.

Question:

A 20-year-old man comes to the GP surgery with his mother. She says her son may have autism and that he spends a lot of his time in his room playing online role-playing games. She explains that he is often apathetic and cold with her whenever she has been upset. He has no friends and has never had a romantic relationship. Despite this, he was recently promoted to a higher position at work. When asked his opinion on the matter, he is indifferent and wants to go home.

What is the most likely diagnosis?

A.Antisocial personality disorder

B.Autism spectrum disorder

C.Avoidant personality disorder

D.Schizoid personality disorder

E.Schizotypal personality disorder

Answer:Schizoid personality disorder

Explanation:

A young man is seen with his mother. She is concerned that he is socially withdrawn. He is bright and is doing well in his job as a engineer. During the consultation he seems emotionally cold and has little interest in either praise or criticism - schizoid personality disorder

Important for meLess important

Schizoid personality disorder is correct. This patient has features that are suggestive of this personality disorder. He is indifferent to praise or criticism, emotionally cold and has a lack of desire for companionship. This makes schizoid personality disorder the most likely diagnosis.

Antisocial personality disorder is incorrect. Characteristics associated with antisocial personality disorder are failure to conform to social norms and laws, deception, impulsiveness, and aggressiveness. He does not have any of these features.

Autism spectrum disorder is incorrect. Autistic spectrum disorder is typically evident before 2-3 years of age. There is some overlap between autism and the current presentation, for example preferring to play alone and being uninterested in playing with other people. However, this presentation lacks some other cardinal features of autism such as repetitive behaviours and repetitive motor mannerisms making the diagnosis of autism spectrum disorder less likely.

Avoidant personality disorder is incorrect. The characteristics associated with avoidant personality disorder are avoidance of activities due to fear of rejection and criticism and social isolation despite a craving for social contact. This patient does not have these characteristics.

Schizotypal personality disorder is incorrect. Characteristics associated with schizotypal personality disorder are odd beliefs, ideas of reference, and paranoid ideation. These features are not present in this patient, making this diagnosis less likely.

Question:

Mr. Harris is a 35-year-old gentleman who presents with nausea, vomiting, high-pitched bowel sounds and increasing abdominal pain. He explains to you that a few years ago he had abdominal surgery for a ruptured appendix.

Given the likely cause of his symptoms, which is the definitive diagnostic investigation to reach a diagnosis?

A.Abdominal CT

B.Barium enema

C.Arterial blood gas (ABG)

D.Abdominal x-ray (AXR)

E.MRI abdomen

Answer:Abdominal CT

Explanation:

CT abdo is the definitive diagnostic investigation for small bowel obstruction

Important for meLess important

AXR is first-line for investigating suspected bowel obstruction but the definitive investigation is CT abdomen. AXR is likely to provide information but is not definitely diagnostic.

Question:

A 56-year-old woman presents to the Emergency Department with central crushing chest pain and ST elevation of 3 mm in leads II, III and aVF. Which one of the following is an absolute contraindication to thrombolysis?

A.History of peptic ulcer disease

B.Menstruation

C.Pre-proliferative diabetic retinopathy

D.Stroke 12 months ago

E.Known intracranial neoplasm

Answer:Known intracranial neoplasm

Explanation:

Whilst local policies vary, an intracranial neoplasm is considered an absolute contraindication to thrombolysis. The other options are relative contraindications.

Question:

The first-line antibiotic in the treatment of syphilis is:

A.Metronidazole

B.Ciprofloxacin

C.Benzylpenicillin

D.Azithromycin

E.Clarithromycin

Answer:Benzylpenicillin

Explanation:

Question:

A 60-year-old man presents to the emergency department complaining of leg pain. On examination the leg is pale, you are unable to feel a pulse below the knee, it is very cold, and the patient is saying he is in severe excruciating pain that started an hour ago.

What is the best management for this condition?

A.Amputation

B.Analgesia

C.Surgical intervention

D.Thrombolysis

E.Warfarin

Answer:Surgical intervention

Explanation:

Acute limb-threatening ischaemia presents with the 6 P's: pale, pulseless, pain, paralysis, paraesthesia, perishingly cold

Important for meLess important

This is clearly acute limb ischaemia, which is a surgical emergency and therefore requires surgical intervention to save the leg. Analgesia would be useful, but is not the definitive management. Amputation may have to be considered in surgical intervention does not work, but as the pain started <6 hours ago, there is a high probability of successful surgical intervention. Thrombolysis and warfarin would be of no benefit.

Question:

A 78-year-old woman attends her general practice complaining of severe left-sided colicky flank pain, occurring for the past 2 days. She also describes having 'achy joints' and feeling low in mood for the past few months.

Which electrolyte imbalance is most likely to be a cause of her symptoms over the past year?

A.Hypercalcaemia

B.Hypocalcemia

C.Hypomagnesemia

D.Hypernatremia

E.Hyponatremia

Answer:Hypercalcaemia

Explanation:

Hypercalcaemia: painful bones, renal stones, abdominal groans and psychic moans

Important for meLess important

Hypercalcemia is correct. This is as four common manifestations of this are painful bones, renal stones, abdominal groans, and psychic moans. Hypercalcemia is most commonly due to hyperparathyroidism and malignancies. The colicky pain is likely to be due to a renal stone, this could be confirmed by a non-contrast CT KUB.

Hypernatremia is incorrect. Symptoms of this include diarrhoea or vomiting, impaired thirst, weight loss, oliguria and other signs of hypovolemia.

Hyponatremia is incorrect, symptoms of this include primarily of mental status changes, including altered personality, lethargy and confusion. If the concentration falls lower, other signs can include hyperreflexia and seizures.

Hypomagnesemia is incorrect. Symptoms of this include nausea vomiting, lethargy, weakness, tremor and muscle fasciculations, including Trousseau and Chvostek's sign.

Hypocalcemia is incorrect. Symptoms of this include muscle cramps, and if over a long period of time it can cause symptoms of confusion, memory loss, delirium, and depression.

Question:

A 54-year-old female presents to her general practitioner for a review of her blood pressure medications. Her last reading showed an average blood pressure of 155/97 mmHg. She has a past medical history of asthma and gout, controlled with salbutamol and allopurinol respectively. She is already taking ramipril and she is compliant with her regimen. Her last blood results showed the following:

Na+ 138 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 5.5 mmol/L (2.0 - 7.0)

Creatinine 67 µmol/L (55 - 120)

Which one of the following drugs is the most appropriate to be added to her management plan?

A.Nifedipine

B.Candesartan

C.Captopril

D.Indapamide

E.Spironolactone

Answer: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

The correct answer is nifedipine, a calcium-channel blocker. The NICE guidelines for the management of hypertension indicate that if the patient's high blood pressure is not controlled with an angiotensin-converting enzyme inhibitor (ramipril), either a thiazide-like diuretic or a calcium-channel blocker should be added. In patients with a past medical history of gout, calcium channel blockers are preferred. This is due to the fact that thiazide-like diuretics have been shown to increase the levels of uric acid in the majority of patients, by inhibiting the tubular secretion of uric acid.

Candesartan is an an angiotensin receptor blocker (ARB). This type of drug is used as an alternative to angiotensin-converting enzyme inhibitors when they are not tolerated, but they are not used in conjunction as they have a similar mechanism of action.

Captopril is an angiotensin-converting enzyme inhibitor. NICE guidelines do not suggest the usage of two drugs of the same type in any case. Hence, the answer is incorrect given that the patient is already taking ramipril.

Indapamide is a thiazide-like diuretic. As mentioned above, this type of drug should not be the first choice in patients with gout as they have been shown to increase the levels of uric acid in the majority of patients, by inhibiting the tubular secretion of uric acid.

Spironolactone is is an aldosterone receptor antagonist that can be used in the treatment of hypertension. It is used when a combination of angiotensin-converting enzyme inhibitors, thiazide-like diuretics and calcium-channel blockers has failed. In this case, the patient has only trialled ramipril, making the option incorrect.

Question:

What is the first sign of puberty in girls?

A.Development of pubic hair

B.Menstrual bleeding

C.Development of axillary hair

D.Breast development

E.Height spurt

Answer:Breast development

Explanation:

Question:

A 20-year-old man presents to his GP for the second time with a problem with his toe. He was previously prescribed amorolfine nail lacquer, prescribed by the GP, which he has used regularly for the past 6 months. He is otherwise well, however, asks you to deal with it as quickly as possible as he is embarrassed by it.

His feet are examined (as shown below):

Fungal microscopy of nail clippings grows Trichophyton rubrum .

What would be the next step in treating this condition?

A.Leave it alone

B.Prescribe flucloxacillin

C.Prescribe itraconazole

D.Prescribe terbinafine

E.Refer to dermatology

Answer:Prescribe terbinafine

Explanation:

The above picture shows a fungal nail infection, caused by dermatophyte fungal infection. The image shows some yellow discolouration of the nail, with an increased thickness and some subtle onycholysis. It is also jagged and appears to be crumbling away.

The patient has trialled nail lacquer treatment for 6 months, and by this point, one would expect any resolution or improvement to have happened. As such, it is necessary to escalate to oral treatment.

For Trichophyton rubrum infection, NICE guidelines say that the first line oral treatment should be oral terbinafine. Before commencing terbinafine, it is important to check liver function before and at regular intervals as it can cause hepatotoxicity.

Whilst itraconazole can also be used, this is typically preferred for fungal nail infection caused by Candida spp. As such it would be better to first offer terbinafine.

Whilst it is possible to leave it alone, the patient is getting distressed by the infection, so it would be best to treat the condition.

Bacterial infections, such as Staphylococcus aureus, typically do not cause onychomycosis, so flucloxacillin would not treat the infection. This antibiotic is typically used in skin infections, such as cellulitis.

Nystatin is typically used for oral fungal infections, such as oral thrush, and wouldn't work in treating a fungal nail.

A referral to dermatology is not currently indicated as there are still treatments to explore - this should only be done if treatment regimes have been exhausted.

Question:

A 34-year-old lady is blue-lighted to the emergency department with sudden onset left sided weakness of her arm and leg. Her past medical history consists of anxiety and depression. An urgent CT head scan was performed which showed no acute intracranial abnormality and no evidence of any intracranial haemorrhage. A subsequent MRI brain scan was performed to rule out any underlying inflammatory process but this was also unremarkable. What clinical sign could be examined for in this patient to further evaluate whether this is an organic or functional presentation?

A.Jendrassik manoeuvre

B.Romberg's test

C.Hoffman's sign

D.Hoover's sign

E.Formal gait assessment

Answer:Hoover's sign

Explanation:

Hoover's sign differentiates between organic and non-organic lower leg weakness

Important for meLess important

Hoover’s sign of leg paresis is a specific manoeuvre used to distinguish between an organic and non-organic paresis of a particular leg. This is based on the concept of synergistic contraction. If a patient is genuinely making an effort, the examiner would feel the 'normal' limb pushing downwards against their hand as the patient tries to lift the 'weak' leg. Noticing this is indicative of an underlying organic cause of the paresis. If the examiner, however, fails to feel the 'normal' limb pushing downwards as the patient tries to raise their 'weak' leg, then this is suggestive of an underlying functional weakness, also known as 'conversion disorder'.

Jendrassik manoeuvre: compares a reflex with/without distraction e.g. clenching teeth

Romberg's test: investigate the cause of ataxia; if positive means sensory ataxia

Hoffman's sign: reflex test to investigate corticospinal tract lesions

Question:

A 18-year-old female has presented with pustule and nodules in her neck and axillae with a narrow tract visible in the skin. She has noted that they can become swollen, painful and have a small amount of yellow discharge at times.

She has a body mass index (BMI) of 25kg/m2 and has a 1-year smoking history.

Given the presentation, what is the most likely diagnosis?

A.Acne vulgaris

B.Eczema

C.Epidermal cyst

D.Herpes zoster infection

E.Hidradenitis suppurativa

Answer:Hidradenitis suppurativa

Explanation:

Hidradenitis suppurativa is a chronic, painful, inflammatory skin disorder is characterized by nodules, pustules, sinus tracts, and scars in intertriginous areas

Important for meLess important

Acne vulgaris commonly starts during puberty and lasts until early-mid 20's. However, it typically affects the face, back and chest.

Eczema is an inflammatory condition affecting the epidermis. Infected eczema either bacterial or viral can cause discharge and inflammation however it is not characterised by sinus tract formation.

Epidermal cysts, whilst they can become inflamed and painful, are commonly solitary lesions. They are commonly located on the head, neck and back.

Herpes zoster infection, or shingles due to a reactivation of the varicella-zoster virus, typically affects an older population. It is characterised by an extremely painful rash in a dermatomal distribution.

Hidradenitis suppurativa is the correct answer as it is an inflammatory skin disorder affecting the intertriginous areas including the axilla, anogenital region and between the digits. Sinus tracts connecting inflammatory lesions may also characterise the condition. Common risk factors associated with this include obesity and smoking.

Question:

A 68-year-old man is seen in the emergency department after falling while getting out of bed. He appears well with no injuries from the fall, but his blood pressure shows a postural drop of 35mmHg.

He was diagnosed with Parkinson’s disease two weeks ago.

He currently takes co-careldopa

What is the most likely cause for his fall?

A.Friedrich-Waterhouse syndrome

B.Paracetamol overdose

C.Epilepsy

D.Mechanical fall

E.Multisystem atrophy

Answer:Multisystem atrophy

Explanation:

Parkinsonism with associated autonomic disturbance (atonic bladder, postural hypotension) points towards Multiple System Atrophy

Important for meLess important

Friedrich-Waterhouse syndrome is a rare complication of meningococcal sepsis involving bilateral adrenal haemorrhage. This would be a patient who is extremely unwell, or who has been recently treated for meningitis and presents with collapse and salt-wasting. It is rare and not suggested by the clinical picture.

Paracetamol is a commonly used over the counter drug, however overdose does not present like this, and you would usually see some relevant psychiatric history in the background.

There is no suggestion of an epileptic seizure in the history.

A mechanical fall is usually a diagnosis of exclusion and a history of tripping or some similar mechanical effect would be helpful. It can be dangerous to assume falls are mechanical and miss an underlying medical condition.

A fall while moving from lying to standing, and significant postural hypotension, indicates autonomic instability. Idiopathic Parkinsons disease can cause autonomic instability, but this is usually a very late development. If it rapidly follows a diagnosis of Parkinson's disease (for example, two weeks, as in the question), it is more likely due to multisystem atrophy rather than idiopathic Parkinson's. 5% of patients with idiopathic Parkinson's disease have postural hypotension, compared to 75% of patients with multisystem atrophy, making the latter more likely.

Although there are many causes of postural hypotension, the combination of early and severe autonomic instability following a recent diagnosis of Parkinson's disease means MSA should be considered. The other options are all possible causes of a fall or collapse, but based on the history and clinical findings are not as likely.

Question:

A 28-year-old man presents to the emergency department with a three-day history of foot drop and tingling to his hands. Today he has noticed difficulty rising from a chair and climbing stairs. His past medical history is unremarkable except for a recent respiratory tract infection.

On examination, he has normal limb tone, reduced strength in his legs bilaterally (distal muscles worse than proximal), and a loss of his patella and ankle reflexes. He has reduced sensation in a glove and stocking distribution.

What is the most likely diagnosis in this patient?

A.Guillain-Barré syndrome

B.Lyme disease

C.Multiple sclerosis

D.Myasthenia gravies

E.Transverse myelitis

Answer:Guillain-Barré syndrome

Explanation:

Progressive peripheral polyneuropathy with hyporeflexia suggests Guillain-Barre syndrome

Important for meLess important

Guillain-Barre is correct. It causes a symmetrical, progressive polyneuropathy with hyporeflexia. The autoimmune demyelination is often precipitated by a respiratory or GI infection.

Lyme disease is caused by a tick bite rather than a preceding infection. The neurological symptoms are more commonly vague with headaches and joint pain.

Multiple sclerosis can cause weakness and sensory loss, but these are usually asymmetrical and associated with hyperreflexia.

Myasthenia gravis can cause similar limb-girdle weakness but periocular symptoms (eyelid drooping) are more common. Myasthenia gravis causes muscle fatigue rather than a progressive polyneuropathy.

Transverse myelitis can be triggered by an infective or autoimmune process. Unlike Guillain-barre it involves the central nervous system and causes hyperreflexia and bladder and bowel dysfunction.

Question:

A 37-year-old female presents to her general practitioner with a 2-month history of progressive fatigue. She has a background medical history of type-1 diabetes mellitus.

Her doctor orders a full blood count, which is reported as follows:

Hb 78 g/L (115 - 160)

Mean cell volume 136 fl (82-100)

Platelets 156 \* 109/L (150 - 400)

WBC 4.2 \* 109/L (4.0 - 11.0)

Based on the above information, testing for which of the following antibodies is most appropriate to aid diagnosis?

A.Anti-histone antibodies

B.Anti-tissue transglutaminase (TTG) antibodies

C.Gastric parietal cell antibodies

D.Intrinsic-factor antibodies

E.Lupus anticoagulant

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

Megaloblastic anaemia (low haemoglobin, raised mean cell volume) can be caused by B12 or folate deficiency and should raise the suspicion of pernicious anaemia. This is an autoimmune condition that causes B12 deficiency resulting in anaemia. Normally, intrinsic factor released from parietal cells of the stomach bind to dietary B12, forming a complex which can be absorbed in the distal ileum. Autoantibodies directed against either intrinsic factor or these gastric parietal cells will impair B12 uptake and result in this megaloblastic anaemia. A firm diagnosis here would require a blood test confirming low B12 levels and the presence of either of these autoantibodies. However, the intrinsic factor antibodies are much more specific for pernicious anaemia, and so this test is more commonly used in practice.

Anti-histone antibodies are involved in drug-induced lupus. This can be caused by several drugs, including infliximab, isoniazid, carbamazepine and procainamide.

Anti-TTG antibodies are used as a screening test for coeliac disease. Coeliac disease can cause anaemia. However, it tends to be a microcytic (low mean cell volume) anaemia caused by iron deficiency due to malabsorption.

Gastric parietal cell antibodies are linked to pernicious anaemia, as mentioned above. However, they have low specificity, meaning that it has a high false-positive rate. Therefore, it is not as reliable for confirming a diagnosis of pernicious anaemia. In clinical practice, intrinsic factor antibodies are preferred over gastric parietal cell antibodies, for this reason.

Lupus anticoagulant is part of the spectrum of anti-phospholipid antibodies that are used in the diagnosis of systemic lupus erythematosus (SLE) and anti-phospholipid syndrome.

Question:

A 45-year-old patient presents to the emergency department having taken an overdose of some of her mothers pills yesterday, following a marital break up. She is unsure what she has taken.

She now complains of worsening shortness of breath and some abdominal pain as well as a constant ringing sound in her ears. Examination is normal. Observations and arterial blood gas results are below:

RR 31/min

HR 103/min

BP 128/92 mmHg

O2 sats 99%

RR = Respiratory Rate, HR = Heart rate, BP = Blood pressure

pH 7.26 7.35-7.45

PaO2 15.5 kPa 10-13.1 kPa

PaCO2 2.1 kPa 4.9-6.1 kPa

Bicarbonate 17 mmol/L 22-28 mmol/L

Lactate 1.8 <2

Na 142 mmol/L 135-145 mmol/L

K 3.1 mmol/L 3.5-5.0 mmol/L

Anion gap 18 10-14

Glucose 2.4 mmol/L 4.0-7.0 mmol/L

Which intervention is most likely to be appropriate in this scenario?

A.Flumazenil

B.IV sodium bicarbonate

C.Naloxone

D.Insulin 0.1mg/kg/hr

E.IM glucagon

Answer:IV sodium bicarbonate

Explanation:

Salicylate poisoning - raised anion gap metabolic acidosis

Important for meLess important

Aspirin overdose is a common presentation in the emergency department. It may initially present with nausea, vomiting, tinnitus and headache. In more severe overdoses, hyperventilation and a secondary respiratory alkalosis develops. Over ~24 hours, this progresses to a metabolic acidosis and hypokalaemia, both of which indicate a severe overdose. Confusion, coma, seizures, hypoglycaemia and fever may also develop.

If overdoses are recent, administer activated charcoal. Management of minor overdoses is otherwise largely supportive. However, more significant overdoses may require alkalinisation with IV sodium bicarbonate in order to maintain blood pH at 7.5-8.0 , and enhance salicylate excretion.

Flumazenil is used in benzodiazepine overdose.

Naloxone is used in opiate overdose.

Fixed rate insulin is used in the management of DKA.

IM glucagon is used in the initial management of hypoglycaemia.

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 71-year-old presents for his annual diabetic review. He has had type 2 diabetes for the last 12 years. He is currently asymptomatic and takes regular metformin. His most recent eGFR results are as follows.

Test Result Normal range

eGFR 2 years ago 74 mL/min/1.73m2 (>90)

eGFR 1 year ago 66 mL/min/1.73m2 (>90)

eGFR last month 52 mL/min/1.73m2 (>90)

Urinalysis reveals new proteinuria (++).

What finding would be consistent with the most likely diagnosis?

A.Enlarged kidneys on USS

B.Increased concentrations of free light chains in serum and urine

C.Increased specific gravity on urinalysis

D.Mesangial reduction found on biopsy

E.Podocyte effacement found on biopsy

Answer:Enlarged kidneys on USS

Explanation:

The early stages of diabetic nephropathy are associated with enlarged kidneys, in contrast to most other causes of CKD

Important for meLess important

Enlarged kidneys on USS is correct. Diabetic nephropathy is the most likely diagnosis due to the longstanding history of diabetes and gradual decline in eGFR. In the early stages of diabetic nephropathy, the kidneys are often enlarged, especially when the diabetes is uncontrolled. It is difficult to define what eGFR the early stages are but typically in diabetic nephropathy with an eGFR >30 kidneys may be enlarged.

Increased concentrations of free light chains in serum and urine is incorrect. They would be consistent with a diagnosis of multiple myeloma.

Increased specific gravity of urinalysis is incorrect. It may point to pre-renal causes of decreased eGFR, not diabetic nephropathy.

Mesangial reduction found on biopsy is incorrect. Mesangial expansion, rather than reduction, is a sign of diabetic nephropathy on biopsy. Other signs found on biopsy in diabetic nephropathy include fibrosis and Kimmelstiel-Wilson nodules.

Podocyte effacement found on biopsy is incorrect. It would be consistent with a diagnosis of minimal change disease.

Question:

A 29-year-old G5P2 woman has recently moved to a regional centre from another country. She presents to the antenatal clinic excited by a positive home pregnancy test. She tells you she has had 2 miscarriages in the past, and during her previous live born pregnancy she had to take some 'blood thinners' to minimise the risk of miscarriage again.

You are unable to access her previous medical records, and the patient is unsure of the exact condition.

Assuming the most likely diagnosis is confirmed by serology testing, which anticoagulation regime would be most appropriate in this woman?

A.Aspirin + clopidogrel

B.Aspirin + apixaban

C.Aspirin + low molecular weight heparin

D.Clopidogrel + low molecular weight heparin

E.Clopidogrel + warfarin

Answer:Aspirin + low molecular weight heparin

Explanation:

Antiphospholipid syndrome in pregnancy: aspirin + LMWH

Important for meLess important

This woman is likely suffering from antiphospholipid syndrome (APS) and requires anticoagulation throughout her pregnancy to minimise the risk of miscarriage, IUGR and premature labor amongst other complications. APS is a systemic autoimmune disorder characterized by venous or arterial thrombosis with/without pregnancy loss in the presence of antiphospholipid antibodies; such as anti-cardiolipin or lupus anticoagulant antibodies.

Anticoagulation in pregnancy is challenging due to the potential teratogenic effects of some agents, as well as challenges around appropriate dosing and the management of anticoagulation around the time of labor - while managing the thrombotic risk in these patients.

Anticoagulation in APS has two arms; inhibition of platelet aggregation and inhibition of the coagulation cascade. This is due to the fact that most arterial thrombotic events usually involve platelet aggregation, whereas venous thrombotic events involve the coagulation cascade. Aspirin and low molecular weight heparin are used due to their proven safety profile in pregnancy and their combined ability to prevent venous and arterial thromboses. A good way of remembering this is thinking about the prevention of coronary artery disease (aspirin, clopidogrel, ticagrelor) vs. deep vein thrombosis (apixaban, rivaroxaban, LMW heparin etc).

Aspirin and clopidogrel is inappropriate in APS due to the ongoing risk of venous thrombosis secondary to activation of the coagulation cascade.

Apixaban and other direct oral anticoagulants (DOACs) have yet to be evaluated for safety in long term clinical trials for pregnant women. As such, apixaban would not be used in the prevention of APS.

Clopidogrel is another antiplatelet agent, but information related to use during pregnancy is limited. Available clinical data does not demonstrate an increased risk of fetal malformation, and it may be used as an alternative if aspirin cannot be tolerated. It may be used in APS when the patient is not pregnant. However, aspirin is the antiplatelet agent of choice in pregnancy in APS patients.

Warfarin can cross the placenta, is a teratogen to the fetus and 'wages war on the newborn'. It can cause limb hypoplasia, intrauterine growth restriction and CNS abnormalities, as well as fetal haemorrhage due to its anticoagulant effects. It is used only in select circumstances in pregnancy ie. an expectant mother with a mechanical heart valve, and only after discussion between the mother and the treating team about the risks to both mum and baby. It is not used in APS.

Question:

A 75-year-old man attends the surgical assessment unit prior to an elective Hartmann's procedure in 7 days due to bowel cancer. He has a past medical history of atrial fibrillation, hypertension and previous cerebrovascular accident. Your registrar asks you to review him prior to his procedure next week. You notice that he is currently taking warfarin and his INR today is 2.6. His remaining blood tests are normal. What is the most appropriate management for his anticoagulation peri-operatively?

A.Stop his warfarin

B.Continue his warfarin at the current dose as his INR is within therapeutic range

C.Stop his warfarin and commence treatment dose low molecular weight heparin

D.Initiate an unfractionated heparin continuous infusion

E.Stop his warfarin and commence aspirin

Answer:Stop his warfarin and commence treatment dose low molecular weight heparin

Explanation:

Managing anticoagulation peri-operatively is challenging and depends on the reasons for and agent used to anti-coagulate. Each patient should have a venous thromboembolic risk assessment undertaken to consider risk factors for thromboembolism versus bleeding. In this scenario the patient is at high risk of thromboembolic disease (previous CVA, known AF) but also significant bleeding due to major abdominal surgery. Therefore the best option is a shorter acting anticoagulant (e.g. low molecular weight heparin) given at treatment dose whilst withholding warfarin. This would then be withheld the evening before surgery, and mechanical prophylaxis used.

Reference:

http://www.uptodate.com/contents/perioperative-management-of-patients-receiving-anticoagulants

Question:

A 59-year-old woman is seen in clinic, with a history of chest pain upon exertion, relieved by rest. Her pain never occurs at rest. She takes aspirin, atorvastatin and the maximum dose of atenolol, but she is still persistently experiencing exertional chest pain. She has tolerated all medicines since commencement.

What would be the best recommendation for the next step in her management?

A.Commence diltiazem

B.Commence amlodipine

C.Commence ranolazine

D.Commence verapamil

E.Percutaneous coronary intervention (PCI)

Answer:Commence amlodipine

Explanation:

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

Important for meLess important

Commencing amlodipine is the correct answer. This patient is experiencing stable angina and is accordingly already taking a beta-blocker for this reason. The next step in management is the addition of a calcium-channel blocker; when being added in addition to a beta-blocker, a longer-acting dihydropyridine is recommended.

Commencing diltiazem is incorrect. If being used as monotherapy for angina, a rate-limiting non-dihydropyridine calcium channel blocker is appropriate; a dihydropyridine such as amlodipine should be used for dual therapy.

Commencing ranolazine is incorrect. Ranolazine is only indicated if one of a calcium channel blocker or beta-blocker is not tolerated for dual therapy.

Commence verapamil is incorrect. A rate-limiting calcium channel blocker such as verapamil would be appropriate as monotherapy for angina, but there is a risk of complete heart block if verapamil is used in addition to a beta-blocker.

Question:

A 5-month-old girl presents to the paediatric emergency department with a 2-day history of diarrhoea, non-bilious vomiting and fever. She has passed 12 watery stools and has vomited 5 times over the past 48 hours. The stools do not contain visible blood or mucus. Her appetite has greatly reduced and she has been refusing feeds since morning.

On examination, the infant appears to be lethargic and her movements seem to be jittery. Her vital signs are as follow:

Temperature 39 ºC

Pulse rate 180 beats per minute 100-190 beats per minute

Respiratory rate 50 breaths per minute 30-53 breaths per minute

Blood pressure 100/50 mmHg Normal

Capillary refill time 2 seconds

A detailed neurological examination reveals hyperreflexia and increased muscle tone. Blood samples have been sent for culture and routine investigations. An unexpectedly high serum sodium level is shown:

Na+ 155 mmol/l 135 - 145 mmol/L

A trial of oral rehydration solution (ORS) is given orally but the patient has been vomiting persistently.

What should be done next to manage this patient's hydration status?

A.Encourage undiluted fruit juices or carbonated drinks instead of breast milk

B.Continue to encourage higher concentrations of ORS

C.Start a rapid intravenous infusion of 0.9% sodium chloride solution

D.Start a slow infusion of 0.9% sodium chloride solution

E.Start an intravenous infusion of fresh frozen plasma

Answer:Start a slow infusion of 0.9% sodium chloride solution

Explanation:

Hypernatraemic dehydration in children is associated with jittery movements, increased muscle tone, hyperreflexia, convulsions, drowsiness or coma

Important for meLess important

Hypernatraemic dehydration is a particularly dangerous form of dehydration as water is drawn out of the brain and cerebral shrinkage within a rigid skull may lead to the characteristic signs and symptoms. Common causes of hypernatraemic dehydration include high fever, hot and dry environment, or profuse, low-sodium diarrhoea. Signs of extracellular fluid depletion are less, and fontanelle depression, reduced skin turgor and sunken eyes are less obvious, making it more difficult to recognise clinically particularly in an obese infant. Transient hyperglycaemia may occur in some patients and is self-correcting where insulin is not required\*.

Severity Serum level (mmol/L)

Mild Hypernatremia 146 - 149

Moderate Hypernatraemia 150 - 169

Severe Hypernatraemia ≥ 170

Mild hypernatraemic dehydration rarely requires specific management:

Manage underlying cause.

Repeat in 4-6 hours if clinically indicated.

Moderate hypernatraemic dehydration:

After initial resuscitation, replace the deficit plus maintenance slowly at a uniform rate over 48 hours. Rapid infusion in such cases will increase the risk of cerebral oedema.

Intravenous fluid is indicated in this case as ORS is not tolerated by the patient (persistent vomiting). Other conditions favouring intravenous solution over ORS are:

when shock is suspected or confirmed

a child with red flag symptoms or signs shows clinical evidence of deterioration despite oral rehydration therapy.

Discourage the drinking of fruit juices and carbonated drinks, especially in those at increased risk of dehydration [NICE 2009] especially undiluted ones as the high sugar content will worsen the diarrhoea.

Fresh frozen plasma is used to replace blood clotting factors and is usually indicated in bleeding patients.

\*Lissauer, T., Clayden, G., & Craft, A. (2012). Illustrated textbook of paediatrics. Edinburgh: Mosby.

Question:

A 69-year-old man has just undergone laparoscopic abdominal surgery for appendicitis. There was minimal blood loss. He weighs 75 kg. He initially does not feel able to drink as he is nauseated from the anaesthetic. His pre-operative bloods were normal. What fluid should initially be prescribed to initiate a maintenance regime and how fast should it be given?

A.500 ml 0.9% sodium chloride at 100 ml/hr

B.500 ml 0.9% sodium chloride at 150 ml/hr

C.500 ml 0.9% sodium chloride STAT

D.500 ml Gelofusine at 72.5 ml/hr

E.1 L 0.9% sodium chloride at 50 ml/hr

Answer:500 ml 0.9% sodium chloride at 100 ml/hr

Explanation:

This patient has just left theatre and will require fluids. Oral fluids should be initiated as soon as possible but if a patient is unable to drink then maintenance fluids should be prescribed through the IV route.

Sodium chloride is a recommended fluid to be used for maintenance. Maintenance fluids should be prescribed at a rate of 30 ml/kg/24hr.

Amount: 75 kg X 30 ml = 2250 mL in a 24 hour period

Rate: 2500 / 24 = 93.75 ml/hr.

Initially prescribe 500 ml and then reassess the patients fluid status and ability to drink. So prescribe 500 ml at a rate of 100 ml/hr.

Question:

A 44-year-old man who works as an investment banker comes in with a headache which 'feels like a band around his head' and is worst at the end of the day. He would like to find out more about headaches and their treatments. He says he has tried paracetamol which has not helped and asks whether he would be able to try oxygen for his headache. He says that one of his colleagues at works also suffers from headaches which are treated with oxygen.

Oxygen is used as a treatment for which one of the following types of headaches?

A.Migraine

B.Cluster headache

C.Post-coital headache

D.Temporal arteritis

E.Tension headache

Answer:Cluster headache

Explanation:

A cluster headache results in intense pain around one eye which is often accompanied by lacrimation and redness of the eye. It usually lasts 15 mins - 2 hours. Treatments for this include triptans and oxygen.

The gentleman in this question has a tension-type headache which is not treated with oxygen. He should be asked more about how he could relieve some of his stressors and also consider using alternative analgesia. Migraines, post-coital headaches and temporal arteritis are not usually treated with oxygen.

Question:

A 43-year-old alcoholic man is admitted to hospital with severe epigastric pain. He has multiple previous admissions in the preceding six months for the same problem. His admission bloods are shown below:

Na+ 143 mmol/l Bilirubin 8 µmol/l

K+ 3.8 mmol/l ALP 88 u/l

Urea 4.3 mmol/l ALT 33 u/l

Creatinine 88 µmol/l γGT 33 u/l

Amylase 103 u/l Albumin 49 g/l

A diagnosis of chronic pancreatitis is suspected. Which of the following imaging modalities would be best to confirm this diagnosis?

A.Abdominal ultrasound

B.Plain abdominal x-ray

C.CT abdomen with oral water-soluble contrast

D.CT pancreas with intravenous contrast

E.MRI pancreas

Answer:CT pancreas with intravenous contrast

Explanation:

CT pancreas is the preferred diagnostic test for chronic pancreatitis - looking for pancreatic calcification

Important for meLess important

Chronic pancreatitis is a difficult diagnosis to make but the first line investigation for this would be a CT pancreas (with intravenous contrast) to look for pancreatic calcification. Often the calcification is relatively mild and not noticeable on plain abdominal film so this is less sensitive. A CT of the abdomen may also pick up the calcifications but the resolution is less clear for the pancreas than a pancreatic protocol CT. MRI and ultrasound are both poor ways of imaging a non-inflamed pancreas and so will not be of benefit, in addition MRI is poor at picking up calcification in general as it relies on the imaged tissues to have fluid in them which calcified tissue does not.

Question:

A 48-year-old woman presents with a three-day history of dizziness and electric shock sensations affecting her arms and legs. She has a history of chronic pain, depression, and schizophrenia. You ask about medications and drug use but she is cagey in her response.

What is the most likely cause of her symptoms?

A.Alcohol withdrawal

B.Neuroleptic malignant syndrome

C.Opiate withdrawal

D.SSRI discontinuation syndrome

E.Tricyclic overdose

Answer:SSRI discontinuation syndrome

Explanation:

Dizziness, electric shock sensations and anxiety are symptoms of SSRI discontinuation syndrome

Important for meLess important

SSRI discontinuation syndrome may occur when suddenly stopping or reducing SSRIs. It is likely this woman has decided to stop her antidepressants. It may present with dizziness, electric shock sensations, and anxiety.

Alcohol withdrawal usually presents with anxiety, tremors, and sweating.

Neuroleptic malignant syndrome is a rare reaction that can occur with antipsychotic use. It may present with fever, confusion and muscle rigidity.

Opiate withdrawal may present with anxiety, sweating and gastrointestinal symptoms such as diarrhoea and vomiting.

Tricyclic overdose may present with hypotension, drowsiness and seizures.

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:

Georgia, a 32-year-old pregnant woman, (gravidity 1, parity 0) currently 27+5, presents to her general practitioner (GP) with reflux.

The GP prescribes a new medication for her reflux. On looking at Georgia's records, the GP sees that she is due for a cervical smear test in 2 weeks' time. All her previous smears have been normal. Georgia denies any new discharge, bleeding or pain.

When should Georgia have her next cervical smear test?

A.Today

B.In 2 weeks' time

C.At delivery

D.6 weeks post-partum

E.3 months post-partum

Answer:3 months post-partum

Explanation:

Cervical screening in pregnancy is usually delayed until 3 months post-partum unless missed screening or previous abnormal smears

Important for meLess important

Georgia is currently pregnant. She has not missed screening and all of her previous smears have been normal. As per guidelines, cervical screening for Georgia would be delayed until 3 months post-partum.

She should not have her screening today as she has not missed screening or had abnormal smears previously.

Georgia should not have her screening in 2 weeks' time as she is currently pregnant.

There is no good evidence for a cervical smear test at delivery.

Screening should not take place at 6 weeks post-partum as the recommendation is for 3 months post-partum.

Question:

A 32-year-old woman gives birth to a baby boy at 39 weeks gestation in a ventouse (vacuum-assisted) delivery. Shortly after, she asks one of the doctors to review her baby, concerned about a swelling on his forehead.

On examination, the neonate has a soft, puffy swelling overlying the vertex. It appears to cross suture lines.

Given the most likely diagnosis, which of the following is the best advice to give to the mother?

A.Requires immediate medical intervention

B.Requires immediate surgical intervention

C.Resolves within a few days

D.Resolves within a few months

E.Resolves within a few years

Answer:Resolves within a few days

Explanation:

Caput succedaneum is a puffy swelling that usually occurs over the presenting part and crosses suture lines

Important for meLess important

The diagnosis here, given that the swelling crosses suture lines and occurred following traumatic delivery (ventouse) is caput succedaneum. The most appropriate advice to give the mother is that it resolves within a few days - no intervention is necessary.

Advising the mother that immediate medical intervention is needed would be inappropriate. As explained above, it will resolve within a few days.

Similarly, advising her that surgical intervention is required is also therefore inappropriate.

It should resolve within a few days, rather than a few months. Conversely, cephalohaematoma will take months to resolve. This develops several hours after birth and does not cross suture lines.

Resolving within a few years is thus not accurate advice.

Question:

A 34-year-old woman attends her GP complaining of persistent generalised headaches for several months. More recently she has noticed changes to her vision when she strains on the toilet.

While she has no other medical history she does drink heavily, averaging 25 to 30 units a week, and is a smoker. Notably, she drinks up to 8 cups of coffee a day. She is also obese, with a body mass index of 32 kg/m2.

On examination, the GP finds evidence of mild papilloedema on fundoscopy and intact visual fields, with the remainder of the cranial nerve examination normal. A subsequent lumbar puncture is normal with the exception of a high opening pressure.

Which of the following is the best initial management option for this patient?

A.Reduce caffeine intake

B.Stop smoking

C.Stop drinking alcohol

D.Lose weight

E.Repeated therapeutic lumbar punctures

Answer:Lose weight

Explanation:

Weight loss is an important first step in all obese patients with idiopathic intracranial hypertension

Important for meLess important

This patient has a diagnosis of idiopathic intracranial hypertension, as evidenced by the typical history of headaches, visual disturbance and papilloedema, as well as the high opening pressure on lumbar puncture.

This patient's high BMI is her single biggest modifiable risk factor, and as such would be the most appropriate initial management option in the treatment of her condition. Ideally patients should maintain a 5-10% reduction in body weight. Any other potential causal factors should be addressed as well.

Medical or surgical interventions are generally indicated when there is evidence of loss of vision.

High caffeine intake is thought to increase cerebrospinal fluid volume, and has been shown to reduce the intensity and duration of post-lumbar puncture headaches. While a high caffeine intake may not help this patient's symptoms, it is not the main factor behind her condition.

Question:

A 57-year-old man who is of black African origin is seen by his GP to review his home blood pressure monitoring diary. This shows an average blood pressure of 140/90mmHg. His clinic reading today is 145/92mmHg.

The patient has a past medical history of type two diabetes mellitus (T2DM) for which he takes metformin. He takes no other medications and has no allergies.

What is the most appropriate management of his blood pressure?

A.Prescribe amlodipine

B.Prescribe bendroflumethiazide

C.Prescribe doxazosin

D.Prescribe losartan

E.Reassure and repeat monitoring in 6 months

Answer:Prescribe losartan

Explanation:

An angiotensin II receptor blocker should be used first-line for black TD2M patients who are diagnosed with hypertension

Important for meLess important

Losartan is correct. This is because angiotensin-II receptor blockers (ARBs) are first-line in black African or African-Caribbean patients with diabetes who require an antihypertensive. Usually, either an angiotensinogen-converting enzyme (ACE) inhibitor or ARB are recommended for patients with diabetes regardless of age, as they are renoprotective as well as anti-hypertensive. However, for black African or African-Caribbean patients, an ARB should be offered over an ACE inhibitor as ACE inhibitors are less effective at reducing blood pressure in these populations.

Prescribe amlodipine is incorrect. Whilst this would usually be the first-line antihypertensive for this patient (both as he is black African and over 55), amlodipine is not the first-line antihypertensive in patients with T2DM.

Prescribe bendroflumethiazide is incorrect. Thiazide-like diuretics are not used unless a patient's blood pressure remains uncontrolled on both an ACE inhibitor or ARB and a calcium-channel blocker.

Prescribe doxazosin is incorrect. Alpha-blockers are not used in the management of hypertension unless a patient's blood pressure is not controlled with an ACE inhibitor or ARB, a calcium channel blocker and a thiazide-like diuretic.

Reassure and repeat monitoring in 6 months is incorrect. Patients with T2DM who are under 80 years of age should be started on an antihypertensive if they have a clinic blood pressure of 140/90mmHg or more and average home blood pressure monitoring of 135/85mmHg or more. This is the case for this patient.

Question:

A 64-year-old women attends oncology clinic following a diagnosis of oestrogen receptor (ER) positive breast cancer. Her consultant decides to commence treatment with anastrozole, an aromatase inhibitor.

Of the following, which is a potential complication associated with this treatment?

A.Endometrial cancer

B.Hypercalcaemia

C.Ischaemic heart disease

D.Osteoporosis

E.Venous thromboembolism

Answer:Osteoporosis

Explanation:

Aromatase inhibitors (e.g. anastrozole) may cause osteoporosis

Important for meLess important

In the management of oestrogen receptor (ER) positive breast cancer, two classes of oral anti-oestrogen drugs are predominantly used.

Aromatase inhibitors (AIs) such as anastrozole and letrozole reduce peripheral oestrogen synthesis. This accounts for the majority of oestrogen synthesis in post-menopausal women, and therefore aromatase inhibitors are used in this group.

The major adverse effect of aromatase inhibitors is osteoporosis. In postmenopausal women, aromatase inhibitors increase bone loss at a rate of 1- 3%/year. Bone mineral density should be checked both prior to commencing and throughout treatment.

AIs are not associated with any of the other side effects listed.

The other class of anti-oestrogen medications is Selective oEstrogen Receptor Modulators (SERM), such as tamoxifen. This is used to treat both pre- and post-menopausal women with ER positive breast cancer.

Adverse effects include venous thromboembolism, endometrial cancer, cerebral ischaemia and hypertriglyceridaemia.

Question:

A 23 month old boy presents to your GP practice with what you suspect is a viral URTI. During the consultation you become concerned about his development. Which of the following would make you most concerned?

A.Unable to say 6 individual words with meaning

B.Not toilet trained

C.Unable to stand on one leg

D.Started to walk independently at 17 months

E.Plays alone

Answer:Unable to say 6 individual words with meaning

Explanation:

Answer 1 - Correct. By 23-24 months most children would have a vocabulary of between 20-50 words and will be able to join 2 words with meaning.

Answer 2 - Most children become toilet trained at or after 3 years of age.

Answer 3 - Most children are able to briefly stand on one leg at 3 years of age, and hop by age 4.

Answer 4 - The limit age for walking is 18 months. Most children will be able to walk before 17 months, but this is not an immediate cause of concern.

Answer 5 - At 23 months it is very common for children to play alone.

Question:

A 72-year-old man is brought to the Emergency Department after falling at his nursing home. On arrival he complains of pain in the left hip. An x-ray is obtained:

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What is the diagnosis?

A.Left subcapital fracture

B.Left intertrochanteric fracture

C.Left hip displacement

D.Normal left hip with minor degenerative changes

E.Severe osteoarthritis in the left hip

Answer:Left subcapital fracture

Explanation:

Question:

A 56-year-old lady and her husband present to you in hospital. The husband describes how he is growing increasingly concerned as his wife seems to be becoming more and more forgetful. She has lost her keys a number times and often forgets where she has been during the day and what activities she has been doing. She also agrees that she has been more forgetful recently and is worried she is developing dementia, since her grandmother also suffered from it. She is a diabetic who also suffers from hypertension and agitated depression. She has recently been taking medication for a urinary tract infection also. A list of her medication is shown below. Which of the following medications is most likely to be causing her memory problems?

A.Metformin

B.Gliclazide

C.Nitrofurantoin

D.Lorazepam

E.Citalopram

Answer:Lorazepam

Explanation:

Lorazepam belongs to the benzodiazepine class of drugs. One of the side effects of this drug is that this can cause anterograde amnesia. Where memory recall and the creation of new memories is significantly impaired. Lorazepam is also used in anaesthesia. Citalopram is an SSRI which causes some side effects such as tiredness and sleepiness but not amnesia. Ramipril is an ACE inhibitor which has an important side effect of a dry cough. The side effect most commonly associated with nitrofurantoin is haemolytic anaemia.

Question:

An 82-year-old woman sees her GP due to increased pain in her right knee, which has been ongoing for the past 7 months. The pain is worse with during the day and settles at night or when she is at rest. It takes around 20 minutes in the morning for her to get out of bed due to increased stiffness.

She has not noticed any problems in her other joints as of yet, and has never had problems with her joints in the past. The only medication she takes is amlodipine for hypertension which is well controlled and has no known drug allergies.

What is the most appropriate initial management?

A.Methotrexate

B.Oral bisphosphonate

C.Oral morphine

D.Paracetamol and oral NSAIDS

E.Paracetamol and topical NSAIDS

Answer:Paracetamol and topical NSAIDS

Explanation:

Osteoarthritis - paracetamol + topical NSAIDs (if knee/hand) first-line

Important for meLess important

This woman most likely has osteoarthritis of her right knee. Duration of morning symptoms is usually less than 30 minutes in patients with osteoarthritis. Paracetamol and topical NSAIDs are the first line pharmacological management of patients with knee or hip arthritis.

Methotrexate is usually used in the management of rheumatoid arthritis.

Oral bisphosphonates should be considered in patients with osteoporosis. Not first line treatment option for patients with osteoarthritis.

As per the analgesia ladder patients should be started on simple analgesia initially and titrated upwards if needed.

Topical NSAIDS are preferred over oral NSAIDS in those with hip or knee osteoarthritis.

Question:

A 79-year-old woman presents to the emergency department with a new left-sided weakness. She has a history of atrial fibrillation and takes warfarin. Her INR on admission is 2.5. A CT head shows left basal ganglia intracerebral haemorrhage.

What action is required with regards to her warfarin?

A.Stop the warfarin

B.Stop the warfarin and give 5mg of vitamin K orally

C.Stop the warfarin and give 5mg of vitamin K intravenously

D.Stop the warfarin, give 5mg of vitamin K intravenously and give prothrombin complex concentrate intravenously

E.Stop the warfarin, give 5mg of vitamin K intravenously and give fresh frozen plasma

Answer:Stop the warfarin, give 5mg of vitamin K intravenously and give prothrombin complex concentrate intravenously

Explanation:

Major bleeding - stop warfarin, give intravenous vitamin K 5mg, prothrombin complex concentrate

Important for meLess important

An intracranial haemorrhage is considered a major bleeding scenario, so according to the British National Formulary (BNF) the warfarin must be discontinued, vitamin K 5mg should be given intravenously and the patient should be given prothrombin complex concentrate (PCC).

PCC is a solution containing coagulation factors II, VII, IX and X and is designed to reverse warfarin.

PCC is recommended for warfarin reversal over fresh frozen plasma (FFP)

Question:

A 12-year-old male is admitted to the paediatric ward for further investigation of recurrent episodes of arthralgia, affecting multiple sites. Two months ago, he presented to his GP with vomiting, diarrhoea and fever for which he received supportive treatment. He is also experiencing balanitis without discharge. There is no change in the patient's vision. Physical examination revealed swelling and tenderness of the left ankle joint and, tenderness on motion and pain over the bilateral wrist and left sacroiliac joints. Blood tests revealed a raised white cell count and a raised ESR.

What is the most likely diagnosis?

A.Behcet's disease

B.Reactive arthritis

C.Systemic juvenile idiopathic arthritis

D.Systemic lupus erythematous

E.Typhoid fever

Answer:Reactive arthritis

Explanation:

Reactive arthritis is not typically acute - it can develop up to 4 weeks after precipitating infection and can run a relapsing-remitting course over several months

Important for meLess important

The likely diagnosis, in this case, is reactive arthritis. Reactive arthritis is a sterile arthritis triggered by distant gastrointestinal or urogenital infections. This usually presents with the triad of polyarticular arthralgia, urethritis and uveitis. Most cases occur in people who are positive for the HLA-B27 gene. The most common precipitating infections are those caused by Salmonella , Shigella , Yersinia , and Campylobacter organisms.

Bechet's disease may present with the classic triad of oral ulcers, genital ulcers and uveitis. As there is no mention of ulcers and the patient has no visual symptoms, Bechet's disease is unlikely to be the diagnosis.

Systemic juvenile idiopathic arthritis usually has a more gradual onset, with morning stiffness and spiking fevers. There may also be a history of school absences or avoidance of physical activities. A flat, pale pink rash may appear.

Systemic lupus erythematosus (SLE) is an autoimmune disorder, usually following a relapsing-remitting course. It most frequently occurs in women of childbearing age. There are many potential signs and symptoms of SLE, however, a classic triad of fever, joint pain and a rash in a woman of childbearing age should prompt further investigation.

Typhoid fever, also known as enteric fever, usually presents with fever, malaise, diffuse abdominal pain, and constipation. It is unlikely that typhoid fever would present with arthralgia two weeks after the initial gastrointestinal symptoms.

Question:

A 79-year-old woman complains of pain in her hands. An x-ray is ordered:

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Based on the x-ray findings, what is the most likely diagnosis?

A.Gout

B.Primary hyperparathyroidism

C.Rheumatoid arthritis

D.Osteoarthritis

E.Paget's disease

Answer:Osteoarthritis

Explanation:

The distribution of joint problems (mainly distal interphalangeal joints and carpometacarpal joints) and changes seen (loss of joint space, subchondral sclerosis) points to a diagnosis of osteoarthritis.

Question:

An 8-year-old male is attending an appointment at the neurology clinic accompanied by his parents. He has been referred by his general practitioner after the teacher at school noticed that he was smacking his lips in class. When they prompted him to stop, he found that he could not talk. These episodes have been increasing in frequency in the last month. He seems to not be aware of what is going on and does not remember the episodes. The child is otherwise well and the parents deny any other symptoms.

Given the likely diagnosis, which part of the brain is most likely involved?

A.Brainstem

B.Frontal lobe

C.Occipital lobe

D.Parietal lobe

E.Temporal lobe

Answer:Temporal lobe

Explanation:

Lip smacking + post-ictal dysphasia are localising features of a temporal lobe seizure

Important for meLess important

The correct answer is the temporal lobe. This patient is presenting with focal impaired awareness seizures. This type of seizure starts in a specific area, on one side of the brain and lack awareness of the seizure. The symptoms of a focal seizure depend on which zone it originates from. Automatism such as lip-smacking and post-ictal dysphasia (the child could not talk) are classical features of temporal lobe seizures.

Brainstem seizures are extremely rare and poorly diagnosed. The specific features are not well understood but they seem to be connected with vomiting and central apnoea. This patient had none of these features.

Frontal lobe seizures usually present with head or leg movements, posturing, post-ictal weakness and Jacksonian march. A jacksonian march only occurs on one side of the body and it progresses in a predictable pattern from twitching or a tingling sensation or weakness in a finger, a big toe or the corner of the mouth, then marches over a few seconds to the entire hand, foot or facial muscles. In this case, the patient has automatism and post-ictal dysphasia, making the diagnosis unlikely.

Occipital lobe seizures are associated with floaters or flashes, given that the main duty of the occipital lobe is vision. This patient does not report any visual disturbance.

Parietal lobe seizures are mainly sensory, usually described as paraesthesia. This patient did not complain of sensory alteration but of automatisms and dysphasia.

Question:

A 28-year-old pregnant woman is in the labour ward and ready to deliver her second child. Her pregnancy has been uncomplicated so far. However, her first child had to stay in neonatal intensive care shortly after birth due to an infection but is now healthy. Recent vaginal swabs show the presence of Streptococcus agalactiae. She is otherwise well and has no other medical conditions.

What is the most appropriate step in management?

A.IV benzylpenicillin to the neonate

B.Intrapartum IV benzathine benzylpenicillin

C.Intrapartum IV benzylpenicillin

D.Intrapartum oral benzylpenicillin

E.No treatment as this strain does not cause neonatal sepsis

Answer:Intrapartum IV benzylpenicillin

Explanation:

Benzylpenicillin is the antibiotic of choice for GBS prophylaxis

Important for meLess important

Intrapartum IV benzylpenicillin is correct. Streptococcus agalactiae is the same as group B streptococcus (GBS) and it is important to be able to recognise this, as it may come up in exams. The Royal College of Obstetricians and Gynaecologists' guidelines state that mothers who have had a previous pregnancy complicated by neonatal sepsis should be given benzylpenicillin antibiotic prophylaxis. This is given to the mother intravenously during delivery.

IV benzylpenicillin to the neonate is incorrect. The antibiotic prophylaxis should be given to the mother during birth, not to the neonate after birth unless the neonate shows signs and symptoms of sepsis.

Intrapartum IV benzathine benzylpenicillin is incorrect. This antibiotic does not play a role in the prophylaxis of GBS and is used in the management of syphilis.

No treatment as this strain does not cause neonatal sepsis is incorrect.Streptococcus agalactiae is the same as group B streptococcus (GBS) and can cause neonatal sepsis.

Intrapartum oral benzylpenicillin is incorrect. The guidelines state to give IV intrapartum antibiotics. This would not be effective.

Question:

A 37-year-old man presents to the endocrinology clinic after being referred by his general practitioner. He has been suffering from intense headaches, palpitations, and sweating. Today, his heart rate is 93/min, respiratory rate 17/min, blood pressure 162/101 mmHg, and temperature 36.8 ºC. The doctor performs a 24-hours urinary collection of metanephrines:

Urine Metanephrine 3.6 µmol/24hr (<1.3 µmol/24hr)

The patient is booked for surgery.

What medication should be first prescribed to this patient while awaiting his procedure?

A.Amlodipine

B.Carvedilol

C.Phenoxybenzamine

D.Propranolol

E.Ramipril

Answer:Phenoxybenzamine

Explanation:

Phaeochromocytoma - although surgery is definitive management, patients must be medically managed before surgery using alpha blocker then beta blocker

Important for meLess important

The correct answer is phenoxybenzamine, an alpha-receptor blocker. This patient is presenting with the classical features of a phaeochromocytoma. He has headaches, palpitations, sweating, and sustained hypertension (162/101 mmHg). Additionally, the confirmatory test, 24 hours urinary collection of metanephrines is positive.

The definitive management for this condition is surgery, for which this patient has been booked in, but alpha-blockers can be prescribed while awaiting surgery to control the symptoms. If they are not enough, then beta-blockers should be subsequently prescribed. This is due to the fact that in the absence of beta-mediated vasodilation, profound unopposed alpha-mediated vasoconstriction may lead to hypertensive crisis or pulmonary oedema. Hence, the combination should be reserved for unresponsive cases.

Amlodipine is a calcium channel blocker that is used to manage hypertension but has no role in the symptomatic treatment of phaeochromocytoma.

Carvedilol is a beta-blocker and should not be used as first-line symptomatic management. Alpha-blockers are used as first-line instead, as manipulation of the tumor during surgery causes catecholamine release. The alpha blockade prevents these catecholamines from having an effect. Without alpha blockade, life-threatening hypertension can occur during surgery.

Propranolol is a beta-blocker and should not be used as first-line symptomatic management. Alpha-blockers are used as first-line instead, as manipulation of the tumor during surgery causes catecholamine release.

Ramipril is an angiotensin-converting enzyme inhibitor medication, which is used to manage hypertension but has no role in the symptomatic treatment of phaeochromocytoma.

Question:

A 42-year-old man with a history alcohol abuse comes to your practice to discuss his recent diagnosis of chronic pancreatitis. You explain to him that this diagnosis puts him at higher risk of developing diabetes mellitus.

What testing should you offer this patient in regards to this risk?

A.Annual fasting glucose levels

B.Annual HbA1c

C.One-off fasting glucose levels

D.One-off HbA1c

E.Ultrasound of pancreas

Answer:Annual HbA1c

Explanation:

Diabetes mellitus usually develops many years following the start of symptoms of chronic pancreatitis

Important for meLess important

Patients with chronic pancreatitis are at very high risk of developing type 3c diabetes mellitus otherwise known as pancreatogenic diabetes. Type 3c diabetes is caused by chronic pancreatitis in roughly 80% of cases and is more complex to manage than type 1 or 2 diabetes mellitus due to the concomitant exocrine insufficiency resulting in malabsorption and malnutrition.

Diabetes mellitus may take years to develop following pancreatitis onset and so the monitoring needs to be continued lifelong. This needs to be monitored long-term using annual HbA1c measurements. An ultrasound of the pancreas will not give any indication of whether he has developed diabetes

It is also important that the patient is counselled regarding his alcohol misuse as this may lead to a worsening of his pancreatitis.

Question:

A 62-year-old man is reviewed by his GP following some increasing shortness of breath. He has had some difficulty breathing for 3 days, associated with a cough productive of yellow sputum, lethargy, and a mild fever.

He has no past medical history of note and no allergies.

On examination, he is alert and orientated, he has a respiratory rate of 19 breaths per minute, a heart rate of 82 beats per minute, oxygen saturations of 96%, and a blood pressure of 105/75 mmHg, and a temperature of 37.8ºC. Auscultation of his chest reveals bibasal crackles.

What is the most appropriate management of this patient?

A.Advise to attend the emergency department

B.Arrange chest X-ray and re-review tomorrow

C.Delayed prescription of phenoxymethylpenicillin

D.Home with oral amoxicillin

E.Home with safety netting advice

Answer:Home with oral amoxicillin

Explanation:

Patients presenting to primary care who have pneumonia can usually be managed in the community with oral antibiotics if their CRB-65 score is 0

Important for meLess important

Home with oral amoxicillin is correct. This man likely has community-acquired pneumonia. He is not confused, has a respiratory rate of <30 breaths per minute and has normal blood pressure (>90/60 mmHg). Therefore, his CRB-65 score is 0. Additionally, the yellow sputum and fever point toward there being a bacterial cause. Patients with mild pneumonia can be treated in the community with oral antibiotics - amoxicillin is generally the first line for community-acquired pneumonia.

Advising to attend the emergency department is incorrect. This man is not significantly unwell with his pneumonia and therefore advising him to attend the emergency department at this time is not necessary. It would be an important component of safety netting advice, however.

Arrange chest x-ray and re-review tomorrow is incorrect. A chest x-ray is useful to confirm the resolution of pneumonia 6 weeks after the illness. However, it is not needed to diagnose a chest infection given the clinical signs and history this man has presented with.

Delayed prescription of phenoxymethylpenicillin is incorrect. Delayed prescriptions of antibiotics are not useful in the treatment of pneumonia. Additionally, phenoxymethylpenicillin (penicillin V) is normally used for throat infections, not pneumonia.

Home with safety netting advice is incorrect. This man has significant symptoms pointing toward pneumonia, and therefore antibiotics are indicated.

Question:

A 57-year-old woman presents to your GP practice for the 4th time in the last two months. She complains of bloating, mild abdominal pain and a loss of appetite. You have previously referred her for colonoscopy which showed no malignancy. Despite this, she remains very anxious about cancer as her mother, grandmother and sister have all had breast cancer. Which marker would be most appropriate?

A.CA 19-9

B.Alpha-fetoprotein (AFP)

C.HER2

D.CA 125

E.Carcinoembryonic antigen (CEA)

Answer:CA 125

Explanation:

Suspect ovarian cancer in any older female with new onset of nonspecific abdominal pain or bloating. Her strong family history of breast cancer indicates possible BRCA genes involved in breast and ovarian cancer.

CA 125 Ovarian cancer

CA 19-9 Pancreatic cancer

CEA Bowel cancer

AFP Liver cancer and germ cell tumours (e.g. testicular)

HER2 Breast cancer receptor

Question:

A 56 year old female was treated in hospital for a community acquired pneumonia (CAP) 3 weeks ago. She attends as she is still troubled by a cough. This is dry and no longer productive. She has some mild shortness of breath but no chest pain, haemoptysis, weight loss or fevers. She is a non-smoker. On examination her temperature is 36.8C, respiratory rate is 12 breaths per minute, heart rate is 78 beats per minute, oxygen saturations are 98% and her blood pressure is 130/84 mmHg. Examination of her chest is normal. What is the most appropriate action?

A.Prescribe a further course of oral antibiotics

B.Arrange a further hospital admission

C.Referral to respiratory clinic

D.Arrange a repeat chest x-ray now

E.Reassure the patient that no further action is required at this time but a repeat x-ray 6 weeks following the initial pneumonia is advised

Answer:Reassure the patient that no further action is required at this time but a repeat x-ray 6 weeks following the initial pneumonia is advised

Explanation:

NICE have provided guidance on what advice patients should be given in terms of response to treatment and recovery, by:

week 1: fever should resolve

week 4: chest pain and sputum should have significantly reduced

week 6: cough and shortness of breath should have significantly reduced

month 3: most symptoms should have resolved, except for tiredness

month 6: should be returned to normal

A repeat chest x-ray may be indicated to ensure resolution and that there is no underlying pathology, but radiological changes can take up to 6 weeks to improve.

Question:

A 58-year-old woman presents to her GP with abdominal cramps and loose stools. She was commenced on metformin for a newly diagnosed type II diabetes mellitus 10 days ago after which these symptoms started. There is no vomiting, and she feels generally well. Observations show a temperature of 37.2ºC, blood pressure of 128/84mmHg, and heart rate of 88bpm.

What is the most appropriate next step?

A.Add on loperamide

B.Reassurance as the symptoms will settle

C.Switch metformin to dapagliflozin

D.Switch metformin to glimepiride

E.Switch to modified release metformin

Answer:Switch to 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

Switch to modified release metformin is correct. Metformin is the first-line agent in managing type II diabetes mellitus. GI side effects are common and include abdominal cramps, diarrhoea, and taste changes. This woman has developed GI side effects and switching to modified-release metformin is likely to resolve the issue as GI side effects are much less frequent. Modified-release metformin spread the absorption of metformin along the gut and reduces local concentrations of the medication which improves its tolerability.

Reassurance as the symptoms will settle is incorrect. Although symptoms might settle with time, it is recommended that patients who develop intolerance due to GI side effects are switched to a modified release type. Continuing the same form might lead to incompliance and poor diabetes control.

Switch metformin to dapagliflozin is incorrect. Dapagliflozin is an SGLT2 inhibitor that is recommended for diabetic patients who have a history or high risk of developing CVD; this woman does not have CVD or heart failure, and dapagliflozin is not indicated.

Switch metformin to glimepiride is incorrect. Glimepiride is a sulfonylurea that could be used if modified-release metformin was not tolerated or unsuccessful in controlling blood sugar levels. This woman is yet to try modified-release metformin which makes switching to glimepiride premature.

Question:

A 19-year-old female who has just started work as a cleaner presents with a rash on her hands. On examination there is a generalised erythematous rash on the dorsum of both hands. There is no evidence of scaling or vesicles. What is the most likely diagnosis?

A.Tinea manuum

B.Irritant contact dermatitis

C.Allergic contact dermatitis

D.Ichthyosis vulgaris

E.Pustular psoriasis

Answer:Irritant contact dermatitis

Explanation:

The strong alkalis and acids found in cleaning solutions are common triggers of irritant contact dermatitis

Question:

Jennifer is a 34-year-old woman presenting with pelvic pains. Her pelvic pain is excruciating and is not responding to paracetamol. The pain began 4 months ago and her pain starts approximately 4 days prior to her the start of menstruation. Her pain gets worse as she approaches the start of menstruation and gradually improves once her menstruation stops. She also notes that she is changing her menstrual pads every 4 hours.

She began her menstruating at the age of 15 years and her cycles tend to be fairly regular. On her previous cycles, she only had mild pains that settled down with paracetamol. Her cycles had not been heavy. She is sexually active but she uses a condom during sexual intercourse.

Pelvic examination is unremarkable with no abnormalities seen on speculum examination. Her abdomen examination was unremarkable.

What would be the most appropriate step in her management?

A.Prescribe mefenamic acid and review in 2 weeks

B.Refer for abdominal ultrasound

C.Continue paracetamol and review in 2 weeks

D.Prescribe ibuprofen and refer to gynaecology for further investigation

E.Consent and insert a intrauterine progesterone system and review in 4 weeks

Answer:Prescribe ibuprofen and refer to gynaecology for further investigation

Explanation:

All patients with secondary dysmenorrhoea need to be referred to gynaecology for investigation

Important for meLess important

Dysmenorrhoea is a common condition that is characterized by painful cramping in the lower abdomen shortly before or after menstruation. This can be divided into primary and secondary dysmenorrhoea. Given the time from menarche to the onset of dysmenorrhoea along with new menorrhagia as well, this likely indicates a secondary dysmenorrhoea and warrants further investigation. A referral to gynaecology, in this case, will be appropriate as this will warrant further investigation.

Mefenamic acid would be the appropriate management to help control the pain experienced by the patient but it would not be appropriate to simply review her back in 2 weeks time without organizing further referrals or investigations.

Insertion of the intrauterine progesterone system would also be appropriate in the management of primary dysmenorrhoea and could be suitable in secondary dysmenorrhoea depending on the pathology. However, this should not be done in isolation and further referrals and investigations should be organized.

Continuing paracetamol would not be sufficient as we have been told that this is not controlling her pain. Additional analgesia should be considered at present.

An abdominal ultrasound would be incorrect as a typical abdominal ultrasound will not provide adequate imaging of the pelvic organs. Normally, a transabdominal pelvic ultrasound or transvaginal pelvic ultrasound will be performed and this will allow views of the uterus, ovaries, Fallopian tubes, cervix and vagina to be obtained.

Question:

Which one of the following statements regarding digoxin is correct?

A.Toxicity can occur in patients with digoxin levels in the therapeutic range

B.Hyponatraemia predisposes to digoxin toxicity

C.Haemodialysis is the treatment of choice for digoxin toxicity

D.It has a short half-life

E.It has negative inotropic properties

Answer:Toxicity can occur in patients with digoxin levels in the therapeutic range

Explanation:

Question:

A 72-year-old woman is brought to the emergency department following a fall. She fell from standing height and is experiencing pain in her left leg. A pelvic X-Ray demonstrates a left intertrochanteric femoral fracture. There are no fractures present on the right. She has a past medical history of osteoporosis and osteoarthritis but generally considers herself to be fit and enjoys spending time in her garden.

Which of the following is the most appropriate management?

A.Conservative management

B.Dynamic hip screw (DHS)

C.Hemiarthroplasty

D.Intramedullary nail

E.Total hip replacement

Answer:Dynamic hip screw (DHS)

Explanation:

Dynamic hip screws are the preferred surgical management for intertrochanteric (extracapsular) proximal femoral fracture

Important for meLess important

The correct answer is 'dynamic hip screw (DHS)'.

This patient has sustained an intertrochanteric fracture of her left femur. This is classed as an extracapsular fracture and so the preferred surgical management would be fixation with a DHS.

Conservative management is incorrect. This patient reports a good baseline and does not have any significant medical history that would be a contraindication for operative management.

Hemiarthroplasty would be the management for an intracapsular neck of femur fracture in unfit patients.

An intramedullary nail would be the surgical management for patients presenting with a subtrochanteric femoral fracture.

Total hip replacement would be the management for fit patients presenting with an intracapsular neck of femur fracture.

Question:

A 26-year-old woman is seen in the maternity unit at 12 weeks gestation regarding antenatal testing for Down's syndrome and undergoes a screening test.

The results of her screening are as follows:

b-hCG increased

PAPP-A decreased

Ultrasound thickened nuchal translucency

Chance 1/80

She states 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 in her management?

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:

Results of combined or quadruple tests for chromosomal conditions are reported as 'lower chance' or 'higher chance', using a cut-off of 1 in 150 to differentiate

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 80, meaning the chance of Down's syndrome being present is higher (1 person out of 80 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 in this case. 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.

Arrange quadruple test is incorrect in this case. 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 in this case. Although she is placed in a higher-risk category, it would be more appropriate to offer further testing to confirm the diagnosis of Down's syndrome. 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 in this case 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 80, meaning 1 person out of 80 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 in this case. 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 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 38-year-old man is brought into the emergency department by ambulance following a 'funny turn'. He is confused and unable to give a coherent history, but his wife reports being awoken by him 'shaking around' in bed.

She reports that her husband is otherwise well, except for the fact he has been complaining of headaches for the last four days, and earlier today he mentioned that his left hand felt weak.

His observations are BP 125/83mmHg, heart rate 84/min, temperature 39.2ºC, oxygen saturation 99% on room air and respiratory rate 20/min. Blood glucose is 5.2mmol/L and ECG is normal.

What is the most likely diagnosis?

A.Brain abscess

B.Epilepsy

C.Hypoglycaemia

D.Meningitis

E.Stroke

Answer:Brain abscess

Explanation:

Headache, fever and focal neurology and suggestive of a brain abscess

Important for meLess important

The correct answer is brain abscess . The classic triad of symptoms - fever, headache and a focal neurological deficit in the form of arm weakness - are present, which suggests this diagnosis. Another feature which suggests the diagnosis of a brain abscess is the patient having a seizure.

In reality, brain abscesses are often a lot more difficult to diagnose, and the classic triad is present in less than half of patients. The paper referenced in the previous sentence gives a good overview of brain abscesses.

Epilepsy is less likely to be the correct option in this instance due to the presence of arm weakness and particularly due to the patient's fever. Headaches are not a feature of epilepsy, but there can be many reasons for patients having one - not every patient will have a brain abscess. The lack of a seizure history also points us away from epilepsy.

Hypoglycaemia is not the correct answer given that this patient's blood glucose is 5.2mmol/L, within the normal range. Hypoglycaemia can, however, cause seizures. Hypoglycaemia is rare outside of patients with type 1 or insulin-controlled type 2 diabetes.

Meningitis is probably the key differential here. This is an infection of the meningeal layers surrounding the brain and is less likely to cause focal neurological abnormalities than an abscess is. Neurological abnormalities are still a feature of meningitis, but tend to take the form of reduced conscious level or confusion. Fever and headache are both symptoms of meningitis.

Stroke is another possible diagnosis. Certainly, seizures can occur post-stroke and are most common in the first few days; and focal neurological abnormalities are a common presenting feature of stroke. The patient's age and presence of a fever, however, point away from this option.

Question:

A 57-year-old woman presents to her general practitioner complaining of nagging lower back pain. The intensity is 4/10, and it gets worse after movement and when sitting. She has tried to keep active and do light stretching but this hasn't helped.

Examination findings include:

Right Left

Hip flexion 3/5 5/5

Hip extension 5/5 5/5

Hip adduction 2/5 5/5

Hip abduction 5/5 5/5

Knee flexion 5/5 5/5

Knee extension 2/5 5/5

Dorsiflexion 5/5 5/5

Plantarflexion 5/5 5/5

There is a loss of sensation over the anterior thigh and reduced patellar reflex.

What nerve root is most likely affected?

A.L3

B.L4

C.L5

D.S1

E.S2

Answer:L3

Explanation:

L3 nerve root compression: sensory loss over anterior thigh, weak hip flexion, knee extension and hip adduction, reduced knee reflex

Important for meLess important

The correct answer is L3. The patient is presenting with lower back pain associated with sensory loss over the anterior thigh, weak hip flexion, knee extension and hip adduction, and reduced patellar reflex. These are all features of the compression of the L3 nerve root. 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.

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. Hence, this is the incorrect answer as the patient has a different sensory loss and has hip flexion in addition to these.

L5 is an incorrect option. Compression of this root would cause loss of foot dorsiflexion and sensory loss dorsum of the foot. The sensory loss follows the dermatome distribution of the nerve root L5. This is caused by the fact that 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.

S1 is an incorrect option. Compression of 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. 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, hence would be impaired. The sensory loss follows the dermatome distribution of the nerve root S1, which is the lateral aspect of the foot, the heel and most of the sole. A sciatic test would be positive. This patient's features are more proximal making the 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:

You are asked to attend a preterm delivery. The neonate is born at 36 weeks gestation via emergency Caesarean section. The neonate has difficulty initiating breathing and requires resuscitation. They are dyspnoeic and tachypnoeic at a rate of 85 breaths/min. On auscultation of the chest, there is reduced breath sounds bilaterally. Heart sounds are displaced medially. The abdominal wall appears concave. What is the most likely diagnosis?

A.Bronchopulmonary dysplasia

B.Transient tachypnoea of the newborn

C.Congenital diaphragmatic hernia

D.Tetralogy of Fallot

E.Ventricular septal defect

Answer:Congenital diaphragmatic hernia

Explanation:

Congenital diaphragmatic hernia presents with scaphoid abdomen, due to herniation of the abdominal contents into the cleft

Important for meLess important

Congenital diaphragmatic hernia can present with dyspnoea and tachypnoea at birth. The auscultation findings are due to pulmonary hypoplasia and compression of the lung due to the presence of abdominal contents in the thoracic cavity. Prompt treatment and respiratory support are required.

This classical concave abdominal appearance would not be present in any of the other conditions listed.

Question:

A 45-year-old female complains of lower back pain, constipation, headaches, low mood, and difficulty concentrating.

Her presentation is likely due to which of the following medications?

A.Clozapine

B.Quetiapine

C.Olanzapine

D.Imipramine

E.Lithium

Answer:Lithium

Explanation:

Long-term lithium use can result in hyperparathyroidism and resultant hypercalcaemia

Important for meLess important

The signs and symptoms presented in this scenario are indicative of hypercalcaemia. Remember the mnemonic: 'stones, bones, abdominal moans, and psychic groans'.

Long-term lithium use can result in hyperparathyroidism and resultant hypercalcaemia. This is postulated to occur by altering the homeostatic regulation of calcium, leading to parathyroid hyperplasia. A urea and electrolyte panel (U&Es), alongside parathyroid hormone levels (PTH), are useful investigations to establish the diagnosis.

The other psychotropic options are not associated with the development of hyperparathyroidism and consequent hypercalcaemia.

Question:

The chest x-ray below is from a 67-year-old woman with a history of rheumatoid arthritis. She has taken immunosuppressants for a number of years:

© Image used on license from Radiopaedia

What does the x-ray show?

A.Lung abscess

B.Emphysema

C.Breast cancer

D.Bronchiolitis obliterans

E.Lymphoma

Answer:Lung abscess

Explanation:

The x-ray shows a large abscess in the left lung with a small dependent air-fluid level.

Question:

A 65-year-old man who is prescribed metformin and gliclazide for type 2 diabetes mellitus has a HbA1c of 60 mmol/mol in a recent check-up. He has a history of bladder transitional cell carcinoma and is being treated for a foot ulcer.

What is the most appropriate management of this patient?

A.Add acarbose

B.Add canagliflozin

C.Add pioglitazone

D.Add sitagliptin

E.Continue current regimen

Answer:Add sitagliptin

Explanation:

TD2M already on 2 drugs - if HbA1c > 58 mmol/mol then one of the following should be offered:

metformin + DPP-4 inhibitor + sulfonylurea

metformin + pioglitazone + sulfonylurea

metformin + (pioglitazone or sulfonylurea or DPP-4 inhibitor) + SGLT-2 if certain NICE criteria are met

insulin-based treatment

Important for meLess important

As this patient has an HbA1c over 58 mmol/mol on two medications he requires triple therapy. The most suitable additional medication suggested in NICE guidance would be a gliptin such as sitagliptin as his medical history would contraindicate other options.

Acarbose is an inhibitor of intestinal alpha glucosidases which delays the digestion of starch and sucrose. It does not appear in NICE guidance due to significant gastrointestinal side-effects this medication causes.

Canagliflozin inhibits sodium-glucose co-transporter 2 in the renal proximal convoluted tubule to reduce glucose reabsorption and increase urinary glucose excretion. It is contraindicated in active foot disease such as skin ulceration with a possible increased risk of toe amputation.

Pioglitazone is a thiazolidinedione that reduces peripheral insulin resistance and is contraindicated in patients with active or previous bladder cancer.

Question:

A 49-year-old man is started on haloperidol, a first-generation antipsychotic, for an acute psychotic episode. He was previously taking olanzapine, a second-generation antipsychotic, but stopped this due to adverse effects.

What adverse effect is he more likely to experience taking this new medication compared to olanzapine?

A.Diabetes mellitus

B.Dyslipidaemia

C.Osteoporosis

D.Torticollis

E.Weight gain

Answer:Torticollis

Explanation:

Acute dystonic reactions are an adverse effect of antipsychotic medications

Important for meLess important

Acute dystonic reactions are more common with first-generation (or typical) antipsychotics such as haloperidol. Acute dystonic reactions include torticollis, opisthotonus, dysarthria and oculogyric crises.

Diabetes mellitus is a more common adverse effect of atypical antipsychotics, as these newer medications cause hyperglycaemia.

Dyslipidaemia is more common with atypical antipsychotics.

Osteoporosis is not a common side effect of typical or atypical antipsychotics.

Weight gain is a more common side effect of atypical antipsychotics.

Question:

A 38-year-old woman presents to the emergency department after being found confused by her partner. On direct questioning, she tells you that she has taken an overdose of 56 tablets of 20mg amitriptyline around 12 hours ago.

On examination, she is alert with Glasgow coma scale 15. The abbreviated mental test score is 8/10. Observations are as follows: respiratory rate of 16 breaths per minute, pulse 160 beats per minute, blood pressure 100/60 mmHg, oxygen sats 98% on air and temperature 37.8 ºC. Examination reveals a regular pulse, heart sounds are normal and the chest is clear. There is hypertonia bilaterally and ophthalmoplegia. Both pupils are dilated.

Na 142 mmol/L (135 - 145)

K 4.0 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 3.3 mmol/L (2.0 - 7.0)

Creatinine 60 µmol/L (55 - 120)

Venous blood gas reveals a pH 7.38.

ECG reveals a sinus tachycardia at rate 160 bpm, PRc 160ms, QRS 170ms.

What initial treatment will you initiate?

A.Gastric lavage

B.Haemodialysis

C.IV adenosine

D.IV n-acetyl cysteine

E.IV sodium bicarbonate

Answer:IV sodium bicarbonate

Explanation:

Widened QRS or arrhythmia in tricyclic overdose - give IV bicarbonate

Important for meLess important

Management of tricyclic antidepressant overdose:

Consider gastric lavage only if within one hour of a potentially fatal overdose.

Give 50 grams of charcoal if within one hour of ingestion.

Give sodium bicarbonate (50 ml of 8.4%) if:

pH <7.1

QRS >160 ms

Arrhythmias

Hypotension

Management of arrhythmias: avoid antiarrhythmics, correct hypoxia, hypotension, acidosis, hypokalaemia

Management of hypotension: give intravenous fluids, consider inotropes

Dialysis is ineffective in removing tricyclics.

Adenosine is used in the management of supraventricular tachycardia.

N-acetyl cysteine in used in management of paracetamol overdose.

Question:

A 22-year-male presents to the emergency department complaining of testicular pain. The pain is localised in the right testicle and has come up gradually over the last 24 hours.

On examination, he looks distressed. His heart rate is 64/min, blood pressure 120/96 mmHg, respiratory rate 16/min and temperature 38.2 ºC. The right testicle is erythematous and swollen. Elevation of the scrotal skin eases the pain. He denies any discharge.

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

A.Order a testicular ultrasound

B.Send a mid-stream urine (MSU) for microscopy and culture

C.Send a urine first void sample for nuclear acid amplification tests (NAATs)

D.Take bloods and test for alpha-fetoprotein

E.Take to theatre for urgent surgical exploration

Answer:Send a urine first void sample for nuclear acid amplification tests (NAATs)

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

Send a urine first void sample for nuclear acid amplification tests (NAATs) is the correct answer. The patient in the vignette has features of epididymo-orchitis (unilaterally painful testes, fever, general malaise and a positive Prehn's sign (pain gets better when the scrotal skin is elevated from the testes)), an infection of the epididymis and testes, most likely to be caused by sexually transmitted infections (STIs) in young, sexually active individuals. Given the most likely aetiology, the diagnostic test is NAATs, as it can identify Chlamydia trachomatis and Neisseria gonorrhoea.

Order a testicular ultrasound is incorrect. This imaging technique investigates many testicular masses, including cysts, hydroceles and varicocele. The patient in the vignette is young and has features of epididymo-orchitis which require a urine screen for STIs as a primary investigation. Even if a testicular torsion was suspected (which is unlikely in this case), testicular ultrasound is rarely executed as it would delay the vital treatment time.

Send a mid-stream urine (MSU) for microscopy and culture is incorrect, as this is used to identify E. coli in the urine of older patients with epididymo-orchitis. In this case, the patient is young and sexually active, making it more likely that the causative agent is a sexually transmitted infection rather than E. coli. STIs do not grow well in urine cultures, making this option less helpful.

Take bloods and test for alpha-fetoprotein is incorrect. This is performed to investigate testicular cancer. Testicular cancer usually presents as a painless mass incidentally felt in the testis. In this case, the patient is complaining of a painful testis rather than a mass, making this option incorrect.

Take to theatre for urgent surgical exploration is incorrect. This is

the definitive treatment for suspected testicular torsion, which usually presents with a unilaterally painful testis but is not accompanied by fever in most cases. Additionally, Prehn's sign is negative is testicular torsion, making this option incorrect.

Question:

A 24-year-old fell during a run sustaining a blow to his right calf. There was an initial dull ache, a feeling of tightness and mild calf swelling. He ran for another 20 minutes before finishing. The pain was continually increasing and when stretching, he was in extreme pain when pulling his toes up. His husband made him seek help in the emergency department.

On examination, the right calf has a 6cm greater circumference than his left calf. There is tenderness over the anterior compartment musculature. Passive dorsiflexion causes an extreme amount of pain. Peripheral pulses are all present. There are no changes in sensation or colour.

What investigation could be undertaken as the first line to confirm a diagnosis?

A.AP and lateral x-rays of lower leg

B.Ankle-brachial pressure index

C.Compartment pressure monitoring

D.Doppler ultrasound of calf

E.Serum creatine kinase

Answer:Compartment pressure monitoring

Explanation:

Compartment syndrome produces pain on passive stretch

Important for meLess important

This is a typical presentation of compartment syndrome. There is a history of recent trauma on the affected area, leading to pain and swelling which suggests some form of injury. Increasing pain and pain on passive stretching are important indicators of compartment syndrome. This man demonstrated this both during his own post-workout stretch and on examination. Whilst compartment syndrome may cause pulselessness, pallor, paraesthesia and paralysis there are not required to have a suspicion of this diagnosis.

Whilst compartment syndrome can be a clinical diagnosis, compartment pressure monitoring is the first-line investigation for confirming compartment syndrome.

X-rays are not helpful in compartment syndrome and often do not visualise any abnormality.

Ankle-brachial pressure index is used to diagnose critical limb ischaemia, not compartment syndrome.

Doppler ultrasound can be used to look at the vasculature of the lower leg, but not for compartment syndrome.

Serum creatine kinase is used to look for muscle death, which may be raised within compartment syndrome, but this investigation is not the first line.

Question:

You are the first to arrive at a 45-year-old man who has become unconscious following elective surgery earlier that day. An attached ECG shows that he is in sinus tachycardia, but there is no carotid pulse. The nurse has already put out a crash call. The airway is being maintained and the nurse has begun ventilating with bag and mask, pupils equal and reactive to light, with no external signs of injury

Whilst awaiting senior help, what should you do?

A.Repeat ABCDE

B.Check for breathing

C.Begin chest compressions

D.Give adrenaline 5mg IV

E.Administer a ventricular shock

Answer:Begin chest compressions

Explanation:

The absence of a carotid pulse in the presence of sinus tachycardia indicates that this is a non-shockable rhythm, and the appropriate algorithm should be followed as explained below. The only shockable rhythms are ventricular fibrillation and ventricular tachycardia.

Question:

A 53-year-old caucasian man attends his GP with the results of 7 days of home blood pressure monitoring (HBPM) he was advised to complete following a random clinic blood pressure of 153/91mmHg. His HBPM is 144/87mmHg. Baseline investigations show no evidence of end-organ damage. He is a current smoker and his QRISK3 score is calculated to be 11.3%. He is reluctant to engage with lifestyle and smoking cessation advice.

What is the best treatment option?

A.Atorvastatin

B.Atorvastatin and amlodipine

C.Atorvastatin and ramipril

D.No treatment required

E.Ramipril

Answer:Atorvastatin and ramipril

Explanation:

Newly diagnosed patient with hypertension (< 55 years) - add an ACE inhibitor or an angiotensin receptor blocker

Important for meLess important

Atorvastatin and ramipril is correct. His clinic blood pressure and HBPM results are consistent with stage 1 hypertension. As per NICE guidelines, antihypertensive drug treatment in addition to lifestyle advice should be offered to people aged under 80 years with persistent stage 1 hypertension who have one or more of the following: target organ damage, established cardiovascular disease (CVD), renal disease, diabetes, an estimated 10-year risk of CVD of 10% or more. As he is under the age of 55 and not of black African or African-Caribbean family origin, he should first be offered an ACE inhibitor (in this case ramipril) or an angiotensin-II receptor antagonist (not in the options above). As his QRISK3 score is greater than 10%, he also should be offered atorvastatin for primary cardiovascular disease prevention.

Atorvastatin is incorrect as he should be offered an antihypertensive agent in addition to lipid-lowering therapy.

Atorvastatin and amlodipine is incorrect. He should be offered a statin and an antihypertensive agent, however, this patient should first be offered an ACE and/or angiotensin-II receptor antagonist due to his age and ethnicity. Calcium-channel blockers are the first-line antihypertensive agent for patients who are aged 55 years or over and do not have type 2 diabetes, or of black African or African-Caribbean family origin and do not have type 2 diabetes (of any age).

No treatment required is incorrect. As above, he should be offered an antihypertensive agent and lipid-lowering therapy, especially given his reluctance to engage with lifestyle measures.

Ramipril alone is incorrect. He should be offered a statin in addition to commencing an ACE and/or angiotensin-II receptor antagonist.

Question:

A 14-year-old boy attends the emergency department with a 1-day history of a maculopapular rash. He presented to his general practitioner 2 days earlier with coryzal symptoms and a sore throat and he was prescribed a course of oral antibiotics.

On examination, he has a low-grade fever of 37.8ºC. He has a widespread maculopapular rash over his face and torso. His throat is erythematous with enlarged tonsils and there is palpable tender posterior cervical lymphadenopathy.

What is the most appropriate investigation to diagnose the underlying condition?

A.Anti-streptolysin O titre

B.Full blood count

C.Monospot test

D.Nasopharyngeal aspirate for viral polymerase chain reaction (PCR)

E.Sputum culture

Answer:Monospot test

Explanation:

URTI symptoms + amoxicillin → rash ?glandular fever

Important for meLess important

This patient has a likely diagnosis of glandular fever, a viral illness usually caused by the Ebstein-Barr virus. Symptoms include a sore throat, fever, and general malaise. On examination, it is common to see palpable cervical lymphadenopathy and an erythematous throat. In the later stages of the illness, splenomegaly may appear. It is more common in teenagers and is commonly spread via respiratory droplets and has been nicknamed the “kissing disease”. This child was given a course of antibiotics by his general practitioner. In patients with glandular fever, if amoxicillin is given, a non-specific maculopapular rash appears over the skin. Glandular fever is diagnosed by the Monospot test, a blood test that detects the presence of heterophil antibodies made following infection with Ebstein-Barr virus.

An anti-streptolysin O titre is used to detect the presence of a streptococcal infection secondary to group A streptococcal bacteria such as Streptococcus pyogenes. Group A streptococcal infections commonly cause bacterial tonsillitis which can initially be virtually indistinguishable from glandular fever. However, it does not explain his maculopapular rash following antibiotic use.

A full blood count can be useful in helping aid a diagnosis, particularly glandular fever where a full blood count will demonstrate a lymphocytosis. However, a monospot blood test is more diagnostic of glandular fever, which makes it the correct answer.

A nasopharyngeal aspirate (NPA) for viral polymerase chain reaction (PCR) can be useful for diagnosing viral infections such as measles. Measles would also account for a history of coryza and maculopapular rash. However, measles is less common in the UK following the introduction of the measles, mumps, and rubella vaccination. It is also less likely in a teenager. A NPA is not routinely used in diagnosing glandular fever.

A sputum culture has no role in diagnosing glandular fever. It can be used to help reach an alternative diagnosis but as this patient does not have a history of cough or sputum production, it seems unlikely to be of use.

Question:

A 25-days-old newborn presents to the emergency department with his parents. He has a distended abdomen and looks lethargic. The parents report that he has been feeding less during the last three days and vomited repeatedly. They describe the vomit as bilious. This morning he produced stools with blood in them but he has no fever. He was born at 35 weeks following premature rupture of membranes. Now he is otherwise healthy.

Given the most likely diagnosis, which one of the following investigations should be performed?

A.Abdominal ultrasound

B.Abdominal x-ray

C.Laparotomy

D.Test feed

E.Upper gastrointestinal tract contrast study

Answer:Abdominal x-ray

Explanation:

The diagnostic investigation for necrotising enterocolitis is an abdominal x-ray

Important for meLess important

The correct answer is an abdominal x-ray. This child is presenting with the signs and symptoms of necrotising enterocolitis. This condition has an unknown cause and is one of the leading causes of death among premature infants. It presents with abdominal distension, feeding intolerance and bloody stool. Additionally, the child can suffer from vomit bouts that are usually bilious. The x-ray will show dilated bowel loops, pneumatosis intestinalis (intramural gas) and occasionally portal venous gas. The treatment is with total gut rest and total parenteral nutrition, babies with perforations will require laparotomy.

Abdominal ultrasound is the investigation of choice for intussusception. This condition is characterised by paroxysmal abdominal colic pain and red currant jelly stool. The absence of these cardinal features makes this diagnosis unlikely.

Laparotomy is the investigation of choice in evident cases of perforation. In this case, the patient has no fever, making the diagnosis unlikely. Necrotising enterocolitis can eventually lead to perforation, so the child should be treated immediately to avoid so.

Test feed is used to diagnose pyloric stenosis. This condition is characterised by projectile vomiting, typically 30 minutes after a feed. Given that the child is presenting with generalised malaise and multiple gastrointestinal symptoms this diagnosis is unlikely.

An upper gastrointestinal tract contrast study is used to diagnose malrotation. This condition features exomphalos, congenital diaphragmatic hernia, intrinsic duodenal atresia. This child was born healthy making this diagnosis unlikely.

Question:

A 16-year-old girl with cystic fibrosis is being reviewed for her annual check-up. She was diagnosed with cystic fibrosis 15 years ago.

She has a good exercise tolerance, minimal gastrointestinal symptoms and has not been hospitalised in the past year.

Her recent investigations show an iron-deficient anaemia on her blood work, and multiple positive sputum cultures for Burkholderia species. Her latest FEV1 is 60% of her predicted.

What feature of her history confers the greatest increase in mortality?

A.Age at diagnosis

B.Anaemia

C.Burkholderia species on sputum culture

D.FEV1 value

E.Minimal gastrointestinal symptoms

Answer:Burkholderia species on sputum culture

Explanation:

Chronic infection with Pseudomonas and Bulkholderia in CF are associated with increased morbidity and mortality

Important for meLess important

Chronic infection with Burkholderia species is known to increase mortality, and therefore this is the correct answer. This infection is an opportunistic infection which can cause loss of lung reserve, hospitalisation and disseminated infection. All of these features contribute to the increase in mortality it confers.

Age at diagnosis is incorrect. Most cystic fibrosis patients are diagnosed before 1 year of age, and the median age of diagnosis is 6-8 months. Therefore, there is nothing concerning about the age of diagnosis, and this doesn't increase mortality risk.

Anaemia is incorrect. Whilst this is a major cause of morbidity within cystic fibrosis patients due to affecting lung function, there is not a significant increase in mortality.

FEV1 value is incorrect. Normal FEV1 measurement is between 80-120%, therefore a value of 60% is not drastically lowered, and would be accepted as normal in a cystic fibrosis patient. An FEV1 of below 30% confers a greater risk of mortality and morbidity.

Minimal gastrointestinal symptoms is incorrect. This actually confers a decrease in mortality and morbidity, whilst the presence of gastrointestinal symptoms, specifically pancreatic insufficiency, increase mortality.

Question:

A 45-year-old man presents with a 2-day history of groin pain. He describes a sensation of snapping in the hip with deep groin and hip pain. The patient played in a rugby match the weekend prior. He has never had symptoms like this before and does not take any regular medications. On further questioning, he admits to drinking regularly and consumes around 70 units per week.

On examination, the man has a large body habitus. He can weight bear and walk around the room with ease. His range of movement is limited by pain, particularly on external rotation.

What is the most likely diagnosis?

A.Acetabular labral tear

B.Femoral neck fracture

C.Femoroacetabular impingement (FAI)

D.Osteoarthritis

E.Slipped upper femoral epiphysis (SUFE)

Answer:Acetabular labral tear

Explanation:

Acetabular labral tears typically present with hip/groin pain and a snapping sensation

Important for meLess important

The relatively acute history in a contact sport without a background of previous hip pain is suggestive of an injury. Of the options above, in a patient able to weight bear with pain on external rotation an acetabular labral tear is most in keeping with the presentation.

A SUFE would certainly be a consideration in a child without fused growth plates with hip pain; however, given this man's age and his skeletal maturity, this would not be in the differential.

A femoral neck fracture with relatively minimal trauma in a 45-year-old would be unusual. His alcohol consumption however would be a risk factor for osteoporosis.

FAI would likely have more of a chronic history than the above and would be unlikely to be a cause of the 'snapping' sensation. FAI can however predispose to an acetabular tear.

Osteoarthritis in an overweight 45-year-old is certainly possible, however, given the possible history of trauma and the acute presentation this would seem less likely to be the main cause.

Question:

A 45-year-old man presents with an episode of alcoholic pancreatitis. He makes slow but steady progress. He is reviewed clinically at 6 weeks following admission. He has a diffuse fullness of his upper abdomen and on imaging a collection of fluid is found to be located behind the stomach. His serum amylase is mildly elevated. Which of the following is the most likely explanation?

A.Early fluid collection

B.Pancreatic abscess

C.Peripancreatic necrosis

D.Pseudocyst

E.Sterile necrosis

Answer:Pseudocyst

Explanation:

Pseudocysts are unlikely to be present less than 4 weeks after an attack of acute pancreatitis. However, they are more common at this stage and are associated with a raised amylase.

Question:

A 65-year-old woman was found to be positive for H. pylori, and was commenced on triple therapy eradication. Her GP wants to test if the eradication therapy has worked, as the woman is still experiencing symptoms.

Which of the following is the most appropriate for post-eradication therapy testing?

A.CLO test

B.Gastric biopsy

C.Serum antibody

D.Stool antigen

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

According to NICE, the only recommended test for H. pylori post-eradication therapy, is urea breath test. The others are either too invasive, remain positive, or are not sensitive and specific enough.

Question:

A 45-year-old insulin-dependent type 2 diabetic presents to her GP complaining of a burning sensation in her right leg. She also notes it is very sensitive to touch.

The GP diagnoses her with neuropathic pain and starts her on amitriptyline. Unfortunately 12 weeks later the women re-presents stating she has noticed no improvement with this medication. She states she has been taking it as prescribed.

The GP decides to stop the amitriptyline.

Which of the following treatments should the GP offer next?

A.Lidocaine patch

B.Topical capsaicin

C.Oral duloxetine

D.Oral naproxen

E.Oral carbamazepine

Answer:Oral duloxetine

Explanation:

First-line treatment for neuropathic pain is amitriptyline, duloxetine, gabapentin or pregabalin. If one of these agents don't work next line is to try one of the other remaining three drugs

Important for meLess important

First-line treatment for neuropathic pain is amitriptyline, duloxetine, gabapentin or pregabalin. If one of these agents don't work next line is to try one of the other remaining three drugs. Thus the correct answer is duloxetine.

Lidocaine patches are not recommended in NICE guidelines for the treatment of neuropathic pain.

Topical capsaicin Is only recommended for localised neuropathic pain. Topical capsaicin for neuropathic pain effecting the whole leg would not be an appropriate use.

Oral naproxen, along with all nonsteroidal anti-inflammatory drug are not recommended for the treatment of neuropathic pain.

Oral carbamazepine is recommended for trigeminal neuralgia, but not other forms of neuropathic pain.

Question:

A 62-year-old woman presents to the emergency department with an acute loss of vision, pain, and redness in her left eye. She noticed some eye discomfort and reddening in the morning, which became severe over the next two hours.

She denies trauma and any other visual disturbance. Her past medical history includes osteoarthritis, left eye cataract surgery three days ago, and unremarkable family history.

On examination, the left eye is hyperaemic with hypopyon. Eye movements are painful and visual acuity is severely reduced. The right eye is normal.

What is the most likely diagnosis?

A.Anterior uveitis

B.Corneal ulcer

C.Endophthalmitis

D.Retinal detachment

E.Vitreous haemorrhage

Answer:Endophthalmitis

Explanation:

Post-operative endophthalmitis is a serious but rare complication of cataract surgery which needs urgent treatment

Important for meLess important

This patient has presented with an acute onset of painful red eye and visual loss shortly after ocular surgery. This should raise suspicion of post-operative endophthalmitis, which is an infection of the aqueous and vitreous humour of the eye. This is a rare complication of any eye surgery.

Anterior uveitis would also present with a painful red eye but is less likely due to the history of cataract surgery. In addition, there is no mention of an irregularly-shaped pupil, as is often seen in anterior uveitis, nor any past medical history of seronegative spondyloarthropathy or other systemic disease associated with anterior uveitis.

A corneal ulcer is also a sensible differential here but would usually present with an initial sensation of a foreign body in the eye and discharge. It is also more common in contact lens wearers, especially with a history of exposure to water (such as swimming pools and showers).

The lack of visual disturbance makes retinal detachment less likely, as this classically presents with a 'curtain' descending over the peripheral visual field, significant floaters, and flashes of light. Whilst ocular surgery is a risk factor for retinal detachment, detachment would not cause the intense redness and hypopyon seen here.

Vitreous haemorrhage would classically present with acute visual disturbance and floaters, but is usually painless and would not cause redness or hypopyon. It is usually associated with neovascularisation. Therefore, it is more common in patients with diabetic retinopathy and sickle cell disease.

Question:

A 65-year-old man presents to the emergency department with an episode of rectal bleeding that resolves spontaneously in 15 minutes. He is taking warfarin for atrial fibrillation (AF). He is estimated to have lost approximately 50 ml of blood. A rectal examination shows external haemorrhoids with evidence of fresh bleeding. His observations show a heart rate of 80/min, blood pressure of 130/90 mmHg, oxygen saturations of 98% on air and a respiratory rate of 18/min. His haemoglobin is found to be within the normal range.

As he is taking warfarin, his INR is checked.

INR 7.2

Given this raised INR, his warfarin is stopped and he is given intravenous vitamin K 2mg.

When should his warfarin be restarted?

A.After a maximum of one omitted dose

B.After a period of 24 hours with no further episodes of bleeding

C.When his INR is between 2.0 and 3.0

D.When his INR is between 2.5 and 3.5

E.When his INR is less than 5.0

Answer:When his INR is less than 5.0

Explanation:

INR 5.0-8.0 (minor bleeding) - stop warfarin, give intravenous vitamin K 1-3mg, restart when INR < 5.0

Important for meLess important

The man in this question presents with an episode of minor bleeding (not life-threatening or causing haemodynamic compromise). According to BNF guidelines, an INR of between 5.0 and 8.0 with minor bleeding should be managed by withholding warfarin, giving intravenous vitamin K 1-3mg and restarting the warfarin when the INR is < 5.0.

Given the man is on warfarin for AF, it is likely that his target INR range is between 2.0 and 3.0. However, his warfarin should be restarted when his INR is < 5.0 and his warfarin dose then titrated to achieve an INR within this range.

There is no maximum or minimum number of missed doses. Instead, the INR should be used to guide management. Equally, there is no strict time limit after episodes of bleeding - clinical judgement should be used alongside measurement of INR.

Question:

A 6-year-old boy weighing 28kg is admitted to the paediatric intensive care unit with severe meningococcal meningitis. Due to his level of consciousness he is intubated and receives ventilation via an endotrachael tube. As he is nil by mouth, the consultant asks you to prescribe his maintenance fluids for the following 24 hours. How much maintenance fluid should he be given over the next 24 hours?

A.2000ml

B.1740ml

C.1620ml

D.1660ml

E.1500ml

Answer:1660ml

Explanation:

Maintenance fluid in children is weight dependent: 100ml/kg for the first 10kg, 50ml/kg for the next 10kg and 20ml/kg for every subsequent kg.

1000 + 500 + 160 = 1660ml

The choice of which fluid to use for maintenance is trust specific, however 0.45% sodium chloride + 5% dextrose is a popular choice. 0.18% sodium chloride + 4% dextrose (4 and a fifth) is no longer used in children due to the risk of hyponatraemia and cerebral oedema.

Question:

A 62-year-old male attends the emergency department with a one day history of left-sided facial paralysis and otalgia. Neurological assessment identifies that paralysis includes the left side of the forehead.

Which of the following is the most likely diagnosis?

A.Acoustic neuroma

B.Intracranial neoplasm

C.Ischaemic stroke

D.Ramsay-Hunt syndrome

E.Subdural haematoma

Answer:Ramsay-Hunt syndrome

Explanation:

A facial palsy caused by an upper motor neuron lesion 'spares' the upper face i.e. forehead

Important for meLess important

Ramsay-Hunt syndrome is the correct answer. This is caused by reactivation of the varicella zoster virus in the facial nerve and so produces a lower motor neurone (LMN) lesion. A key distinguishing feature is a LMN lesion does not spare the forehead muscles, whereas an upper motor neurone (UMN) lesion would spare the forehead. The recent history of otalgia also makes the diagnosis of Ramsay-Hunt syndrome likely.

Acoustic neuroma is incorrect as this would present with a more gradual onset of symptoms and would likely include vertigo and hearing loss. However, as this condition would produce a LMN lesion, any associated facial paralysis would include the forehead.

Intracranial neoplasm is incorrect as this would also produce an UMN lesion which spares the forehead muscles. There may also be signs of raised intracranial pressure due to mass effect.

Ischaemic stroke would be incorrect as this is another cause of an UMN lesion so would also present with forehead sparing. Depending on which vessel had been blocked would determine what other features were present.

Subdural haematoma would be incorrect as this is an UMN lesion and so would present with sparing of the forehead muscles. There may also be a history of trauma in such cases.

Question:

A 35-year-old woman is noticed to be jaundiced. As part of a liver screen the following results are obtained:

Anti-HBs Positive

Anti-HBc Positive

HBs antigen Negative

Anti-HBs = Hepatitis B Surface Antibody; Anti-HBc = Hepatitis B Core Antibody; HBs antigen = Hepatitis B Surface Antigen

What is the patient's hepatitis B status?

A.Previous immunisation to hepatitis B

B.Chronic hepatitis B - highly infectious

C.Previous hepatitis B infection, not a carrier

D.Chronic hepatitis B - not infectious

E.Acute hepatitis B infection

Answer:Previous hepatitis B infection, not a carrier

Explanation:

HBsAg negative, anti-HBs positive, IgG anti-HBc positive - previous infection, not a carrier

Important for meLess important

Question:

A 39-year-old female intravenous drug user (IVDU) is admitted to the emergency department with shortness of breath. On examination, she has a temperature of 39.5ºC and is found to have a heart murmur, which has not been heard previously.

Which of the following is most likely to be affected?

A.Mitral valve

B.Tricuspid valve

C.Pulmonary vein

D.Pulmonary valve

E.Aortic valve

Answer:Tricuspid valve

Explanation:

Infective endocarditis in intravenous drug users most commonly affects the tricuspid valve

Important for meLess important

This patient’s symptoms (fever, SoB) and signs (new heart murmur) are highly suggestive of infective endocarditis. IVDUs are at risk of introducing infection into blood via the needle site. The venous system runs first to the tricuspid valve, thus making this structure the most commonly affected in these patients. This answer is further alluded to by the fact that there is no mention of signs of septic emboli from left-sided valves (e.g. Roth Spots, Janeway lesions).

Question:

A 94-year-old woman is brought into the Emergency Department after suffering an apparent stroke. She is vomiting on arrival.

She is stabilised and triaged for review. The neurologist asks you to perform a full cranial and peripheral nerve examination on the patient while he takes a collateral history from her daughter.

You perform a thorough examination and note the following findings:

Right-sided facial pain/temperature loss

Left-sided lower+upper limb pain/temperature loss

Past-pointing worse on the right

Chokes on swallowing water

What artery is most likely affected?

A.Left anterior inferior cerebellar artery

B.Left middle cerebral artery

C.Left posterior inferior cerebellar artery

D.Right anterior inferior cerebellar artery

E.Right posterior inferior cerebellar artery

Answer:Right posterior inferior cerebellar artery

Explanation:

Sudden onset vertigo and vomiting, dysphagia, ipsilateral facial pain and temperature loss, contralateral limb pain and temperature loss and ataxia - posterior inferior cerebellar artery

Important for meLess important

Right posterior inferior cerebellar artery (PICA) is correct. PICA strokes can present with sudden-onset vertigo and vomiting, dysphagia, ipsilateral facial pain and temperature loss, contralateral limb pain and temperature loss, and ataxia. As this patient has right-sided facial pain/temperature loss, this is going to be a right-sided infarct. Past-pointing (a sign of ataxia) should make you immediately suspect cerebellar involvement.

Left anterior inferior cerebellar artery (AICA) strokes can present with sudden-onset vertigo and vomiting, and ipsilateral facial paralysis and deafness. This patient has no facial paralysis so this would be less likely.

Left middle cerebral artery (MCA) is unlikely. While MCA is the most commonly-affected artery in stroke, one would expect to see hemiparesis, but this patient has no motor involvement.

Left posterior inferior cerebellar artery (PICA) is incorrect. PICA strokes can present with sudden-onset vertigo and vomiting, dysphagia, ipsilateral facial pain and temperature loss, contralateral limb pain and temperature loss, and ataxia. This patient has right-sided facial pain and temperature loss, thus the right PICA is affected.

Right anterior inferior cerebellar artery (AICA) strokes can present with sudden-onset vertigo and vomiting, and ipsilateral facial paralysis and deafness. This patient has no facial paralysis so this would be less likely.

Question:

Reena, a 25-year-old woman who moved to the UK from India 10 years ago, presented to her GP accompanied by her mother. She was 28 weeks into her first pregnancy. She had suffered mild hyperemesis up until week 14 but otherwise had had an uneventful pregnancy.

She complained of a mild fever and generally feeling unwell. She also had a rash that had appeared the evening before.

The patient looked well, her temperature was 37.6ºC, oxygen saturation 98% in air, heart rate 89 beats per minute, respiratory rate of 19 breaths per minute and blood pressure 110/72 mmHg. On examination, she had a macular rash with some early papular and vesicular lesions.

On further questioning, she recalled visiting a children's birthday party with her niece about two weeks ago and spent the afternoon there. One of the parents had phoned her five days later to state that her child had developed chickenpox.

Reena's mother confirmed that Reena had not had chickenpox as a child.

What is the next step in the management of chickenpox in this case?

A.Arrange for practice nurse to administer chickenpox vaccination

B.Organise admission for varicella zoster immunoglobulin (VZIG)

C.Organise an assay for varicella zoster (VZ) antibodies

D.Prescribe oral aciclovir

E.Reassure and send the patient home

Answer:Prescribe 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

Chickenpox is less common in patients from tropical or subtropical areas and therefore when they subsequently move to the UK, they are at greater risk of catching chickenpox than women who were born and grew up in the UK.

The RCOG state 'oral aciclovir should be prescribed for pregnant women with chickenpox if they present within 24 hours of the onset of the rash and if they are 20+0 weeks of gestation or beyond. Use of aciclovir before 20+0 weeks should also be considered.' (Green-top guideline No. 13). As she has been infected before 28 weeks gestation, she should also be referred to a fetal medicine specialist 5 weeks after infection.

The chickenpox vaccination can not be given in pregnancy.

VZIG has no therapeutic benefit once chickenpox has developed and should therefore not be used in pregnant women who have developed a chickenpox rash.

In this case, there is good clinical evidence for chickenpox infection and there is collateral history that she has not had chickenpox as a child. Antibody testing is not necessary in this case to make a diagnosis.

These women should be kept under daily review and if they develop signs or symptoms of severe or complicated chickenpox (e.g. respiratory symptoms), referred to secondary care immediately. These women may need further treatment including intravenous aciclovir.

Chickenpox in adults comes with a relatively high risk of morbidity including pneumonia, hepatitis and encephalitis. Rarely, it can cause death. Therefore adequate assessment and management of chickenpox in adults is necessary.

Question:

A 34-year-old man is reviewed in clinic. He has recently had his annual echocardiogram showing no change in the dilation of his aortic sinuses or mitral valve prolapse. You note he is tall with pectus excavatum and arachnodactyly. His condition is primarily due to a defect in which one of the following proteins?

A.Polycystin-1

B.Fibrillin

C.Type IV collagen

D.Type I collagen

E.Elastin

Answer:Fibrillin

Explanation:

Marfan's syndrome is caused by a mutation in a protein called fibrillin-1

Important for meLess important

Although fibrillin is the primary protein affected (due to a defect in the fibrillin-1 gene) it should be noted that fibrillin is used as a substrate of elastin

Question:

A 3-year-old boy presents to the GP with nightly coughing bouts for the last 2 weeks. He has noisy breathing with an inspiratory whoop but no cyanosis or other signs on clinical examination. The GP diagnosis the patient with a whooping cough.

Which of the following would be the best first-line treatment for this patient?

A.Acyclovir

B.Ceftriaxone

C.Benzylpenicillin

D.Clarithromycin

E.Admission with supportive therapy

Answer:Clarithromycin

Explanation:

Whooping cough - azithromycin or clarithromycin if the onset of cough is within the previous 21 days

Important for meLess important

NICE guidelines suggest that if admission is not needed, you should prescribe an antibiotic if the onset of the cough is within the last 21 days. In children over 1-month-old, the first line antibiotics are macrolides (specifically azithromycin or clarithromycin for children aged 1 month or older, and non-pregnant adults).

In this case, the patient would not need to be admitted as they are not younger than 6 months of age, do not have significant breathing difficulties (for example apnoea episodes, severe paroxysms, or cyanosis) and do not have a significant complication (for example seizures or pneumonia).

As well as the antibiotics, patients should be advised to rest, take adequate fluid intake, and use paracetamol or ibuprofen for symptomatic relief

Question:

You have a telephone consultation with a 24-year-old woman to discuss the results of a stool sample. She saw a colleague of yours 5 days ago with a 48-hour history of bloody diarrhoea and abdominal pain. The patient's symptoms have now resolved and she feels well.

Stool sample result:

Growth of Campylobacter jejuni

Shigella Not isolated

Salmonella Not isolated

Ova, cysts and parasites Not detected

What is the most appropriate action to take?

A.No treatment is required

B.Prescribe ciprofloxacin

C.Prescribe clarithromycin

D.Prescribe vancomycin

E.Repeat the stool sample to ensure resolution of infection

Answer:No treatment is required

Explanation:

Campylobacter infection is often self-limiting but if severe then treatment with clarithromycin may be indicated

Important for meLess important

Campylobacter infection is most commonly a self-limiting infection, and in this scenario the patient’s symptoms have fully resolved so no treatment is required.

When symptoms are severe or have lasted more than a week, treatment with clarithromycin is recommended first-line, however, it is not warranted in this scenario.

If antibiotics had been indicated, ciprofloxacin is an alternative treatment option (although not first-line) for Campylobacter infection.

Vancomycin is used to treat C. difficile infections, which is not the causative agent in this scenario.

Repeating the stool sample to ensure resolution of infection is not indicated given this patient's diarrhoea has resolved and she is clinically well.

Question:

A 56-year-old woman presents to the postmenopausal bleeding clinic with 2 weeks of constant vaginal bleeding. What should be your first investigation in the clinic?

A.Abdominal ultrasound

B.Coagulation screen

C.CT pelvis

D.Pelvic ultrasound

E.Trans-vaginal ultrasound

Answer:Trans-vaginal ultrasound

Explanation:

The first investigation in PMB should be TVUS

Important for meLess important

Always the first line investigation in PMB should be TVUS, unless it is contra-indicated. It gives the clearest image of endometrial thickness, which is a key factor in establishing whether the bleed could be caused by endometrial cancer

Question:

A 68-year-old woman presents to the orthopaedic surgery ward one day prior to an elective knee replacement. She has osteoarthritis and hypertension and is currently being treated for an episode of giant cell arteritis that occurred three months ago with 20mg prednisolone daily. She has never had surgery before and is anxious about the anaesthetic.

What is the most important drug to prescribe prior to surgery?

A.Bisoprolol

B.Diazepam

C.Hydrocortisone

D.Prednisolone

E.Ramipril

Answer:Hydrocortisone

Explanation:

Hydrocortisone supplementation is required prior to surgery for patients taking prednisolone

Important for meLess important

Chronic glucocorticoid therapy, such as treatment of giant cell arteritis (GCA) with prednisolone can suppress the hypothalamic-pituitary-adrenal axis, meaning that in times of stress (such as surgery), the adrenal glands are not able to respond appropriately. Hydrocortisone should therefore be given preoperatively to patients taking regular prednisolone for moderate to major surgery.

As a rule of thumb:

Minor procedure under local: no supplementation required

Moderate procedure: 50mg hydrocortisone before induction and 25mg every 8h for 24h

Major surgery: 100mg hydrocortisone before induction and 50mg every 8h for 24h, thereafter halving dose every 24h until maintenance dose reached.

There is no indication that this patient needs additional medications for her hypertension preoperatively and diazepam should not be given routinely to control anxiety. This patient probably just needs someone to speak to her and reassure her about the procedure.

Question:

A 27-year-old man with known bronchiectasis secondary to primary ciliary dyskinesia presents with a 3-day history of increased sputum production, shortness of breath, fevers and general malaise. As part of his work-up, 3 sputum samples are taken.

Which organism is most likely to be isolated in the samples?

A.Haemophilus influenzae

B.Moraxella catarrhalis

C.Mycoplasma pneumoniae

D.Pseudomonas aeruginosa

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

Bronchiectasis: most common organism = Haemophilus influenzae

Important for meLess important

All of these bacteria are colonisers in bronchiectasis but Haemophilus influenzae is the most commonly found one. It is a Gram-negative coccobacillus which can affect multiple organs, including the meninges, epiglottis, joints and ears, rarely causing endocarditis or osteomyelitis.

Moraxella catarrhalis a Gram-negative diplococcus, commonly causes otitis media and infective exacerbations of COPD.

Mycoplasma pneumoniae is a very small, Gram-negative bacterium which can exist intracellularly. It is a cause of atypical pneumonia and can also a wide range of potential extrapulmonary manifestations, such as encephalitis, haemolytic anaemia, gastrointestinal upset, erythema multiforme or Stevens-Johnson syndrome/toxic epidermal necrolysis.

Pseudomonas aeruginosa is a Gram-negative bacillus commonly found in water and soil. It is an opportunistic pathogen and often resistant to many antibiotics. A common coloniser of the lungs of patients with bronchiectasis (likely second after H. influenzae), its presence is associated with increased disease severity and airflow obstruction, and consequently poorer quality of life.

Streptococcus pneumoniae is a Gram-positive coccus (usually existing as diplococci) which can cause infection a variety of tissues, including the lungs, ears, sinuses and the meninges. It is the leading cause of pneumonia mortality worldwide.

Information from the CDC website.

Question:

A 46-year-old female presents to the emergency department after a syncopal episode. She has recently had thyroid surgery for a follicular carcinoma of her thyroid. On examination, she is noted to have paresthesia periorally. In her ECG, the waveform timings recorded are as follows:

'Ventricular rate: 70 bpm

PR interval: 161 ms

QRS duration: 94 ms

Corrected QT interval: 530 ms'

What electrolyte disturbance is the most likely cause for the abnormality in ECG timing?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypocalcaemia

D.Hypokalaemia

E.Hypomagnesaemia

Answer:Hypocalcaemia

Explanation:

Complications of thyroid surgery - damage to parathyroid glands can result in hypocalcaemia

Important for meLess important

It is useful to know the general ranges for waveform timings. A normal corrected QT interval (QTc) is less than 430 ms in males and 450 ms in females. A normal PR interval is 120 - 200 ms. Normal QRS duration is 80 - 120 ms. In this question, the QTc is prolonged.

Damage to parathyroid glands in thyroid surgery can result in hypocalcaemia. Hypocalcaemic patients can present with irritability, seizures, spasms and paresthesia periorally. Low levels of calcium can also prolong the QT interval, which can increase the risk of arrhythmias. This is likely to have precipitated the syncopal episode in this case.

Hypokalaemia can also cause long QT, but this is less likely to occur after thyroid surgery. Hypokalaemia commonly presents with muscle weakness. ECG changes include U waves, long QT, prolonged PR intervals, small/absent T waves and ST depression.

Hypomagnesaemia can cause long QT, but again this is less likely to occur after thyroid surgery. Long QT intervals are associated with rhythms such as torsades de pointes and replacement of magnesium intravenously is used for treatment.

Hyperkalaemia shortens the QT interval. It commonly also causes peaked T waves, small P waves and a widened QRS.

Hypercalcaemia shortens the QT interval. It is commonly caused by hyperparathyroidism.

Question:

A 4-year-old girl presents to her GP with her father. He reports that his daughter has been feeling generally unwell with a sore throat and headache. She has a temperature of 38.1ºC. On examination, she has a coarse red blanching rash on the neck and chest. Her tongue is bright red. She is up to date with all vaccinations.

What is the most likely diagnosis?

A.Kawasaki disease

B.Parvovirus B19 infection

C.Rubella

D.Scarlet fever

E.Staphylococcal toxic shock syndrome

Answer:Scarlet fever

Explanation:

Scarlet fever classically presents with a sore throat, fever, headache, bright red tongue and a coarse, red rash

Important for meLess important

Scarlet fever is the correct answer. This is a typical presentation of scarlet fever. Specifically, remember the 'coarse red rash' and 'strawberry tongue'. Manage with 10 days of phenoxymethylpenicillin or azithromycin if there is a suspected allergy to penicillin.

Kawasaki disease is different in that the fever typically lasts 5 days or longer. It also presents with an erythematous polymorphous rash, strawberry tongue, cervical lymphadenopathy, bilateral conjunctivitis, oedema, erythema, and skin peeling of the hands and feet.

Parvovirus B19 infection often presents with a diffuse erythematous facial rash appearing on one or both cheeks (resembling a 'slapped cheek') in children. An erythematous maculopapular rash on the trunk, back, and limbs may develop a few days after the facial rash.

Rubella typically causes a non-confluent, maculopapular rash that starts behind the ears, spreads to the face and neck, and then to the trunk and extremities. The rash is transient, lasting between 3–5 days, and there may be associated cervical lymphadenopathy.

Staphylococcal toxic shock syndrome is a potentially life-threatening condition, and symptoms may include fever, headache, skin rash, confusion, vomiting, or diarrhoea.

Question:

A 30 year old man presents following 5 days of headache, myalgia and an increasing cough. His cough is not productive but it is worsening. On examination you notice a rash made up of target lesions all over his trunk. He has bronchial breathing at this right base. He has recently started working as a primary school teacher. What is the organism most likely to be responsible for this presentation?

A.Streptococcus pneumoniae

B.Staphylococcus aureus

C.Legionella pneumophilia

D.Mycoplasma pneumoniae

E.Pneumocystis jiroveci

Answer:Mycoplasma pneumoniae

Explanation:

Mycoplasma is associated with erythema multiforme

Important for meLess important

This patient has had a prodromal flu-like symptoms prior to developing a pneumonia. The rash described is erythema multiforme. These two features are classical of Mycoplasma pneumonia that often has a prodrome and is strongly associated with erythema multiforme.

The main differential here is Staphylococcus aureus which is associated with post viral pneumonia and therefore often has a prodrome of a viral infection. This can present similarly to mycoplasma. The clincher in this question is the erythema multiforme.

Question:

A 40-year-old man with a past medical history of lymphoma has been seeing his haematologist about his painful hands associated with colour change to dark red and blue, which only occurs when he goes out in cold weather. He has a routine set of bloods which shows some new findings:

Hb 82 g/l

Mean cell volume (MCV) 101 fL

Which of the following investigations is most likely to confirm the diagnosis?

A.Vitamin B12 level

B.Ferritin

C.Direct antiglobulin test (Coombs' test)

D.Blood film

E.Thyroid stimulating hormone (TSH)

Answer:Direct antiglobulin test (Coombs' test)

Explanation:

Cold autoimmune haemolytic anaemia causes IgM-mediated haemolysis at cold temperatures (4 degrees)

Important for meLess important

The history points towards cold autoimmune haemolytic anaemia (AIHA) for the following reasons:

- 1) Background a lymphoma (risk factor for cold AIHA)

- 2) Raynaud's phenomenon

- 3) Symptoms worse in the cold

- 4) New macrocytic anaemia, the macrocytosis here is occurring due to reticulocytosis (new immature RBCs which are larger) to compensate for the haemolysis.

In cold AIHA, IgM-mediated haemolysis occurs at cold temperatures (<4 degrees) which leads to anaemia made worse by the cold and symptoms such as Raynaud's phenomenon and acrocyanosis. It causes mainly intravascular haemolysis. The direct antiglobulin test (Coombs' test) would be positive specifically for cell-surface complement (as cold AIHA is complement-mediated).

For (1) and (2) haematinics would be checked routinely but are unlikely to yield the diagnosis with this history. (4) a blood film would be useful and show reticulocytes but wouldn't be diagnostic and (5) TSH should be measured for a macrocytic anaemia but there is another obvious cause in this question.

Question:

A 37-year-old woman presents to her GP with a four-month history of palpitations and headaches. She is concerned that she is entering early menopause as she is experiencing recurrent hot flushes throughout the day. She has a past medical history of type 2 diabetes mellitus. Observations show a heart rate of 89bpm, blood pressure of 200/110mmHg, temperature of 36.5ºC, and 100% oxygen saturations on room air. Urine dip shows:

pH 6

Leucocytes negative

Nitrites negative

Glucose trace

Ketones trace

What is the most appropriate investigation of this patient, considering the likely diagnosis?

A.Clonidine suppression test

B.Plasma LH and FSH

C.Plasma aldosterone: renin ratio

D.Plasma parathyroid hormone

E.Urinary metanephrines

Answer:Urinary metanephrines

Explanation:

Phaeochromocytoma typically presents with a triad of sweating, headaches, and palpitations in association with severe hypertension

Important for meLess important

This patient is presenting with the typical triad of symptoms associated with pheochromocytoma (headache, palpitations, and hyperhidrosis) alongside severe hypertension. Vignettes may alternatively present patients with this triad of symptoms with failed management of hypertension despite polypharmacy. Phaeochromocytoma is due to a catecholamine-producing tumour from the adrenal medulla (80-90% occur in the kidney while the remainder are found in the head and neck). Risk factors include multiple endocrine neoplasia type 2 and neurofibromatosis type 1. Diagnosis is with urinary metanephrines which should be expected to be elevated. Treatment is with hypertension medical management, consideration of adrenalectomy, or chemotherapy.

Clonidine suppression tests are second-line investigations to consider in pheochromocytoma. It involves the administration of clonidine to suppress catecholamine production - in pheochromocytoma, levels remain elevated. It is a specialist test and is generally performed if there is uncertainty regarding the diagnosis of pheochromocytoma.

Plasma LH and FSH are used in the investigation of menopause. While this patient is presenting with hot flushes and reports being concerned that she is entering early menopause, her symptoms are more consistent with a phaeochromocytoma (considering her blood pressure, palpitations, and headaches).

Plasma aldosterone: renin ratio blood tests are used in the diagnosis of primary aldosteronism. This is a useful test in patients who present with hypertension, hypokalaemia, polyuria and polydipsia. It is uncommon for patients with hyperaldosteronism to have sweating, headaches and palpitations which are more consistent symptoms with excessive catecholamine production.

Plasma parathyroid hormone assays would be appropriate if this patient presented with muscle aches, generalised weakness, bone pain, and renal stones. This patient's symptoms are not consistent with a diagnosis of hyperparathyroidism and, as such, this is an incorrect answer.

Question:

A 62-year-old female is referred to dermatology by her GP due to a lesion over her shin. It initially started as a small red papule which later became a deep, red, necrotic ulcer with a violaceous border. What is the likely diagnosis?

A.Necrobiosis lipoidica diabeticorum

B.Syphilis

C.Erythema nodosum

D.Pretibial myxoedema

E.Pyoderma gangrenosum

Answer:Pyoderma gangrenosum

Explanation:

Question:

A 30-year-old HIV positive man attends your travel clinic asking for your advice on holiday vaccinations. His is taking anti-retroviral therapy and his most recent CD4 count is 200 cells/mm³. He is otherwise well and has no other medical conditions.

Which of the following vaccines are contraindicated in this man?

A.Rabies

B.Meningitis ACWY

C.Japanese encephalitis

D.Tuberculosis (BCG)

E.Hepatitis B

Answer:Tuberculosis (BCG)

Explanation:

Live attenuated vaccines such as BCG are contraindicated in all HIV positive patients.

Other live attenuated vaccines which should not be given in immunocompromised patients are:

Yellow fever

Oral polio

Intranasal influenza

Varicella

Measles, mumps and rubella (MMR)

Source: uptodate

Question:

A 70-year-old female is admitted with a history of passing brown coloured urine and abdominal distension. Clinically she has features of large bowel obstruction with central abdominal tenderness. She is maximally tender in the left iliac fossa. There is no evidence of haemodynamic instability. What is the most appropriate investigation?

A.Cystogram

B.Abdominal X-ray of the kidney, ureters and bladder

C.Computerised tomogram of the abdomen and pelvis

D.Flexible sigmoidoscopy

E.Barium enema

Answer:Computerised tomogram of the abdomen and pelvis

Explanation:

This lady is most likely to have a colovesical fistula complicating diverticular disease of the sigmoid colon. In addition she may also have developed a diverticular stricture resulting in large bowel obstruction. A locally advanced tumour of the sigmoid colon may produce a similar clinical picture. The best investigation of this acute surgical patient is an abdominal CT scan, this will demonstrate the site of the disease and also supply regional information such as organ involvement and other local complications such as a pericolic abscess. A barium enema would require formal bowel preparation and this is contra indicated where large bowel obstruction is suspected. A flexible sigmoidoscopy is unlikely to be helpful and the air insufflated at the time of endoscopy may make the colonic distension worse. A cystogram would provide only very limited information.

Question:

A 55-year-old man from Hong Kong presents with left sided otalgia and recurrent episodes of epistaxis. On examination his pharynx appears normal. Examination of his neck reveals left sided cervical lymphadenopathy. What is the most likely underlying diagnosis?

A.Antrochoanal polyp

B.Nasopharyngeal carcinoma

C.Adenocarcinoma of the tonsil

D.Angiofibroma

E.Globus syndrome

Answer:Nasopharyngeal carcinoma

Explanation:

Given this mans ethnic origin and presenting features a nasopharyngeal carcinoma is the most likely underlying diagnosis.

Question:

You are reviewing a woman who has presented with unilateral facial weakness of acute onset. Which one of the following is the strongest risk factor for developing a Bell's palsy?

A.Sarcoidosis

B.Pregnancy

C.Combined oral contraceptive use

D.Asthma

E.Smoking

Answer:Pregnancy

Explanation:

Pregnant women are 3 times more likely to develop a Bell's palsy. Sarcoidosis may cause a facial nerve palsy but not Bell's palsy per se.

Question:

You are an FY-2 doctor in ophthalmology. A 58-year-old male presents with a painful right eye. He also has some tearing of the eye and a reduced vision. On examination you identify a corneal ulcer. Which of the following is most likely to have resulted in this developing?

A.Antibacterial eye drops

B.Steroid eye drops

C.Saline eye drops

D.Anti-fungal eye drops

E.Lubricant eye drops

Answer:Steroid eye drops

Explanation:

Steroid eye drops can lead to fungal infections, which in turn can cause corneal ulcers

Important for meLess important

A corneal ulcer, otherwise known as a microbial keratitis, is an infection of the cornea by a bacteria, fungi or protists. Treatment will be with eye drop tailored to treat the causative organism. Thus antibacterial or antifungal eye drops may be a treatment but are not causative.

Saline or lubricant eye drops are sterile and benign, they do not lead to a corneal ulcer.

Steroid eye drops are a risk factor, this is because they act by reducing inflammation and thus the immune reaction to an infection, this leads the cornea at risk of infection from a bacteria, fungi or protists.

Question:

A 28-year-old builder attends the respiratory clinic for review. He reports a 6-month history of progressive dyspnoea on exertion associated with coughing. He has been started on a salbutamol inhaler by his general practitioner which he is now using several times a day. He has been smoking since the age of 18 years and he has a 10 pack-year history. Additionally, he reports occupational exposure to asbestos. Further investigation with spirometry testing reports an FEV1/FVC ratio of 0.68. FEV1 pre-bronchodilator therapy is 3.0L. FEV1 post-bronchodilator therapy is 3.4L

What is the most appropriate intervention for this patient?

A.Long-acting beta-agonist (LABA) and long-acting muscarinic antagonist (LAMA) inhaler

B.Long-acting beta-agonist (LABA) inhaler

C.Low dose inhaled corticosteroid (ICS)

D.Omalizumab

E.Oral glucocorticoids

Answer:Low dose inhaled corticosteroid (ICS)

Explanation:

Adult with asthma not controlled by a SABA - add a low-dose ICS

Important for meLess important

Low dose inhaled corticosteroid (ICS) is the correct answer. The above history and spirometry are consistent with a diagnosis of asthma. An FEV1/FVC ratio of <0.7 indicates obstructive pathology. An increase of FEV1 from 3.0L to 3.4L with bronchodilator therapy indicates reversibility. The criteria for reversibility in the diagnosis of asthma is a >12% change in FEV1, which must also be an absolute increase in FEV1 of >200 ml. The reversible obstructive pulmonary pathology in this scenario is consistent with a diagnosis of asthma. The asbestos exposure and smoking history are red herrings. The addition of a low dose ICS inhaler is the next step in the maintenance treatment of asthma after the failure of a short-acting beta-agonist (SABA) inhaler.

Long-acting beta-agonist (LABA) and long-acting muscarinic antagonist (LAMA) inhaler is an incorrect answer. This would be the next step if the patient had a diagnosis of chronic obstructive pulmonary disease (COPD). An FEV1/FVC ratio of <0.7 is consistent with the obstructive pathology of COPD and reversibility can also be seen in COPD, however, this patient has a minimal smoking history over a relatively short period of time. Although there is no definite minimum number of pack-years for the development of COPD, it is often considered that >15 pack-years is clinically relevant and/or a smoking history of over 20 years. This would make a diagnosis of COPD less likely than asthma in this scenario.

Long-acting beta-agonist (LABA) inhaler is an incorrect answer. LABA inhalers are typically introduced for the control of asthma symptoms following the failure of a SABA inhaler, low-dose ICS inhaler, and LTRA combined.

Omalizumab is an incorrect answer. Omalizumab can be used in the maintenance treatment of asthma, however, it is usually reserved for patients with difficult to control symptoms who have failed various combinations of other maintenance therapies.

Oral glucocorticoids are an incorrect answer. Oral glucocorticoids, such as prednisolone, are used for the treatment of asthma exacerbations. They are rarely used for maintenance therapy in difficult to control asthma where other combinations of maintenance therapies have previously failed. This patient is not having an asthma exacerbation but does require an increase in his maintenance therapy. The next appropriate intervention is the addition of a low dose ICS inhaler.

Question:

A 26-year-old trans female patient has a telephone consultation with her GP, wishing to explore the topic of contraception. She was assigned male at birth and is currently under the care of the gender identity clinic (GIC), taking oestradiol and goserelin. At some stage, she wishes to undergo surgery, but has not yet done so.

She is in a relationship with a female partner, with whom she engages in penetrative sexual intercourse. She has no significant past medical history and does not take any regular medications except the two prescribed by the GIC.

Which of the following should she be advised regarding contraception?

A.A vasectomy is the only suitable option

B.The patient should use condoms

C.Goserelin prevents sperm production and so contraception is not needed

D.Oestradiol prevents sperm production and so contraception is not needed

E.The patient's partner should use hormonal contraception

Answer:The patient should use condoms

Explanation:

For patients assigned male at birth treated with oestradiol, GNRH analogs, finasteride or cyproterone, there may be a reduction or cessation of sperm production but it cannot be relied upon as a method of contraception

Important for meLess important

The only correct option here is that condoms should be used.

Oestradiol, gonadotropin-releasing hormone analogues (such as goserelin) and other medications that may be prescribed by the GIC lead to a reduction or cessation of sperm production, but this is not a reliable form of contraception.

Telling the patient that a vasectomy is 'the only' suitable option is incorrect - it is certainly a consideration, but condoms are also a suitable option.

Advising the patient that her partner should use hormonal contraception is incorrect - the partner is not necessarily your patient as well and advice should be given directly to the patient in front of you. As condoms are a suitable option, this is the most preferable advice to give.

Question:

A 62-year-old female presents to her general practitioner for a diabetic review. She has been suffering from type-two diabetes mellitus for a long time, but never fully controlled it. All the lifestyle changes have been implemented and she has been taking metformin and gliclazide. Today, she complains of polyuria and her Hba1c is 62 mmol/mol. Her past medical history comprises hypertension, controlled with amlodipine and recurrent urinary tract infections. She is keen on avoiding insulin as she is afraid of needles.

Which one of the following options is the most correct regarding her management?

A.Add exenatide

B.Add sitagliptin

C.Stop all the drugs and start insulin therapy

D.Stop gliclazide and prescribe sitagliptin

E.Stop metformin and prescribe pioglitazone

Answer:Add sitagliptin

Explanation:

TD2M already on 2 drugs - if HbA1c > 58 mmol/mol then one of the following should be offered:

metformin + DPP-4 inhibitor + sulfonylurea

metformin + pioglitazone + sulfonylurea

metformin + (pioglitazone or sulfonylurea or DPP-4 inhibitor) + SGLT-2 if certain NICE criteria are met

insulin-based treatment

Important for meLess important

The correct answer is to add sitagliptin. The NICE guidelines suggest that patients with HbA1c > 58 mmol/mol already on two drugs should be either offered a third drug or insulin therapy should be considered. Given that she is afraid of needles, insulin therapy should be avoided if possible. Hence a third drug should be added, either an SGLT-2 inhibitor, a gliptin, or pioglitazone, given that she is already taking metformin and gliclazide (a sulfonylurea). Since she has a past medical history of recurrent urinary tract infections, SGLT-2 inhibitors should be avoided as they increase the chances of developing them. Pioglitazone is rarely prescribed, so the correct option is to add sitagliptin.

Adding exenatide is incorrect since this drug belongs to the class of GLP-1 mimetics. This class of drugs should be added only if the patient cannot tolerate triple therapy and they have a BMI greater than 35. In this case, none of these two conditions is true, making the option incorrect.

It is incorrect to stop all the drugs and start insulin. This patient clearly stated that she is afraid of needles, and since there are other options we should take into account the patient's preference.

Stop gliclazide and prescribe sitagliptin is incorrect as the NICE guidelines suggest that drugs should not be stopped and substituted but added together to work synergically. You could potentially add a gliptin but you should not stop the other drugs.

Stop metformin and prescribe pioglitazone is incorrect as the NICE guidelines suggest that drugs should not be stopped and substituted but added together to work synergically. You could potentially add pioglitazone but you should not stop the other drugs.

Question:

A 14-month-old child presents to you in primary care after a convulsion. The parents are very distressed as an uncle has epilepsy and they are concerned their daughter may have it. The child appears alert with a temperature of 38.4C, something which the parents believe she has had for four days. Previously, calpol has helped bring this down from a high of 40.7ºC. You also note a pink, maculopapular rash on the chest with minimal spread to the limbs, something which mum says she noticed this morning. The child has been feeding but has had some diarrhoea and you feel some enlarged glands on the back of her head. There is no rash in the mouth. Given your findings, what do you feel is the most likely underlying cause of the child's symptoms?

A.Herpes virus 6

B.Herpes virus 8

C.Parvovirus B19

D.Group A Streptococcus

E.Measles

Answer:Herpes virus 6

Explanation:

Roseola infantum is caused by Herpes virus 6. It is characterised by a 3-5 day high fever followed by a 2 day maculopapular rash which starts on the chest and spreads to the limbs. This generally occurs as the fever is disappearing. Herpes virus 8 is associated with Kaposi's sarcoma and is most commonly seen in AIDS patients. Parvovirus B19 causes 'slapped cheek syndrome' where the rash characteristically begins on the cheeks and then spreads. Group A Streptococcus tends to cause infections of the throat (aka strep throat) and skin (such as cellulitis, erysipelas and impetigo). Measles is an important differential to exclude but the lack of Koplik's spots and the clinical presentation makes roseola more likely.

Question:

A 16-month-old girl is reviewed by her GP. She has a 3 day history of fever and coryzal symptoms. Overnight she has developed a harsh cough. On examination she has a temperature of 38ºC and inspiratory stridor is noticed although there are no signs of intercostal recession. What is the most likely diagnosis?

A.Bronchiolitis

B.Croup

C.Bacterial tracheitis

D.Pertussis

E.Acute epiglottitis

Answer:Croup

Explanation:

Question:

A 5-year-old girl is brought to the Emergency Department by her parents. She has been unwell for 5 days with diarrhoea and is now lethargic and pale. She has not passed urine in over 14 hours, despite her fluid intake being good.

The child is normally well with no past medical history. She takes no regular medications and has had all of her vaccinations. Her symptoms started 2 days after she ate a chicken burger at a carnival.

On examination, multiple petechiae are noted on her torso and limbs and her feet are oedematous.

Given the likely diagnosis, what is the causative organism of this patient's illness?

A.Campylobacter jejuni

B.Clostridium perfringens

C.Escherichia coli

D.Salmonella species

E.Shigella species

Answer:Escherichia coli

Explanation:

Normocytic anaemia, thrombocytopaenia and AKI following diarrhoeal illness - consider HUS

Important for meLess important

This child has had a diarrhoeal illness, likely related to eating undercooked meat at a carnival, and now presents unwell with several abnormal examination findings. Whilst poor urine output could be related to dehydration, the stem is clear that the child has been taking in good amounts of fluid. The oliguria, coupled with peripheral oedema, suggests an underlying acute kidney injury. The petechial bruising and pallor suggest haematological abnormalities. Overall, this picture is in keeping with haemolytic uraemic syndrome (HUS). HUS is characterised by a triad of normocytic anaemia, thrombocytopenia and acute kidney injury. Most cases occur in children and most are associated with diarrhoeal illnesses. The most common cause is Shiga-toxin producing Escherichia coli, particularly the O157:H7 strain. Uncooked meat - such as a chicken burger from a carnival - is a common source of Escherichia coli infection.

Campylobacter jejuni is a leading cause of acute diarrhoea, with approximately one quarter of cases involving bloody diarrhoea. Raw or undercooked meat - particularly chicken - is a common source. However, the illness is usually mild, and not in itself associated with anaemia, renal failure or thrombocytopenia. Whilst there are causes of Campylobacter jejuni associated HUS, which would explain the examination findings seen in this patient, it is a very rare cause of HUS and certainly not the most likely differential in this case.

Clostridium perfringens is another common cause of food-borne illness and causes acute diarrhoea and vomiting. It is not associated with HUS. Whilst vomiting and diarrhoea alone could cause an acute kidney injury alone, this would be related to hypovolaemia (which is unlikely in this child who has been receiving lots of fluid). Furthermore, it would not cause signs of anaemia or thrombocytopenia.

Salmonella species cause diarrhoeal illnesses (although usually not with bloody diarrhoea) after ingestion of contaminated food. Whilst they can be implicated in the development of HUS, this is not common. Escherichia coli is a far more likely causative organism in this patient.

Shigella species cause diarrhoeal illnesses (which can involve bloody diarrhoea) after ingestion of contaminated food (including undercooked meat) and water. Infection is typically mild; As above, the findings consistent with anaemia, thrombocytopenia and acute renal failure both suggest HUS, rather than simple infection alone. Whilst some Shigella species can produce toxins causing HUS, this is a far less common cause of HUS than Escherichia coli and hence is not the most likely causative organism in this patient.

Question:

A 45-year-old man with schizophrenia taking chlorpromazine develops a bilateral resting tremor. What side-effect of antipsychotic medication is this an example of?

A.Tardive dyskinesia

B.Parkinsonism

C.Acute dystonia

D.Akathisia

E.Neuroleptic malignant syndrome

Answer:Parkinsonism

Explanation:

Question:

A 61-year-old man with a previous history of benign prostatic hyperplasia and a previous bladder tumour presents to the Emergency Department with acute urinary retention. He experiences some haematuria one day ago which has been getting worse until today when he cannot pass urine despite feeling as though he needs to go. On examination he is in obvious pain and has a tender and palpable bladder. A bladder scan confirms a residual volume of over 1,000 ml. His urea and electrolytes were checked last month and were normal. On admission he has the following blood test results:

Na+ 137 mmol/l

K+ 4.9 mmol/l

Urea 12.1 mmol/l

Creatinine 171 µmol/l

What is the first step in the management of this gentleman?

A.Bladder irrigation via a 3-way urethral catheter

B.Insertion of a suprapubic catheter

C.CT scan of the urinary tract

D.Insertion of bilateral nephrostomies

E.Urgent flexible cystoscopy

Answer:Bladder irrigation via a 3-way urethral catheter

Explanation:

Continuous bladder irrigation is the treatment for acute clot retention

Important for meLess important

This gentleman has an acute kidney injury (AKI) secondary to bladder outlet obstruction due to clots. The most appropriate intervention in the first instance is to irrigate the bladder so as to washout the clots and relieve the obstruction, this will treat the AKI.

A flexible cystoscopy will be required in due course but it is not the initial treatment for post-renal AKI. Although a suprapubic catheter and bilateral nephrostomies will likely relieve the obstruction by diverting urine, they are invasive treatments and the risk is lower with urethral catheterisation. A CT scan is unlikely to show the underlying pathology and in addition will not be treating his AKI.

Question:

A 28-year-old man with a history of ulcerative colitis presents to his GP with a 6-day history of loose non-bloody stools (around four times a day) and abdominal discomfort.

His disease has been quiescent for many years and he does not take any regular medication. A colonoscopy last done 5 years ago showed proctitis.

Vital signs are as follows: temperature 37.3ºC, pulse rate 82/min, blood pressure 124/78 mmHg, respiratory rate 14/min, oxygen saturation 100%. His abdomen is diffusely soft with no peritonism. A stool culture is sent which comes back as negative.

What is the most appropriate treatment?

A.Budesonide foam enema

B.Mesalazine suppository

C.Oral azathioprine

D.Oral mesalazine

E.Oral prednisolone

Answer:Mesalazine suppository

Explanation:

In a mild-moderate flare of distal ulcerative colitis, the first-line treatment is topical (rectal) aminosalicylates

Important for meLess important

This man is exhibiting symptoms that are suggestive of a flare of his ulcerative colitis. The absence of fever, tachycardia and frequent bloody stools are suggestive of mild-to-moderate disease.

In such circumstances, topical (rectal) aminosalicylates such as mesalazine suppositories have been shown to be most effective in patients with left-sided disease (i.e. proctitis or proctosigmoiditis).

Budesonide foam enema is an example of a topical (rectal) steroid that is sometimes used in mild-to-moderate disease but is generally less effective at inducing remission. NICE guidelines indicate that it can be offered as an add-on treatment if symptoms do not respond to a combination of topical and oral aminosalicylate.

Oral azathioprine has no role in inducing remission in ulcerative colitis. It is a treatment option to maintain remission in patients who have had 2 or more inflammatory exacerbations in 12 months that have required systemic corticosteroids, or if remission is not maintained by aminosalicylates alone.

Oral mesalazine is less effective than topical mesalazine in patients with mild or moderate proctitis. It can be offered as an add-on treatment in this patient if he were to remain symptomatic after 4 weeks despite topical mesalazine. In patients with pancolitis or extensive disease, it can be offered as first-line treatment.

Oral prednisolone can be used to induce remission in ulcerative colitis but is usually reserved for more severe cases or if symptoms remain refractory to first- and second-line measures. If prescribed, a standard regimen would be oral prednisolone 40mg for 7 days, reducing by 5mg each week.

Question:

Joseph, a 55-year-old man, goes to his GP describing a lack of energy, low mood and lack of pleasure doing activities he normally enjoys for the past 10 days. According to ICD-10 criteria, how long must Joseph's symptoms last to be classified as a depressive episode?

A.4 weeks

B.6 weeks

C.2 weeks

D.10 days

E.1 week

Answer:2 weeks

Explanation:

The correct answer is 2 weeks. The ICD-10 criteria for depressive illness are as follows:

In typical depressive episodes, individuals usually suffer from depressed mood, loss of interest in things you would normally find pleasure in (anhedonia), and reduced energy levels (anergia). Other common symptoms include:

Reduced concentration and attention

Decreased self-esteem and confidence

Feelings of guilt and unworthiness

Bleak and pessimistic views of the future

Ideas or acts of self-harm or suicide

Disturbed sleep

Diminished appetite and weight loss

Psychomotor agitation or retardation

Marked loss of libido

Diagnostic criteria for Depressive Episodes

Mild Depressive Episode:

At least 2 of the main 3 symptoms of depression, and at least two of the other symptoms, should be present for a definite diagnosis. None of the symptoms should be present to an intense degree

Minimum duration of the whole episode is about 2 weeks

Individuals may be distressed by symptoms, but should be able to continue work and social functioning

Moderate Depressive Episode:

At least 2 of the main 3 symptoms of depression, and at least three (and preferably four) of the other symptoms, should be present for a definite diagnosis

Minimum duration of the whole episode is about 2 weeks

Individuals will usually have considerable difficulty continuing with normal work and social functioning

Severe Depressive Episode:

All three of the typical symptoms should be present, plus at least four other symptoms, some of which should be of severe intensity

The minimum duration of the whole episode should last at least 2 weeks, but if the symptoms are particularly severe then it may be appropriate to make an early diagnosis

Can also experience psychotic symptoms with severe depressive episodes

Individuals show severe distress and/or agitation

Question:

You review a patient in the respiratory clinic who has a history of recurrent pulmonary embolism despite anticoagulation with warfarin. Which one of the following physiological changes would be expected?

A.Increased lung compliance

B.Reduced TLCO

C.Reduced forced vital capacity

D.Reduced FEV1

E.Increased FEV1 / FVC ratio

Answer:Reduced TLCO

Explanation:

Question:

A 7-year-old girl presents to the emergency department accompanied by her mother. While trying to wake her up this morning, her mother noticed her face twitching and mouth drooling. This episode lasted for 30 seconds and the girl was fully aware of what was happening. The girl was drowsy and confused for the subsequent 15 minutes.

She has been well in herself and has no conditions. The pregnancy and vaginal birth have been uncomplicated. Her mother is worried that she has been tired as she has been going to bed later than usual for the past couple of weeks.

What is the most likely diagnosis?

A.Absence seizure

B.Benign rolandic epilepsy

C.Infantile spasms

D.Juvenile myoclonic epilepsy

E.Reflex anoxic seizures

Answer:Benign rolandic epilepsy

Explanation:

Benign rolandic epilepsy is characterised by partial seizures at night

Important for meLess important

Benign rolandic epilepsy is the correct answer. Benign rolandic epilepsy (BRE) is a syndrome seen in childhood, usually between the ages of 4-12. The children will usually have a focal seizure, involving their face, drooling, and one side or one limb twitching (that can sometimes progress to secondary generalised seizure) either before or after bedtime. It is common for children to be sleep deprived. The EEG classically shows centrotemporal spikes, as the seizure is initiated in the rolandic fissure (central sulcus), hence the name. It carried a really good prognosis, and might not even need treatment depending on the severity and frequency of the seizures.

Absence seizure is incorrect. This is a type of epilepsy in children (commonly misdiagnosed as attention deficit hyperactivity disorder) that is characterised by periods of absence and quick recovery. This is a generalised type of seizure, which means that the patient will not have awareness, unlike in this case. Moreover, there would not be any twitching of limbs, again suggesting this patient has a focal seizure.

Infantile spasms is incorrect. This is a condition that commonly occurs in infants (up to 1 year old) and involves 'spasm' like movements that are usually associated with developmental delay in the milestones. This is a very heavy diagnosis as it carries a poor prognosis, and is unlikely in this case.

Juvenile myoclonic epilepsy is incorrect. This is a relatively common syndrome and is focal and in fact associated with sleep deprivation. However, it would characteristically produce 'myoclonic' jerks, meaning fast and rhythmic movements of the limbs, commonly on a background of daytime absences. These have the potential to become secondarily generalised seizures, just like BRE.

Reflex anoxic seizures is incorrect. Also, known as a pallid breath-holding spell, this would commonly be seen in infants and children up to 2 years of age. They tend to be triggered by stress and pain (it is presumed they occur due to very sensitive cardiac reflexes in babies). The baby will go pale and become unresponsive for a short period of time and then have a quick recovery. These are benign in nature and have a good prognosis.

Question:

A 37 year old woman who is 32 weeks pregnant presents with malaise, headaches and vomiting. She is admitted to the obstetrics ward after a routine blood pressure measurement was 190/95mmHg. Examination reveals right upper quadrant abdominal pain and brisk tendon reflexes. The following blood tests are shown:

Hb 85 g/l

WBC 6 \* 109/l

Platelets 89 \* 109/l

Bilirubin 2.8 µmol/l

ALP 215 u/l

ALT 260 u/l

γGT 72 u/l

LDH 846 u/I

A peripheral blood film is also taken which shows polychromasia and schistocytes.

What is the most likely diagnosis?

A.Obstetric cholestasis

B.HELLP syndrome

C.Eclampsia

D.Gestational hypertension

E.Acute viral hepatitis

Answer:HELLP syndrome

Explanation:

HELLP syndrome is a severe form of pre-eclampsia whose features include: Haemolysis (H), elevated liver enzymes (EL), and low platelets (LP). A typical patient might present with malaise, nausea, vomiting, and headache. Hypertension with proteinuria is a common finding, as well as epigastric and/or upper abdominal pain.

The patient in this scenario fulfils the criteria for HELLP syndrome.

Question:

A 71-year-old woman is reviewed in her local GP surgery. She has recently changed practices and is having a routine new patient medical. Her blood pressure is 146/94 mmHg. This is confirmed on a second reading. In line with recent NICE guidance, what is the most appropriate management?

A.Ask her to come back in 6 months for a blood pressure check

B.Arrange 3 blood pressure checks with the practice nurse over the next 2 weeks with medical review following

C.Arrange ambulatory blood pressure monitoring

D.Reassure her this is acceptable for her age

E.Start treatment with a calcium channel blocker

Answer:Arrange ambulatory blood pressure monitoring

Explanation:

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

Important for meLess important

The 2011 NICE guidelines recognise that in the past there was overtreatment of 'white coat' hypertension. The use of ambulatory blood pressure monitoring (ABPM) aims to reduce this. There is also good evidence that ABPM is a better predictor of cardiovascular risk than clinic blood pressure readings. See the following study for more details:

Verdecchia P. Prognostic value of ambulatory blood pressure: current evidence and clinical implications. Hypertension 2000; 35: 844-851

Question:

A 72-year-old man is admitted to hospital with shortness-of-breath and central chest pain. On examination his pulse is 102/min, BP 100/64 mmHg, respiratory rate 24/min, temperature 37.7ºC, oxygen saturations 96% on room air. A 12-lead ECG shows sinus rhythm, at a rate of 94/min with no diagnostic ST-T changes. The troponin I level is < 0.05 µg/L. A CT chest (with contrast) is ordered:

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What is the most likely diagnosis?

A.Superior vena cava obstruction

B.Aortic dissection (Stanford type A)

C.Infective endocarditis

D.Aortic dissection (Stanford type B)

E.Pulmonary embolism

Answer:Pulmonary embolism

Explanation:

The CT shows a large saddle embolus where the pulmonary trunk splits to form the right and left pulmonary arteries.

Most image-based questions can be answered without looking at the image. If we therefore concentrate on the history a few clues point towards a pulmonary embolism (PE). The first is tachypnoea. Around 95% of patients with a PE have a respiratory rate > 16/min. Tachypnoea is not as common in any of the other diagnoses. A low-grade temperature is also an under appreciated sign of pulmonary embolism. This could of course be consistent with infective endocarditis but there are no other features to support this diagnosis.

Question:

You are reviewing test results. The midstream specimen of urine (MSU) from a 24-year-old woman who is 11 weeks pregnant shows a urinary tract infection. On discussing the result with the patient she does describe some dysuria and 'smelly urine'. What is the most appropriate management?

A.Ciprofloxacin for 7 days

B.Nitrofurantoin for 7 days

C.Repeat MSU

D.Trimethoprim for 3 days

E.Amoxicillin for 3 days

Answer:Nitrofurantoin for 7 days

Explanation:

As this woman is symptomatic she should be treated with an antibiotic that is safe to use in pregnancy. Trimethoprim should not be used in the first trimester of pregnancy, leaving nitrofurantoin as the correct answer.

NICE CKS specifically recommend not using amoxicillin due to high levels of resistance.

Question:

A 20-year-old male visits the GP. He states yesterday he went diving for the first time and his ear 'went funny' only a few minutes into the dive. There is hearing loss and mild pain inside of the left ear. There is no discharge and the right ear is unaffected. Currently, he is afebrile and all other vital signs are within normal range.

Otoscopy of the left ear shows a perforated tympanic membrane with slight erythema and no effusion.

What do you do?

A.Prescribe amoxicillin

B.Refer to ENT

C.Prescribe antivirals

D.Reassure the patient and follow up

E.Prescribe flucloxacillin

Answer:Reassure the patient and follow up

Explanation:

A perforated tympanic membrane caused by barotrauma is self-limiting

Important for meLess important

Patients presenting with a perforated tympanic membrane secondary to barotrauma should be reassured and told it will likely resolve after 6-8 weeks. An appointment in a few weeks time would be helpful to check if the healing has progressed. There can be associated otitis media, however, this patient has mild symptoms and it would be sensible to withhold amoxicillin only if the patient's symptoms worsen. If the perforation does not heal a referral to ENT would be appropriate where they may perform a tympanoplasty. Antivirals and flucloxacillin are not routinely given for otitis media.

Question:

An obese 55-year-old man presents with a three day history of drowsiness and increasingly severe polydipsia. He feels weak and reports a marked increase in frequency of urination. He is recovering from a recent diarrhoeal illness and has only a past medical history of hypercholesterolaemia and bilateral knee osteoarthritis. He is currently taking simvastatin and paracetamol. Examination is normal. His blood glucose is found to be 42mmol/L. Serum osmolarity is found to be 400 mmol/L (278-305 mmol/L).

Urinalysis shows:

Appearance Normal

Blood Negative

Leukocytes Negative

Nitrites Negative

Ketones Negative

A recent arterial blood gas (ABG) shows:

pH 7.39

pO2 11.6 kPa

pCO2 5.4 kPa

Bicarbonate 26 mmol/l

What is the most likely diagnosis?

A.Diabetic ketoacidosis

B.Urinary tract infection

C.Hyperglycaemic hyperosmolar state

D.Pulmonary embolus

E.Type 1 diabetes

Answer:Hyperglycaemic hyperosmolar state

Explanation:

Clues to the correct diagnosis of hyperglycaemic hyperosmolar state are hyperglycemia with increased serum osmolarity and no ketosis.

Illness and/or dehydration leads to the gradual development of hyperglycemia and increased intravascular osmolarity. There is no ketosis as basal insulin levels allow cellular uptake of plasma glucose.

Diabetic ketoacidosis is excluded by the lack of acidosis or ketones.

A urinary tract infection is excluded by the normal urinalysis result.

A pulmonary embolism is unlikely given the normal ABG.

A first presentation of Type 1 diabetes at age 55 is unlikely. Type 1 diabetes typically first presents in childhood or early adulthood.

Question:

A 57-year-old man of Indian ethnicity presents to the Emergency Department (ED) with a fever and a productive cough. His past medical history is significant for type 2 diabetes, for which he takes metformin. He has a history of poor control, with his most recent HbA1c being 57 mmol/mol.

He has never smoked but is known to have a history of alcohol abuse, and states that he currently drinks 60 units of alcohol per week. There has been no recent foreign travel. The patient lives in a house with his wife who is well.

A chest x-ray performed in the ED shows cavitating lesions in the right upper zone.

What is the most likely causative organism?

A.Haemophilus influenzae

B.Klebsiella pneumoniae

C.Mycobacterium tuberculosis

D.Mycoplasma pneumoniae

E.Streptococcus pneumoniae

Answer:Klebsiella pneumoniae

Explanation:

Klebsiella most commonly causes a cavitating pneumonia in the upper lobes, mainly in diabetics and alcoholics

Important for meLess important

This patient has pneumonia, as evidenced by the cough, fever, and radiological evidence.Klebsiella pneumoniae is often seen in patients with a history of alcohol abuse and/or diabetes. It causes cavitating lesions in the upper lobes, making this the most likely diagnosis.

Mycobacterium tuberculosis can also cause cavitating lesions in the upper lobes, but there is no history of recent travel or contacts. Ethnicity alone is insufficient to presume TB. In addition, diabetes and alcohol abuse in this question point towards Klebsiella pneumoniae as the more likely organism.

Although Streptococcus pneumoniae, Haemophilus influenzae, and Mycoplasma pneumoniae are all causes of pneumonia, they do not typically cause cavitating upper lobe lesions and are not generally linked to alcohol abuse.

Question:

A mother brings her 2-month-old son into the surgery to receive his first set of vaccinations. She is hesitant to vaccinate him, and particularly sceptical about the recent addition of the the rotavirus vaccine to the immunisation programme.

What can you tell her about the rotavirus vaccine?

A.An inactivated form of the virus is given orally

B.Only one dose is required

C.A second dose will be required when her son reaches 3 years of age

D.It is an oral, live attenuated vaccine

E.It is an injected inactivated toxin

Answer:It is an oral, live attenuated vaccine

Explanation:

Rotavirus is an oral, live attenuated vaccine

Important for meLess important

Rotavirus is a live attenuated vaccine, which is given orally at two and three months of age. Other examples of oral, live attenuated vaccines include polio and typhoid.

Two doses are required. It is not currently given routinely at 3 years of age.

It is not an injected vaccine, nor is it an inactivated toxin. Examples of inactivated toxin vaccines include: tetanus, diphtheria and pertussis.

Question:

A 23-year-old man presents to his GP with a swollen pinna of the left ear.

He has sustained a blow to the side of his head while playing rugby. He did not lose consciousness during the injury, and remembers all events. He has no features suggestive of a concussion, and he denies any neurological symptoms.

On examination, his neurological examination is completely normal. However, the upper half of the left pinna is hot, red, swollen and exquisitely tender to touch. His observations are normal.

What is the most appropriate course of action?

A.Refer into hospital for urgent assessment by ENT

B.Refer into hospital for urgent CT Head

C.Refer into hospital for urgent intravenous antibiotics

D.Send home, advising regular analgesia, cold compression and to avoid contact sports for 6 weeks

E.Send home, advising regular analgesia, hot compression and to avoid contact sports for 6 weeks

Answer:Refer into hospital for urgent assessment by ENT

Explanation:

Auricular haematomas need same day assessment by ENT

Important for meLess important

This man has an auricular haematoma, and this needs urgent assessment by ENT.

He has no 'red flags' that suggest he requires a CT head, and the history is not in keeping with pinnal cellulitis.

It would be inappropriate to send this patient home without ENT assessment, as untreated auricular haematomas can lead to permanent disfigurement of the ear.

Question:

You review a 68-year-old lady in neurology clinic with a diagnosis of Parkinson's disease. You note as she enters the room that she walks slowly with her arms by her side. She has a characteristic tremor, and is lifting her left foot higher than the right. She has some difficulty initiating the conversation. Which of the following is due to a condition other than the patient's Parkinson's disease.

A.Reduced arm swing whilst walking

B.Steppage gait

C.Depression

D.Speech disturbance

E.Unilateral tremor

Answer:Steppage gait

Explanation:

Steppage gait is characterised by a high step due to foot drop and loss of ability to dorsiflex the foot. Unilateral tremor is seen initially in Parkinson's prior to it becoming bilateral. Depression, reduced arm swing and speech disturbance are also features of Parkinson's disease.

Question:

A 55-year-old woman currently admitted to orthopaedics following a road traffic accident where she broke her femur. 2 days after the incident she becomes breathless with a temperature of 38.3ºC. It is noted that she is quite confused and on fundoscopy retinal haemorrhages are seen. After exposing the patient to perform an A-E assessment, no rashes are noted and nothing else of relevance is found. She is sent for a chest X-ray which comes back clear.

Which of the following is the most likely diagnosis?

A.Osteomyelitis

B.Fat embolism

C.Pulmonary embolism

D.Pneumonia

E.Acute respiratory distress syndrome (ARDS)

Answer:Fat embolism

Explanation:

Retinal haemorrhages and intra-arterial fat globules on fundoscopy can be assoicated with fat embolsim

Important for meLess important

This question looks at the differentials for breathlessness both in a hospital setting and post-trauma. In her case, the breathlessness develops 2 days after the injury and this will help us to rule out some of our differentials

Fat embolism is the correct answer as this fits the typical pattern of a fat embolism. Fever, breathlessness, confusion and retinal haemorrhages are all features of a fat embolus and can occur up to 3 days after the trauma. While other features can occur (such as a petechial rash, these are not always present).

Osteomyelitis or pneumonia may be a source of infection following a traumatic injury like this one, and thus sepsis should be excluded. However, the other features in the history such as retinal haemorrhages would not be accounted for by an infection. Pneumonia would also show up on an X-ray

A pulmonary embolism will obviously present very similarly to a fat embolism and will be on your differential list, but will again not cause any retinal haemorrhages. Also, pulmonary embolism's typically occur 5-7 days after surgery or trauma and this does not fit with the time window given in the question

Acute respiratory distress syndrome (ARDS) could also be a cause of this woman's breathlessness. It can occur within 7 days of a traumatic injury and is the result of an inflammatory process in the lungs causing pulmonary oedema. This would not cause retinal haemorrhages. It would not occur with a clear chest X-ray as signs of pulmonary oedema would be present.

Question:

A 9-year-old girl is brought to see her GP by her mother with a 2 and a half week history of cough. Her mother says that she had a few days of coryzal symptoms around 3 weeks ago, shortly before the cough started. She says she coughs regularly that sometimes makes her vomit, and claims to have noticed a 'whooping' sound when she breathes in after a coughing fit. Her observations are all within normal limits.

Given the likely diagnosis, what is the appropriate treatment?

A.Admit to hospital for intravenous (IV) antibiotics

B.Advice only

C.Prescribe oral clarithromycin

D.Prescribe oral co-amoxiclav

E.Prescribe oral doxycycline

Answer:Prescribe 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 'prescribe oral clarithromycin'.

Whooping cough typically presents with a short period of coryzal symptoms followed by the onset of paroxysmal bouts of coughing. These bouts of coughing can cause vomiting and may be followed by an inspiratory whoop. If patients present within three weeks of the onset of the cough, then they should be prescribed azithromycin or clarithromycin to eradicate the organism and try to reduce the spread of the illness. As this patient has presented within this time frame, she should be prescribed clarithromycin from the options above.

Admitting the patient to the hospital for IV antibiotics would be inappropriate as this patient is systemically well given that all her observations are within normal limits.

If this patient had presented more than three weeks from the onset of her cough, then providing advice only would be the correct answer.

Oral co-amoxiclav and oral doxycycline are not recommended treatments for whooping cough.

Question:

A 30-year-old woman is taken to theatres for surgical removal of a phaeochromocytoma on her left adrenal gland. She had noticed 4 weeks prior that she was always hot, tremulous, having palpitations and recurrent headaches. Urinary collection of metanephrines over 24 hours confirmed the diagnosis.

Her blood pressure was found to be 165/100 mmHg and she was subsequently started on propranolol and this effectively managed her symptoms.

In theatres, whilst on the table and after successful resection of the phaeochromocytoma, she has a sudden hypotensive emergency and has a cardiac arrest. After resuscitation she achieves return of spontaneous circulation and recovers well.

Which drug should have been given, before beta-blockade, to avoid this surgical complication?

A.Doxazosin

B.Phenelzine

C.Phenobarbital

D.Phenoxybenzamine

E.Phenytoin

Answer:Phenoxybenzamine

Explanation:

PHaeochromocytoma - give PHenoxybenzamine before beta-blockers

Important for meLess important

Phenoxybenzamine is correct, as this is a non-selective alpha-blocker used for the management of hypertension associated with phaeochromocytoma and used prior to surgical removal.

Doxazosin is incorrect as this is selective alpha-blocker not indicated for management of hypertension with phaeochromocytoma.

Phenelzine is incorrect as this is an antidepressant of the monoamine-oxidase inhibitor class.

Phenobarbital is incorrect as this is used in the management of status epilepticus.

Phenytoin is incorrect as this drug is used for the management of patients with epilepsy.

Question:

An 87-year-old man is brought to the emergency department from his care home with confusion and a urine output of 200ml in the last 12 hours. He has a complex past medical history including hypertension, rheumatoid arthritis, and dementia. His blood and urine tests show the following:

Hb 154 g/L (115 - 160)

Platelets 235 \* 109/L (150 - 400)

WBC 8.3 \* 109/L (4.0 - 11.0)

Na+ 146 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 17.1 mmol/L (2.0 - 7.0)

Creatinine 122 µmol/L (55 - 120)

Urine osmolality 950 mOsm/kg (50-1200)

Urine sodium 12 mmol/L (40-250)

What is the most likely cause of his symptoms?

A.Acute interstitial nephritis

B.Acute tubular necrosis

C.Benign prostatic hyperplasia

D.Dehydration

E.Kidney stone

Answer:Dehydration

Explanation:

ATN or prerenal uraemia? In prerenal uraemia think of the kidneys holding on to sodium to preserve volume

Important for meLess important

The correct answer is dehydration. This patient is presenting with confusion, which is an unspecific symptom in elderly patients, especially with dementia, and anuria. The blood tests show that the patient has high sodium and urea. The urine test shows normal osmolarity with sodium inferior to 20 mmol/L. This is a hallmark in the diagnosis of prerenal uraemia. One of the most common causes of prerenal uraemia, especially in elderly patients is dehydration.

To distinguish between prerenal uraemia and acute tubular necrosis, it is fundamental to look the urine sodium and osmolality and the serum urea : creatinine ratio. In prerenal uraemia, the body is trying to retain fluids. Hence, it is going to retain sodium to increase them, resulting in high blood sodium and low urine sodium.

Acute interstitial nephritis is a cause of acute kidney injury, mostly caused by drugs such as penicillin, rifampicin, NSAIDs, allopurinol and furosemide. It presents with fever, rash, and arthralgia. On blood tests, eosinophilia would be expected. None of these features are present in this patient, making the option incorrect.

Acute tubular necrosis is the most common cause of acute kidney injury. It is caused by the necrosis of tubular cells due to ischaemia or nephrotoxins. On blood tests, normal serum urea:creatinine ratio would be expected. On urine tests, sodium levels higher than 40 mmol/, low osmolality, and muddy brown casts would be expected. None of these features is present in this patient, making the option incorrect.

Benign prostatic hyperplasia is a common cause of post-renal obstruction. It would present with anuria and retention symptoms such as abdominal pain. The blood test would show normal urea : creatinine ratio and urine osmolality would be less than 350 mOsm/kg.

A kidney stone can cause post-renal obstruction. It would present with strong colicky pain localised in the flank. Additionally, the blood test would show normal urea : creatinine ratio and urine osmolality would be less than 350 mOsm/kg.

Question:

A 32-year-old woman is given a 7-day course of erythromycin for cellulitis. She is otherwise healthy and takes the progesterone-only pill as contraception.

She is worried about the interaction of her contraceptive pill and her antibiotic, as she remembers reading something about an interaction between them.

What is the most appropriate advice to give her in terms of her contraception?

A.Reassurance that no additional precautions are needed

B.Advise using additional barrier contraceptives for the duration of the antibiotic course, but continue to take the pill

C.Advise ceasing the pill and using additional barrier contraceptives for the duration of the antibiotic course

D.Advise ceasing the pill and using additional barrier contraceptives from 3 days before until 7 days after the antibiotic course

E.Advise timing the 7-day pill-free interval with her antibiotic course

Answer:Reassurance that no additional precautions are needed

Explanation:

Progestogen only pill + antibiotics - no need for extra precautions

Important for meLess important

There was historical widespread media coverage about the dangers of taking either form of contraceptive pill and antibiotics, with concerns over the antibiotic reducing the efficacy of the pill. However, it is now known that there is no interaction between broad-spectrum antibiotics and the progesterone-only pill and therefore there are no contraindications or extra precautions needed.

The only exception is enzyme-inducing antibiotics, such as rifampicin, which may affect the pill. Equally, if an antibiotic was to cause side effects such as vomiting or diarrhoea, this may affect the efficacy of the pill, but this is as for any form of vomiting or diarrhoea.

Therefore, the correct answer is to provide reassurance, and advice no additional precautions are needed.

Advising using barrier contraceptives is incorrect as there is no evidence that broad-spectrum antibiotics such as erythromycin affects the efficacy of the progesterone only pill.

Advising ceasing the pill and using barrier contraceptives is incorrect as using non hepatic inducing antibiotics are not a contraindication to taking the pill, and there are no harmful effects of doing so.

Advise ceasing the pill and using barrier contraceptives from 3 days before until 7 days after the antibiotic course is incorrect as stated above, there are no harmful effects of taking the pill at the same time as the antibiotics.

Advise timing the 7-day pill-free interval with her antibiotic course is incorrect. The progesterone-only pill does not have a 7-day pill-free interval like the combined contraceptive pill does.

Question:

An 83-year-old female presents to the cardiology clinic with persistent shortness of breath which is limiting her activities of daily living. She has a history of dilated cardiomyopathy, for which she currently takes candesartan, bisoprolol and furosemide. An echocardiogram shows a left ventricular ejection fraction of 40%.

Which of the following would be the most appropriate additional long-term therapy for improving this patients prognosis?

A.Bendroflumethiazide

B.Diltiazem

C.Dobutamine

D.Ramipril

E.Spironolactone

Answer:Spironolactone

Explanation:

Offer a mineralcorticoid receptor antagonist, in addition to an ACE inhibitor (or ARB) and beta-blocker, to people who have heart failure with reduced ejection fraction if they continue to have symptoms of heart failure

Important for meLess important

This patient is presenting with symptoms of chronic heart failure. Echocardiography identifies a reduced ejection fraction (normal >55%). Management of heart failure with reduced ejection fraction is initially with an ACE inhibitor (or ARB as is the case in this patient) and a beta-blocker. As both of these have been prescribed and the patient's symptoms are not controlled, spironolactone (a mineralocorticoid receptor antagonist) should also be added.

Bendroflumethiazide is incorrect as thiazide and thiazide-like diuretics are not recommended for long-term management of heart failure.

Diltiazem is a calcium channel blocker and is, therefore, contraindicated in chronic heart failure.

Dobutamine is an inotrope that may be used in acute decompensated heart failure but has no role in the stable management of chronic heart failure.

Ramipril is incorrect as this patient is already taking candesartan, another angiotensin II receptor blockers.

Question:

You are an F2 working on your General Practice rotation. One morning a 46-year-old male comes into your clinic, he says he doesn't like to come to the doctors often. He explains that he's been having diarrhoea recently with a little weight loss. He has a previous diagnosis of IBS and explains he has been very stressed at work. During the rest of the consultation, he provides a convincing history and examination of a flare of IBS and believes this is the cause of his problem, you also think this is most likely the problem. You suggest a colonoscopy might be sensible as he has had some weight loss but he interrupts saying he is getting married next week and just wants to be well for the event and the honeymoon. What is the best action to take at this time?

A.Give him some symptomatic relief and ask him to return if things don't improve

B.Try to explain further why you feel the patient should have an colonoscopy

C.Document he has refused to have a colonoscopy

D.Ask him to book another appointment tomorrow with a GP partner

E.Tell him to postpone his honeymoon as he must have the colonoscopy

Answer:Try to explain further why you feel the patient should have an colonoscopy

Explanation:

Option 2 is the correct answer here as you need to be careful not to be swayed by the patient's agenda and make sure you make an adequate assessment of this patient and give suitable advice regarding investigations you feel are required. Because the patient has his own strong opinions, he may not be aware of exactly why you are suggesting certain investigations and their importance and so further explanation of your concerns will inform the patient of this. Option 1 and 3 does not address your concerns that he may have a malignancy and could be seen as negligent. Option 5 is perhaps excessive as he may be able to have the colonoscopy before or after the honeymoon, that is if he evens consents to the procedure even after the further explanation. Option 4 may be unnecessary as the further explanation of the colonoscopy may change the patient's mind, and so would not be the best action to take at this time.

GMC - Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 72-year-old man is on a respiratory ward following an infective exacerbation of chronic obstructive pulmonary disease (COPD). He is normally on long-term oxygen therapy (LTOT) and regular home nebulisers. He required nocturnal non-invasive ventilation (NIV) for 2 nights during his stay but has now been weaned off this, however is still requiring a 24% Venturi mask at 4 litres/minute to maintain oxygen saturations between 88-92%. His normal LTOT is 1 litre/minute. He has an arterial blood gas performed by the FY1 which shows the following:

pH 7.38

PaO2 7.9 kPa

PaCO2 7.8 kPa

HCO3- 34.1 mmol/l

Base excess 5.1

How would this ABG best be described?

A.Fully compensated metabolic alkalosis, type 2 respiratory failure

B.Partially compensated respiratory acidosis, type 1 respiratory failure

C.Partially compensated metabolic acidosis, type 2 respiratory failure

D.Fully compensated respiratory acidosis, type 2 respiratory failure

E.Fully compensated respiratory acidosis, type 1 respiratory failure

Answer:Fully compensated respiratory acidosis, type 2 respiratory failure

Explanation:

COPD with chronic hypercapnia leads to compensated respiratory acidosis on an ABG

Important for meLess important

This history of COPD and LTOT clearly point towards somebody who has chronic type 2 respiratory failure. The ABG shows pH in normal range, therefore fully compensated, and raised bicarbonate and base excess which indicate metabolic compensation (a chronic process). The raised pCO2 indicates hypercapnia, which is what led to the acidosis in the first place, and therefore the overall picture is that of fully compensated respiratory acidosis.

Type 2 respiratory failure is present as PaO2 is <8 kPa (despite even being on 24% oxygen) and PaCO2 is >6 kPa. Hypoxia + hypercapnia = type 2 (hypercapnic) respiratory failure.

This is very typical ABG for a patient with severe COPD.

Question:

An 87-year-old woman presents to her general practitioner for a medication review. She has a complex past medical history comprising diabetes, hypertension, osteoporosis and depression. She has been feeling weak and run down recently. The doctor decides to formally assess her frailty status, in order to address her needs in the best way possible.

Which one of the following tools should they use?

A.FAST

B.FRAX

C.GPCOG

D.NYHA

E.PRISMA-7

Answer:PRISMA-7

Explanation:

Frailty should be specifically assessed through the evaluation of gait speed, self-reported health status, or the PRISMA-7 questionnaire

Important for meLess important

The correct answer is PRISMA-7. This 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. This patient has multiple conditions and has been feeling tired and run down recently, prompting the doctor to correctly assess her for frailty.

The PRISMA-7 questionnaire is composed of seven questions that enquire about age, sex, health problems, help at home, mobility and social support. If the respondent answers 'yes' on 3 or more questions, this indicates an increased risk of frailty and the need for further clinical review.

FAST is an alcohol harm assessment tool. An overall total score of 3 or more requires more detailed AUDIT alcohol screening.

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.

GPCOG is a test designed as a GP screening tool for dementia.

NYHA is a widely used scale to classify the severity of heart failure. This patient needs to be assessed for frailty. Additionally, heart failure does not appear in her past medical history.

Question:

A 30-year-old woman presents to the emergency department concerned as she had contact with a child earlier this morning who may have chickenpox. The child was feverish and experiencing symptoms of a sore throat and pruritic vesicles on the face.

The patient is concerned as she is 24 weeks pregnant. She is unsure whether she had chickenpox in the past and does not believe she was ever vaccinated for it.

Which of the following is the next best step in the management of this patient?

A.Check maternal blood for varicella zoster antibodies

B.Consult infectious diseases (ID) for further management

C.Reassure her and ask her to comeback if she develops symptoms

D.Start her on varicella-zoster immunoglobulins (VZIG) and aciclovir

E.Start her on varicella-zoster immunoglobulins (VZIG) only

Answer:Check maternal blood for varicella zoster antibodies

Explanation:

Chickenpox exposure in pregnancy - first step is to check antibodies

Important for meLess important

Varicella-zoster virus causes a mild self-limiting infection in healthy children. However, it can cause a severe infection in the elderly and immunocompromised as well as complications in pregnancy. In cases of exposure during pregnancy, and the mother being unsure about her immunity, the first step of management is to urgently test for antibodies against the varicella-zoster virus.

There is clear advice from public health England regarding post-exposure prophylaxis against varicella exposure during pregnancy and therefore further consultation is not required.

There is a need to act promptly and reassurance is not the correct option especially when the mother is unsure of her immunity status.

Only after confirmation of non-immunity, via testing, would management be giving either VZIG or anti-viral such as aciclovir. As the patient is over 20 weeks pregnant treatment would be advised at 7-14 days exposure based on current guidelines.

If the patient is not immune and was less than equal to 20 weeks of gestational age, treating with varicella-zoster immunoglobulins (VZIG) would be correct. However, a lack of immunity must first be confirmed.

Question:

A 28-year-old woman presents to the general practitioner with a reported exacerbation of her ulcerative colitis. She describes passing three stools per day for the last two days and has noticed some blood in her stools since yesterday morning. She also reports feeling like she needs to open her bowels frequently. Her temperature is 36.7ºC, pulse 78 beats/min, blood pressure 128/86mmHg.

What is the most appropriate initial management?

A.Oral azathioprine

B.Oral mercaptopurine

C.Oral prednisolone

D.Oral sulfasalazine

E.Topical (rectal) mesalazine

Answer:Topical (rectal) mesalazine

Explanation:

In a mild-moderate flare of distal ulcerative colitis, the first-line treatment is topical (rectal) aminosalicylates

Important for meLess important

These symptoms are suggestive of a mild to moderate exacerbation of distal ulcerative colitis with reported tenesmus and small amounts of bloody stool. Topical mesalazine is therefore the most appropriate initial management option out of those listed.

Question:

A 21-year-old man is admitted to the emergency department after being found at home with rapid, laboured breathing and vomiting. The patient's husband reports that he had been unwell with a viral infection for the last few days and had decided not to take his insulin.

A diagnosis of diabetic ketoacidosis is made. Initial intravenous fluid hydration is started, followed by starting a fixed-rate insulin infusion with a 0.9% sodium chloride substrate.

At 6 hours, a repeat venous blood gas is performed. Key values include:

pH 7.20 (7.35-7.45)

Glucose 13.6 mmol/L

Ketones 1.1 mmol/L (<0.6)

What is the next management step?

A.Continue current management and add 10% dextrose infusion

B.Continue current management for a further 6 hours and then recheck bloods

C.Convert fixed rate insulin infusion to subcutaneous insulin

D.Convert fixed rate insulin infusion to variable rate insulin infusion

E.Stop 0.9% saline infusion and start 10% dextrose infusion

Answer:Continue current management and add 10% dextrose infusion

Explanation:

Diabetic ketoacidosis: once blood glucose is < 14 mmol/l an infusion of 10% dextrose should be started at 125 mls/hr in addition to the saline regime

Important for meLess important

This scenario describes a 21-year-old man who has presented with diabetic ketoacidosis (DKA), likely secondary to not taking insulin whilst unwell. Initial management of intravenous rehydration and fixed rate insulin infusion (FRII) has been started. The latest blood results demonstrate that the patient has ongoing DKA, as seen with acidosis and raised ketones. But, the bloods demonstrate that the glucose level is <14mmol/L. As a result, the patient still requires DKA treatment but glucose is required to avoid hypoglycaemia. Therefore, the patient should continue current management and add 10% dextrose infusion.

Continue current infusion and repeat bloods hourly is incorrect. Whilst the patient is still in DKA and requires ongoing FRII with 0.9% saline infusion, their blood glucose level is now <14 mmol/L and therefore a 10% dextrose infusion should be started to avoid hypoglycaemia.

Convert fixed rate insulin infusion to subcutaneous insulin is incorrect. This patient has ongoing DKA and therefore conversion to subcutaneous insulin is not currently appropriate.

Convert fixed rate insulin infusion to variable rate insulin infusion is not correct. The patient is still in DKA and therefore FRII should continue. A variable rate insulin infusion (VRII) is typically only used to control blood glucose levels for a patient who is acutely unwell or nil-by-mouth.

Stop 0.9% saline infusion and start 10% dextrose infusion is incorrect. Whilst this patient is at risk of hypoglycaemia and should have a 10% dextrose infusion included in their management plan, the 0.9% saline infusion should not be stopped.

Question:

Please look at the image below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Plaque psoriasis

B.Atopic eczema

C.Bowen's disease

D.Flexural psoriasis

E.Tinea corporis

Answer:Plaque psoriasis

Explanation:

Question:

What is the most appropriate time to take blood samples for therapeutic monitoring of phenytoin levels?

A.At any time

B.12 hours after last dose

C.6 hours after last dose

D.4 hours after last dose

E.Immediately before next dose

Answer:Immediately before next dose

Explanation:

Question:

What is the most appropriate dose of adrenaline to give during a cardiac arrest?

A.1ml 1:100,000 IV

B.10ml 1:1,000 IV

C.0.5ml 1:1,000 IM

D.1ml 1:10,000 IV

E.10ml 1:10,000 IV

Answer:10ml 1:10,000 IV

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

10ml of the 1:10,000 preparation contains 1mg of adrenaline.

From the BNF:

Adrenaline (epinephrine) 1 in 10 000 (100 micrograms/mL) is recommended in a dose of 1 mg (10 mL) by intravenous injection repeated every 3-5 minutes if necessary

Question:

A 59-year-old woman is admitted to hospital after developing an infection of a non-functioning left kidney, Intravenous antibiotics are given and a nephrostomy tube is inserted. During her recovery she starts to develop a distended abdomen and complains of nausea and abdominal pain.

An abdominal film is requested:

© Image used on license from Radiopaedia

What is the cause of the abdominal distension?

A.Bowel perforation

B.Intussusception

C.Bacterial peritonitis

D.Caecal volvulus

E.Subcutaneous emphysema

Answer:Caecal volvulus

Explanation:

Small bowel obstruction is clearly visible on this film (note the valvulae conniventes, mucosal folds, that cross the full width of the bowel) secondary to caecal volvulus. Note the left nephrostomy tube in-situ.

Question:

A 76-year-old lady is admitted to the stroke ward after being diagnosed with a right-sided infarct. She was thrombolysed in resus. The patient has a past medical history of diabetes mellitus, hypertension, and COPD. The admission ECG shows an absent p wave and an irregular pulse. She was not on any prior anticoagulation.

When should this patient be commenced on anticoagulation?

A.On the day of admission

B.The day after the event

C.On the follow up outpatient appointment which has been book for six weeks post-discharge

D.Two weeks after the event

E.If heart rate is more than 100 bpm

Answer:Two weeks after the event

Explanation:

A patient with AF + an acute stroke (not haemorrhagic) should have anticoagulation therapy started two weeks after the event

Important for meLess important

This patient has new atrial fibrillation.

NICE guidelines advise starting anticoagulation 2 weeks after the event (in the absence of haemorrhage) unless it is a very large cerebral infarct. It advises that 'anticoagulation treatment should not be used routinely for the treatment of acute stroke'. This is due to the risk of haemorrhagic transformation.

Option 1 and 2 are too soon after the stroke.

Option 3 is inappropriate as it would be too late to start it six weeks later, the patient is left at risk of further cerebrovascular event (CVA).

Option 5 is describing fast AF (atrial fibrillation) and should be managed via rate-control.

Question:

A 25-year-old man presents to his GP. He is concerned because his sister has recently been diagnosed with breast cancer at the age of 30 years and has been found to have a BRCA2 mutation.

He wants to be tested for the mutation because he has heard that he would be at increased risk of breast cancer if he also has the mutation.

If he were to be BRCA2-positive, what other form of cancer would he most likely to be at increased risk of?

A.Colorectal

B.Lung

C.Malignant melanoma

D.Prostate

E.Testicular

Answer:Prostate

Explanation:

BRCA2 mutation is associated with prostate cancer in men

Important for meLess important

BRCA2 mutations substantially increase the risk of developing breast cancer in both men and women. It is also associated with ovarian cancer in women and prostate cancer in men. Although BRCA1 mutation is thought to be associated with young-onset colorectal cancer, no association has been observed in BRCA2 carriers.

Question:

A 33-year-old woman presents with sudden onset hemiparesis affecting the right face, arm and leg. On examination you note right sided hemiparesis, aphasia, a right homonymous hemianopia, and a harsh pansystolic murmur. Over the past few weeks she has been complaining of low grade fever.

What is the most likely cause of the stroke?

A.Atrial myxoma

B.Left ventricular thromboembolism

C.Cerebral abscess

D.Ventricular septal defect

E.Emboli from infective endocarditis vegetation

Answer:Emboli from infective endocarditis vegetation

Explanation:

The pansystolic murmur and low grade fever are suggestive of infective endocarditis. Small amounts of material (e.g. bacteria and thrombi) called vegetations may develop on infected endocardium. Sections of these vegetations may break away and circulate to the brain and other vital organs. This can result in an ischaemic stroke as demonstrated in this case.

An atrial myxoma is a type of primary cardiac tumour. They are usually found in the left atrium. On auscultation, a late diastolic tumour 'plop' may be heard. They are very rare and therefore, combined with the auscultation findings, the best answer in this case would be infective endocarditis.

Question:

A 45-year-old man presents to the Emergency Department due to severe pain in the perineal area over the past 6 hours. On examination the skin is cellulitic, extremely tender and haemorrhagic bullae are seen. What is the most appropriate management?

A.IV antibiotics + surgical debridement

B.IV antibiotics

C.IV corticosteroids

D.Plasma exchange

E.Urgent microscopy of wound swab

Answer:IV antibiotics + surgical debridement

Explanation:

Surgical referral is the single most important step in the management of necrotising fasciitis. There has been little change in the mortality of necrotising fasciitis since the introduction of antibiotics

Question:

A 60-year-old air hostess was recently diagnosed with atrial fibrillation for which she has just been started on atenolol. The cardiac team assess whether she needs any anticoagulation and calculate her CHA2DS2-VASc score to be 3. After talking to her they realise that she is often out of the country and thus would be unable to regularly attend her GP for any follow up. Which of the following would be the most appropriate in this case?

A.Warfarin

B.Clopidogrel

C.Aspirin

D.Rivaroxaban

E.No anticoagulation needed

Answer:Rivaroxaban

Explanation:

DOACs should be offered first-line for reducing stroke risk in AF

Important for meLess important

This question is asking about anticoagulation in atrial fibrillation. This 60-year-old lady has a CHA2DS2-VASc score of 3 indicating the need for some form of anticoagulation.

The choice of anticoagulation is in the end up to the patient. However, there are certain factors that can help aid their decision. In this case, the fact that she is an air hostess and thus will be unable to regularly attend monitoring of warfarin makes the option of rivaroxaban (a NOAC) better as this does not require as frequent monitoring.

If she did not have these problems warfarin would likely be offered as it is cheaper.

Aspirin and clopidogrel are not used the first line in anticoagulation of patients with atrial fibrillation. However, if anticoagulation is contraindicated, consider offering a combination of aspirin and clopidogrel (note they are not used alone in any case).

Question:

You are working as an F2 doctor in the Emergency Department. A 6-year-old child presents with a 10-day history of fever, lethargy and general malaise. The parents are worried that he is now complaining of a new pain which is located in the left upper leg. You request an X-ray of the leg which shows a localised osteolytic region suggestive of osteomyelitis.

Given the likely diagnosis, what part of the bone is most commonly affected in children?

A.Metaphysis

B.Diaphysis

C.Epiphysis

D.Periosteum

E.Medullary cavity

Answer:Metaphysis

Explanation:

In children the most common site where osteomyelitis occurs in a long bone is the metaphysis

Important for meLess important

Haematogenous spread into the long bone is the most common source of infection for osteomyelitis in children. The location of infection depends on the age due to the changing vascular supply. In children, it frequently affects the metaphysis as it is a highly vascular area. In adults it tends to be the epiphysis.

Question:

A 68-year-old gentleman is brought into hospital by his husband who says he has reported seeing flashing images of foxes and badgers in their living room. This is something that is extremely distressing to the patient, and has made him reluctant to venture into some areas of the house. You wonder if this might be Charles-Bonnet syndrome.

Which of the following risk factors may pre-dispose this gentleman to Charles-Bonnet syndrome?

A.Caucasian

B.Peripheral visual impairment

C.Male gender

D.Hypertension

E.Occupational history of working in sewers

Answer:Peripheral visual impairment

Explanation:

Charles-Bonnet syndrome - peripheral visual impairment is a risk factor

Important for meLess important

Charles-Bonnet syndrome is characterised by visual hallucinations associated with eye disease.

Most common visual hallucinations are faces, children and wild animals.

It occurs in patients of increasing age; equally amongst males and females; and with no known increased risk with family history.

Question:

The staff nurse on a stroke rehabilitation ward has asked you to prescribe fluids for a 78-year-old man as he is struggling to meet the oral fluid recommendation. He weighs 82kg. He has had a previous episode of diarrhoea and dehydration however is current haemodynamically and clinically stable.

Most recent blood report:

Na+ 143 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 5.8 mmol/L (2.0 - 7.0)

Creatinine 98 µmol/L (55 - 120)

When prescribing maintenance fluids for this man, what is the recommended potassium requirement?

A.0.2 mmol/kg/day

B.0.5 mmol/kg/day

C.1 mmol/kg/day

D.1.5 mmol/kg/day

E.2 mmol/kg/day

Answer:1 mmol/kg/day

Explanation:

When prescribing fluids, the potassium requirement per day is 1 mmol/kg/day

Important for meLess important

NICE guidelines from 2013 state for routine maintenance fluids the potassium, sodium and chloride requirement is approximately 1 mmol/kg/day.

Question:

A 17-year-old girl presents to her GP because she is concerned that she hasn't started menstruating yet. She is otherwise well in herself.

On examination, she is of normal height and has had breast development, but very little pubic hair. On examination of the abdomen you can feel two masses in the groin. Her external genitalia appear normal.

What is the most likely diagnosis?

A.Androgen insensitivity syndrome

B.Congenital adrenal hyperplasia

C.Kallman syndrome

D.Polycystic ovarian syndrome

E.Turner's syndrome

Answer:Androgen insensitivity syndrome

Explanation:

Androgen insensitivity - classic presentation is 'primary amenorrhoea'

Important for meLess important

This patient has androgen insensitivity, which means they are genetically XY but are phenotypically female due to reduced/absent testosterone receptors in target tissues. It is an X-linked disorder. The masses are due to undescended testes.

Congenital adrenal hyperplasia is not correct because this usually causes precocious puberty, and early onset of pubic hair, due to excess androgen production. Females with the condition usually have ambiguous genitalia and virilisation, whereas males have normal genitalia at birth.

Kallman syndrome can present with primary amenorrhoea in females. However, this would not explain the masses in the groin.

Polycystic ovarian syndrome is much more likely to cause secondary amenorrhoea or oligomenorrhoea rather than primary. It also would like present with other features, such as acne, hirsutism.

Turner's also causes primary amenorrhoea, but they often have other features for example being short, webbed neck, and heart defects such as coarctation of the aorta. They would also not have normal breast development, and would not have undescended testes.

Question:

You review a 7-year-old girl who has cerebral palsy. She is having ongoing problems with spasticity in her legs which is causing pain and contractures. On speaking to her mother you ascertain that she is having regular physiotherapy, using the appropriate orthoses and has tried oral diazepam in the past. Which one of the following treatments may she be offered to try and improve her symptoms?

A.Baclofen

B.Clozapine

C.Clonidine

D.Dantrolene

E.Glyceryl trinitrate

Answer:Baclofen

Explanation:

Question:

A 3-year-old child presents to his general practitioner for his immunisations. He has completed all the immunisations scheduled up to his age and had no adverse reaction to any vaccination. He is otherwise well and he is of normal weight and height for his age. There is no relevant past medical history. His parents moved from India six years ago.

Which vaccines should the doctor administer to the child today?

A.BCG vaccination

B.Human papillomavirus vaccination

C.3-in-1 booster and meningococcal B vaccination

D.4-in-1 booster and MMR vaccination

E.6-in-1 vaccine and meningococcal ACWY vaccination

Answer:4-in-1 booster and MMR vaccination

Explanation:

3-4 years immunisations: MMR + DTaP + IPV

Important for meLess important

The correct answer is a 4-in-1 booster and MMR. This child is between 3 and 4 years old, hence following the United Kingdom immunisation schedule this child should receive the measles, mumps, and rubella (MMR) vaccination and the so-called '4-in-1 booster', comprising of diphtheria, tetanus, whooping cough, and polio.

This child should have already received a BCG vaccination when he was of an age between zero and twelve months as his parents were born in a country where the annual incidence of tuberculosis is 40/100,000 or greater.

Human papillomavirus vaccination is routinely administered to females and males that are 12-13 years old. This child is too young to receive this vaccination.

3-in-1 booster and meningococcal B vaccination is an inappropriate combination. The 3-in-1 booster comprises tetanus, diphtheria, and polio and is administered to 13-18 years old children. The meningococcal B vaccination is administered at 2 months, 4 months, and 12 months, making the answer inappropriate.

The 6-in-1 vaccine comprises diphtheria, tetanus, whooping cough, polio, Hib, and hepatitis B and is administered at 2, 3, and 4 months old children. The meningococcal ACWY vaccination is administered to children of age between 13 and 18 years old, especially before beginning university, making this option incorrect.

Question:

A 40-year-old woman presents to the rheumatology clinic with a 3-month history of myalgia and widespread bony tenderness. She describes increased fatigue and weakness whilst lifting heavy objects. Her past medical history includes coeliac disease.

On examination, there is tenderness over the shoulder girdle and arms. There is no associated joint stiffness. She has a waddling gait.

Blood tests are taken:

Calcium 1.9 mmol/L (2.1 - 2.6)

Phosphate 0.8 mmol/L (0.8 - 1.4)

ALP 176 u/L (30 - 100)

What is the most likely diagnosis?

A.Myositis

B.Myotonic dystrophy

C.Osteomalacia

D.Osteoporosis

E.Polymyalgia rheumatica

Answer:Osteomalacia

Explanation:

Bone pain, tenderness and proximal myopathy (→ waddling gait) → ?osteomalacia

Important for meLess important

Osteomalacia is correct. Osteomalacia is the demineralisation of bone, most commonly secondary to vitamin D deficiency. Patients with osteomalacia typically present with bony pain, muscle tenderness, proximal myopathy, and an increased tendency for fractures. Proximal myopathy in the pelvic girdle can lead to a waddling gait. Laboratory findings include hypocalcaemia, low vitamin D levels a normal or raised phosphate and a raised alkaline phosphatase.

Myositis is incorrect. Myositis refers to a group of connective tissue diseases (e.g. polymyositis and dermatomyositis) that is characterised by proximal muscle weakness with a classical presentation including difficulty climbing the stairs or getting up from a chair. Pain is less common in myositis and suggests an alternative diagnosis.

Myotonic dystrophy is incorrect. Myotonic dystrophy is a genetic disorder that primarily causes muscular weakness. Muscular wasting is also a feature, which is not seen here. The onset of the condition is typically a lot earlier than this scenario (between 20-30 years) and the pattern of disease onset is different, with the hands, feet, neck and face often being affected primarily.

Osteoporosis is incorrect. Osteoporosis is caused by a reduced bone mineral density that increases bone fragility and the risk of fracture. The condition is relatively asymptomatic and is not necessarily diagnosed until bone mineral density testing following a fracture. Blood tests would reveal normal calcium, phosphate, vitamin D and alkaline phosphatase.

Polymyalgia rheumatica is incorrect. This is a rheumatological condition associated with proximal muscle stiffness and pain. However, weakness is not a symptom of polymyalgia rheumatica and the age of presentation in this patient is too young (most patients present > 50 years) making this diagnosis incorrect.

Question:

A 45-year-old woman has been brought into the emergency department by ambulance after twisting her right ankle while hiking through a mountainous national park. She is normally well and has no significant past medical history.

X-rays of the ankle were promptly taken and the radiologist's report is as follows:

A minimally displaced, transverse fracture is seen distally through the lateral malleolus, below the level of the talar dome. No talar shift is seen. The medial malleolus is not involved.

Given the above, which of the following is the most appropriate immediate management?

A.Immobilise in a below-knee back slab, arrange for theatre tomorrow

B.Reduce under anaesthesia, place in below-knee cylindrical cast

C.Apply tubular compression bandage then advise rest, cold compress and elevation at home

D.Allow weight bearing as tolerated in a controlled ankle motion (CAM) boot

E.Keep fasted and arrange for immediate reduction and external fixation

Answer:Allow weight bearing as tolerated in 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 radiologist's report describes an isolated lateral malleolar fracture (i.e. distal fibula), that is below the level of the tibiofibular syndesmosis. It is also minimally displaced. Therefore, it is stable and should not require immobilisation in a back slab.

Similarly, a reduction is not required as the fracture is minimally displaced.

RICE (Rest, Ice, Compression, Elevation) is inappropriate as it does not offer even minimal immobilisation. Immobilisation itself is often an effective form of analgesia.

A controlled ankle motion (CAM) boot is the correct management as it provides immobilisation while allowing weight-bearing.

Urgent surgical intervention is not required in this case either for the above-mentioned reasons.

Question:

Robert is a 23-year-old man who was admitted with tiredness. He has found that he gets very tired on exertion and is short of breath on minimal exertion. He notes palpitations along with this.

His blood tests are as follows:

Hb 50 g/L Male: (135-180)

Female: (115 - 160)

Platelets 130 \* 109/L (150 - 400)

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

Neuts 9.0\* 109/L (2.0 - 7.0)

Lymphs 2.8 \* 109/L (1.0 - 3.5)

Mono 0.6 \* 109/L (0.2 - 0.8)

Eosin 0.5 \* 109/L (0.0 - 0.4)

Prothrombin time (PT) 12 secs (10-14 secs)

Activated partial thromboplastin time (APTT) 27 secs (25-35 secs)

A blood film shows large cells with a bilobed nucleus and prominent eosinophilic inclusion-like nucleoli.

The consultant has decided that Robert requires a blood transfusion.

Which of the following blood products is indicated?

A.Cytomegalovirus (CMV)-negative packed red cells

B.Fresh frozen plasma (FFP)

C.Irradiated packed red cells

D.Leukocyte-depleted packed red cells

E.Pool of platelets

Answer:Irradiated packed red cells

Explanation:

Irradiated blood products are used to avoid transfusion-associated graft versus host disease

Important for meLess important

The cells seen on blood film is a classical description of Reed-Sternberg cells. This is a classical diagnostic feature of Hodgkin's lymphoma. Patients with Hodgkin's lymphoma are recommended to receive irradiated red cells lifelong to prevent the risk of developing transfusion-related graft-versus-host disease.

CMV-negative packed red cells are recommended for pregnant patients and neonatal transfusions.

Packed red cells are currently leukocyte-depleted by default and does not need to be specially requested.

FFP is not indicated as his clotting studies are normal and he has no active signs of bleeding.

Platelets are also not indicated as this is normally only replaced in asymptomatic patients at levels <10 \* 109/L.

Question:

A 31-year-old pregnant woman presents with severe vomiting. She is currently 8 weeks pregnant and this is her second pregnancy. Following Royal College of Obstetricians and Gynaecologists (RCOG) guidelines, which one of the following define the diagnostic criteria of hyperemesis gravidarum.?

A.5% pre-pregnancy weight loss AND dehydration AND electrolyte imbalance

B.3% pre-pregnancy weight loss AND dehydration AND electrolyte imbalance

C.Weight loss from pre-pregnancy baseline AND dehydration AND electrolyte imbalance

D.Weight loss from pre-pregnancy baseline AND vomiting > 5 times per day

E.Weight loss from pre-pregnancy baseline AND vomiting > 10 times per day

Answer:5% pre-pregnancy weight loss AND dehydration AND electrolyte imbalance

Explanation:

Hyperemesis gravidarum, diagnostic criteria triad:

5% pre-pregnancy weight loss

dehydration

electrolyte imbalance

Important for meLess important

Question:

A 59-year-old woman is seen in clinic with a 4-month history of episodic chest pain described as 'squeezing' that occurs on exertion and is relieved with rest. The patient has a past medical history of hypercholesterolaemia and asthma. She drinks 8 units of alcohol weekly and has never smoked.

Her observations are normal and an ECG shows sinus rhythm.

Given the likely diagnosis, what is the most appropriate medication to prescribe to prevent future episodes?

A.Amlodipine

B.Atenolol

C.Isosorbide mononitrate

D.Ivabradine

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

The presence of squeezing chest pain on exertion that is relieved with rest suggests a diagnosis of stable angina, for which, hypercholesterolaemia is a significant risk factor. A normal ECG rules out myocardial infarction.

Verapamil is correct. The first-line options for managing stable angina are a beta-blocker or calcium channel blocker (CCB). Since this patient is asthmatic, beta-blockers are contraindicated, therefore a CCB should be used. NICE recommends that if a CCB is to be used as monotherapy, a rate-limiting CCB such as verapamil should be used, therefore making this option correct.

Amlodipine is incorrect. Although this is another example of a CCB, it is not rate-limiting. NICE recommends that if a CCB is to be used as monotherapy, a rate-limiting CCB such as verapamil or diltiazem should be given.

Atenolol is incorrect as although beta-blockers can be used in managing stable angina, they are contraindicated in patients with asthma.

Isosorbide mononitrate is incorrect. This is a long-acting nitrate that should be considered in patients where beta-blockers (if given) and CCBs are ineffective. This patient cannot take beta-blockers due to their history of asthma, however, can take a CCB, which has not yet been tried. Jumping to this step may not be necessary if the CCB is effective.

Ivabradine is incorrect. As mentioned above, this is another option that is considered if beta-blockers (if given) and CCBs are ineffective. Jumping to this step may not be necessary if a CCB is effective as this patient has not yet tried one.

Question:

A 68-year-old man is admitted to a general medical ward with reduced urine output. He has a background of severe dementia for which he takes memantine. He has no other past medical history of note and has otherwise seemed well. Renal function tests are sent:

Na+ 137 mmol/L (135 - 145)

K+ 5.9 mmol/L (3.5 - 5.0)

Bicarbonate 17 mmol/L (22 - 29)

Urea 16 mmol/L (2.0 - 7.0)

Creatinine 130 µmol/L (55 - 120)

What is the most likely underlying cause of the acute kidney injury?

A.Acute tubular necrosis

B.Dehydration

C.Memantine toxicity

D.Renal calculi

E.Sepsis

Answer:Dehydration

Explanation:

A differential for AKI is dehydration - the latter is characterised by a urea that is proportionally higher than the rise in creatinine

Important for meLess important

There is no clear cause of the AKI suggested by the history alone. In the bloods, urea is more than twice the normal range whilst creatinine is only just above the upper limit; this is indicative of dehydration. In states of dehydration, ADH is secreted to increase reabsorption of water from the collecting ducts. ADH also causes reabsorption of urea from the loop of Henle and collecting duct. Accordingly, this is likely pre-renal AKI secondary to dehydration, which can commonly occur in patients with dementia.

Acute tubular necrosis occurs secondary to nephrotoxic agents of renal ischaemia. Although a plausible differential, nothing in the vignette suggests this and you would expect a proportionate rise in both urea and creatinine.

Memantine is not nephrotoxic so is not a plausible cause of the AKI.

Renal calculi if obstructive can cause a post-renal AKI. However, in the absence of any suggestion of pain in the patient, this is unlikely, and a proportionate rise in both urea and creatinine would be expected in this case.

Sepsis is a cause of pre-renal AKI. However, with no report of systemic illness, abnormal vital signs or raised inflammatory markers in the vignette, it is not the most likely differential.

Question:

A 17-hour-old baby on the maternity ward has become cyanotic. This cyanosis is particularly evident when they cry, and a systolic murmur can be heard on auscultation. You suspect the child has transposition of the great arteries.

What is the initial management for this child?

A.Ibuprofen

B.Indometacin

C.Intubation and ventilation

D.Surgery

E.Prostaglandin E1

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

Transposition of the great arteries (TGA), where the aorta comes from the right ventricle and the pulmonary artery from the left ventricle, is the most common cause of cyanosis in babies less than 24-hours-old. It is a medical emergency and the initial management is to administer prostaglandins. This keeps the ductus arteriosus open so that oxygenated and deoxygenated blood can mix, ensuring tissues can still be oxygenated until definitive management can be performed. Echocardiograms occur alongside prostaglandin administration.

Ibuprofen is used to close the ductus arteriosus in newborns, rather than keep it open as is required for this baby.

Indomethacin is indicated to close the ductus arteriosus in newborns. It is a type of NSAID.

Intubation and ventilation may be used for newborns with TGA. However, this is used in extreme cases and is usually done on an elective basis to enable the transport of a neonate to a tertiary centre. It is not the initial management.

The definitive management, as opposed to the initial management, of TGA, is to perform surgery on the infant before they are 4-weeks-old; however, initially, prostaglandin E1 must be administered prior to surgical intervention to keep the ductus arteriosus patent.

Question:

A 21-year-old woman presents to the emergency department with an acutely painful and swollen left knee.

On examination, the knee is tender and has a reduced range of motion. She is unable to weight bear on her left leg.

Her observations are as follows, heart rate 101 beats/min, respiratory rate 17/min, blood pressure 109/78 mmHg, oxygen saturation 99%, temperature 38.1ºC.

An aspiration of the joint is performed, producing a sample of yellow-looking synovial fluid from the knee joint.

She has no other past medical history but admits that she missed a sexual health clinic appointment recently.

What organism is most likely to be cultured from the synovial fluid?

A.Chlamydia trachomatis

B.Escherichia coli

C.Neisseria gonorrhoeae

D.Pseudomonas aeruginosa

E.Staphylococcus aureus

Answer:Neisseria gonorrhoeae

Explanation:

In young adults with septic arthritis, Neisseria gonorrhoeae is the most common organism found

Important for meLess important

The correct answer is Neisseria gonorrhoeae.

This young woman has septic arthritis of her knee, indicated by the acute history, pain, swelling, fever, inability to weight bear and reduced range of motion of the joint. In young sexually active adults, the most common causative organism found in synovial fluid cultures is Neisseria gonorrhoeae.

Chlamydia trachomatis can cause reactive arthritis, which would also produce joint pain. However, reactive arthritis typically has a more chronic history, does not produce a fever, and the joint aspirate would be sterile.

Escherichia coli rarely causes septic arthritis.

Pseudomonas aeruginosa does not commonly cause septic arthritis.

Staphylococcus aureus is an important cause of septic arthritis. It is also commonly cultured in joint aspirates, as it is a skin commensal and therefore is a common contaminant of bacterial cultures. However, in young sexually active patients, Neisseria gonorrhoeae is the more common cause of septic arthritis.

Question:

A 59-year-old man presents to the emergency department. Over the last few days, he has had abdominal pain and vomiting. He was managed conservatively at home but is experiencing weakness and heart palpitations today. His medical history includes atorvastatin, amlodipine and indapamide for high cholesterol and hypertension.

On examination, his heart rate is 93bpm, BP is 141/95 mmHg, and oxygen sats are 97%. An ECG demonstrates sinus rhythm with U waves, small inverted T waves and a prolonged QT interval.

What is the most likely cause of his symptoms?

A.Hypercalcaemia

B.Hyperkalaemia

C.Hypocalcaemia

D.Hypokalaemia

E.NSTEMI

Answer:Hypokalaemia

Explanation:

Alongside U waves, the following ECG features may be seen in hypokalaemia:

ECG features of hypokalaemia

small or absent T waves (occasionally inversion)

prolong PR interval

ST depression

long QT

Important for meLess important

Hypokalaemia is correct. Hypokalaemia can arise as a side effect of loop and thiazide-like diuretics. In addition, vomiting can cause hypokalaemia as well. The man in the case above is on regular indapamide, which can cause hypokalaemia, further precipitated by his recent illness.

Hypercalcaemia is incorrect. This would present with abdominal pain, musculoskeletal pain, confusion and mood alteration. Furthermore, it would present with shortened QT intervals on ECG.

Hyperkalaemia is incorrect. While hyperkalaemia can cause symptoms such as palpitations, it would have other causes, such as ACE inhibitors or potassium-sparing diuretic drugs. Furthermore, it would present with tall, tented T waves on ECG, unlike in this case.

Hypocalcaemia is incorrect. While this may cause a long QT interval, symptoms of hypocalcaemia include tetany and paraesthesia. In addition, thiazide-like diuretics reduce calcium excretion and are unlikely to cause hypocalcaemia.

NSTEMI is incorrect. This is unlikely as it would be expected for the patient to have symptoms of shortness of breath at rest and exertion and chest pain/discomfort. ECG would demonstrate ST depression.

Question:

A 51-year-old female presented to her GP with a nodule on the thyroid region of her neck. She has a past medical history of Cushing's disease and small mucosal neuromas. She was referred to the ENT surgeons who performed a biopsy and unfortunately diagnosed her with having thyroid cancer. On her blood tests, she was noted to have a raised calcitonin level. From the information provided above, what type of thyroid cancer is this lady most likely suffering from?

A.Papillary

B.Follicular

C.Medullary

D.Anaplastic

E.Lymphoma

Answer:Medullary

Explanation:

Key information for the different types of thyroid cancers:

1) Papillary - 65%, generally young females. Metastasis to cervical lymph nodes. Thyroglobulin can be used as a tumour marker. Characteristic Orphan Annie eyes on light microscopy. Good prognosis

2) Follicular - 20%, generally women >50 years old. Metastasis to lung and bones. Thyroglobulin can be used as a tumour marker. Moderate prognosis

3) Medullary - 5%, sporadic or part of MEN2 syndrome. It originates from the parafollicular cells which produce calcitonin - can be used as a tumour marker.

4) Anaplastic - very rare. Elderly patient. Very poor prognosis

5) Lymphoma - 5%, might present with dysphagia or stridor

MEN SYNDROME

MEN 1 - Pituitary adenoma, parathyroid hyperplasia, pancreatic tumours

MEN 2A - Parathyroid hyperplasia, medullary thyroid carcinoma, phaeochromocytoma

MEN 2B - Mucosal neuroma, marfanoid appearance, medullary thyroid carcinoma, phaeochromocytoma

Reference - Oxford Handbook of Clinical Medicine; 9th Edition; Page 602-603

Question:

A retired Sushi-chef presents with dysphagia. He says it came on gradually and initially only noticed it with solid food but more recently has been having symptoms with soft foods also. He has vomited after eating on a few occasions recently but denies nausea or change in appetite. He is previously fit and well, he does not smoke and drinks only on special occasions. What is the most likely cause for his symptoms?

A.Oesophageal malignancy

B.Achalasia

C.Pharyngeal pouch

D.Gastro-oesophageal reflux disease (GORD)

E.Pharyngitis

Answer:Oesophageal malignancy

Explanation:

The progressive nature of symptoms (first solids and now liquids) suggests a growing obstruction and points to a diagnosis of oesophageal malignancy. Achalasia would present with inability to swallow both liquids and solids from the outset. Another clue is the fact that the patient is a retired sushi-chef and is likely to have consumed a fair quantity of fish which is known to be high in nitrosamines - a known carcinogen.

Question:

A 74-year-old woman presents to her GP with a sensory disturbance in her hands. On further questioning, she reports first noticing that she was not able to feel the heat of a cup of tea when she was holding it.

On examination, she has normal proprioception and fine touch sensation in her upper limbs, with a reduced sensation to pinprick in both arms and shoulders.

What investigation is most likely to reveal the underlying diagnosis?

A.Anti-nicotinic acetylcholine receptor antibodies

B.Lumbar puncture

C.MRI spine

D.Nerve conduction studies

E.Anti-GQ1b antibodies

Answer:MRI spine

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

This presentation of a cape-like distribution of loss of pain and temperature sensation is classical for syringomyelia. The symptoms arise due to compression of the spinothalamic tract fibres decussating in the anterior white commissure of the spine. Potential causes include Chiari malformation, trauma and tumours. MRI is the best investigation to identity the spinal lesion.

Lumbar puncture is not recommended in potential syringomyelia due to the risk of herniation.

Anti-nicotinic acetylcholine receptor antibodies are often found in myasthenia gravis. This typically presents with fatiguability of muscles, particularly proximal and ocular muscles.

Nerve conduction studies are an effective means of differentiating axonal from demyelinating causes of neuropathy. This is useful in narrowing down the potential diagnosis rather than providing an exact diagnosis.

Anti-GQ1b antibodies are found in Miller-Fisher syndrome, which is a variant of Guillain-Barre syndrome with the characteristic features of ophthalmoplegia, areflexia and cerebellar dysfunction.

Question:

A 67-year-old woman presents to her general practitioner complaining of low mood. She has been living with low-back pain for the last three years and she thinks it's getting worse. Additionally, she just developed some trouble walking as she is unable to lift her right foot properly.

On examination, the right foot dorsiflexion is 2/5 and she has impaired sensation in the whole dorsum. All the reflexes are intact.

What nerve root is most likely affected?

A.L3

B.L4

C.L5

D.S1

E.S2

Answer:L5

Explanation:

L5 lesion features = loss of foot dorsiflexion + sensory loss dorsum of the foot

Important for meLess important

The correct answer is L5. Lesion to this nerve root causes loss of foot dorsiflexion and sensory loss dorsum of the foot. The sensory loss follows the dermatome distribution of the nerve root L5. This is caused by the fact that dorsiflexion is caused by the L4-S1 myotomes, so a lesion in one of these roots causes loss of it. The patient cannot walk properly due to the loss of dorsiflexion and has a loss of sensation over the dorsum area.

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, 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 L3-L4 so it becomes impaired in the lesion of any of these three roots. In this case, the woman's knee reflex is intact making this option unlikely.

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. In this case, the woman's knee reflex is intact making this option unlikely.

S1 is an incorrect option. Compression of 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 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 roots S1-S2 also cause the ankle reflex. 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. In this case, the woman's ankle reflex is intact making this option unlikely.

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. The roots S1-S2 cause the ankle reflex, hence damage to any of the roots will make it weaker. In this case, the woman's ankle reflex is intact making this option unlikely.

Question:

A patient is treated in hospital for an elective hip replacement. She has a past medical history of hypertension which is currently treated with bendroflumethiazide, which she says is poorly controlled. The FY1 on the ward notices the following blood results:

Na+ 154 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 6.5 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

The FY1 begins treatment with 2L normal saline over 1hr to normalise the above blood results.

What is the most likely complication?

A.Central pontine myelinolysis

B.Cerebral oedema

C.Pulmonary oedema

D.T wave inversion

E.Worsening hypernatraemia

Answer:Cerebral oedema

Explanation:

Correction of chronic hypernatraemia too fast predisposes to cerebral oedema

Important for meLess important

Cerebral oedema is the correct answer. When managing chronic hypernatraemia, correcting the sodium faster than 8mmol/L every 24hrs will lead to cerebral oedema due to the lag time between the intracellular fluid osmolarity and blood osmolarity. This will lead to vision loss, nausea, seizures and papilloedema on examination.

Central pontine myelinolysis is incorrect in this case. Central pontine myelinolysis is seen in the treatment of hyponatraemia. To prevent this you should correct the sodium at the same rate.

Pulmonary oedema is not correct in this case. Once again the levels of fluids needed would not be enough to push a patient into heart failure. Furthermore, fluid overload would not occur if a patient had a good renal function.

T-wave inversion is incorrect in this case. This would be seen in hypokalaemia. Whilst it is true that overly aggressive fluid prescription could lead to dilutional hypokalaemia, this is rare as the body can compensate by releasing intracellular K+. The most important consideration is changing the sodium gradient too quickly.

Worsening hypernatraemia is incorrect in this case. Whilst normal saline does contain sodium, the concentration is low enough that it is hypotonic to the blood. Therefore the overall concentration of sodium will decrease.

Question:

A 24-year-old patient is being seen in the emergency department. You are the medical student and are asked to run the patients arterial blood gas sample. The results are as follows:

pH 7.31

pCO2 4.1 kPa

pO2 13.1 kPa

HCO3 17 mmol/L

Na 141 mmol/L

K 4 mmol/L

Chloride 115 mmol/L

Which of the following could be a cause of the patients ABG results?

A.Diabetic ketoacidosis

B.Salicylate overdose

C.Renal tubular acidosis

D.Lactic acidosis

E.Methanol poisoning

Answer:Renal tubular acidosis

Explanation:

Renal tubular acidosis is a cause of normal anion gap acidosis

Important for meLess important

This patient has an anion gap of: (141+4)-(115+17) = 13. This is a normal anion gap.

The patient is acidotic. Therefore this patient has an acidosis with a normal anion gap. There are several causes of this including:

Hyperchloraemia

Renal tubular acidosis

Addison's disease

Diarrhoea

RTA typically presents with hyperchloraemia and low bicarbonate.

DKA, salicylate overdose, lactic acidosis and methanol poisoning all cause a raised anion gap.

Question:

A 42-year-old plumber attends your clinic complaining of stiff, painful joints. The stiffness is worse in the mornings and lasts more than 1 hour, though improves throughout his working day. He is feeling tired though has no other symptoms. On examination, there is synovitis in two interphalangeal joints of the right hand, right wrist, and a single distal interphalangeal joint in the left foot. The patient is referred to rheumatology who diagnose psoriatic arthritis.

Which of the following features best differentiates the above diagnosis from rheumatoid arthritis?

A.Asymmetrical joint pains

B.Tiredness

C.Prolonged morning stiffness

D.Stiffness improving with use

E.Subcutaneous nodules

Answer:Asymmetrical joint pains

Explanation:

An asymmetrical presentation suggests psoriatic arthritis rather than rheumatoid

Important for meLess important

Many cases of psoriatic arthritis will present with asymmetrical joint involvement, most commonly involving the peripheral joints of the hands and feet. However, it is now believed that up to 40% of psoriatic arthritis patients will experience a symmetrical polyarthritis similar to rheumatoid arthritis.

Tiredness is commonly seen in inflammatory arthritides such as psoriatic arthritis, though is a very non-specific feature. Mechanical causes of joint pain such as osteoarthritis and fibromyalgia are also often associated with fatigue.

Prolonged morning stiffness tends to suggest an inflammatory arthritis such as psoriatic arthritis, although this is also commonly seen in other inflammatory arthritides such as rheumatoid arthritis. In contrast, morning stiffness, or 'gelling', in osteoarthritis is often more transient (i.e. less than 1-hour duration).

Stiffness improving with use is a distinguishing feature of an inflammatory arthritis, such as psoriatic and rheumatoid arthritis. Physical activity in osteoarthritis, by contrast, tends to be associated with worsening symptoms.

Subcutaneous nodules are a feature of rheumatoid arthritis, not psoriatic arthritis. Extra-articular features of psoriatic arthritis include cutaneous psoriasis, digital swelling (dactylitis), enthesitis, and nail disease such as onycholysis.

Question:

An 85-year-old complains of severe headaches and lethargy over the past 3 weeks. His past medical history includes atrial fibrillation for which he takes warfarin. A CT head (with contrast) is performed:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Normal age-related changes

B.Extradural haematoma

C.Subdural haematoma

D.Meningioma

E.Subarachnoid haemorrhage

Answer:Subdural haematoma

Explanation:

The CT scan shows a crescent-shaped (concave surface away from the skull) extra-axial collection seen with subdural haematomas. A burr hole can also be seen on the left.

Question:

You review a 4-year-old boy in clinic. He has been diagnosed with asthma after having multiple wheezy episodes over the past 3 years. Around 4 months ago he was admitted with shortness-of-breath and wheeze and was diagnosed as having a viral exacerbation of asthma by the paediatric team. Prior to his discharge he was given a Clenil (beclometasone dipropionate) inhaler 50mcg bd in addition to salbutamol 100mcg prn via a spacer.

His mother reports that he has a persistent night-time cough and is regularly having to use his salbutamol inhaler. Clinical examination of his chest today is normal.

What is the most appropriate next step in management?

A.Add a long-acting beta agonist

B.Add a short-acting muscarinic antagonist

C.Add a leukotriene receptor antagonist

D.Add a long-acting muscarinic antagonist

E.Switch Clenil to Pulmicort (budesonide)

Answer:Add a leukotriene receptor antagonist

Explanation:

Child aged < 5 years with asthma not controlled by a SABA + paediatric low-dose ICS - asthma management in children < 5 years - add a leukotriene receptor antagonist

Important for meLess important

Question:

You are examining a patient who complains of double vision. On looking forward, the patient's right eye turn is deviated upwards and rotated outwards. On attempting to look to the patient's left the double vision worsens.

What is the most likely underlying problem?

A.Right 6th nerve palsy

B.Right 4th nerve palsy

C.Right 3rd nerve palsy

D.Left 6th nerve palsy

E.Left 3rd nerve palsy

Answer:Right 4th nerve palsy

Explanation:

Question:

A 53-year-old man with Crohn's disease, currently in remission, has routine blood tests performed by his GP which show the following:

Na+ 139 mmol/l

K+ 4.8 mmol/l

Urea 12.8 mmol/l

Creatinine 153 µmol/l

eGFR 42 ml/min

His GP refers him to a low clearance clinic where he is monitored. Five years later his bloods show the following:

Na+ 138 mmol/l

K+ 4.6 mmol/l

Urea 19.1 mmol/l

Creatinine 283 µmol/l

eGFR 26 ml/min

The decision is made to begin planning for him to be given renal replacement therapy. Which form of renal replacement therapy is most appropriate for him to be started on in the first instance?

A.Renal transplantation

B.Haemodialysis

C.Automated peritoneal dialysis

D.Continuous ambulatory peritoneal dialysis

E.Haemofiltration

Answer:Haemodialysis

Explanation:

The usual first line option for independent patients for renal replacement is a form of peritoneal dialysis. This patient, however, is unsuitable due to his Crohn's disease which could make both the insertion of a peritoneal dialysis catheter dangerous as well as the infusion and drainage of fluid. Because of this, the more suitable treatment in the first instance would be haemodialysis.

Haemofiltration is only used in the acute setting, often only being available in critical care departments for very sick patients. Although renal transplant is the ideal form of renal replacement, the unpredictability of organ availability means that a suitable form of dialysis is the first line option in all patients, whilst they are considered for a transplant.

\*\*\*Guidance approved by NICE from the Renal Association: http://www.renal.org/guidelines/modules/planning-initiating-and-withdrawal-of-renal-replacement-therapy#2b10a031-1815-6165-9443-ff000014d4d8

Question:

A 38-year-old woman is noticed to be jaundiced. As part of a liver screen the following results are obtained:

Anti-HBs Negative

Anti-HBc Positive

HBs antigen Positive

IgM anti-HBc Negative

Anti-HBs = Hepatitis B Surface Antibody; Anti-HBc = Hepatitis B Core Antibody; HBs antigen = Hepatitis B Surface Antigen

What is the patient's hepatitis B status?

A.Probable hepatitis D infection

B.Acute hepatitis B infection

C.Previous immunisation to hepatitis B

D.Chronic hepatitis B

E.Previous hepatitis B infection, not a carrier

Answer:Chronic hepatitis B

Explanation:

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

Important for meLess important

The negative IgM anti-HBc points to a chronic rather than acute infection.

Question:

A 33-year-old woman attends her GP to discuss the results of a high vaginal swab performed at a routine sexual health check-up. It is positive for bacterial vaginosis. She denies any current symptoms.

What is the most appropriate management option?

A.Clindamycin

B.Doxycycline

C.No treatment required

D.Oral metronidazole

E.Topical metronidazole

Answer:No treatment required

Explanation:

Women with asymptomatic bacterial vaginosis do not usually require treatment unless they are undergoing termination of pregnancy

Important for meLess important

No treatment required is correct. As per NICE guidelines, if the woman is asymptomatic, treatment for bacterial vaginosis is not usually required (unless she is undergoing termination of pregnancy).

Clindamycin is incorrect. Oral clindamycin is an alternative treatment option (but less preferred) if treatment is required and first-line options are ineffective or not tolerated.

Doxycycline is incorrect. It is not used in the management of bacterial vaginosis.

Oral metronidazole is incorrect. Treatment with oral metronidazole is first-line if treatment is required i.e. should be offered to women if they are symptomatic or asymptomatic but undergoing termination of pregnancy (not the case in this scenario).

Topical metronidazole is incorrect. Topical treatment should be offered if treatment if required for women who prefer topical treatment or cannot tolerate oral metronidazole:

Question:

A patient with a background of COPD presents to the emergency department with a simple pneumothorax 2.2 cm in size. What is the most suitable management option?

A.Discharge with follow-up chest X-ray

B.Insert a chest drain

C.Aspirate the pneumothorax

D.Perform emergency needle decompression

E.Admit for 4-hour observation

Answer:Insert a chest drain

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

A secondary pneumothorax is one that presents with a background history of lung disease that could predispose the patient to developing pneumothoraces, such as COPD.

The first line treatment for secondary pneumothoraces depends on its size:

1-2cm: aspirate

>2cm: chest drain (correct answer)

It would be incorrect to aspirate the chest drain as it is too large. It would not be appropriate to discharge with a follow-up X-ray or admit for observation. An emergency needle decompression is the treatment for a tension pneumothorax.

Question:

A 2-year-old boy is seen by his GP with an enlarging neck swelling that has been present for the past year. On examination you note a smooth midline lesion which is round and located just below the hyoid bone. It measures 2.5 cm x 2 cm and rises on protrusion of the tongue.

What is the most likely diagnosis?

A.Cystic hygroma

B.Goitre

C.Thyroglossal cyst

D.Dermoid cyst

E.Lymphoma

Answer:Thyroglossal cyst

Explanation:

Thyroglossal cysts are located in the anterior triangle, and are usually in the midline and below the hyoid. Typically, the cyst rises on protrusion of the tongue as well as on swallowing.

Question:

A 29-year-old man presents to the emergency department with acute chest pain and shortness of breath. He describes the pain as sharp and stabbing. It is also relatively constant, not worsening with inspiration or exertion. Although, the pain is relieved slightly when the patient leans forward while sitting down.

On examination, you identify a pericardial rub and a mild low-grade fever. An electrocardiogram (ECG) reveals widespread saddle-shaped ST-segment elevation and PR-segment depression in some leads. You decide to admit the patient for observation, additional diagnostic tests and treatment.

What treatment is first-line in the management of this case?

A.Aspirin

B.Ibuprofen

C.Ibuprofen + colchicine

D.Prednisolone

E.Prednisolone + ibuprofen

Answer:Ibuprofen + colchicine

Explanation:

First line management of acute pericarditis involves combination of NSAID and colchicine

Important for meLess important

The European Society of Cardiology (ESA) guidelines on acute pericarditis (2017) recommend the combination of a non-steroidal anti-inflammatory drug (NSAID) and colchicine as first line management of pericarditis. Ibuprofen is the preferred NSAID in the case due to its side-effect profile. Colchicine is an adjuvant therapy which improves the response to medical therapy and reduces the rate of recurrence.

Aspirin and ibuprofen are recommended by the ESA and can be used as a monotherapy in pericarditis. However, in this case a combination therapy is more appropriate, as the patient has been hospitalised and requires more intense medical management.

Prednisolone and other corticosteroids are not used first line in the management of acute pericarditis. This is because they increase the risk of recurrence. When used they should be combined with colchicine and not an NSAID as this increases the risk of GI bleeding.

Question:

A 36-year-old woman attends her GP surgery seeking contraception. She smokes 20 cigarettes a day and has a body mass index of 25 kg/m². She denies a personal or family history of venous thromboembolism. She had a right-sided salpingectomy for an ectopic pregnancy six years ago. Which of the following methods of contraception would be contraindicated in this patient?

A.Copper IUD

B.Mirena intrauterine system

C.Combined oral contraceptive

D.Depot medroxyprogesterone acetate

E.Cerazette

Answer:Combined oral contraceptive

Explanation:

All methods of combined hormonal contraception, including the pill, patch and vaginal ring, are absolutely contraindicated in women over 35 smoking 15 cigarettes or more a day. The other four methods above can be used safely in this group.

Question:

A 45-year-old female with multiple sclerosis complains of tingling in her hands which comes on when she flexes her neck. What is this an example of?

A.Werdnig-Hoffman's sign

B.Lhermitte's sign

C.Oppenheim's sign

D.Lambert's sign

E.Uhthoff's phenomenon

Answer:Lhermitte's sign

Explanation:

This is a classic description of Lhermitte's sign which indicates disease near the dorsal column nuclei of the cervical cord. It is also seen in subacute combined degeneration of the cord and in cervical stenosis

Question:

A 20-year-old man presents to the emergency department with profuse vomiting following excessive alcohol drinking. He is also experiencing confusion and a loss of coordination. His blood pressure is 88/59mmHg.

He is admitted to the hospital. A venous blood gas (VBG) was done.

What is the most likely finding on this patient's venous blood gas (VBG)?

A.Metabolic acidosis with hypokalaemia

B.Metabolic alkalosis with hyperkalaemia

C.Metabolic alkalosis with hypokalaemia

D.Respiratory acidosis with hypokalaemia

E.Respiratory alkalosis with hyperkalaemia

Answer:Metabolic alkalosis with hypokalaemia

Explanation:

Vomiting / aspiration - metabolic alkalosis

Important for meLess important

Metabolic alkalosis with hypokalaemia is the correct answer. This is is because vomiting/aspiration can lead to the loss of hydrogen ions through gastric secretions due to being acidic. In addition to this, the pancreas secretes bicarbonate as it attempts to neutralise the acid so that specific enzymes such as trypsin can work optimally. However, when vomiting occurs, the pancreas stops releasing bicarbonate which causes it to build up in the blood. There is also a decrease in potassium in the extracellular space due to excessive loss from the gastrointestinal tract, which causes a decrease in potassium in the blood and thus hypokalaemia in addition to metabolic alkalosis.

Metabolic acidosis with hypokalaemia is incorrect. Although the VBG would likely show a metabolic picture due to the prolonged vomiting, PH would increase as mentioned above. Causes of this particular clinical picture of metabolic acidosis with hypokalaemia include diarrhoea and laxative use.

Metabolic alkalosis with hyperkalaemia is incorrect. The patient is experiencing prolonged vomiting which is more likely to cause metabolic alkalosis. Vomiting is also more likely to cause hypokalaemia also due to the loss of stomach acid and HCL. Causes of metabolic alkalosis include primary hyperaldosteronism and Cushing’s syndrome.

Respiratory acidosis with hypokalaemia is incorrect. Even though the patient would experience hypokalaemia, the results from the VBG would show a metabolic picture due to the loss of bicarbonate ions, and the pH would be increased and show a more alkalotic picture. Causes of respiratory acidosis include but are not limited to COPD, life-threatening asthma and benzodiazepine overdose.

Respiratory alkalosis with hyperkalaemia is incorrect. Although the pH would increase and cause alkalosis, the VBG would show a more metabolic cause rather than a respiratory one due to the loss of bicarbonate in the extracellular fluid. Hypokalaemia is also more likely to result from vomiting rather than hyperkalaemia. Causes of respiratory alkalosis include pulmonary embolisms and high altitudes to name a few.

Question:

A 47-year-old with polycythaemia is admitted to the stroke unit with right leg weakness and difficulty speaking. His speech is halting and labored, although the words he is saying are making sense and he is not repeating himself. An MRI brain confirms a partial anterior circulation stroke affecting the middle cerebral artery (MCA) territory.

Given his symptoms, where is the most likely location of the infarct?

A.Right superior temporal gyrus

B.Left arcuate fasiculus

C.Left inferior temporal gyrus

D.Right superior frontal gyrus

E.Left inferior frontal gyrus

Answer:Left inferior frontal gyrus

Explanation:

Broca's dysphasia: speech non-fluent, comprehension normal, repetition impaired

Important for meLess important

Question:

A 72-year-old man presents to his GP as he is having pains in his legs. He has lived with diabetic neuropathy affecting both his legs for the past 5-years and has tried a multitude of drug regimens including amitriptyline, duloxetine and gabapentin. He asks if there is anything extra that can be done to aid his pain long term. What is the most appropriate response?

A.Prescribe cannabis sativa extract

B.Prescribe morphine

C.Prescribe tramadol

D.Advise him that improving his diabetic control will help reduce his symptoms

E.Refer him to the pain management clinic

Answer:Refer him to the pain management clinic

Explanation:

Consider the use of pain management clinics in resistant diabetic neuropathy

Important for meLess important

This question is asking about the management of pain in diabetic neuropathy. This gentleman has already tried many of the common medications offered to patients with neuropathic pain and has almost reached the ceiling of care. In this case, the most appropriate step is to refer him to the pain management clinic. NICE recommends that any patient with severe pain, worsening pain or in those whose lives are impaired by their pain are referred to the pain management clinic.

Cannabis sativa extract and morphine are not used in the treatment of neuropathic pain unless recommended by a specialist and thus these are incorrect.

Tramadol can be used for breakthrough pain in the acute setting, however, it should not be used long-term for the management of neuropathic pain and is asking for long-term relief it is not suitable.

Advising him that improving his diabetic control will help reduce his symptoms is incorrect as an improvement in his control will not necessarily improve his current pain, it will only limit any further neuropathy from occurring.

Question:

A 37-year-old woman presents to her general practitioner for an initial registration appointment. She has recently migrated from Romania and informs the doctor that her only past medical history is psoriasis.

On examination, there is pitting of the nail beds and there is dactylitis of the left ring finger.

Considering her past medical history, what other findings are most likely to be seen on examination?

A.Blue-black hyperpigmentation under the nail

B.Blueish tinged fingernails

C.Painless detachment of the nail from the nail bed

D.Small haemorrhages underneath the fingernail

E.White horizontal lines across the nail

Answer:Painless detachment of the nail from the nail bed

Explanation:

Nail pitting and onycholysis are associated with psoriasis and psoriatic arthropathy

Important for meLess important

This patient is presenting with psoriatic arthritis which is associated with nail pitting, dactylitis, and onycholysis (painless detachment of the nail from the nail bed). 1 in 3 people with psoriasis will also develop psoriatic arthritis - it usually develops 5-10 years after the onset of cutaneous psoriasis symptoms.

Blue-black hyperpigmentation under the nail is acquired by many patients using certain medications (including chloroquine, tetracyclines, and sulfonamide antibiotics). When associated with medications, this is usually a reversible sign once the skin underneath the nail grows out. However, it can also be associated with subungual melanoma (a key characteristic for this diagnosis is if there is spread of the discolouration from under the nail bed to the surrounding skin- known as Hutchinson’s sign).

Blueish tinged fingernails are associated with cyanotic conditions. This includes congenital cardiac disease where there are shunts, chronic obstructive pulmonary disease, polycythaemia vera, and methaemoglobinaemia. It can also indicate acute conditions such as carbon monoxide poisoning or a pulmonary embolism.

Small haemorrhages underneath the nail are also known as ‘splinter haemorrhages’. When looking at the nail, they appear to be in the lower part of the nail plate and resemble wood splinters. While these can occur due to trauma to the nail, they are also seen in 15-30% of patients with infective endocarditis. Other conditions associated with splinter haemorrhages are meningococcal disease, lichen planus, and systemic lupus erythematosus (SLE). While rarely seen in psoriatic arthritis, this is not the most likely answer.

White horizontal lines across the nail or ‘Mees lines’ are lines that traverse the whole nail and are associated with cancers, chemotherapy, and heart failure. This contrasts with the non-eponymous white lines that cross part of the nail (leuconychia) which can appear after injury.

Question:

A 66-year-old man is being investigated for iron deficiency anaemia with an outpatient CT scan of his abdomen and pelvis. He reports feeling well with no symptoms of note, and his only abnormal vital sign is mild hypertension. No cause for anaemia is identified on the scan, however, an abnormal dilatation of the abdominal aorta is incidentally found, measuring 4.4 cm in diameter.

He tells you he previously had an ultrasound scan of his abdomen 6 months ago as part of the national abdominal aortic aneurysm (AAA) screening program. On that occasion, the dilatation was 3 cm in diameter.

What is the most appropriate management?

A.Antihypertensive medication

B.Emergency laparotomy

C.Intravenous iron infusion

D.Urgent endovascular aneurysm repair

E.Re-scan in 3 months

Answer:Urgent endovascular aneurysm repair

Explanation:

Rapidly enlarging aneurysms of any size should be repaired even if asymptomatic

Important for meLess important

Patients with rapidly enlarging abdominal aortic aneurysms (AAA) should be surgically repaired. The preferred method is endovascular aneurysm repair, where a stent-graft is placed into the aneurysm via incisions in the groin.

Although hypertension is known to predispose to the development of abdominal aortic aneurysms, this man has a rapidly enlarging aneurysm and therefore surgical management rather than antihypertensive medication is the most appropriate management.

This man is haemodynamically stable and asymptomatic, with no radiological evidence of a ruptured AAA. Hence, open repair as an emergency is not indicated.

Intravenous iron infusion is the treatment of choice in patients with severe microcytic anaemia with low iron levels. While this man has iron deficiency anaemia, it is not causing him any problems and therefore oral supplementation in the community is more appropriate.

Aneurysms which are rapidly enlarging should be repaired, hence a monitoring strategy with re-scan in 3 months is not appropriate.

Question:

A 36-year-old woman presents with progressive tingling and numbness of the 4th and 5th fingers of her right hand. Initially, this was intermittent but recently has become constant. She notices that the symptoms are worse when leaning on her right elbow. She recalls hitting her elbow against a door some time ago.

What is the most likely diagnosis?

A.Carpal tunnel syndrome

B.Cubital tunnel syndrome

C.De Quervain's tenosynovitis

D.Medial epicondylitis

E.Radial tunnel syndrome

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

The correct answer is cubital tunnel syndrome. The ulnar nerve runs through the cubital tunnel and compression of this will lead to the symptoms described - tingling and numbness of the 4th and 5th fingers. Management is often conservative but surgery may be required.

Carpal tunnel syndrome is due to compression of the median nerve at the wrist, where it runs through the carpal tunnel. This would present with generalised pain and tingling of the hand and wrist, not specifically the 4th and 5th fingers.

De Quervain's tenosynovitis would present differently, with pain on movement of the thumb/wrist. The radial styloid may be hardened and thickened.

Medial epicondylitis, or golfer's elbow, would present with pain along the medial elbow, close to the cubital tunnel - but localised to the area as it is a tendinopathy, and not compression of the nerve.

Radial tunnel syndrome, as the name suggests, is due to compression of the radial nerve and may lead to tingling/numbness/pain along the back of the hand and forearm.

Question:

A 27-year-old woman attends her GP with abdominal pain in her left iliac fossa for the past 3 days. The pain is intermittent and has no alleviating or provoking factors. She has had no change in her bowel habit. She reports that there is no chance she could be pregnant as she has had a Mirena coil in situ for the past two years. A urine dip is performed which shows the following:

Protein +

Leucocytes +++

Blood +++

Nitrites Negative

β-HCG Negative

Which of the following should be the next step in the management of this patient?

A.Non-contrast CT abdomen and renal tract

B.Empirical treatment for urinary tract infection

C.Referral to urology for suspected bladder cancer

D.Faecal disimpaction regime with macrogol laxatives

E.Urgent referral to gynaecology for ectopic pregnancy

Answer:Non-contrast CT abdomen and renal tract

Explanation:

Abdominal pain with blood and leucocytes on dipstick should prompt you to look for stones

Important for meLess important

The findings of leucocytes and blood in the urine in addition to abdominal pain is more in keeping with renal tract stones than any other diagnosis, therefore a plain CT should be performed to look for stones. The lack of nitrites on the dip rules out urinary infection and the negative pregnancy test rules out an ectopic pregnancy. It would not be appropriate to make a referral to urology for suspected cancer given her age and the very acute history.

Question:

A 30-year-old man who has been seriously assaulted is brought to the Emergency Department. His GCS is 5/15 on arrival and he is immediately intubated and transferred for a CT head (with contrast):

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Which blood vessel(s) is most likely to have ruptured?

A.Anterior communicating artery

B.Emissary veins

C.Temporal artery

D.Middle meningeal artery

E.Posterior communicating artery

Answer:Middle meningeal artery

Explanation:

This scan shows a massive extradural haemorrhage, most likely caused by a ruptured middle meningeal artery.

Question:

A 2-year-old boy presents to the GP with his mother. She is worried that he is not growing at the same rate as the other children at his play group. His mother describes foul-smelling diarrhoea about 4-5 times a week, accompanied by abdominal pain.

On examination, he has a bloated abdomen and wasted buttocks. He has dropped 2 centile lines and now falls on the 10th centile.

Which investigation is most likely to reveal the diagnosis?

A.Stool sample

B.IgA TTG antibodies

C.Hydrogen breath test

D.Abdominal ultrasound

E.Abdominal xray

Answer:IgA TTG antibodies

Explanation:

The most likely diagnosis here is coeliac disease, diagnosed using IgA TTG antibodies, as explained below.

A stool sample would be diagnostic for gastroenteritis, in order to dictate which antibiotic should be used.

The hydrogen breath test is used to diagnose irritable bowel syndrome or some food intolerances.

Endoscopy is more commonly used in adults where cancer is suspected.

An abdominal X-ray may be useful where obstruction is suspected.

Coeliac disease is a digestive condition which is becoming increasingly common, and describes an adverse reaction to gluten. gluten is a protein found in wheat, barley and rye.

Question:

A 17-year-old female is seen by her GP due to worsening acne of her face and back. She has tried multiple over-the-counter therapies with no effect.

Which of the following bacteria found on skin is known to contribute to the development of acne?

A.Acinetobacter johnsonii

B.Moraxella acnes

C.Staphylococcus epidermidis

D.Corynebacterium minutissimum

E.Propionibacterium acnes

Answer:Propionibacterium acnes

Explanation:

Propionibacterium acnes is the bacteria that contributes to the development of acne

Important for meLess important

Acne is a skin disease where the main feature is infection and inflammation of the sebaceous glands in the skin. The bacteria responsible is Propionibacterium acnes which is an anaerobic rod. This is important because it means traditional beta-lactam antibiotics are ineffective in treating infections caused by this and so tetracyclines, macrolides or trimethoprim must be used in managing acne.

Question:

A 38-year-old foster parent brings in her 5-year-old foster child to the GP. He has been complaining of pain when going to the toilet. The foster mother explains that he often has pain when urinating and as a younger child often cried when passing urine. He has only recently developed pain while defecating, however, the foster mother is clearly concerned and consents to the GP examining the child.

Which of the following clinical findings are most likely to be indicative of child sexual abuse?

A.Anal fissures and recurrent urinary tract infections

B.Anal fissures and Candida infection

C.Haemorrhoids and Candida infection

D.Haemorrhoids and recurrent urinary tract infections

E.An isolated Candida infection

Answer:Anal fissures and recurrent urinary tract infections

Explanation:

Anal fissures and recurrent UTIs in children can be indicative of sexual abuse

Important for meLess important

Features of childhood sexual abuse can include:

pregnancy

sexually transmitted infections, recurrent UTIs

sexually precocious behaviour

anal fissure, bruising

reflex anal dilatation

enuresis and encopresis

behavioural problems, self-harm

recurrent symptoms e.g. headaches, abdominal pain

Haemorrhoids and Candida infections are not clinical features that can specifically indicate a child might be at harm of sexual abuse.

Question:

A 50-year-old man presents to the emergency department with 3 days history of fever and headache associated with photophobia and neck stiffness.

On examination, he appears to be confused and disorientated. His temperature is 39°C and other vital signs are normal. A CT scan done for this patient is negative for brain injury and he is started on empirical broad-spectrum antibiotic therapy while waiting for the cerebrospinal fluid (CSF) analysis results to be back.

Meanwhile, the patient starts complaining of a weird sensation of unfamiliarity. Shortly afterwards, he is found staring blankly into space and is unresponsive to stimuli. He recovers within 2 minutes and is obviously tired than before. His mental status remains the same.

Based on the given scenario, which of the following should be the next step management for this patient?

A.Prescribe another broad-spectrum antibiotic in addition to the current antibiotic regimen

B.Continue current antibiotic regimen and start patient on an anti-epileptic drug (AED) therapy

C.Initiate aciclovir intravenously in addition to the current antibiotic therapy

D.Supportive management is adequate in addition to current antibiotic regimen as such scenario is not uncommon in cases of suspected meningitis

E.Stop the current antibiotic regimen and switch to an alternative broad-spectrum antibiotic

Answer:Initiate aciclovir intravenously in addition to the current antibiotic therapy

Explanation:

Start aciclovir in all cases of suspected encephalitis

Important for meLess important

This patient is likely to have encephalitis complicated by temporal lobe seizure (motionless staring, confusion and disorientation, altered ability to respond to others) accompanied by an aura (jamais vu - a feeling of unfamiliarity).

It can be challenging to differentiate between meningitis and encephalitis. Cerebral function usually remains normal in a patient with meningitis while in encephalitis, however, abnormalities in brain function are a differentiating feature, including altered mental status.\*

Presence of temporal lobe focality suggested by symptoms, signs, or imaging studies should raise a suspicion of HSV-1 infection in the CNS. Further to this, in any case of possible encephalitis, prompt treatment with aciclovir by intravenous infusion should be started to cover herpes simplex virus (HSV) -1 infection.\*,\*\*

The empirical antibiotic regimen should only be changed based on the results of CSF analysis.

AED should not be started as the patient does not have epilepsy.

\*S.J. Gluckman. Viral Encephalitis in Adults. UpToDate. Last updated: Oct 30, 2019.

\*\*C.Tidy. Encephalitis. Patient.info. Last edited 8 Jul 2015.

Question:

A 34-year-old man is seen in the emergency department complaining of feeling very anxious, sweaty and that his heart is racing. His blood pressure in the department is 167/112 mmHg. He has experienced similar episodes over the last few weeks and says these tend to occur randomly but are usually associated with headaches.

What investigation will be first line in identifying the most likely diagnosis?

A.24-hour urinary catecholamines

B.ECG

C.Plasma & urinary metanephrines

D.Plasma aldosterone/renin ratio

E.Serum troponins

Answer:Plasma & urinary metanephrines

Explanation:

Phaeochromocytoma typically presents with a triad of sweating, headaches, and palpitations in association with severe hypertension

Important for meLess important

Plasma and urinary metanephrines is the correct answer, as the history of periodic severe hypertension associated with sweating and palpitations points towards a diagnosis of a phaeochromocytoma; a catecholamine secreting tumour. Metanephrines are the breakdown product of catecholamines and have higher diagnostic accuracy in testing, making this investigation first line.

24-hour urinary catecholamines would likely also point to the correct diagnosis, however, this test is outdated and less reliable due to the practicality of sample collection.

An ECG would likely be performed in this scenario to rule out cardiac pathology, however, this would not point to the correct diagnosis.

Plasma aldosterone/renin ratio is incorrect, as this would be used to diagnose primary hyperaldosteronism.

Serum troponins would also likely be measured due to the presentation with symptoms that could mirror a myocardial infarction, however, would likely come back negative and would not be helpful in determining this diagnosis.

Question:

A 67 year old gentleman presents with a three day history of a productive cough. He complains that over the last two days he has been progressively more short of breath, He complains of feeling very weak and lethargic and on further questioning reports fevers and rigors. His wife brought him to the emergency department as she was concerned as he appeared to be deteriorating rapidly.

Observations are: heart rate 125 beats per minute, respiratory rate 32 breaths per minute, Sa02 90% on room air, temperature 38.9º, blood pressure is 130/84 mmHg.

He appears distressed but is not confused.

Initial investigations show:

Hb 134 g/l

Platelets 550 \* 109/l

WBC 18 \* 109/l

Na+ 141 mmol/l

K+ 3.7 mmol/l

Urea 9.2 mmol/l

Creatinine 130 µmol/l

CXR shows left lower zone consolidation.

From the above information what is his CURB-65 score?

A.1

B.2

C.3

D.4

E.5

Answer:3

Explanation:

This patient has a community acquired pneumonia which is a common presentation on the acute medical take (Incidence: 5-11/1000). Patients typically present with a productive cough, fevers, shortness of breath, anorexia, rigors and may report pleuritic chest pain and haemoptysis. Community acquired pneumonia may be primary or secondary to underlying disease.

Question:

A 74-year-old man takes warfarin due to a mechanical heart valve and attends his weekly anticoagulation appointment for INR testing. His target INR range is 2.5 - 3.5 and he normally sits within this. Today's value is 3.9. The patient reports no changes to warfarin dosing or lifestyle. A drug interaction is suspected.

What medication is most likely responsible for this?

A.Carbamazepine

B.Metronidazole

C.Phenytoin

D.Rifampicin

E.St. John's wort

Answer:Metronidazole

Explanation:

Metronidazole increases the anticoagulant effect of warfarin

Important for meLess important

This scenario describes a patient with a raised INR, suggesting an increased anticoagulant effect of warfarin. This can be due to drug interactions which inhibit enzymes responsible for drug metabolism. Of the options above, metronidazole is the single best answer as it is associated with warfarin enzyme inhibition.

Multiple drugs can be associated with inhibition of the metabolism of warfarin. The reduced metabolism increases the anticoagulant effect of warfarin. These can include metronidazole, azithromycin, ciprofloxacin, and grapefruit juice.

Alternatively, some drugs induce the metabolism of warfarin, resulting in a reduced anticoagulant effect. These include phenytoin, carbimazole, and rifampicin.

Carbamazepine is not the correct answer. Carbamazepine is an anti-epileptic medication which is known to decrease the anticoagulant effect of warfarin through enzyme induction.

Phenytoin is not correct. Like carbamazepine, phenytoin is an anti-epileptic drug which also induces warfarin metabolism.

Rifampicin is an antibiotic which is used in conditions such as tuberculosis. It causes induction of warfarin metabolism, and would therefore decrease the anticoagulant effect (hence reduced INR).

St. John's wort is not correct. St. John's wort is a plant derivative which causes increased warfarin metabolism - this would cause a decreased anticoagulant effect (unlike the above-described scenario).

Question:

A 4-year-old girl presents to the emergency department with a fever, sore throat and pain on swallowing which started yesterday and has become progressively worse. On examination, she is drooling, and appears anxious and sat forward with her hands on her knees. Her temperature was 38ºC, oxygen saturation 96% on air, heart rate 100 beats per minute, respiratory rate of 24 breaths per minute and blood pressure 100/60 mmHg.

She is administered intravenous dexamethasone and inhaled budesonide, however still continues to deteriorate clinically. She now has stridor which is audible from the edge of the bed. The on-call anaesthetist is bleeped.

What intervention may be considered next?

A.Continuous positive airway pressure (CPAP)

B.Cricothyroidotomy

C.Endotracheal intubation

D.Humidified oxygen

E.Non-invasive ventilation (NIV)

Answer:Endotracheal intubation

Explanation:

Endotracheal intubation may be necessary to protect the airway in acute epiglottitis

Important for meLess important

The correct answer is endotracheal intubation, as the patient has a likely diagnosis of acute epiglottitis and is not improving with medical therapy. She has also developed marked stridor which means her airway may become compromised.

CPAP is a treatment used mainly in obstructive sleep apnoea to prevent the airway from collapsing on inspiration. It is not suitable if there is a risk of airway loss.

A cricothyroidotomy would not be indicated as the patient is still able to maintain her airway and is in a hospital setting, where endotracheal intubation is possible.

Humidified oxygen is a therapy that may be used, however, the patient is not hypoxic and the agitation caused by the device may precipitate an airway obstruction.

NIV is contraindicated in patients who require a secure or patients who are at risk of airway loss, therefore it would not be suitable in this case.

Question:

A 6-year-old boy is diagnosed as having nephrotic syndrome. A presumptive diagnosis of minimal change glomerulonephritis is made. What is the most appropriate treatment?

A.Cyclophosphamide

B.Albumin infusion

C.Plasma exchange

D.Renal biopsy followed by prednisolone

E.Prednisolone

Answer:Prednisolone

Explanation:

A renal biopsy is only indicated if response to steroids is poor

Question:

You are a doctor in general practice. A 56-year-old man attends as a same-day emergency with new pain in his right leg and foot. The pain has been present for the past 48 hours and worse at night. He states the pain is in the outer side of his calf and the top of his foot and toes. He has a past medical history of osteoarthritis, gout and hypertension. His regular medications are paracetamol, amlodipine, naproxen, allopurinol and omeprazole.

On examination he has no ankle or foot tenderness or joint deformity. He has limited movement of the ankle and it is painful to dorsiflex his foot. He has slightly altered sensation over the dorsum of his foot but sensation in the rest of his leg is normal. There is a palpable dorsalis pedis pulse bilaterally.

What is the most likely cause of this man’s leg pain?

A.Osteoarthritis

B.Gout

C.L5 radiculopathy

D.Peripheral vascular disease

E.Deep vein thrombosis

Answer:L5 radiculopathy

Explanation:

Nerve root pain can be distinguished from other pain in the leg by the dermatomal distribution and an associated neurological deficit

Important for meLess important

The distribution of the pain along the lateral calf extending to the dorsum of the foot, with associated neurological deficit (sensory change and weakness) makes this most likely to be a nerve injury. The dermatomal distribution in this case suggests the L5 nerve is affected.

Joint diseases such as gout and osteoarthritis would cause pain centred around the affected joint. The pain would be felt in the ankle or foot with no specific distribution on the dorsum or sole of the foot. Additionally there would not be any associated sensory loss and the joint would be difficult to move due to pain in any direction, not only dorsiflexion.

Peripheral vascular disease or a deep vein thrombosis would both cause symptoms throughout the whole limb with no discernible distribution. Arterial disease can sometimes only affect the posterior compartment and cause calf pain but this does not lateralise to the lateral or medial side of the calf. Additionally if the foot is affected, the pain and sensory change affect the dorsum and sole equally.

Question:

A 75-year-old man presents to the emergency department with shortness of breath and orthopnoea. He has a past medical history of ischaemic heart disease. His medications include aspirin, bisoprolol, ramipril and spironolactone. He does not smoke cigarettes or drink alcohol.

Observations:

Heart rate 99 beats per minute

Respiratory rate 24/minute

Oxygen saturations 92% on room air

Blood pressure 154/88 mmHg

Temperature 37C

Chest auscultation reveals bilateral crackles extending to the midzones. There are no murmurs. There is no peripheral oedema.

Based on the likely diagnosis, which of the following is an early sign of this condition?

A.Soft S1

B.Absent S2

C.Loud P2

D.S3

E.S4

Answer:S3

Explanation:

Gallop rhythm (S3) is an early sign of LVF

Important for meLess important

S3 is correct. The patient presents with shortness of breath and orthopnoea in association with bilateral crackles extending to the midzone with evidence of respiratory failure. On a background of ischaemic heart disease, this is likely caused by left ventricular failure. An S3 gallop rhythm is an early sign of left ventricular failure.

Absent S2 is incorrect. This is a sign of severe aortic stenosis. However, this sign will be present irrespective of whether or not this patient has developed heart failure signs and symptoms.

Loud P2 is incorrect. This is an early sign of pulmonary hypertension, which may cause right-sided heart failure. However, bilateral crackles on auscultation suggest left-sided heart failure on a background of ischaemic heart disease.

Soft S1 is incorrect. This is caused by a prolonged PR, severe mitral stenosis or mitral regurgitation. We are told there are no murmurs.

S4 is incorrect. This is an extra sound causes by atrial contraction against a stiff ventricle. It is associated with hypertrophic obstructive cardiomyopathy and hypertension but not acute LVF.

Question:

You are seeing a baby boy and his mother for his 8-week postnatal check. You complete the physical examination which is normal. After finishing the review you discuss whether the mother has booked the child in for his first set of immunisations. She says that she is worried as she has heard about outbreaks of measles throughout the country and wants to know when he first gets this vaccine.

When is the first dose of the MMR vaccine given routinely?

A.At 2 months of age

B.At 3 months of age

C.At 4 months of age

D.At 12-13 months of age

E.At 3-4 years in the pre school booster

Answer:At 12-13 months of age

Explanation:

The MMR vaccine is first given at 12-13 months

Important for meLess important

The MMR vaccine is given routinely at 12-13 months of age and then again at 3-4 years in the pre-school booster. The correct answer is therefore, 4 as this is the first time it is given.

Question:

A 74-year-old woman falls in her gym class and is admitted to hospital with a neck of femur fracture for which she receives a total hip replacement. Three days after admission she becomes unwell with fever and a productive cough. Chest X-ray reveals left lower zone consolidation consistent with pneumonia.

The doctor consults local antibiotic guidelines which refer to national NICE guidelines for first-line antibiotic choice. The patient has no known drug allergies.

Based on this, what is the most appropriate antibiotic to commence?

A.Amoxicillin

B.Clarithromycin

C.Co-amoxiclav

D.Doxycycline

E.Flucloxacillin

Answer:Co-amoxiclav

Explanation:

Pneumonia that occurs ≥ 48 hours after admission is defined as a hospital-acquired pneumonia

Important for meLess important

The patient developed symptoms after more than 48 hours in hospital and therefore has a hospital-acquired pneumonia (HAP). HAP can have different resistance patterns to community-acquired pneumonia (CAP) and therefore need treating accordingly.

NICE guidelines recommend co-amoxiclav as first-line in non-penicillin allergic patients who have been in hospital for 3-5 days, like the patient in this case.

Amoxicillin is first line for a CAP or an exacerbation of COPD.

Clarithromycin is first-line for atypical pneumonias or an alternative first-line for a CAP in penicillin allergic patients.

Doxycycline is an alternative first-line treatment for a CAP in penicillin allergic patients.

Flucloxacillin is given in addition to amoxicillin for a CAP where staphylococcal infection is suspected e.g. following recent influenza infection.

Note: in exams, you are unlikely to be tested on local antimicrobial guidelines but may be expected to know national NICE guidelines.

Question:

A 62-year-old woman has come into your GP practice with recurrent headaches. These only started 2 weeks ago, but she describes them as severe (8/10) and throbbing in nature. She notices that they tend to get much worse whenever she talks for long periods of time. When asked, she also says she's felt particularly fatigued in this time, her vision has blurred slightly since the headaches have started, and she's never had problems like this in the past.

Considering the likely diagnosis, which pair of treatment and investigation would you prioritise?

A.Prednisolone and U&Es

B.Prednisolone and vision testing

C.Aspirin and CT head

D.Co-codamol and MRI head

E.Fludrocortisone and vision testing

Answer:Prednisolone and vision testing

Explanation:

Vision testing is a key investigation following the diagnosis of temporal arteritis

Important for meLess important

The correct answer is number 2.

Temporal arteritis is an autoimmune condition affecting blood vessels that responds well to steroids. An initial dose of 40-60 mg will help resolve ongoing symptoms and prevent further progression of the condition. Temporal arteritis can result in occlusion of the ophthalmic artery, resulting in irreversible blindness. Transient visual problems may precede a complete occlusion.

Renal function is not particularly affected by temporal arteritis, which is why the first option is incorrect.

Aspirin and a CT head are usually used when suspecting an ischemic stroke or TIA.

Co-codamol is effective for tension headaches but an MRI head is costly and is not a key investigation in temporal arteritis.

Fludrocortisone is not the first line treatment for temporal arteritis, which is why option 5 is incorrect.

Question:

Which one of the following is not a risk factor for developmental dysplasia of the hip?

A.Positive family history

B.Breech presentation

C.Female sex

D.Afro-Caribbean origin

E.Firstborn child

Answer:Afro-Caribbean origin

Explanation:

Question:

A 44-year-old woman notices a lump in her breast. She is referred by her general practitioner to a breast surgeon who removes the lump. A multidisciplinary team advises adjunct chemotherapy. On review with her oncologist, she complains of nausea post-chemotherapy regimes. The oncologist diagnoses her with chemotherapy-induced nausea.

What can you prescribe her to manage her nausea?

A.Ondansetron (serotonin receptor antagonist)

B.Metoclopramide (central dopamine antagonist at chemoreceptor trigger zone)

C.Prochlorperazine (dopamine receptor antagonist)

D.Haloperidol (antipsychotic)

E.Prednisolone (corticosteroid)

Answer:Ondansetron (serotonin receptor antagonist)

Explanation:

Nausea and vomiting associated with chemotherapy or radiotherapy often respond to a 5-HT3-receptor antagonist in combination with dexamethasone

Important for meLess important

Therapeutic guidelines recommend:

Ondansetron for chemotherapy-induced nausea

Haloperidol for intracranial causes (raised ICP, direct effect of tumour)

Prochlorperazine for vestibular causes

Metoclopramide for gastrointestinal causes

Question:

A 40-year-old woman attends her GP with symptoms of a sore throat which fulfil the CENTOR criteria to suggest a bacterial cause. She reports that she is allergic to penicillin.

What is the most appropriate course of antibiotics for the GP to prescribe?

A.Ceftriaxone

B.Phenoxymethylpenicillin

C.Clarithromycin

D.Flucloxacillin

E.Meropenem

Answer:Clarithromycin

Explanation:

In a penicillin-allergic patient, clarithromycin is a suitable alternative to phenoxymethylpenicillin for a bacterial sore throat

Important for meLess important

This patient is allergic to penicillin, so should not be prescribed phenoxymethylpenicillin. Clarithromycin is recommended by NICE as a suitable alternative for a bacterial sore throat.

Ceftriaxone is a cephalosporin that is given intravenously. Patients who are allergic to penicillin are often allergic to cephalosporins as well.

Flucloxacillin and meropenem would not be appropriate antibiotics for a bacterial sore throat.

Question:

A 65-year-old man is reviewed for chronic obstructive pulmonary disease. He describes stable shortness of breath on exertion which has not worsened over the past year. He has a history of asbestos exposure which is being reviewed by a respiratory physician regularly. The examination is unremarkable and a chest X-ray shows pleural plaques; he is worried that these will develop into cancer.

What do you advise this patient about the findings?

A.Benign and do not require follow-up

B.Benign and require yearly monitoring

C.Malignant and require immediate specialist referral

D.Premalignant and require yearly monitoring

E.Premalignant changes and require routine specialist referral

Answer:Benign and do not require follow-up

Explanation:

Pleural plaques are benign and do not undergo malignant change. They, therefore don't require any follow-up.

Important for meLess important

Pleural plaques are the most common form of asbestos-related lung disease and are benign. They are not associated with an increased risk of lung cancer or mesothelioma. This patient should be reassured and advised that no follow-up of these specific plaques is necessary, although an ongoing review of his lung disease is encouraged.

Pleural plaques indicate the patient has been exposed to asbestos 20-40 years prior. This could put the patient at higher risk of mesothelioma but the plaques themselves are not premalignant and do not require yearly monitoring.

As pleural plaques are not malignant, the patient does not require a specialist referral.

Pleural plaques are not premalignant either, they do not have a risk of transforming into malignancy and therefore the patient should be reassured.

Pleural plaques alone also do not require a routine specialist referral. The main indication for specialist referral, in this case, would be worsening shortness of breath on exertion or frequent exacerbations indicating possible progression of disease or malignancy.

Question:

A GP partner receives a letter from the General Medical Council (GMC) asking to receive a scanned copy of all of a patient's medical records due to an ongoing medical negligence investigation and 'fitness to practice 'hearing against a foundation year doctor who worked at her practice 6 months ago.

The patient in question attends the practice for regular follow-ups. The next time the patient is in the practice, one of the GP partners discusses the request with the patient. The patient refuses to allow this to happen, as he believes it would be an invasion of his privacy. After an extensive discussion about his thoughts towards this, he still refuses.

What should the GP partner do next?

A.Apologise to the GMC as she is not able to share the record as she does not have his consent

B.Explain to the patient that she needs to share his record with the GMC, even without his consent

C.Ignore the request from the GMC

D.Remove the patient from the practice list, and then share his record with the GMC

E.Speak to the patient at his next follow-up 2 weeks later, and see if he's changed his mind

Answer:Explain to the patient that she needs to share his record with the GMC, even without his consent

Explanation:

Disclosures to comply with a statutory request made by a regulatory body such as the GMC can be made without the patient's consent

Important for meLess important

The GP partner did the correct thing here by speaking to the patient first about the sharing of their personal information. This is one of the situations where, despite what the patient may say, a doctor is obligated to respond to the request. It is good practice to still speak to the patient beforehand and see if they may agree to the disclosure. Since the GMC is a regulatory body, it can make statutory (legal) requests, that can be fulfilled without a patient's consent. Therefore the correct answer is to share the record with the GMC. However, once again, it is not necessary, but good practice, to tell the patient what you have done - especially if it is going against what they wanted.

Apologising to the GMC as she is not able to share the record is inappropriate, as legally, she is required to fulfil the request, despite what the patient says.

Ignoring the request from the GMC would be inappropriate as she is neglecting a legal duty and a statutory request which is very bad practice.

Removing the patient from the practice list would be unprofessional and highly inappropriate. There is no indication for them to be removed from the practice list here.

Speaking to the patient at his next follow-up 2 weeks later, to see if he's changed his mind is not an inherently bad or inappropriate option, however, it is not the most appropriate. There is no need to delay the request to see if he changes his mind. It also may seem like she is trying to coerce or pressure him into agreeing to the request, which would not be beneficial for the doctor-patient relationship.

Question:

A 65-year-old woman with chronic lymphocytic leukaemia (CLL) rings the haematology Clinical Nurse Specialist asking for advice. She was diagnosed with CLL 5 years ago after an asymptomatic blood test and has been stable without treatment.

Over the past week, the patient has been suffering from fevers, night sweats, and nausea. She denies any vomiting, diarrhoea, cough, headache, or other infective symptoms.

You suspect that the CLL has undergone a transformation.

Which condition are these new symptoms likely to represent?

A.Acute lymphocytic leukaemia

B.Acute myeloid leukaemia

C.Chronic myeloid leukaemia

D.Hodgkin's lymphoma

E.Non-Hodgkin's lymphoma

Answer:Non-Hodgkin's lymphoma

Explanation:

CLL can transform to high-grade lymphoma (Richter's transformation) making patients suddenly unwell

Important for meLess important

This patient's CLL has undergone Richter's transformation, in which CLL transforms to a fast-growing non-Hodgkin's lymphoma (HL).

Hodgkin's lymphoma is incorrect. CLL does not typically transform to Hodgkin's lymphoma.

It would be unusual for a chronic lymphocytic leukaemia to transform to an acute myeloid leukaemia.

Acute lymphocytic leukaemia is unlikely as around 75% of cases are in children less than 6 years old.

Another important differential would be an infective cause in an immunocompromised patient, but the absence of vomiting, diarrhoea, cough, headache, or other symptoms helps to rule this out.

Question:

Which one of the following viruses is associated with nasopharyngeal carcinoma?

A.Adenovirus

B.Rhinovirus

C.Herpes simplex virus

D.Epstein-Barr virus

E.Picornavirus

Answer:Epstein-Barr virus

Explanation:

EBV: associated malignancies:

Burkitt's lymphoma

Hodgkin's lymphoma

nasopharyngeal carcinoma

Important for meLess important

Question:

A 73-year-old woman has returned to the memory clinic following multiple episodes of falls. One year ago, she was started on levodopa for a presumed diagnosis of idiopathic Parkinson's disease and had a minimal response to therapy. She has also had multiple episodes of urinary incontinence.

On examination, she is oriented, she has a normal tone and equal power bilaterally with no resting tremor. She has evident gait apraxia with a significant unsteadiness on standing and a broad-based shuffling gait.

Given the most likely diagnosis, what are the typical changes found during neuroimaging?

A.Atrophy in the medial temporal lobe

B.Bilateral lacunar infarcts in the basal ganglia

C.Loss of normal swallow tail appearance of substantia nigra

D.Multiple ring-enhancing lesions

E.Ventriculomegaly with relative preservation of cortical sulci

Answer:Ventriculomegaly with relative preservation of cortical sulci

Explanation:

Normal pressure hydrocephalus neuroimaging findings: ventriculomegaly in the absence of, or out of proportion to, sulcal enlargement

Important for meLess important

Ventriculomegaly with relative preservation of cortical sulci is the correct answer. This patient's presentation is most in keeping with a diagnosis of normal pressure hydrocephalus (NPH). Although NPH cannot be diagnosed with neuroimaging alone, the patient's presentation and poor response to levodopa are highly suggestive of this condition.

Atrophy in the medial temporal lobe is incorrect. This is the typical neuroimaging finding associated with Alzheimer's dementia. This is a potential differential as urinary incontinence is common in the moderate to late stages of the disease. Alzheimer's does not explain this patient's gait apraxia which is not responsive to levodopa. Furthermore, there is no explicit mention of cognitive impairment in this history nor is it a chief complaint.

Bilateral lacunar infarcts in the basal ganglia is incorrect. This is typically associated with vascular dementia secondary to chronic hypertension. Depending on the location of the infarcts, vascular dementia can potentially present with gait apraxia and urinary incontinence. However, a presentation of vascular dementia would typically describe a 'step-wise' deterioration in symptoms with motor symptoms having a unilateral distribution. This patient has equal power bilaterally with gait apraxia that does not respond to levodopa.

Loss of normal swallow tail appearance of substantia nigra is incorrect. This is a neuroimaging finding associated with idiopathic Parkinson's disease. The loss of the normal 'swallow tail' is indicative of the degeneration in the substantia nigra. This was the initially presumed diagnosis in this case. However, the key excluding factor is the patient's poor response to levodopa which suggests an alternative diagnosis. Although Parkinson's disease is associated with a broad-based shuffling gait, there is an absence of other typical features of parkinsonism such as bradykinesia, resting tremor, and postural instability.

Multiple ring-enhancing lesions is incorrect. This finding has a variety of aetiologies and can be due to either neoplastic or infectious diseases such as toxoplasmosis. Ring-enhancing lesions would typically result in focal neurological deficit (dependant on the region(s) of the brain affected) and have secondary features of the underlying cause. Although this patient has poor coordination, there are no other features suggestive of ring-enhancing lesions such as headaches, confusion, or a history of seizures.

Question:

An 82-year-old man is brought to the emergency department with vomiting and abdominal pain for 2 days. He has a history of heart failure and COPD.

His observations are as follows; blood pressure 105/72 mmHg, pulse 94 bpm, respiratory rate 14/min, temperature 36.9 deg C. On examination, the abdomen is soft and non-tender. Capillary refill time is 2 seconds and his skin turgor is normal. The patient's mucous membranes appear dry. His GCS is 15/15 and he is answering all questions appropriately.

His initial blood tests show the following:

Na+ 123 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 10.3 mmol/L (2.0 - 7.0)

Creatinine 131 µmol/L (55 - 120)

With regards to this patient's hyponatremia, which of the following is the best approach?

A.Encourage PO fluids

B.IV isotonic normal saline

C.Fluid restriction to less than 1 litre a day

D.IV 3% sodium chloride

E.IV 5% dextrose

Answer:IV isotonic normal saline

Explanation:

A trial of isotonic normal saline is useful in patients with suspected hypovolemic hyponatraemia

Important for meLess important

This patient likely has hypovolemic hyponatraemia secondary to dehydration.

Encourage PO fluids - incorrect. A trial of isotonic normal saline is recommended in those with suspected hypovolemic hyponatremia. PO fluids alone will not sufficiently raise the sodium.

IV isotonic normal saline - correct. There are several clues in this question to suggest dehydration; history of vomiting, mild tachycardia, dry mucous membranes, and raised urea and creatinine. A trial of isotonic saline would be an appropriate measure to correct this patients hyponatraemia.

Fluid restriction - incorrect. Fluid restriction is recommended in suspected euvolemic or hypervolemic hyponatraemia.

IV 3% sodium chloride - incorrect. Hypertonic saline is used in patients with acute severe hyponatraemia (<120 mmol/L) who are symptomatic. This is not the case here.

IV 5% dextrose - incorrect. 5% dextrose is frequently the fluid of choice in hypernatraemia, not hyponatraemia.

Question:

A 77-year-old woman is being reviewed for new shortness of breath. This has come on gradually over the past few days. She is currently being treated for an acute kidney injury due to rhabdomyolysis following a fall with a long lie. Her treatment so far has included IV fluids and furosemide.

On examination, she has bilateral basal crackles alongside significant ankle swelling.

A chest x-ray showed peri-hilar opacities and hilar congestion.

What is the most appropriate next step in her management?

A.Haemodialysis

B.IV co-amoxiclav

C.IV mannitol

D.Non-invasive ventilation

E.Spironolactone

Answer:Haemodialysis

Explanation:

Pulmonary oedema is an indication for haemodialysis in a patient with acute kidney injury

Important for meLess important

This woman presents with pulmonary oedema following an acute kidney injury. Pulmonary oedema typically occurs in this context due to raised pulmonary arterial pressures which are due to extracellular fluid expansion. If medical management has failed to resolve the fluid overload, then haemodialysis is indicated in order to lower the pulmonary arterial pressure and prevent further overload.

IV co-amoxiclav is incorrect. This may be appropriate if pneumonia was expected, however, the more likely cause is pulmonary oedema due to fluid overload.

IV mannitol is incorrect. This is a hypertonic fluid that can be used for cerebral or ocular oedema, in order to draw fluid out of the tissue. However, it does not have a use in pulmonary oedema, or within the management of an acute kidney injury.

Non-invasive ventilation is incorrect. This can be used in cases of pulmonary failures, such as due to cariogenic pulmonary oedema. However, it does not have any role within the management of pulmonary oedema in the context of an acute kidney injury.

Spironolactone is incorrect. This is a potassium-sparing diuretic and is, therefore, contraindicated in acute kidney injury due to the risk of hyperkalaemia. It may be used in heart failure to prevent volume overload, however, in this scenario, it is inappropriate.

Question:

A 23-year-old man with a history of migraine presents for review. His past medical history includes asthma and a broken wrist two years ago. The headaches are now occurring about once a week. He describes unilateral, throbbing headaches that may last over 24 hours. Neurological examination is unremarkable. His regular medications include a salbutamol and beclomethasone inhaler. Taking into account his past medical history, what is the most suitable therapy to reduce the frequency of migraine attacks?

A.Propranolol

B.Zolmitriptan

C.Topiramate

D.Amitriptyline

E.Pizotifen

Answer:Topiramate

Explanation:

Migraine

acute: triptan + NSAID or triptan + paracetamol

prophylaxis: topiramate or propranolol

Important for meLess important

Pizotifen is used less commonly nowadays due to side-effects such as weight gain. Propranolol should be avoided in asthmatics.

Question:

A 45-year-old lady was discharged from hospital following treatment with pamidronate for hypercalcaemia. She now presents with symptoms consistent of hypocalcaemia including muscle spasms and tetany. Which ECG changes are most likely to be present?

A.T wave inversion

B.Peaked T waves

C.Corrected QT interval prolongation

D.U waves

E.Corrected QT interval shortening

Answer:Corrected QT interval prolongation

Explanation:

The clinical picture presented is not atypical when a patient who initially has hypercalcaemia is treated with bisphosphonates and rapidly develops hypocalcaemia.

The following ECG changes are associated with hypocalcaemia:

Common: Corrected QT interval prolongation

Rare: Atrial fibrillation or torsade de pointes

(Note: In hypercalcaemia shortening of the QT interval may be observed, in severe cases Osborn (or J-waves) may be present)/

Source: http://journal.publications.chestnet.org/article.aspx?articleid=1079481)

Question:

Which one of the following conditions is most strongly associated with supravalvular aortic stenosis?

A.Pierre-Robin syndrome

B.Edward's syndrome

C.William's syndrome

D.Patau syndrome

E.Noonan syndrome

Answer:William's syndrome

Explanation:

A boy with learning difficulties is noted to be extremely friendly and extroverted. He has short for his age and has supravalvular aortic stenosis - William's syndrome

Important for meLess important

Question:

A 68-year-old man who takes warfarin for atrial fibrillation is taken to the emergency department after being involved in a road traffic accident. His GCS is reduced and a CT head shows an intracranial haemorrhage. Bloods on admission show the following:

Hb 132 g/l

Platelets 222 \* 109/l

WBC 11.2 \* 109/l

INR 3.1

In addition to vitamin K, which one of the following blood products should be given?

A.Cryoprecipitate

B.Platelet transfusion

C.Prothrombin complex concentrate

D.Packed red cells

E.Fresh frozen plasma (FFP)

Answer:Prothrombin complex concentrate

Explanation:

Prothrombin complex concentrate is used for the emergency reversal of anticoagulation in patients with severe bleeding or a head injury

Important for meLess important

Question:

A 71-year-old man presents to neurology with difficulty walking. He also complains of needing to urinate up to 15 times per day, associated with urgency & incontinence.

His past medical history includes hypertension, Parkinson's disease unresponsive to levodopa, and a subarachnoid haemorrhage.

On examination, his symptoms are symmetrical and there is no indication of hypomimia. His gait is noted to be slow. He scores 23 on his mini-mental state exam (MMSE).

Neuroimaging reveals mild ventricular enlargement and periventricular leukomalacia with sulcal preservation.

What is the most likely diagnosis?

A.Corticobasal degeneration

B.Lewy body dementia

C.Multiple system atrophy

D.Normal pressure hydrocephalus

E.Progressive supranuclear palsy

Answer:Normal pressure hydrocephalus

Explanation:

Normal pressure hydrocephalus neuroimaging findings: ventriculomegaly in the absence of, or out of proportion to, sulcal enlargement

Important for meLess important

Normal pressure hydrocephalus is correct. The history of a subarachnoid haemorrhage (SAH) mixed with the triad of levodopa-unresponsive gait abnormality, urinary incontinence, and dementia suggest normal pressure hydrocephalus. This is confirmed by the neuroimaging findings. Normal pressure hydrocephalus is a relatively common complication of a SAH and can present chronically as a reversible cause of dementia. It is caused by the reduction in CSF reabsorption caused by changes after a SAH.

Corticobasal degeneration is incorrect. This is a Parkinson's-plus syndrome that presents with parkinsonism along with markedly asymmetrical arm involvement, which isn't the case in this presentation and doesn't account for either the patient's other symptoms or the neuroimaging findings.

Lewy body dementia is incorrect. Lewy body dementia would account for the gait changes and the dementia symptoms, but patients classically report visual hallucinations. Furthermore, the neuroimaging findings are not in keeping with this form of dementia but indicate hydrocephalus.

Multiple system atrophy is incorrect. This is a Parkinson's-plus syndrome characterised by postural hypotension and impotence along with the classic Parkinson's features. It would not produce these findings on neuroimaging and does not account for the dementia-like symptoms, although dementia is common in patients with Parkinson's-plus syndromes.

Progressive supranuclear palsy is incorrect. This is another Parkinson's-plus syndrome that classically presents with parkinsonism, impaired vertical gaze, and cognitive decline. Neuroimaging would usually reveal the typical 'hummingbird sign', which results from midbrain atrophy.

Question:

A 70-year-old man with newly diagnosed COPD presents to the GP practice. He informs you that despite him using his inhaler for several months, he finds that he is still significantly short of breath.

The patient tells you that he now has to stop at the top of his stairs to catch his breath before continuing; he is using his short-acting beta agonist (SABA) inhaler up to two times per day. Despite this, he has no features suggestive of an exacerbation.

Aside from COPD, the patient has a diagnosis of atopic dermatitis. He takes no regular medication other than cetirizine daily between May and September to help with his hayfever. He stopped smoking three years ago and does not drink alcohol.

Which inhaler/s would be most appropriate to add according to NICE guidelines?

A.Inhaled corticosteroid

B.Inhaled corticosteroid and long-acting beta agonist

C.Long-acting muscarinic antagonist

D.Long-acting muscarinic antagonist and long-acting beta agonist

E.Short-acting muscarinic antagonist

Answer:Inhaled corticosteroid and long-acting beta agonist

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

NICE guidelines state that if a patient with COPD is still breathless despite using a short-acting beta agonist (SABA) or short-acting muscarinic antagonist (SAMA), then additional medication should be added.

For those with asthma/steroid responsive features, inhaled corticosteroid (ICS) and long-acting beta agonists (LABA) are recommended. In this case, the patient has features of atopy, and this therefore is the most appropriate answer.

If the patient did not have asthma/steroid responsive features, then the most appropriate choice would be to add a long-acting muscarinic antagonist (LAMA) and LABA.

As noted below, the criteria NICE use to determine whether a patient has asthmatic/steroid responsive features are:

Any previous, secure diagnosis of asthma or of atopy (this applies to the patient above).

A higher blood eosinophil count.

Substantial variation in FEV1 over time (at least 400 ml).

Substantial diurnal variation in peak expiratory flow (at least 20%).

Question:

A 71-year-old woman was recently found to have atrial fibrillation on a routine pulse check. She has a history of fatty liver disease and well-controlled hypertension for which she takes amlodipine. Her alcohol intake is 14 units per week.

Her blood tests show the following:

Hb 110 g/L (115 - 160)

Creatinine 108 µmol/L (55 - 120)

Estimated GFR (eGFR) 57 mL/min/1.73 m² (>90)

ALT 50 u/L (3 - 40)

To assess her bleeding risk prior to starting anticoagulation, her ORBIT score is calculated.

What would contribute to a higher ORBIT score in this patient?

A.Age

B.Alcohol intake

C.Anaemia and eGFR <60

D.Hypertension

E.Raised ALT and fatty liver disease

Answer:Anaemia and eGFR <60

Explanation:

Anaemia and renal impairment are component of the ORBIT score, and suggest an increased risk of bleeding in patients anticoagulated for AF

Important for meLess important

The ORBIT score is now the recommended scoring tool to assess bleeding risk in patients with atrial fibrillation who are being considered for anticoagulation, as per the latest NICE guidelines. It consists of five parameters: age (75+ years), anaemia (haemoglobin <130 g/L in males, <120 g/L in females), bleeding history, renal impairment (eGFR <60 mL/min/1.73 m²). In this patient, her anaemia and renal function would meet the scoring criteria.

Age is not the correct answer as she is under 75 years old.

Alcohol intake is incorrect as it is not a criterion used in the ORBIT score. It would score a point in the HAS-BLED tool but this is no longer a recommended risk assessment tool.

Hypertension does not feature in the ORBIT scoring tool. It would, however, score a point on the CHA2DS2-VASc scoring tool which determines her stroke risk.

Raised ALT and fatty liver disease is incorrect. The presence of liver disease is used in other bleeding risk tools such as HAS-BLED.

Question:

A 56-year-old woman is recovering on the ward following percutaneous coronary intervention (PCI) treatment for an ST-elevated myocardial infarction (STEMI).

She had been recovering well until 9-days following the STEMI, when she reports sudden onset chest pain and feeling acutely short of breath, particularly when lying flat.

Examination reveals a raised jugular venous pressure (JVP) and muffled heart sounds. No murmurs are audible. Recording of the patient's blood pressure reveals a pressure of 110/70mmHg, with a pattern of pulses paradoxus.

Based on the information provided, which of the following pathologies is the most likely explanation for this patient's current presentation?

A.Acute pericarditis

B.Left ventricular aneurysm

C.Left ventricular free wall rupture

D.Papillary muscle rupture

E.Ventricular septal defect

Answer:Left ventricular free wall rupture

Explanation:

Sudden heart failure, raised JVP, pulsus parodoxus, recent MI - left ventricular free wall rupture

Important for meLess important

The presentation of this patient is classic for left ventricular free wall rupture following a myocardial infarction (MI). Left ventricular free wall rupture is caused by the infarction causing a weakening in the wall. The rupture leads to bleeding into the pericardium, resulting in cardiac tamponade. Hence the examination signs are consistent with the triad noted in cardiac tamponade of any cause (raised JVP, pulses paradoxus and muffled/quiet heart sounds). Pulses paradoxus refers to a fall in systolic blood pressure of greater than 10mmHg with inspiration and can be measured using manual blood pressure recordings. Patients often experience chest pain preceding symptoms of acute heart failure, such as breathlessness. This complication of an MI is associated with particularly high mortality (around 60%). It requires urgent pericardiocentesis and thoracotomy.

Acute pericarditis is likely to occur at an earlier time-frame in MI recovery than the pathology in this scenario, classically within 48-hours. It can present with shortness of breath and chest pain. However, this explanation alone would not explain any of the examination findings, and would likely be associated with an audible pericardial rub on examination.

Left ventricular aneurysm results from ischaemic damage weakening the myocardium. It could also present with signs of heart failure. However, it would not explain the examination findings, which are quite specific to cardiac tamponade secondary to left ventricular free wall rupture in this scenario.

Papillary muscle rupture can result in acute mitral regurgitation. In this case, the lack of murmur on auscultation effectively excludes this diagnosis.

Ventricular septal defects usually occur within the first week on an MI. They can also present with signs of heart failure. However, if this were the case, a pan-systolic murmur would be heard. Again, this diagnosis would also not explain the examination findings.

Question:

A 57-year-old male presents to his general practitioner with a two-month history of fine tremor in both hands. He has a past medical history of chronic depression, for which he has taken lithium for several years. He drinks 10 units of alcohol a week and is a never smoker.

On examination, there is a fine bilateral postural tremor in the hands and fingers which is most pronounced when extending the arms in front of the body.

What is the most likely cause of this patient's tremor?

A.Alcohol consumption

B.Cerebellar stroke

C.Chronic lithium use

D.Lithium toxicity

E.Multiple sclerosis

Answer:Chronic lithium use

Explanation:

Lithium: fine tremor in chronic treatment, coarse tremor in acute toxicity

Important for meLess important

The correct answer is chronic lithium use.

This patient is presenting with a fine bilateral tremor, worse when holding the arms out against gravity (postural tremor). This is characteristic of the tremor caused by lithium.

Alcohol consumption is unlikely as this patient consumes alcohol within the recommended limits (<14 units a week).

Cerebellar stroke is unlikely, this would present with a coarse intention tremor (worse with goal-directed movements) of a slow frequency. This is also unlikely given the patient's relatively young age and absence of risk factors for cerebrovascular disease.

Lithium toxicity is incorrect. In toxicity, lithium causes a more coarse intention tremor. There are no other features of toxicity or risk factors for toxicity (e.g. dehydration, recently unwell).

Tremor due to multiple sclerosis is less likely than lithium, given that we know he takes lithium. Also, while multiple sclerosis can cause a fine tremor, an intention tremor due to cerebellar dysfunction is more likely in multiple sclerosis.

Question:

A 30-year-old woman presents to her GP with pain and swelling in her left shin for four days. She is 8 weeks pregnant and has no concerns about her baby. She has suffered from migraines in the past but has no other past medical history. She takes folic acid and has an allergy to penicillin.

On examination there is erythema, swelling and tenderness of her left shin. Her temperature is 36.7ºC and other observations are normal. A diagnosis of cellulitis is made.

What would be the most suitable treatment for this patient?

A.Ceftriaxone

B.Clarithromycin

C.Erythromycin

D.Flucloxacillin

E.Vancomycin

Answer:Erythromycin

Explanation:

Erythromycin is the antibiotic of choice for cellulitis in pregnancy if the patient is penicillin allergic

Important for meLess important

This patient has mild to moderate cellulitis. The patient is penicillin allergic and pregnant so erythromycin is the recommended choice.

IV ceftriaxone is recommended in severe cases of cellulitis.

Clarithromycin can be given if patients are allergic to penicillin but is not the recommended choice for pregnancy. It has been shown to increase the risk of miscarriage.

The first line management for mild to moderate cellulitis is flucloxacillin. In this case it is not suitable as the patient is penicillin allergic.

Vancomycin is not used routinely for the treatment of cellulitis. It is often given if MRSA is suspected or confirmed.

Question:

A 18-year-old man complains of an itchy sensation around his toes;

What is the most appropriate first line treatment?

A.Topical nystatin

B.Topical miconazole

C.Topical amorolfine

D.Topical steroid

E.Antiperspirant dusting powders

Answer:Topical miconazole

Explanation:

Question:

Which one of the following drinks contains the nearest to one unit of alcohol:

A.A 125ml glass of red wine (ABV 12%)

B.A half a pint of beer (ABV 5%)

C.A 25ml single measure of spirits (ABV 40%)

D.A pint of low strength beer (ABV 3.4%)

E.A 125ml glass of white wine (ABV 14%)

Answer:A 25ml single measure of spirits (ABV 40%)

Explanation:

Question:

A 27-year-old man was admitted to hospital 6 hours previously following a fractured right tibia while playing a football match. His pain has been well controlled until 30 minutes ago, but he is now complaining of intense pain in his right lower leg. On examination he is in severe pain, worsened by passive movement of the foot. You are able to palpate the dorsalis pedis and posterior tibial pulse on the right foot. His heart rate and respiratory rate are both raised (110/min and 22/min respectively), and you notice he is sweating. Which is the definitive management for this condition?

A.Analgesia

B.Clexane 1.5mg/kg

C.Fasciotomy

D.IM Nail

E.Intracompartmental pressure measurements

Answer:Fasciotomy

Explanation:

Presence of a pulse does not rule out compartment syndrome

Important for meLess important

This is a typical history of compartment syndrome, for which the definitive management is fasciotomy. A possible differential is a venous thromboembolism (VTE), especially as the respiratory rate is raised, but the respiratory rate will be raised in compartment syndrome aswell, due to the sympathetic response to severe pain. Pain of passive movement is characteristic of compartment syndrome, and it is important to remember presence of a pulse does not rule out compartment syndrome! He will need analgesia, but it is not the definitive treatment. Intracompartmental pressure measurements can aide in the diagnosis of suspected compartment syndromes that aren't clear, but the question asks for the definitive management, not investigations.

Question:

A 27-year-old man presents to the emergency department with a 2-day history of fever, tiredness, and a tingling sensation in the lateral aspect of his right thigh. He has found the tingling was initially bearable but has become painful in the past 24 hours. On examination, the area described is erythematous with a macular rash appearing. His only past medical history is HIV for which he takes anti-retroviral therapy and has an undetectable viral load. He denies any cough, coryzal symptoms, focal neurological signs, or trauma to the site.

Considering the likely diagnosis, what is the appropriate management for the patient out of the options listed?

A.Aciclovir

B.Amitriptyline

C.Chlorphenamine

D.Flucloxacillin

E.Prednisolone

Answer:Aciclovir

Explanation:

The majority of patients with suspected shingles should be treated with antivirals within 72 hours of onset

Important for meLess important

This patient is presenting within 72 hours of symptoms of shingles - he has systemic viral illness symptoms (fever and malaise) with tingling and pain over the L2 dermatomal distribution (lateral aspect of his thigh). As he has an immunosuppressive condition (HIV), he should be managed with antivirals, such as aciclovir, to reduce the risk of post-herpetic complications.

Amitriptyline is recommended for the management of post-herpetic neuralgia. As this patient is presenting with symptoms of shingles, it would be inappropriate to treat him for post-herpetic neuralgia. Post-herpetic neuralgia is one of the main complications after shingles, and the prescription of anti-virals within 72 hours of presentation aims to reduce this risk.

Chlorphenamine is used in the management of chickenpox. It is recommended to reduce the itching associated with the lesions that occur. As this patient appears to only have one dermatome affected - it is more likely to be shingles, rather than chickenpox which tends to affect the whole body.

Flucloxacillin is an antibiotic used to manage bacterial skin infections. This patient has systemic features of infection, however, it would be inappropriate to prescribe antibiotics as his symptoms are more consistent with herpes zoster infection.

Prednisolone is a second line analgesic agent which is prescribed for patients who are not adequately pain-free with over-the-counter analgesia. As this patient has not been trialled with any simple analgesia, he should be given this first. Furthermore, this will not reduce the likelihood of developing post-herpetic complications (which is one of the main reasons for prescribing anti-virals).

Question:

A 4-year-old boy is reviewed by the orthopaedic doctor following 3 weeks of a progressively worsening limp. Blood tests were unremarkable and x-rays demonstrated a hip joint effusion but no significant structural deficits to the femoral head noted; a diagnosis of Perthes' disease is made.

Which of the below would be the most appropriate initial management strategy for this child?

A.Observation

B.Pavlik harness

C.Serial casting of the hip

D.Steroid injection of the joint

E.Surgical replacement of the necrotic head of the femur

Answer:Observation

Explanation:

Perthes' disease presenting under the age of 6 years has a good prognosis requiring only observation

Important for meLess important

Observation is the correct answer. Serial x-rays, observation and physiotherapy are the mainstay of treatment in cases under the age of 6 years where there is no significant collapse of the femoral head or gross structural abnormalities.

Pavlik harness is incorrect, this is the initial management for congenital hip dysplasia.

Serial casting is incorrect, this is a treatment option for muscle spasticity.

Steroid injection of the joint is incorrect. This is a management option for arthritis.

Surgical replacement of the necrotic head of the femur is incorrect. Surgical management is rarely indicated in uncomplicated cases in children under 6 unless there is the presence of fracture or joint collapse.

Question:

A 34-year-old male attends his general practice with his mother. His mother is concerned that he may be depressed, explaining that he stays in his room all day and doesn't want to socialise.

Upon further discussion, he reveals that he prefers to be alone and doesn't have any friends, he has never had a romantic relationship and has no desire for this. He is unemployed and has never wanted to work. He denies experiencing any hallucinations and there is no evidence of thought disorder. Furthermore, he denies self-harm or suicidal thoughts. He has no forensic history. Throughout the consultation, he is facially flat and emotionless.

Based on the above information, which personality disorder is this patient most likely to have?

A.Antisocial

B.Avoidant

C.Emotionally unstable

D.Schizoid

E.Schizotypal

Answer:Schizoid

Explanation:

Schizoid personality disorder displays the negative symptoms of schizophrenia

Important for meLess important

There are many features of schizoid personality disorder in this man's presentation- including solitary behaviour, indifference or lack of interest towards others and being affectively detached. In this case, it is important to ask about positive symptoms of schizophrenia such as hallucinations and delusions, as the symptoms this man presents with could be negative symptoms of schizophrenia.

Antisocial personality disorder is characterised by a disregard for others, failure to conform to social norms or rules often resulting in criminal behaviour and lack of remorse. There is no evidence of this behaviour in this man, and he has no forensic history.

Avoidant personality disorder is an important differential to consider, as people with this personality disorder are also often socially isolated. However, people with avoidant personality disorder desire social contact, but view themselves as inferior to others and have fear of being disliked or rejected. The man in this case has no desire for interpersonal contact, therefore avoidant personality disorder is not the correct answer.

Emotionally unstable personality disorder (EUPD), also known as borderline personality disorder, is the most common type of personality disorder and is characterised by a pattern of unstable relationships, unstable self-image and strong emotional reactions. Self-harm and suicidal thinking can be a feature of EUPD. There is no evidence of this behaviour in this patient, therefore it is not the correct answer.

Schizotypal personality disorder is often diagnosed in people with odd beliefs and magical thinking, ideas of reference with retained insight and odd behaviour. Similarly to schizoid personality disorder, people with schizotypal personality disorder often do not form close relationships with friends or partners. There is no evidence of odd beliefs or eccentric behaviour in this man, therefore his presentation is more in keeping with schizotypal personality disorder.

Question:

Please look at the skin lesion shown below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Infected chalazion

B.Actinic keratosis

C.Indurated dacryocystitis

D.Keratoacanthoma

E.Basal cell carcinoma

Answer:Basal cell carcinoma

Explanation:

Question:

A 10-year-old girl is reviewed. Her mother describes her as being 'generally unwell'. For the past week she has been having joint pains and fever. Her mother also describes episodes of her making jerky, irregular movements. She recently went on holiday to the Lake District and had a severe sore throat around 4 weeks ago.

On examination her temperature is 37.9ºC, pulse 90/min, blood pressure 100/62 mmHg. Auscultation of the heart is unremarkable. A rash is noted on her torso:

© Image used on license from DermNet NZ

What does the rash most likely represent?

A.Erythema marginatum

B.Erythema multiforme

C.Erythema chronicum migrans

D.Janeway lesions

E.Erythema toxicum

Answer:Erythema marginatum

Explanation:

The underlying diagnosis is rheumatic fever. This is supported by the recent sore throat, chorea (jerk, irregular movements) and polyarthralgia.

Erythema toxicum is a non-specific rash seen in newborns.

Question:

An 88-year-old woman is brought to the emergency department. Earlier today, her daughter noticed that she was having difficulty recognising objects around the house.

On examination, when asked to point to a pen, she selects a newspaper and she cannot give the correct name for any of the items in the room. Her ability to recognise familiar faces is preserved. There is no weakness, aphasia or unsteadiness but she is found to have homonymous hemianopia with preservation of the central visual fields.

What cerebral vessel is most likely to have been occluded to cause these symptoms?

A.Basilar artery

B.Middle cerebral artery (MCA)

C.Pontine arteries

D.Posterior cerebral artery (PCA)

E.Posterior inferior cerebellar artery

Answer:Posterior cerebral artery (PCA)

Explanation:

Contralateral homonymous hemianopia with macular sparing and visual agnosia - posterior cerebral artery

Important for meLess important

Posterior cerebral artery is correct. This type of stroke is characterised by homonymous hemianopia with macular sparing and visual agnosia. This is because the occipital pole (where the macula is represented) receives a dual blood supply from the PCA and the MCA. Visual agnosia is an inability to recognise visually presented objects because of damage to the connections between the occipital and temporal lobes. There is no prosopagnosia (face blindness) as this information is stored in the temporal lobe of the brain which is not supplied by the PCA.

Basilar artery is incorrect. This type of stroke can cause the symptoms that this patient is experiencing as the PCA is a branch of the basilar artery, however, it also tends to cause symptoms of ataxia, dysphagia, vertigo, nausea and vomiting due to a loss of blood supply to the cerebellum. The basilar artery also supplies the brainstem which results in high morbidity and mortality rates for these strokes.

Middle cerebral artery is incorrect. These strokes tend to cause hemiplegia, aphasia or hemispatial neglect and homonymous hemianopia, however, macular sparing is not a characteristic. Visual agnosia is not a symptom of MCA stroke.

Pontine artery is incorrect. These strokes cause infarction of the brainstem and therefore can lead to paralysis and locked-in syndrome if the damage is extensive. It would not result in homonymous hemianopia or visual agnosia.

Posterior inferior cerebellar artery is incorrect. These strokes can cause a lateral medullary syndrome with a collection of symptoms including contralateral truncal and extremity sensory deficits, ipsilateral facial sensory deficits, ataxia, vertigo, nystagmus, dysphagia and Horner's syndrome. Homonymous hemianopia and visual agnosia are not typically seen in these patients.

Question:

A 17-year-old female comes to your GP clinic. She has recently travelled to Egypt to see her family, and now has come to visit as she is suffering with per vaginal bleeding and urinary incontinence.

She consents to examination with a chaperone present and you identify signs that suggest there have been recent trauma to the genitalia. You suspect this is a case of female genital mutilation.

What is the most appropriate course of action?

A.Report this to the police

B.Provide symptomatic treatment only

C.Refer to secondary care for further investigation

D.Contact child protection services

E.Call the family in for a discussion

Answer:Report this to the police

Explanation:

Female genital mutilation (FGM) is a criminal act. The GMC has now issued guidance that all cases of FGM must be reported to the police in under 18s.

The mandatory duty does not apply in over 18s. It also does not apply if a doctor can identify that another doctor has already made a report to the police in connection with the same act of FGM.

Providing symptomatic treatment only would be in breach of GMC guidance and would put your registration at risk.

Calling in the family for discussion may not be appropriate and may lead to further distress for the patient. You would still need to make a police report.

Contacting child protection services may be an additional necessary step, but it is imperative that a police report is made in the first instance.

Referring to secondary care for investigation may be useful for treating any symptoms of FGM, but again a police report needs to be made.

Source: General Medical Council Female Genital Mutilation and Child protection update

http://www.gmc-uk.org/guidance/27723.asp

Question:

A 20-year-old male presents with a tense, swollen knee joint. There is no history of antecedent trauma. On examination the joint is tense and swollen but there is no sign of injury. Plain x-rays show no fracture or arthritis. What is the most likely explanation?

A.Rupture of the anterior cruciate ligament

B.Rupture of the medial collateral ligament

C.Tibial plateau fracture

D.Haemophilia A

E.von Willebrands disease

Answer:Haemophilia A

Explanation:

Haemarthrosis without trauma is typically a feature of haemophilia A and B

Important for meLess important

Without a history of trauma, ligamentous rupture or tibial plateau fractures would be unusual.

Question:

A 25-year-old man has changes in mental status. Over the last month, he has stayed up most nights and is writing to finish 4 novels at the same time. He has not left home or eaten during the last week and refuses to, and has started gambling.

During the consultation, he is easily distracted and replies to questions with sentences that do not make sense, made of random words, so a collateral history was used. There is no drug misuse. He is being treated for depression.

When his family have tried to understand his behaviour, he accuses them of wanting to 'hold him back from achieving fame'.

What is the most likely diagnosis?

A.Bipolar disorder (type I)

B.Bipolar disorder (type II)

C.Schizoaffective disorder

D.Schizophrenia

E.Schizotypal personality disorder

Answer:Bipolar disorder (type I)

Explanation:

Disorganised speech in the form of 'word salad' is associated with psychosis and mania

Important for meLess important

Bipolar disorder (type I) is correct. This patient has presented with elevated mood and energy following treatment for depression, which can often be the first way a patient with bipolar disorder presents, due to antidepressants unmasking it. Although there is no clear psychotic thought at first glance (such as believing oneself to be royalty) that would immediately suggest a diagnosis of bipolar I, the presence of disorganised speech in the form of 'word salad' is evidence of psychosis which suggests this diagnosis. A 'word salad' is evidence of psychosis characterised by total loss of association characterised by random words strung together in sentences that do not make sense. This is different to racing thoughts (rapid succession of thoughts that are continued without restraint) and pressured speech (speaking faster than usual), which are seen in both bipolar I and II.

The DSM-V criteria state that the presence of psychotic features (i.e. the 'word salad') suggests a diagnosis of bipolar I. As well as this, he has not slept or eaten in the last week, which suggests severe functional impairment and the need for hospitalisation, which is another DSM-V criterion for bipolar I. He also has a decreased need for sleep, increased risky activities (his gambling), increased goal-directed (writing 4 novels), and distractibility, which qualifies for the DSM-V's requirement of 3 or more of grandiosity, pressured speech, racing thoughts or flight of ideas, distractibility, increased goal-directed activity, and excess risky activity for bipolar I.

More time and a more thorough history would be needed to be able to fully diagnose this patient, however, based on these features alone, of the options listed, bipolar I is the most probable diagnosis.

Bipolar disorder (type II) is incorrect. Although at first glance there is no clear psychotic thought (such as thinking of oneself as royalty), this patient is speaking in a 'word salad', which is evidence of psychosis, supporting a diagnosis of bipolar I over II according to the DSM-V criteria. This is different to racing thoughts (rapid succession of thoughts that are continued without restraint) and pressured speech (speaking faster than usual), which are seen in both bipolar I and II. As well as this, he has not slept or eaten in the last week, which suggests severe functional impairment necessitating hospital admission, which further supports a diagnosis of bipolar I over II.

Schizoaffective disorder is incorrect. This would be the case if the patient was experiencing psychotic symptoms in the absence of prominent mood symptoms. As this patient has an elevated mood and a history of depression which is being treated, this diagnosis is unlikely.

Schizophrenia is incorrect. This would be the case if psychotic symptoms were occurring in the absence of prominent mood symptoms. Since there is an elevated mood, this diagnosis is less likely. Schizophrenia is more likely to present with preceding negative symptoms (such as blunted affect, anhedonia, avolition, and catatonia) followed by symptoms such as auditory hallucinations, delusional perceptions, and delusions of thought such as thought insertion and withdrawal.

Schizotypal personality disorder is incorrect. Although this can have odd beliefs and unusual ways of thinking, it is not associated with an elevated mood or thought disorders. Although odd speech may be seen, it is not incoherent and can still be followed.

Question:

A 27-year-old man presents to urgent care with four days of fever, dry cough, headaches, and malaise. The patient does not smoke and drinks 8 units of alcohol weekly.

His temperature is 38.1ºC, his heart rate is 78 bpm, his blood pressure is 128/70 mmHg, and his oxygen saturations are 97%. Chest crackles are heard on auscultation.

Blood tests show:

Hb 150 g/L Male: (135-180)

Neuts 6.9 \* 109/L (2.0 - 7.0)

Lymphs 0.6 \* 109/L (1.0 - 3.5)

Bilirubin 5 µmol/L (3 - 17)

ALT 66 u/L (3 - 40)

γGT 10 u/L (8 - 60)

Na+ 130 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Urea 4.0 mmol/L (2.0 - 7.0)

Creatinine 78 µmol/L (55 - 120)

What is the best test to identify the underlying organism causing his presentation?

A.Chest x-ray

B.Serology testing

C.Sputum culture

D.Sputum smear

E.Urinary antigen testing

Answer:Urinary antigen testing

Explanation:

Legionella pneumophilia is best diagnosed by the urinary antigen test

Important for meLess important

The presence of a cough with fever, malaise, headaches, and crackles on auscultation should raise suspicion of pneumonia. The presence of hyponatraemia, lymphopenia, and mild ALT derangements, on the other hand, suggests that the pneumonia is caused by an atypical organism, in particular Legionella pneumophila. Since this patient's γGT is normal and they drink alcohol within the weekly recommended limits, it is unlikely that his alcohol consumption has contributed to the ALT increase, therefore it can be assumed that the current pneumonia is responsible. In general, a patient presenting with features suggestive of pneumonia with deranged liver function tests and/or hyponatraemia and/or lymphopenia should raise suspicion of Legionella pneumophila.

Urinary antigen testing is correct. This is the diagnostic test for pneumonia due to Legionella pneumophila as it is highly sensitive and specific, even more than sputum culture.

Chest x-ray is incorrect. This is an appropriate initial test, however, it is not diagnostic, as it does not identify the underlying cause, and only shows signs due to it. A chest x-ray may help with identifying patterns of consolidation associated with different pathogens, however, it cannot differentiate the specific underlying pathogen.

Serology testing is incorrect. This is the diagnostic test for Mycoplasma pneumoniae which presents differently with preceding flu-like symptoms and classically with erythema multiforme, a skin rash characterised by circular 'target' lesions. Although Mycoplasma pneumonia can also cause deranged LFTs, it does not cause hyponatraemia, therefore making this diagnosis less likely.

Sputum culture is incorrect. Although this may identify the underlying pathogen, its sensitivity is less consistent than that of urinary antigen testing and can range from low to high depending on the culture medium used and level of expertise. Due to these reasons, urinary antigen testing is preferred where Legionella pneumophila is the suspected organism.

Sputum smear is incorrect. This investigation is used in tuberculosis (TB) and involves taking 3 samples and testing for the presence of acid-fast bacilli, which reveal the presence of Mycobacterium species. Pulmonary TB tends to have a more prolonged course with constitutional symptoms (such as fevers, night sweats, and unexplained weight loss) and may have haemoptysis. In addition, patients may come from endemic areas. A diagnosis of TB would not explain the deranged LFTs and hyponatraemia.

Question:

A 36-year-old construction worker is admitted with severe right flank pain. He has no past medical history of note. Once you have prescribed appropriate pain relief, he is able to tell you that he has never experienced a problem like this before. He frequently works outdoors without access to water. He has recently gotten into body building and has increased his protein intake accordingly. You arrange a scan to confirm the diagnosis.

Which of the following would it be?

A.Abdominal X-Ray

B.Abdominal ultrasound scan

C.MRCP

D.Non-contrast CT of abdomen and pelvis

E.ERCP

Answer:Non-contrast CT of abdomen and pelvis

Explanation:

High protein intake and dehydration contribute to the formation of renal stones

Important for meLess important

Several clues point to a renal calculus. He does not seem to drink enough fluids considering his physically demanding outdoor profession. A high protein intake also contributes to the development of renal stones. Flank pain is the typical symptom and he's only able to give a clear history once appropriate pain relief is given (diclofenac). This hints at extreme pain.

The gold standard investigation is a spiral non-contrast CT scan.

Question:

A Cardiotocogram (CTG) is performed on a 34-year-old female at 40 weeks gestation who has attended labour ward in spontaneous labour. The CTG shows a fetal heart rate of 150bpm. There is good variability in fetal heart rate, and it is a low risk pregnancy. The midwife rings you concerned that there are late decelerations present on the CTG trace. Which is the most appropriate next step in management?

A.Fetal blood sampling

B.Continue close monitoring with CTG

C.Prepare patient for urgent caesarean delivery

D.It is likely that the fetus is asleep, so re-check CTG in 30 minutes

E.Induction of labour

Answer:Fetal blood sampling

Explanation:

Late decelerations on CTG are a pathological finding and urgent fetal blood sampling is needed to assess for fetal hypoxia and acidosis. A pH of >7.2 in labour is considered normal. Urgent delivery should be considered if there is fetal acidosis. Although the normal fetal heart rate and variability is reassuring, the late decelerations are a concerning feature which needs to be quickly investigated and managed.

Question:

A 55-year-old woman presents with intermittent epigastric pain, which radiates to the back, and worsens a few hours after eating a meal. She presented with similar symptoms a 2 months ago, and at the time was tested and treated for Helicobacter pylori . However, her symptoms have still not improved.

Which of the following diagnostic tests would be most appropriate for assessing response to previous treatment?

A.Gastroscopy

B.No further diagnostic test required

C.Serological test

D.Stool H. pylori antigen 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

This woman is presenting with ongoing symptoms of peptic ulcer disease despite receiving eradication therapy for Helicobacter pylori already. The only test recommended for H. pylori post-eradication therapy is the urea breath test, making this the correct answer.

Gastroscopy can be considered for patients who have dyspepsia and key symptoms requiring urgent referral, which can include weight loss, haematemesis, dysphagia or melaena. If a biopsy is taken, it can be used to diagnose H. pylori . However, the only test recommended for H. pylori post-eradication therapy is the urea breath test, making gastroscopy an incorrect answer.

As this woman has ongoing symptoms of peptic ulcer disease post-eradication therapy, re-testing for H. pylori is recommended. There offering no further diagnostic test is an incorrect answer.

Serological testing for H. pylori can be performed. However, it is usually not recommended due to inadequate performance. it is also not recommended for H. pylori post-eradication therapy.

Stool helicobacter antigen test is recommended for the diagnosis of gastro-duodenal infection with H. pylori . However, it is an incorrect answer for this patient, as urea breath test is the only test recommended to confirm success/ failure of H. pylori eradication therapy.

Question:

A 35-year-old asymptomatic woman presents to hospital for an oral glucose tolerance test (OGTT). She is 14 weeks pregnant with her second child. Her first pregnancy was complicated by gestational diabetes and foetal macrosomia. She has a body mass index of 36 kg/m2 but is otherwise healthy.

Her results are as follows:

Fasting glucose 8.2 mmol/L (<5.6 mmol/L)

2 hour glucose 12.5 mmol/L (<7.8 mmol/L)

How should this be managed?

A.Lifestyle modifications

B.Metformin

C.Insulin plus or minus metformin

D.Glibenclamide

E.Pioglitazone

Answer:Insulin plus or minus metformin

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

Insulin plus or minus metformin should be offered immediately to women with gestational diabetes mellitus (GDM) who have a fasting plasma glucose level of ≥7.0mmol/L at diagnosis.

Lifestyle modification (diet and exercise) should be offered to women with GDM who have a fasting plasma glucose level <7 mmol/L at diagnosis.

Metformin should be offered to women with GDM if blood glucose targets are not met after 1-2 weeks using lifestyle modification.

Glibenclamide should be offered to women with GDM who fail to achieve their blood glucose targets with metformin, or in those who decline insulin therapy.

According to the BNF pioglitazone should be avoided in pregnancy. Animal studies suggested that pioglitazone was toxic in pregnancy.

Question:

A 53-year-old woman presents to the emergency department with a sudden-onset, severe headache, describing it as the worst of her life. She had been sitting at her desk when the headache came on. She has associated nausea and vomiting.

On examination, she has some neck stiffness and photophobia and appears drowsy. A CT scan shows hyperdense across the basal cisterns and sulci.

Which of the following is indicated in managing the complications of this condition?

A.Amlodipine

B.Diltiazem

C.Felodipine

D.Nifedipine

E.Nimodipine

Answer:Nimodipine

Explanation:

Nimodipine is used to prevent vasospasm in aneurysmal subarachnoid haemorrhages

Important for meLess important

The condition being described here is subarachnoid haemorrhage (SAH), given the sudden-onset severe headache, signs of meningism and CT findings. Nimodipine should be given as a 21-day course to prevent vasospasm - it is a dihydropyridine calcium-channel blocker (CCB) that targets brain vasculature.

Amlodipine is another dihydropyridine CCB but is not used in the management of SAH. It is commonly used as a first-line drug to manage hypertension in those over 55 years old.

Diltiazem is a non-dihydropyridine CCB and is used in the management of angina and hypertension - as a non-dihydropyridine CCB, it also slows the heart rate. It is not indicated for SAH.

Felodipine, like amlodipine, is another dihydropyridine CCB. It is also used to manage hypertension, but not SAH.

Nifedipine is another dihydropyridine CCB. It can also be used to manage hypertension and is also the first-line treatment for the symptoms of Raynaud's syndrome. It is not indicated for SAH.

Question:

A 19-year-old man is admitted to the Emergency Department 40 minutes after an intentional aspirin overdose. His observations are stable. He weighs 62 kg and has taken 30 tablets. Each tablet was 300 mg.

What is the best initial management?

A.Begin haemodialysis

B.Do an ECG

C.Give IV sodium bicarbonate

D.Give oral activated charcoal

E.Give prophylactic antiepileptics

Answer:Give oral activated charcoal

Explanation:

Activated charcoal can be used within an hour of an aspirin overdose

Important for meLess important

Give oral activated charcoal is the correct answer as the ingestion of aspirin happened less than one hour ago. Aspirin ingestion is considered an overdose when more than 125mg/kg has been consumed. This man has taken 30 tablets, each of which contains 300mg of aspirin. This means he has ingested 9 grams (or 9,000mg) of aspirin. As he weighs 62kg, he has consumed 145mg/kg of aspirin, therefore we can consider this an overdose. Giving activated charcoal should be done alongside an A to E approach. After an hour has passed, other management options would be more appropriate. It is likely too early for symptoms of aspirin overdose to be present. Early symptoms would include tinnitus, nausea, vomiting, and sweating. In severe cases, confusion, drowsiness and seizures may be present.

Begin haemodialysis is incorrect. It has been less than an hour since ingestion, therefore activated charcoal is indicated. Haemodialysis would not be the first step before trying other management options. If he fulfilled the criteria for haemodialysis after an hour had passed, then this would be the best management option. The criteria include treatment-resistant metabolic acidosis, pulmonary oedema, seizures and coma in addition to others detailed in the notes section.

Do an ECG is incorrect. This is an important initial investigation which should happen in the Emergency Department. It is unlikely to change the initial management and does not address the effects of the aspirin overdose. A blood gas should also be done. In the early stages, a blood gas might show respiratory alkalosis. The first hour is probably too early to show this and so this patient's blood gas might be normal.

Give IV sodium bicarbonate is incorrect. This is used for urinary alkalinization, which increases the urinary elimination of the aspirin. This may be used as treatment if the time since ingestion has passed an hour. As it has been less than an hour since ingestion, activated charcoal is the first-line treatment.

Give prophylactic antiepileptics is incorrect. Aspirin overdose may lead to seizures, which is an indication of haemodialysis. Any seizures should be treated with antiepileptics, however, giving prophylactic antiepileptics is not part of the treatment.

Question:

A 55-year-old female is presents to your endocrine clinic following a recent diagnosis of toxic multinodular goitre. As a result of this she has noticed she is frequently anxious and has a weight loss of approximately 4kg over the last 5 weeks.

Which of the following is a potential treatment option in this case?

A.Levothyroxine

B.Radioactive iodine

C.Nifedipine

D.Carbamazepine

E.Protamine

Answer:Radioactive iodine

Explanation:

Toxic multinodular goitre - radioactive iodine is the treatment of choice

Important for meLess important

Radioactive iodine can be used to treat toxic multinodular goitre.

Levothyroxine is used to treat hypothyroidism, not hyperthyroidism.

It is propranolol not nifedipine which is utilised to provide symptomatic relief in hyperthyroid patients.

Carbimazole and propylthiouracil are also indicated in hyperthyroidism, not carbamazepine nor protamine.

Question:

You are a final year medical student on placement in the oncology department. You've been on placement for a few weeks and have gotten to know some of the patients very well. Early one morning before the ward round, Mr Smith, one of the patients, approaches you to ask about the results of his recent scan. Due to attending the multi-disciplinary team x-ray meeting, you happen to know that the results of his scan indicate a worsening of his condition. Mr Smith is adamant that you tell him his results. In this situation, what is the most appropriate course of action?

A.Find a doctor to come with you so you can tell Mr Smith the results of his scan

B.Tell Mr Smith that you cannot discuss his results with him and that you will get a senior doctor to see him as soon as possible

C.Tell Mr Smith the results of his scan

D.Have a look at the x-ray yourself so you can make an informed explanation to Mr Smith

E.Take Mr Smith to a quiet room and try to understand his ideas, concerns and expectations

Answer:Tell Mr Smith that you cannot discuss his results with him and that you will get a senior doctor to see him as soon as possible

Explanation:

'Tell Mr Smith that you cannot discuss his results with him and that you will get a senior doctor to see him as soon as possible' - This is the correct answer because medical students 'are not expected to make decisions about treatment options', and therefore, should not be the one to break bad news to patients, is the most appropriate response in this situation.

Finding a doctor and telling Mr Smith his results, or telling them straight away is wrong as incorrect as it should be the doctor breaking bad news.

Having a look at the x-ray and then telling Mr Smith his results, while increasing your knowledge of the situation, is also wrong because it shouldn't be down to the medical student to break bad news.

Taking Mr Smith to a side room and exploring his ideas, concerns and expectations, while not strictly a bad thing to do, is incorrect because it doesn't help Mr Smith receive the information he is looking for.

Reference: http://www.gmc-uk.org/education/undergraduate/26698.asp

Question:

A 19-year-old man presents to the Emergency Department (ED) in the early hours of the morning looking very confused. The on-call doctor tries to take a history from the man however he has trouble speaking. He is unable to walk in a straight line and keeps bumping into other people in the ED. His girlfriend who has accompanied him informs the doctor that he recently contracted malaria for which he was taking quinine sulfate. Which of the following is the most appropriate first-line investigation for this man?

A.Thyroid function test

B.Full blood count

C.Troponin measurement

D.Blood glucose measurement

E.Liver function tests

Answer:Blood glucose measurement

Explanation:

Hypoglycaemia is commonly mistaken for being ‘drunk’ and so blood glucose measurement should always be part of initial assessment.

Important for meLess important

The confusion, dizziness and inability to respond coupled with the recent use of quinine sulphate make hypoglycaemia the most common diagnosis in this instance, thus a blood glucose measurement is the most appropriate investigation.

Hypoglycaemia is the commonest endocrine emergency and prompt diagnosis and treatment is essential to prevent brain damage. It is defined as a plasma glucose level of 3 mmol/L or less (although some scripts state 4 mmol/L or less..'four's the floor'). Threshold for symptoms varies.

Common symptoms are:

sweating

anxiety

hunger

tremor

palpitations

dizziness

confusion

drowsiness

visual disturbance

seizures

In a diabetic patient, the most common cause is insulin or sulfonylurea treatment with an increase in activity or a missed meal or non-accidental overdose.

In a non-diabetic patient, the common causes are (EXPLAIN):

Exogenous drugs such alcohol, aspirin poisoning, pentamidine, quinine sulfate, ACE-inhibitor

Pituitary insufficiency

Liver failure

Addison's disease

Islet cell tumours eg insulinoma

Non-pancreatic neoplasms

Management depends on the severity of the patient and it involves rapid glucose replacement.

Question:

You review a 25-year-old man who has allergic rhinits. He has been using intranasal oxymetazoline which he bought from the local chemist for the past 10 days. What is the main side-effect of using topical decongestants for prolonged periods?

A.Permanent loss of smell

B.Infective sinusitis

C.Post-nasal drip

D.Tachyphylaxis

E.Necrosis of the nasal septum

Answer:Tachyphylaxis

Explanation:

Intranasal decongestants (e.g. oxymetazoline) should not be used for prolonged periods as increasing doses are required to achieve the same effect (tachyphylaxis)

Important for meLess important

After using topical decongestants for prolonged periods increasing doses are needed to provide the same effect, a phenomenon known as tachyphylaxis.

Question:

You wish to screen a patient for hepatitis B infection. Which one of the following is the most suitable test to perform?

A.HBcAg

B.HBsAg

C.Hepatitis B viral load

D.anti-HBs

E.HBeAg

Answer:HBsAg

Explanation:

A positive anti-HBs would imply immunity through either previous immunisation or disease. A positive HBsAg implies either acute or chronic hepatitis B.

Question:

A 40-year-old woman presents to her GP with a 1-day history of dysuria which is associated with urinary frequency and offensive-smelling urine. She feels well in herself and denies nausea, vomiting or flank pain. She has not had these symptoms before.

On examination, the patient has a temperature of 36.6ºC. There is no renal angle tenderness but mild suprapubic tenderness is present.

A urine dip is as below:

Beta hCG -

Blood -

Leucocytes ++

Nitrites +++

The patient has a history of rheumatoid arthritis for which she takes methotrexate. She has no allergies.

What is the most appropriate management of her symptoms?

A.Cefalexin

B.Ciprofloxacin

C.Fosfomycin

D.Nitrofurantoin

E.Trimethoprim

Answer:Nitrofurantoin

Explanation:

Trimethoprim or nitrofurantoin are the first-line antibiotics for lower UTIs

Important for meLess important

Nitrofurantoin is the correct answer. It is one of the two NICE recommended first-line agents for treating a lower urinary tract infection (UTI) in a non-pregnant woman. The patient has typical features of a lower UTI, such as dysuria, frequency, offensive smelling urine and a urine dip that is positive for leucocytes and nitrites. The other possible first-line antibiotic, trimethoprim, is contraindicated because this patient takes methotrexate.

Cefalexin is incorrect. This drug is not recommended for lower UTIs. It is one of the first-line antibiotics for suspected upper UTIs. The patient does not have any features of an upper UTI; there is no fever, no nausea or vomiting and no flank pain.

Ciprofloxacin is incorrect. This drug is recommended for the treatment of upper UTIs, rather than lower UTIs.

Fosfomycin is incorrect. This drug is used as a second-line antibiotic for lower UTIs if there is no improvement with either trimethoprim or nitrofurantoin.

Trimethoprim is incorrect. Although usually an appropriate first-line antibiotic for suspected lower UTI, it must not be prescribed in patients taking methotrexate due to the increased risk of bone marrow suppression.

Question:

Mrs Layton, a 29-year-old lady presents to the emergency department one evening with hypoxia, tachypnoea and tachycardia (110bpm). She reports a sudden onset of breathlessness starting this afternoon and reports coughing up small amounts of blood. She is on the combined oral contraceptive pill (COCP), and has flown back to the UK from Australia 4 days ago. She tells you that she has an allergy to contrast medium.

On examination, she is tachypnoeic and has left sided crackles on auscultation of her chest.

Her chest x-ray shows nothing focal or acute.

You are concerned that she might have a pulmonary embolus (PE) but radiology inform you that they will not perform a V/Q scan out of hours and would need to wait until tomorrow morning for this.

Which of the following would be most appropriate next step?

A.Start the patient on treatment dose apixaban whilst awaiting a V/Q scan the next day

B.Perform a CT chest without contrast

C.Perform a CT pulmonary angiogram and give the patient fluids before and after the scan

D.Perform a CT pulmonary angiogram whilst infusing hydrocortisone and chlorphenamine

E.Start the patient on prophylactic dose low-molecular weight heparin whilst awaiting a V/Q scan the next day

Answer:Start the patient on treatment dose apixaban whilst awaiting a V/Q scan the next day

Explanation:

Strong suspicion of PE but a delay in the scan: start on treatment dose anticoagulant meanwhile

Important for meLess important

This patient scores 7 points on her Wells' score putting her at a high risk of having a PE. She has several risk factors for having a PE including immobilisation and being on the COCP and is presenting with a history typical of PE.

This lady would ideally have a CT pulmonary angiogram, however a contrast allergy is an absolute contraindication to this. Neither giving fluids or hydrocortisone and chlorphenamine would negate the significant risk of contrast allergy. A CT chest without contrast is not diagnostic for a PE.

The best option for people who cannot have a CT pulmonary angiogram is a V/Q scan, however this is sometimes not performed out of hours in hospitals. In this case given the strong suspicion of a PE, the patient should be started on treatment dose anticoagulation whilst awaiting this scan. NICE now recommends that DOACs such as apixaban can be used as interim therapeutic anticoagulation. Prophylactic heparin is used to prevent a PE, not to treat a PE.

Question:

A 4-year-old girl has started reception and is struggling with phonetics and maths lessons. The teacher has expressed concerns that it may be due to her poor hearing as she often appears distracted, staring out of the window, and does not respond to her name when called. She was a term, vaginal delivery infant who had a normal newborn screening, and progressed well throughout infancy on growth charts. She is up-to-date with her immunisations. As part of her school entry, there are tests organised to assess the impairment that her teacher is concerned about.

What testing is the child most likely to undergo?

A.Auditory brainstem response

B.Distraction testing

C.Otoacoustic emission testing

D.Pure tone audiometry

E.Tympanometry

Answer:Pure tone audiometry

Explanation:

Pure tone audiometry is done at school entry in most areas of the UK

Important for meLess important

Pure tone audiometry is typically performed on school-age children on their entry to school around 3-4 years of age. This involves wearing headphones and asking the child to raise a hand or press a button when they hear a beep. Usually, the sounds played will vary in pitch and be played in each ear to assess left and right hearing. It can only be used on children old enough to comply with the test procedure.

Auditory brainstem response testing is performed on infants with atypical otoacoustic emission testing. This is performed while the child is sleeping where electrodes are placed on the scalp and headphones are placed over the infant’s ears. Sound is played through the headphones and the brain’s response to the sound is recorded.

Distraction testing is a subjective test which uses sounds (such as rattles, voices, and drums) to the left and the right of the infant (usually between 6-24 months) to assess the ability of the infant to hear the sound and turn towards it to locate it. The sounds vary in loudness and tone to try and establish the baseline volume that the child can hear.

Otoacoustic emission testing would have already been performed on this child as a newborn. This does not require any compliance by the infant and tests the cochlea by a computer performing a sound and ‘listening’ for the echo from the cochlea.

Tympanometry is used to assess for conductive hearing loss (such as in glue ear). This is not a typical test performed across all school-age children and is usually only performed if there is an indication and strong suspicion of a conductive hearing loss. It involves measuring the stiffness of the eardrum by applying positive and negative pressures in the ear canal.

Question:

A 4-year-old girl presents with symptoms of right sided loin pain, lethargy and haematuria. On examination she is pyrexial and has a large mass in the right upper quadrant. The most likely underlying diagnosis is:

A.Perinephric abscess

B.Nephroblastoma

C.Renal cortical adenoma

D.Grawitz tumour

E.Squamous cell carcinoma of the kidney

Answer:Nephroblastoma

Explanation:

In a child of this age, with the symptoms described a nephroblastoma is the most likely diagnosis. A perinephric abscess is most unlikely. If an abscess were to occur it would be confined to Gerotas fascia in the first instance, and hence anterior extension would be unlikely.

Question:

A 32-week pregnant primiparous woman attends your practice for a routine check up. Her pregnancy has been complicated by a diagnosis of intrahepatic cholestasis, for which she is currently taking ursodeoxycholic acid and being regularly monitored by her maternity unit.

She asks you regarding what the plan for her delivery is most likely to be.

A.Normal vaginal delivery when she goes naturally into labour

B.Elective caesarian section at 39 weeks will be planned

C.Induction of labour will be offered at 37-38 weeks

D.Emergency caesarian section is indicated

E.Induction of labour will be offered at 40 weeks if she has not delivered by then

Answer:Induction of labour will be offered at 37-38 weeks

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

Intrahepatic cholestasis, also known as obstetric cholestasis, increases the risk of stillbirth. Normally, an induction of labour will be planned at 37-38 weeks.

Waiting for normal vaginal delivery is inappropriate in this case as the risk of stillbirth increases particularly in a primip who may not delivery till past her due date.

Caesarian delivery is not usually indicated for intrahepatic cholestasis.

There is no indication for an emergency caesarian section in this case.

Question:

A 68-year-old patient who was seen by the GP following routine blood tests for a medical health check showed an anomaly. The blood tests are as follows:

Thyroid stimulating hormone (TSH) 13 mU/L (0.5-5.5)

Free thyroxine (T4) 12 pmol/L (9.0 - 18)

The following blood results are present on the patient's record having been done 4 months ago at the GP surgery:

Thyroid stimulating hormone (TSH) 14 mU/L (0.5-5.5)

Free thyroxine (T4) 10 pmol/L (9.0 - 18)

There are no changes to weight, mood or the patient's energy levels.

Given the likely diagnosis, how should this patient be managed?

A.Carbimazole

B.Levothyroxine

C.No treatment necessary

D.Repeat thyroid function in 3 months time, treat if TSH > 10mU/L

E.Treat if symptoms develop

Answer:Levothyroxine

Explanation:

Treat subclinical hypothyroidism if the TSH level is > 10 mU/L on 2 separate occasions 3 months apart

Important for meLess important

Levothyroxine is correct. This patient has two consecutive results consistent with subclinical hypothyroidism. The patient has had two separate occasions, over 3 months apart that have shown a TSH level above 10mU/L. This is indicative of a diagnosis of subclinical hypothyroidism and so requires treatment with levothyroxine. Although these patients have normal T4 levels, they can still be at increased risk of cardiovascular disease and so, therefore, it is important to treat them if their blood results show consistently raised TSH levels. This will reduce their risk of developing cardiovascular disease.

Carbimazole is incorrect. This patient is presenting with subclinical hypothyroidism. Carbimazole is used in treating hyperthyroidism. As this patient has a raised TSH and a normal T4 level, they do not fit the criteria for hyperthyroidism and so should not be treated as such.

No treatment necessary is incorrect. Although this patient has no symptoms of hypothyroidism, their two separate blood tests demonstrate very obvious subclinical hypothyroidism. Therefore, this patient requires treatment with levothyroxine.

Repeat thyroid function in 3 months, treat if TSH > 10mU/L is incorrect. This patient already has two separate blood test results, 3 months apart that show subclinical hypothyroidism. Waiting a further 3 months would not add anything to the management plan and so, therefore, treatment should be initiated now.

Treat if symptoms develop is incorrect. Although this patient has no symptoms of hypothyroidism, their two separate blood tests demonstrate very obviously subclinical hypothyroidism. Therefore, this patient requires treatment with levothyroxine. Waiting until the patient has symptoms is not necessary as we are already confident about the diagnosis, given that we have two separate blood results demonstrating subclinical hypothyroidism.

Question:

A 21-year-old female is found to have an ectopic pregnancy and is taken to theatre for surgical management.

When laparoscopy is performed, where is the ectopic pregnancy most likely to be found?

A.Isthmus

B.Infundibulum

C.Ampulla

D.Cornula

E.Cervix

Answer:Ampulla

Explanation:

Most common site of ectopic pregnancy is in the ampulla of fallopian tube

Important for meLess important

The ampulla of the fallopian tube is the most common site of ectopic pregnancy. The other options are all possible, however since the ampulla is the most common site this is the most appropriate answer.

Question:

A 23-year-old man is admitted to the emergency department following a stabbing incident. He has multiple lacerations to his flank and lower back which have been caused by a knife. After being stabilized he complains of his right leg 'feeling funny.'

You perform a full neurological examination which reveals the following:

weakness in extension and flexion of the right knee

loss of proprioception and vibration below mid thigh in the right leg

loss of pain sensation below the mid thigh in left leg

Given the likely diagnosis, which of the following best describes the trauma?

A.Laceration to right sciatic nerve

B.Hemisection of anterior section of spinal cord

C.Right-sided lateral hemisection of spinal cord

D.Left-sided lateral hemisection of spinal cord

E.Posterior disk prolapse

Answer:Right-sided lateral hemisection of spinal cord

Explanation:

Brown-Sequard syndrome is a result of lateral hemisection of the spinal cord

Important for meLess important

The patient has Brown-Sequard syndrome, which is a lateral hemisection of spinal cord. It causes same sided weakness and proprioception/vibration loss and loss of pain/temperature on the opposite side to the hemisection. This is because the pathway for pain/temperature sensation decussates at the level of the nerve root.

Damage to the sciatic nerve would produce unilateral symptoms. Anterior hemisection is rare and unlikely given the mechanism of injury. It would also produce a different distribution of neurological symptoms. A left-sided hemisection would cause ipsilateral weakness. A posterior disk prolapse is also unlikely given the mechanism of trauma.

Question:

A 46-year-old male is reviewed in clinic. He has been recently diagnosed with pulmonary tuberculosis and started on medical treatment. He reports experiencing increasing abdominal discomfort since starting treatment and has also noticed that his urine appears very concentrated and bright, despite increasing his oral fluid intake.

Which of the following drugs is most likely responsible?

A.Ciprofloxacin

B.Ethambutol

C.Isoniazid

D.Pyrazinamide

E.Rifampicin

Answer:Rifampicin

Explanation:

Rifampicin can cause orange tears/urine

Important for meLess important

Rifampicin commonly causes orange-red colouration of the urine which is the 'concentrated and bright' appearance being referred to in this question. This colouration is benign and caused by the orange-red crystalline colour of rifampicin. Abdominal discomfort is also a common adverse effect. Other adverse effects include hepatotoxicity and flu-like symptoms.

Ciprofloxacin is not a first line drug treatment for tuberculosis therefore it is unlikely to be causing these symptoms.

Ethambutol is used for treatment of initial phase active tuberculosis. One of the serious adverse effects of this is optic neuritis therefore visual acuity should be checked before and during treatment.

Isoniazid is used for treatment of initial and continuation phase active tuberculosis. Adverse effects include hepatitis, peripheral neuropathy and agranulocytosis.

Pyrazinamide is used for treatment of initial phase active tuberculosis. Adverse effects include myalgia, arthralgia, hepatitis and hyperuricaemia.

Question:

A 51-year-old man is shot in the abdomen and sustains a significant intra abdominal injury. A laparotomy, bowel resection and end colostomy are performed. An associated vascular injury necessitates a 6 unit blood transfusion. He has a prolonged recovery and is paralysed and ventilated for 2 weeks on intensive care. He receives total parenteral nutrition and is eventually weaned from the ventilator and transferred to the ward. On reviewing his routine blood tests the following results are noted:

Full blood count

Hb 11.3 g/dl

Platelets 267 x 109/l

WBC 10.1 x109/l

Urea and electrolytes

Na+ 131 mmol/l

K+ 4.6 mmol/l

Urea 2.3 mmol/l

Creatinine 78 µmol/l

Liver function tests

Bilirubin 25 µmol/l

ALP 445 u/l

ALT 89 u/l

γGT 103 u/l

What is the most likely underlying cause for the abnormalities noted?

A.Delayed type blood transfusion reaction

B.Bile leak

C.Anastomotic leak

D.Total parenteral nutrition

E.Gallstones

Answer:Total parenteral nutrition

Explanation:

TPN is known to result in derangement of liver function tests. Although, cholestasis may result from TPN, it would be very unusual for gallstones to form and result in the picture above. Blood transfusion reactions typically present earlier and with changes in the haemoglobin and although they may cause hepatitis this is rare nowadays.

Question:

A 27-year-old woman presents to her GP complaining of fatigue and breathlessness for the last two months.

On examination, her conjunctiva is pale and her sclera appears jaundiced. A cardiovascular examination shows tachycardia and an abdominal examination is unremarkable.

The GP orders some blood tests which show the following:

Hb 100 g/L (115 - 160)

Platelets 320 \* 109/L (150 - 400)

WBC 4.5 \* 109/L (4.0 - 11.0)

Bilirubin 82 µmol/L (3 - 17)

Reticulocytes 3 % (0.5 - 1.5)

A direct antiglobulin test is positive.

Given the most likely diagnosis, which treatment should be administered?

A.Blood transfusion

B.Iron tablets

C.Pooled normal human immunoglobulin

D.Steroids and rituximab

E.Sulfasalazine

Answer:Steroids and rituximab

Explanation:

Steroids (+/- rituximab) are generally used first-line in the management of patients with warm autoimmune haemolytic anaemia

Important for meLess important

The correct answer is steroids and rituximab. This patient is presenting with warm autoimmune haemolytic anaemia, characterized by fatigue and breathlessness. These are classical fractures of anaemia. Further blood tests reveal anaemia, high bilirubin and high reticulocytes. A blood film shows spherocytes and a direct antiglobulin test is positive.

These are all classical features of autoimmune haemolytic anaemia, a disease caused by the production of antibodies (usually IgG) against the patient's red blood cells. This will cause the red blood cells to disintegrate, leading to low haemoglobin and anaemia. Bilirubin is high due to the breakdown of the heme groups, the reticulocyte count will increase to try and produce new blood cells to compensate. Spherocytes are created because the antibodies attach to the red cells, and when the antibodies are taken up by macrophages in the spleen some of the red blood cell membranes are removed as well, decreasing the surface area of the cell. The positive direct antiglobulin test is due to the presence of antibodies. The classical treatment is composed of steroids with or without rituximab, depending on the clinical judgment of the doctor.

Blood transfusions are not used in the management of warm autoimmune haemolytic anaemia as they are regarded as hazardous because of the potential intensification of haemolysis.

Iron tablets are used as a treatment to manage iron deficiency anaemia. This is always a good differential in a young woman presenting with tiredness and breathlessness. It is characterised by isolated anaemia, but it would not explain the high bilirubin, high reticulocytes, spherocytes and positive direct antiglobulin test.

Pooled normal human immunoglobulin is a second-line treatment of immune thrombocytopenic purpura. This condition is defined as an immune-mediated reduction in the platelet count. The platelets, in this case, are normal, excluding this diagnosis. Additionally, the patient would present with petechiae and bleeding, which are not present in this case.

Sulfasalazine is a medication known to cause exacerbations of G6PD deficiency. This condition would usually present at a young age, with spontaneous episodes of jaundice following oxidative stress such as the uptake of certain medications or an illness. It would present with anaemia, high reticulocytes and high bilirubin. But it would cause Heinz bodies on blood film rather than spherocytes and it would not justify the positive direct antiglobulin test.

Question:

A 23-year-old man is admitted following the sudden onset of an occipital headache. He initially thought it was a migraine and delayed presenting to the Emergency Department. On examination GCS is 15/15, neurological examination is unremarkable but neck stiffness is noted. He is apyrexial and no rash is noted. A CT scan done 7 hours after symptom onset is normal.

At what time should a lumbar puncture be done?

A.Immediately

B.2 hours post-onset of headache

C.4 hours post-onset of headache

D.12 hours post-onset of headache

E.24 hours post-onset of headache

Answer:12 hours post-onset of headache

Explanation:

To detect a subarachnoid haemorrhage the LP should be done at least 12 hours after the start of the headache

Important for meLess important

A lumbar puncture should not be done until 12 hours after the onset of the headache to allow time for xanthochromia to develop.

If the patient was acutely unwell or had an altered GCS then discussion with neurosurgery may be appropriate rather than waiting 12 hours.

Question:

Which one of the following statements regarding cervical ectropion is incorrect?

A.Describes an increased area of columnar epithelium

B.May result in post-coital bleeding

C.Is less common in women who use the combined oral contraceptive pill

D.May result in excessive vaginal discharge

E.Is more common during pregnancy

Answer:Is less common in women who use the combined oral contraceptive pill

Explanation:

Question:

An 11-year-old girl has injured her right foot whilst playing football. Her 1st (great) toe is very painful and swollen. She is struggling to walk. An x-ray is taken.

© Image used on license from Radiopaedia

What structures have the fracture extended through?

A.Epiphysis and metaphysis

B.Epiphysis only

C.Physis and epiphysis

D.Physis and metaphysis

E.Physis, metaphysis and epiphysis

Answer:Physis, metaphysis and epiphysis

Explanation:

This is a posteroanterior radiograph of the right foot. There is a fracture of the proximal end of the proximal phalanx of the 1st (great) toe extending through the physis, metaphysis and epiphysis. This is a Salter-Harris grade 4 fracture.

Physis, metaphysis and epiphysis is correct.

Epiphysis and metaphysis is incorrect because the physis is also involved.

Epiphysis only is incorrect because the physis and metaphysis are also involved.

Physis and epiphysis is incorrect because the metaphysis is also involved.

Physis and metaphysis is incorrect because the epiphysis is also involved.

Question:

A 37-year-old presents with a swelling on her arm. It first developed after a vaccination 5 months ago and has slowly grown since then. The appearance of this swelling bothers her.

On examination, her skin is Fitzpatrick type IV. There is a smooth, shiny, elevated mark on her right arm. It has an overhanging edge and extends beyond the prior vaccination site.

What is the most appropriate management?

A.Biopsy of the lesion

B.Intra-lesional corticosteroid injection

C.No treatment needed

D.Reassess the lesion in 3 months

E.Surgical excision

Answer:Intra-lesional corticosteroid injection

Explanation:

Intra-lesional steroids may be a useful treatment for keloid scarring

Important for meLess important

The correct answer is intra-lesional corticosteroid injection. This description of a shiny, raised swelling that extends outside the site of a previous scar is consistent with a diagnosis of keloid scarring. As this patient is bothered by its appearance you can assume they want to remove it. Therefore the most suitable management is treatment with intra-lesional corticosteroids. This is usually in the form of a course of injections (typically 4 to 6) at monthly intervals.

Taking a biopsy of the lesion is incorrect. Keloid scarring is usually diagnosed based on clinical appearance as described in this patient. Furthermore, a biopsy may make the incision worse by triggering an inciting event.

No treatment needed is incorrect. Keloid scars rarely regress on their own and this patient is bothered by its appearance so treatment is indicated.

Reassess the lesion in 3 months is also incorrect. The scar is unlikely to regress with time, and in 3 months will only have grown, therefore there is no reason to delay treatment.

Surgical excision is incorrect. Excisional surgery can result in the involvement of the entire surgical scar. Therefore it is not appropriate management of this case.

Question:

A 57-year-old woman presents with breathlessness. On further questioning, she also notes fatigue and lethargy. This has been going on for the last year. On examination, the GP notices a lemon tinge to her skin as well as impaired vibration sense in her distal legs and feet.

Given her presentation what is the most likely diagnosis?

A.Iron deficiency anaemia

B.Pernicious anaemia

C.Chronic alcoholism

D.Anaemia of chronic disease

E.Thalassemia

Answer:Pernicious anaemia

Explanation:

A lemon tinge to the skin is associated with pernicious anaemia

Important for meLess important

This question is asking about a patient presenting with dyspnoea, fatigue and lethargy. These are all symptoms of anaemia. The patient's other features (as well as her age), lemon tinge to the skin and loss of vibration sense in the feet are most typical of pernicious anaemia. The light yellow tinge is caused by the combination of pallor (due to the anaemia) and mild jaundice (caused by the haemolysis). The loss of vibration sense occurs due to low B12 levels, they can also cause reflex loss or weakness.

While chronic alcoholism can cause both the symptoms of jaundice and impaired vibration sense, it is less likely to account for her breathlessness and is not the typical 'lemon' colour described in the question.

Question:

A 60-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 50mOsm/kg (50-1200)

Urine osmolality post-desmopressin 700mOsm/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:Cranial diabetes insipidus

Explanation:

Water deprivation test: cranial DI

urine osmolality after fluid deprivation: low

urine osmolality after desmopressin: high

Important for meLess important

Cranial diabetes insipidus (DI) is the correct answer. ADH is secreted by the hypothalamus and acts on renal tubules to increase fluid reabsorption in response to fluid deprivation. 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 cranial diabetes insipidus.

Nephrogenic diabetes insipidus is incorrect, although clinically it would present in the same way. 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.

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 physiological stimuli. 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 70 year-old man presents with a history of chest pain on exertion. He is known to have hypertension, currently treated with amlodipine, and he is also on simvastatin for primary prevention. The chest pain is dull in nature and is relieved within a few minutes of rest. His symptoms have been relieved by the use of his wife's GTN.

Which additional medication would be indicated here?

A.Doxazosin

B.Verapamil

C.Isosorbide mononitrate

D.Atenolol

E.Ivabradine

Answer:Atenolol

Explanation:

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

Important for meLess important

This man presents with classic features of angina. He is already taking a calcium channel blocker for hypertension, so the next most appropriate treatment would be a beta blocker. Verapamil would be an alternative if he wasn't taking any other medications.

Doxazosin is an alpha blocker used in refractory hypertension. Isosorbide mononitrate and ivabradine are used in the management of angina, but not at this stage.

Question:

An 18-year-old man presents to his GP following a suspected grand mal seizure.

The episode lasted for 3 minutes in total. He was seen in the emergency department at the time, where investigations showed no metabolic or drug-related cause for his episode. An EEG performed within 12 hours of the episode was normal.

He has no past medical history of note and has not experienced any previous seizures.

What is the best course of action for the GP to take?

A.Refer to epilepsy clinic only

B.Prescribe sodium valproate

C.Prescribe lamotrigine

D.Refer to epilepsy clinic and prescribe buccal midazolam

E.Prescribe buccal midazolam and see again if a further episode occurs

Answer:Refer to epilepsy clinic only

Explanation:

Following a first seizure, anti-epileptic drug treatment should only be started before specialist review in exceptional circumstances

Important for meLess important

NICE guidance states that following a first suspected epileptic seizure, the patient should be referred for specialist review. Anti-epileptic drug treatment should not be started before review except in certain cases, including:

1. Seizure activity observed on EEG

2. Presence of a neurological deficit

3. Presence of a structural brain abnormality

4. Patient, parent or carer considers the risk of a further seizure to be unacceptable

NICE recommends that only patients who have had a previous episode of prolonged or sequential generalised seizures should be prescribed midazolam to use in the event of status epilepticus.

Question:

A 65-year-old woman complains of chest pain on exertion such as when walking up the stairs or doing housework. She describes the pain as a constricting discomfort in front of the chest. The pain typically radiates to the left shoulder and disappears on resting.

She suffers from severe osteoarthritis of the left knee, which limits her mobility. She also suffers from brittle asthma and high blood pressure. Her last cholesterol check was 4 years ago and this was normal. She is a non-smoker. On examination, she appears well and pain-free. Heart sounds were normal with no murmur. Resting ECG is normal.

What is the next step in the investigation of this lady's symptoms?

A.Check her cholesterol level to determine the investigation of choice

B.Exercise (stress) echocardiogram

C.Contrast-enhanced coronary CT angiography

D.Adenosine stress-CMR

E.Invasive coronary angiography

Answer:Contrast-enhanced coronary 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 lady chest pain characteristics are consistent with typical angina. The first-line investigation recommended by NICE is contrast-enhanced CT coronary angiogram cCTA. The new NICE guideline no longer recommends using pre-test likelihood of the CAD to determine the appropriate first-line investigation.

This lady may not be suitable for exercise (stress) echocardiogram as she suffers from severe osteoarthritis of the knee. Stress echocardiogram with dobutamine may be appropriate but is less sensitive than cCTA (and is not an option for this question). Adenosine stress-CMR is very sensitive in detecting CAD but the use of adenosine in someone with asthma is contraindicated due to the risk of bronchospasm. Immediate invasive coronary angiography is typically not the first-line investigation method due to the cost and possible complications. The use of invasive angiography without a 'gatekeeper' non-invasive test is not recommended by NICE but is still recommended by ESC and AHA in patients with very high pre-test likelihood of CAD. Other than her age and hypertension, she does not have other cardiovascular risk factors e.g. smoking, diabetes, etc.

Question:

A 3-day old baby presents with increasing abdominal distension and one episode of bilious vomiting.

She has not yet passed meconium.

What feature in the history would point to the most likely diagnosis?

A.The baby was conceived through IVF

B.Family history of coeliac disease

C.Maternal history of inflammatory bowel disease

D.Family history of cystic fibrosis

E.The baby was delivered by caesarian section.

Answer:Family history of cystic fibrosis

Explanation:

Meconium ileus is a common neonatal feature of cystic fibrosis

Important for meLess important

Meconium ileus is often the first manifestation of cystic fibrosis and occurs in about 20% of babies with the condition.

Other important differentials to consider in meconium ileus are Hirschsprung's disease and meconium plug syndrome.

A baby conceived by IVF is not more susceptible to developing meconium ileus.

A family history of inflammatory bowel disease and coeliac would not influence the baby's ability to pass meconium.

A baby delivered by caesarian section is at no increased risk of meconium ileus.

Question:

You are reviewing the blood tests of a 61-year-old man who was admitted yesterday morning with left leg cellulitis.

He is being treated with intravenous (IV) antibiotics and takes lithium for bipolar disorder.

Some of his blood tests from this morning and from admission are shown below:

Admission bloods Bloods from this morning

Hb (135-180) 152 g/L 159 g/L

Platelets (150-400) 320 \* 109/L 289 \* 109/L

WBC (4.0-11.0) 16.4 \* 109/L 13.9 \* 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 10.2 mmol/L

Creatinine (55-120) 62 µmol/L 142 µmol/L

CRP (<5) 105 mg/L 99 mg/L

Which of the following best describes the recent investigation findings?

A.Normal renal function

B.Acute kidney injury (AKI) stage 1

C.AKI stage 2

D.AKI stage 3

E.AKI stage 4

Answer:AKI stage 2

Explanation:

KDIGO AKI stage 2

↑ creatinine 2.0-2.9 times, or

↓ urine output <0.5 mL/kg/hr for ≥ 12 hours

Important for meLess important

This patient has developed an AKI while an inpatient in hospital. His regular naproxen use and their infection are likely to have contributed to this. Since admission, their creatinine has increased to more than 2 times the baseline, so this would be classified as stage 2 AKI according to the Kidney Disease: Improving Global Outcomes (KDIGO) criteria. The other criteria for stage 2 AKI is a reduction in urine output to <0.5 mL/kg/hour for ≥12 hours.

It would be incorrect to say that her renal function is normal, as his 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 3 AKI is defined as an increase in creatinine by more than 3 times the baseline. The 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.

Stage 4 is not a stage of AKI that exists within the KDIGO criteria.

Question:

An 18-year-old woman is brought to the emergency department by ambulance for breathlessness.

She has a past medical history of brittle asthma, and her GP noted her peak expiratory flow rate was 33% of her best. She is started on salbutamol and ipratropium bromide nebulisers and given hydrocortisone IV.

Whilst your senior examines the patient, you take an arterial blood gas sample. The patient is receiving 15 L of high flow oxygen. This shows the following:

pH 7.32 (7.35-7.45)

PCO2 6 kPa (4.7 – 6.0)

PO2 11 kPa (11 – 13)

Na+ 140 mmol/L (135 - 145)

K+ 3.2 mmol/L (3.5 - 5.0)

Cl- 104 \* 109/L (96 - 106)

Glu 8 mmol/L (2.5 – 11.0)

Lac 4.1 mmol/L (0.5-2)

BE 2 (-2 - +2)

HCO3 23 mEq/L 22-26

What is the single most important next management step?

A.Administer a further dose of hydrocortisone IV

B.Administer aminophylline infusion

C.Administer magnesium sulfate

D.Continue administration of salbutamol and ipratropium bromide via nebuliser

E.Refer to ITU

Answer:Refer to ITU

Explanation:

Life-threatening asthma PEFR < 33% best or predicted

Important for meLess important

A PEFR < 33% best or predicted, along with hypoxia and normo/hypercapnia on a background of known brittle asthma is highly concerning for an acute, life-threatening exacerbation of asthma.

It is vital to recognise the severity of an acute asthma attack and to escalate care appropriately. In this scenario, this translates to referring to the intensive care staff early on.

Occasionally, a higher dose of steroids may be administered in critically-ill patients, based on advice from seniors. This, however, is not based on evidence of effectiveness.

Magnesium sulfate and aminophylline are appropriate treatments for life-threatening asthma, however, they should be commenced under supervision of a senior clinician.

Continue administration of nebulised salbutamol and ipratropium bromide only is inappropriate as unlikely to resolve the presentation described above.

Question:

A 36-year-old para 3, gravida 4 is in labour in the delivery ward. The labour seems to be proceeding normally when the midwife calls the obstetrician to review the patient.

Her cervix is 5cm dilated, and the child is 3cm above the ischial spine. A cardiotocograph is showing a slow but regular heartbeat. The obstetrician decides to perform an emergency in a category 2 caesarian section.

What is the maximum time that should pass between this decision and the delivery of this baby given the indication?

A.2 hours

B.30 minutes

C.5 minutes

D.75 minutes

E.8 hours

Answer:75 minutes

Explanation:

Category 2 caesarean sections should occur within 75 minutes of making the decision

Important for meLess important

The correct answer is 75 minutes. This patient is presenting with an indication for category 2 caesarian section, a situation of maternal or fetal compromise which is not immediately life-threatening. These cases allow the team to manage the emergency and plan the surgery to reduce the risks for both the mother and the foetus.

2 hours is an incorrect timeframe, as the situation is causing a situation of maternal or fetal compromise, hence the caesarian section should be executed quickly.

30 minutes would be the correct timeframe in category one caesarian section, where there is an immediate threat to the life of the mother or baby, which is untrue in this case.

5 minutes is a very short timeframe, and even if the delivery should happen as soon as possible, it needs to be taken into account that fast deliveries can be harmful in certain circumstances as they increase the risk of human error.

8 hours is an extremely long time from decision to delivery in cases category two caesarian section, hence it is incorrect.

Question:

A 72-year-old man presents to the emergency department with increasing pain in his left leg. He has had intermittent claudication for a few months but has had a sudden increase in pain since this morning. His past medical history is otherwise significant for 2 previous myocardial infarctions, for which he takes regular simvastatin, aspirin, ramipril and atenolol.

On examination, his left dorsalis pedis and tibialis anterior pulses are weak, and his left leg is pale and cold below the knee.

His pain is currently being managed with oramorph.

Given the likely diagnosis, what should be part of the initial management plan?

A.IV fondaparinux

B.IV heparin

C.Oral rivaroxaban

D.Oral ticagrelor

E.Urgent fasciotomy

Answer:IV heparin

Explanation:

The initial management of acute limb ischaemia includes analgesia, IV heparin and vascular review

Important for meLess important

This man presents with focal pain, pallor, loss of pulses and coolness, on the background of arterial disease (i.e. intermittent claudication and previous myocardial infarctions). This should point to acute limb ischaemia, which is the formation of a thrombus in the main artery preventing blood flow distally. This is an incredibly painful experience and needs sufficient analgesia - which has been provided in this scenario by oromorph. A vascular review is necessary for looking at reperfusion therapies. The urgent management is IV heparin, which is given to prevent the propagation of the thrombus, and further ischaemia occurring.

IV fondaparinux is a heparin-like anticoagulant that can be used in the management of acute coronary syndrome. Its efficacy in acute limb ischaemia has not been proven, and therefore this is not the correct answer.

Oral rivaroxaban is a direct-acting oral anticoagulant that has a role in the management of deep vein thrombosis, but not within acute limb ischaemia. A deep vein thrombosis would not have a history of intermittent claudication and would come on relatively acutely. The leg would also more likely be warm and red, rather than cool and pale.

Oral ticagrelor is a platelet aggregation inhibitor that has a role in the management of acute coronary syndrome, but not within acute limb ischemia.

An urgent fasciotomy would be the immediate management for compartment syndrome, however, this presents differently. There would be pain on passive flexion and a feeling of pressure which this patient does not have. It may present with pallor, pulselessness and paraesthesia.

Question:

A 65-year-old woman is being treated for infective endocarditis. She is being treated with IV antibiotics and has had a 3-day course so far. Her past medical history is only significant for poor dental health.

Today, she is complaining of a ringing in her ear that started when she woke up.

What class of antibiotics is most likely responsible for this new symptom?

A.Aminoglycosides

B.Fluoroquinolones

C.Glycopeptides

D.Macrolides

E.Tetracyclines

Answer:Aminoglycosides

Explanation:

An important adverse effect of aminoglycosides is ototoxicity

Important for meLess important

This woman is experiencing the symptom of tinnitus, which may be caused by ototoxicity damaging the inner ear hair cells. Ototoxicity is an important side effect of the aminoglycoside antibiotics, which include gentamicin, neomycin, and tobramycin. Neomycin is the aminoglycoside that is most ototoxic. Around 11% of individuals receiving long-term treatment with an aminoglycoside may face some degree of ototoxicity.

Fluoroquinolones are incorrect. These antibiotics include ciprofloxacin and levofloxacin. An important side effect of this class is interfering with connective tissue, which may dispose the patient to tendon rupture.

Glycopeptides are incorrect. This class is significant for having vancomycin within it. Vancomycin is most likely to cause nephrotoxicity as its most common adverse effect. There have been some reports of ototoxicity, but this is only at serum concentrations that are higher than the therapeutic range and it is a relatively rare event.

Macrolides are incorrect. These include erythromycin, clarithromycin, and azithromycin. Macrolides do not cause ototoxicity, and instead are more likely to cause myopathy or QT prolongation as their significant adverse events.

Tetracyclines are incorrect. Examples include tetracycline and doxycycline. Notably, these cause phototoxicity (i.e. increased sensitivity to the sun) as well as possibly idiopathic intracranial hypertension.

Question:

You review a 45-year-old woman who has been admitted feeling generally unwell. Four months ago she had a renal transplant and has since been taking a combination of ciclosporin and mycophenolate for immunosuppression. For the past three days she has had fever, dyspnoea and a dry cough. A chest x-ray shows bilateral interstitial infiltrates. What is the most likely diagnosis?

A.Graft-versus host disease

B.Cytomegalovirus pneumonitis

C.Cell mediated acute transplant rejection

D.Mycophenolate pneumonitis

E.Cryptococcus neoformans pneumonia

Answer:Cytomegalovirus pneumonitis

Explanation:

Renal transplant + infection ?CMV

Important for meLess important

Over 50% of renal transplant patients have a significant infection within the first 12 months of having a renal transplant.

At the time of transplant the CMV-serological status of the donor and recipient are noted. The highest risk is seen in CMV-seronegative recipients who receive a kidney from a CMV-seropositive donor. These patients are usually given antiviral prophylaxis.

Cytomegalovirus tend to be seen after four weeks as before this time the immune system has not been fully affected by the immunosuppressants.

Question:

A 70-year-old man on the ward is complaining of abdominal pain, bloating and feeling nauseous. 4 days ago, he had an emergency laparotomy for a perforated diverticulum. The nurse tells you he has had 2 episodes of vomiting already this morning and has not passed any stools post-surgery.

On examination, his abdomen is grossly distended with generalised tenderness. You hear a reduction in bowel sounds. His vital signs are normal.

What is the most likely cause of his symptoms?

A.Anastomotic leak

B.Another perforated diverticular

C.Large bowel obstruction

D.Opiate-induced constipation

E.Post operative ileus

Answer:Post operative ileus

Explanation:

Abdominal pain, bloating and vomiting following bowel surgery → ?postoperative ileus

Important for meLess important

Post operative ileus is correct. It is a common complication following bowel surgery. This is where there is a reduction in peristalsis following surgery, which leads to abdominal pain, bloating and vomiting. This patient has a grossly distended abdomen with a reduction in bowel sounds, which are the common findings in postoperative ileus, making this the correct answer.

Anastomotic leak is incorrect. It usually presents at 5-7 days with peritonitis, not simply 'generalised tenderness'. It is a good differential for this history following emergency bowel surgery, however, he would be likely to have more systemic symptoms like pyrexia and tachycardia as well. This patient's vital signs are normal making this a less likely diagnosis.

Another perforated diverticular is incorrect. He is very unlikely to have another diverticular perforation just after surgery, as this is very rare. Furthermore, peritonitis is a key feature of bowel perforation. This man has 'abdominal pain' and 'generalised tenderness', with no mention of rebound tenderness or guarding, making this very unlikely.

Large bowel obstruction is incorrect. It is appropriate as a differential, however, the history of bowel surgery makes post-operative ileus the most likely answer. Large bowel obstruction would present with abdominal pain, distension, and failure of passage of flatus and stools. Vomiting is also a late sign of large bowel obstruction, so it would be unlikely to be present this early on.

Opiate-induced constipation is incorrect. Opiates commonly cause constipation. However, this is not the most likely cause of acute pain. The majority of patients who develop opiate-induced constipation have long-term opiate use for chronic pain. Furthermore, opiate-induced constipation is very unlikely to be resulting in episodes of vomiting. If this was the case, he would have overflow constipation and absent bowel sounds, as vomiting would be a very late symptom implying the bowel was completely impacted.

Question:

A 23-year-old swimmer presents to her GP 14 days after attending with right-sided ear pain, otorrhoea and hearing loss. Ciprofloxacin ear drops were prescribed, and the pain has resolved. She states that she has a race in 7 days' time, and is anxious to ensure that she is medically fit to compete.

On examination, the affected ear is clear of debris, is not erythematous, and the tympanic membrane can be visualised. Weber's test does not lateralise to either side. Air conduction is louder than bone conduction bilaterally.

What is the most appropriate next step in her management?

A.Advise her to avoid swimming for another two weeks

B.Prescribe a short course of dexamethasone ear drops

C.Reassurance

D.Routine referral to audiometry

E.Urgent referral to an ear, nose and throat (ENT) specialist

Answer:Reassurance

Explanation:

Normal hearing

Rinne result: Air conduction > bone conduction bilaterally

Weber result: same in both ears

Important for meLess important

This patient is likely to have been diagnosed with otitis externa, given her symptoms, background as a swimmer, and the treatment prescribed. She has normal hearing, as shown by her Rinne and Weber test results. Furthermore, her other symptoms appear to have resolved, and there is no evidence of ongoing infection in her ear. Therefore, reassurance is the correct answer.

Otitis externa usually resolves with treatment within 7-10 days, and given that there is good evidence of symptom resolution, she is unlikely to require another fortnight without swimming.

Prescribing a short course of dexamethasone is incorrect. Dexamethasone may have been given as part of the antibiotic ear drop solution this patient used previously but is unlikely to be indicated at this time, given her successful symptomatic resolution.

No further treatment is indicated, so referral to audiometry or ENT is incorrect. A referral to audiometry may be required if the patient was experiencing ongoing changes to her hearing after the resolution of her other symptoms, whilst ENT input may be sought following serial ear infections.

Question:

A 64-year-old woman presents to the emergency department with a 2-hour history of right-sided leg weakness and cramping sensations in her right hand. When the symptoms began, she also had an episode of urinary incontinence. She has a past medical history of poorly controlled hypertension.

On examination, she has 2/5 power, reduced sensation, and reduced tone in the right lower limb. The right upper limb has 4/5 power, normal sensation, and normal tone. Examination of the left upper and lower limbs is unremarkable. Cranial nerve examination is unremarkable.

Where is the most likely lesion?

A.Anterior cerebral artery

B.Anterior inferior cerebellar artery

C.Middle cerebral artery

D.Posterior cerebral artery

E.Posterior inferior cerebellar artery

Answer:Anterior cerebral artery

Explanation:

Contralateral hemiparesis and sensory loss with the lower extremity being more affected than the upper - anterior cerebral artery

Important for meLess important

This patient is presenting with right-sided hemiparesis affecting her lower limb more than her upper limb with associated sensory loss and urinary incontinence. This is consistent with an anterior cerebral artery stroke. Patients with extensive strokes may have cognitive impairment due to involvement with the prefrontal cortex.

An anterior inferior cerebellar artery infarct (otherwise known as 'lateral pontine syndrome') presents with ipsilateral facial weakness and loss of pain/temperature sensation, deafness, and contralateral limb weakness and loss of pain/temperature sensation. While this patient has loss of sensation and weakness on the contralateral side, she does not have the cerebellar signs typically seen with a cerebellar stroke.

Middle cerebral artery strokes are associated with weakness and sensory changes in the face and upper limb. Patients may have aphasia if the dominant hemisphere has been affected.

Posterior cerebral artery strokes present with contralateral hemianopia and macular sparing. This is due to the damage being in the occipital lobe. There is not typically any limb weakness, thus making this an incorrect answer.

Posterior inferior cerebellar artery stroke (or 'lateral medullary syndrome') presents with symptoms like an anterior inferior cerebellar artery stroke without the inclusion of facial paralysis and deafness. There will be ataxia and nystagmus which indicate the cerebellar site of the lesion. This patient has no cerebellar signs so this answer is incorrect.

Question:

A 60-year-old man is being discharged from hospital today post right hemicolectomy for colon cancer. He has struggled with pain management during his admission but found tramadol to be the most useful analgesia. The consultant has instructed you to discharge the patient with a 2 weeks' supply. After completing the TTA (to take away) prescription, the pharmacist approaches you to amend the prescription which reads:

Mr James Richardson

Flat 2, 26 Finch Road, New Town, ABC1 9DE

DOB: 15/11/1960

Dose: 50mg

Frequency: Four times a day as required

Quantity: 56 tablets

Signed by (you)

What part of the prescription does the pharmacist most likely want you to amend?

A.The dose needs to be stated in words as well as figures

B.The frequency should be written as QDS PRN

C.The prescription requires a consultant's signature

D.The quantity needs to be stated in words as well as figures

E.There is nothing wrong with the prescription

Answer:The quantity needs to be stated in words as well as figures

Explanation:

Controlled drugs - it is the quantity supplied which needs to be stated in both figures and words, rather than the dosage

Important for meLess important

It is the quantity supplied that needs to be stated in both figures and words rather than the dosage.

The frequency can be written as either four times a day as required or QDS PRN.

Controlled drug TTA prescriptions can be prescribed by any grade of doctor and does not require a consultant's signature.

Question:

A 66-year-old gentleman with a diagnosis of chronic obstructive pulmonary disease (COPD) is reviewed in clinic. He complains of persistent breathlessness on exertion. There is no significant history of cough.

Pulmonary function testing reveals:

SpO2 90%

FVC 2.8L

FEV1 1.47 (40% predicted)

FEV1/FVC ratio 53%

Looking back at his notes you note that significant (> 20%) diurnal variation has been noted in his peak flows.

The patient is currently prescribed a short-acting beta-2 agonist along with a combination inhaler containing a long-acting beta-2 agonist and corticosteroid.

What is the most appropriate additional medication?

A.Inhaled tiotropium

B.Oral modified-release aminophylline

C.Short-acting muscarinic agonist

D.Oral prednisolone

E.Oral roflumilast

Answer:Inhaled tiotropium

Explanation:

COPD - still breathless despite using SABA/SAMA and a LABA + ICS → add a LAMA

Important for meLess important

Question:

You are working on a stroke ward and have been asked to review the position of a nasogastric (NG) tube which has been inserted in a 84-year-old man who was admitted two days ago and has just failed his swallowing assessment.

The chest x-ray is shown below:

© Image used on license from Radiopaedia

What is the most appropriate advice to give the nursing staff?

A.The patient is likely to not be suitable for a NG tube and should be referred for a percutaneous endoscopic gastrostomy (PEG)

B.Nasogastric tube should be inserted a further 10 cm

C.Nasogastric tube should be withdrawn by 10 cm

D.Nasogastric tube is correctly positioned

E.Nasogastric tube should be immediately removed

Answer:Nasogastric tube is correctly positioned

Explanation:

The NG tube tip is satisfactorily sited in a sub-diaphragmatic position.

Question:

A 51-year-old Pakistani man books an appointment. He was diagnosed with type 2 diabetes 3 weeks ago and started on metformin. Unfortunately, he developed a skin reaction soon after starting and has now stopped taking it.

He has a background of hypertension and angina for which he takes ramipril 10 mg OD, aspirin 75 mg OD, bisoprolol 10 mg OD and atorvastatin 80 mg ON.

His most recent results are as follows:

HbA1c 64 mmol/mol

eGFR 67 ml/min/1.73m² (>90 ml/min/1.73m²)

Urine albumin:creatinine ratio (ACR) 2.4 mg/mmol (<3 mg/mmol)

Given his reaction to metformin, what is the most appropriate initial therapy to start?

A.DPP-4 inhibitor or pioglitazone or sulfonylurea

B.DPP-4 inhibitor or pioglitazone or sulfonylurea AND SGLT2-2 inhibitor

C.GLP-1 mimetic

D.Insulin

E.SGLT-2 inhibitor

Answer:SGLT-2 inhibitor

Explanation:

T2DM initial therapy: if metformin is contraindicated + patient has a risk of CVD, established CVD or chronic heart failure → SGLT-2 monotherapy

Important for meLess important

The correct answer is SGLT-2 inhibitor. In a patient with established cardiovascular disease (CVD) such as a history of PAD, cerebrovascular vascular, or ischaemic heart disease, an SGLT2 inhibitor is indicated for its cardioprotective effect. This would usually be started after the initiation of metformin but if metformin is contraindicated as in this case, NICE recommends SGLT-2 monotherapy as initial therapy.

DPP-4 inhibitor or pioglitazone or sulfonylurea is incorrect. These options would be appropriate initial therapy for a patient without a history of established cardiovascular disease (CVD) or heart failure and who is not at increased risk of CVD (based on a QRISK score <10%). As this patient has angina, he would benefit from the cardioprotective effect of an SGLT-2 inhibitor.

DPP-4 inhibitor or pioglitazone or sulfonylurea AND SGLT2-2 inhibitor is incorrect. Given his history of angina, SGLT-2 monotherapy would be indicated as initial therapy. The other medications could be added as second-line therapy if adequate glycaemic control is not achieved.

GLP-1 mimetic is incorrect. This would not usually be offered as initial therapy in type 2 diabetes but may be considered if treatment with other agents is ineffective, not tolerated, or contraindicated (and if certain NICE criteria are met).

Insulin is incorrect. This would not usually be offered as initial therapy in type 2 diabetes but may be considered if treatment with other agents is ineffective, not tolerated, or contraindicated.

Question:

Anne, a 46-year-old taxi driver, attends her general practitioner 3 months after she was involved in a road traffic collision.

The GP takes a full psychiatric history. Anne is unable to to remember the details of the precipitating event but thinking about driving her car makes her anxious. Therefore, she is avoiding driving her car whenever possible. She is concerned that she may lose income as a result.

The GP discovers that Anne has recently been compulsively purchasing clothes and electronics online. She is also having to rely on her sister and son for help with certain tasks such as cooking and cleaning the house because Anne does not have the motivation for these tasks. Anne informs you that there have been a number of occasions recently when she has been described as 'reckless' by her sister when crossing a busy road near their house.

Which of the details from the history most strongly supports a diagnosis of post-traumatic stress disorder (PTSD) in this case?

A.An inability to remember the details of the collision

B.Avoidance of driving

C.Compulsive online shopping

D.Increased reliance on family members for cooking and cleaning

E.Reckless behaviour

Answer:Avoidance of driving

Explanation:

Common features of PTSD

re-experiencing e.g. flashbacks, nightmares

avoidance e.g. avoiding people or situations

hyperarousal e.g.hypervigilance, sleep problems

Important for meLess important

Avoidance of anxiety-provoking situations relating to the precipitating event is a common symptom of PTSD. There may also be avoidance of certain individuals or objects.

Whilst disordered mood and thinking are features of PTSD, an inability to recall specific details is not. It is more likely that specifics are remembered in vivid detail.

Compulsive behaviour is not a recognised symptom of PTSD whilst it is a recognised feature of other psychiatric conditions such as bipolar disorder.

Increased reliance on family members is not a recognised feature of PTSD. However, problems in relationships and interpersonal difficulties are often seen.

Reckless behaviour is not specifically a feature of PTSD. However, if this reckless behaviour was due to negative self-perception, this may be suggestive of PTSD.

Question:

A 57-year-old woman presents to the emergency department with shortness of breath and pleuritic chest pain. On examination, the left lower zone is dull to percuss. Chest X-ray shows a left-sided effusion.

The patient has a past medical history of breast cancer which has metastasised to the lung.

Pleural aspiration is performed and the results are back.

What result is most likely considering the likely cause of the effusion?

A.Pleural fluid LDH:serum LDH ratio 0.2

B.Pleural fluid lactate dehydrogenase (LDH):serum LDH ratio 0.5

C.Pleural fluid protein:serum protein ratio 0.3

D.Pleural fluid protein:serum protein ratio 0.4

E.Pleural fluid protein:serum protein ratio 0.7

Answer:Pleural fluid protein:serum protein ratio 0.7

Explanation:

If a pleural effusion fluid protein/serum protein ratio is >0.5, the effusion is an exudate

Important for meLess important

The correct answer is pleural fluid protein:serum protein ratio 0.7.

Pleural fluid protein:serum protein ratio 0.7 - this is the correct answer because it is the only option that indicates an exudative effusion according to Light's criteria. This woman has presented with a pleural effusion, evidenced by dyspnoea, pleuritic chest pain, dullness on percussion and the chest x-ray findings confirming the diagnosis. To answer the question, you need to first establish whether the effusion is more likely transudative or exudative. A transudative effusion means it is low in protein (<30g/L), whereas an exudative effusion is high in protein (>30g/L).

Causes of transudative pleural effusion include heart failure, hypoalbuminaemia (e.g. liver disease, nephrotic syndrome) and Meigs syndrome. Causes of exudative pleural effusion include infection (e.g. pneumonia, tuberculosis), lung cancer or metastases, and connective tissue diseases (e.g. rheumatoid arthritis, systemic lupus erythematosus). This woman has breast cancer which has metastasised to the lung, so this history suggests that she has an exudative pleural effusion.

This question relies on your knowledge of Light's criteria, which help clinicians establish whether the effusion is exudative based on pleural fluid analysis and its comparison to serum blood results. Essentially, the amount of protein and LDH in the blood is compared to the amount of protein and LDH in the pleural fluid. Light's criteria indicate that an exudative cause is likely if pleural fluid protein:serum protein ratio >0.5 OR pleural fluid LDH:serum LDH >0.6. Therefore, a pleural fluid protein:serum protein ratio of 0.7 is the only answer that can be correct as it is the only option that fulfils these criteria.

Pleural fluid LDH:serum LDH ratio 0.2 - this is an incorrect answer because the pleural LDH:serum LDH ratio is less than 0.6, whereas, according to Light's criteria, the ratio must be more than 0.6 for an exudative cause to be likely, as is the case in this woman.

Pleural fluid lactate dehydrogenase (LDH):serum LDH ratio 0.5 - this is an incorrect answer because the pleural LDH:serum LDH ratio is less than 0.6, whereas, according to Light's criteria, the ratio must be more than 0.6 for an exudative cause to be likely, as is the case in this woman.

Pleural fluid protein:serum protein ratio 0.3 - this is an incorrect answer because the pleural protein:serum protein ratio is less than 0.5, whereas, according to Light's criteria, the ratio must be more than 0.5 for an exudative cause to be likely, as is the case in this woman.

Pleural fluid protein:serum protein ratio 0.4 - this is an incorrect answer because the pleural protein: serum protein ratio is less than 0.5, whereas, according to Light's criteria, the ratio must be more than 0.5 for an exudative cause to be likely, as is the case in this woman.

Question:

A 34-year-old woman comes to see you in clinic in the third trimester as her foetus is large for gestational age. She has pre-existing type 2 diabetes and usually takes medication to control her blood glucose. She would like some advice about which medication she can take when she breastfeeds.

Which of the following is safe to continue?

A.Gliclazide

B.Metformin

C.Exenatide

D.Liraglutide

E.Sitagliptin

Answer:Metformin

Explanation:

Sulfonylureas (gliclazide) should be avoided when breastfeeding due to the theoretical risk of neonatal hypoglycaemia.

Exenatide, liraglutide, and sitagliptin should be avoided when breastfeeding.

Metformin is safe to use when breastfeeding.

Question:

A 6-year-old boy presents to the emergency department with his father with a persistent painful penile erection lasting 5 hours. According to his father, the boy has a history of sickle cell disease.

Which initial action is most appropriate?

A.Ask boy’s father about any history of sexual abuse

B.Inform child protection services

C.Perform cavernosal blood gas analysis

D.Perform arterial blood gas analysis

E.Perform urinalysis

Answer:Perform cavernosal blood gas analysis

Explanation:

Cavernosal blood gas analysis is a useful investigation for priapism

Important for meLess important

This boy presented with priapism which is a persistent penile erection not associated with sexual stimulation. Typically, presents in patients aged 5-10 years or 20-50 years of age. Cavernosal blood gas analysis is essential to differentiate between ischaemic and non-ischaemic priapism which would guide further management.

Priapism is not associated with sexual stimulation and should be considered as a medical emergency unless proven otherwise. Therefore, the involvement of child protection services would be highly inappropriate if there were no other signs suggestive of sexual abuse.

There is no indication for arterial blood gas analysis or urinalysis and therefore these investigations would be inappropriate in this case.

Ischaemic priapism is a medical emergency and lack of treatment can lead to permanent tissue changes. Therefore, certain investigations need to be performed and treatment cannot be delayed. This is a very important learning concept for an FY1 because it is common in some ethnic groups and can cause serious complications.

Question:

A 51-year-old female presents to a GP with hot flushes, irritability & a 7 month history of lighter periods. She has also noticed that they have become more irregular. The GP decides she is perimenopausal. Because she has not had a total abdominal hysterectomy, she is started on sequential combined HRT - Elleste duet tablets (estradiol + norethisterone). The GP discusses the risks.

Which of the following is most important to mention as a risk for the norethisterone component?

A.Increased risk of breast cancer

B.Increased risk of cardiovascular disease

C.Increased risk of endometrial carcinoma

D.Increased risk of headaches

E.Risk of developing acne

Answer:Increased risk of breast cancer

Explanation:

HRT: adding a progestogen increases the risk of breast cancer

Important for meLess important

The correct answer is increased breast cancer risk.

This is correct and important to mention. The risk is, however, very minimal and it’s important to stress this to patients. The Women Health Institute suggests that if 1000 women on HRT for 5 years were compared to 1000 women not on HRT for 5 years, there would only be 4 more cases of breast cancer.

Increased risk of cardiovascular disease - women started on HRT under the age of 60 are at no increased risk of dying from cardiovascular disease.

Increased risk of endometrial cancer - in this question, the GP is explaining the risk of norethisterone, a progesterone. Progesterone in this case reduces the risk of endometrial carcinoma. Women with uterus’ are thus always started on combined HRT (to protect against endometrial). Women without a uterus are started on unopposed oestrogen (no progesterone) as there is no uterus to protect.

Increased risk of headaches - this is true and should be mentioned but is less important to mention when compared to breast cancer.

Risk of developing acne - true but again, not as important to mention as the increased risk of breast cancer.

Question:

A 29-year-old woman is seen on the neurology ward round. She presented to the emergency department 15 days ago with acute-onset, progressive proximal weakness, associated with a triad of ophthalmoplegia, areflexia and ataxia. She has no past medical history of note. Nerve conduction studies have since been performed, which show decreased nerve conduction velocity.

Which of the following is the most likely diagnosis?

A.Guillian-Barre syndrome (Miller Fischer variant)

B.Lambert-Eaton syndrome

C.Motor neurone disease (Primary lateral sclerosis variant)

D.Motor neurone disease (Progressive bulbar palsy variant)

E.Myasthenia gravis

Answer:Guillian-Barre syndrome (Miller Fischer variant)

Explanation:

In Guillain-Barre syndrome there is decreased motor nerve conduction velocity on nerve condution studies secondary to demyelination

Important for meLess important

The correct answer is Guillian-Barre syndrome (Miller Fischer variant). The condition is characterised by autoimmune-mediated demyelination of the peripheral nervous system, which may be triggered by a recent infection (especially Campylobacter jejuni). The Miller Fischer variant of Guillian-Barre syndrome classically presents with progressive proximal weakness and a triad of ophthalmoplegia, areflexia and ataxia. This diagnosis is confirmed by nerve conduction studies, which show decreased conduction velocity secondary to demyelination.

Lambert-Eaton syndrome is incorrect. This is a paraneoplastic syndrome, associated with small cell lung cancer. The condition is similar to myasthenia gravis and commonly presents with proximal muscle weakness, extra-ocular weakness, ptosis and dysphagia. This answer is therefore inappropriate as the patient has no past medical history of cancer and their symptoms are not suggestive of Lambert-Eaton syndrome. Furthermore, nerve conduction studies are usually normal in Lambert-Eaton syndrome, which is not the case for this patient.

Motor neurone disease (Primary lateral sclerosis variant) is incorrect. Unlike what is seen in this patient, primary lateral sclerosis variant of motor neurone disease usually presents with a gradual-onset of asymmetrical, progressive lower-limb spasticity.

Motor neurone disease (Progressive bulbar palsy variant) is incorrect. While conduction studies may show decreased motor nerve conduction velocity, the clinical presentation of this patient is not suggestive of progressive bulbar palsy, because the condition is likely to present with gradual-onset weakness of facial muscles, associated with dysphagia and progressive loss of speech. Fasciculations may commonly be seen in the patient's tongue.

Myasthenia gravis is incorrect because the clinical presentation of this patient is not suggestive of the condition. Myasthenia gravis commonly presents with proximal muscle weakness, extra-ocular weakness, ptosis and dysphagia, all of which worsen with repeated muscle contractions. Furthermore, nerve conduction studies are usually normal in Lambert-Eaton syndrome, which is not the case for this patient.

Question:

A 62-year-old man who is investigated for haemoptysis is found to have squamous cell lung cancer. Which one of the following is a contraindication to surgery?

A.Continued smoking

B.Superior vena caval obstruction

C.Haemoptysis

D.Hypercalcaemia

E.Enlarged mediastinal lymph nodes

Answer:Superior vena caval obstruction

Explanation:

Contraindications to lung cancer surgery include SVC obstruction, FEV < 1.5, MALIGNANT pleural effusion, and vocal cord paralysis

Important for meLess important

Question:

A 61-year-old man presents with a two-months history of palpitation. He describes the sensation of his heart skipping a beat regularly but is otherwise well in himself with no reports of dizziness, orthopnoea, shortness of breath, chest pain or collapse.

On examination, his chest is clear with an oxygen saturation of 97%. His heart sound is normal. There is no sign of peripheral oedema. His blood pressure is 122/60mmHg and his ECG shows irregularly irregular rhythm with the absence of P waves and a heart rate of 84/min.

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

A.Assessment using ORBIT bleeding risk tool and CHA2DS2-VASc tool

B.Commence on apixaban and bisoprolol

C.Referral for 24-hours ECG and commence on apixaban and bisoprolol

D.Referral for an echocardiogram and commence on apixaban and bisoprolol

E.Urgent referral to the hospital

Answer:Assessment using ORBIT bleeding risk tool and CHA2DS2-VASc tool

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 correct answer is assessment using ORBIT bleeding risk tool and CHA2DS2-VASc tool. This patient has atrial fibrillation. The current NICE CKS guidance advises assessing stroke risk using CHA2DS2-VASc and bleeding risk using the ORBIT bleeding risk tool for patients with atrial fibrillation managed in primary care. This must be done in all patients with atrial fibrillation to determine the need for anticoagulation. Therefore, commence on apixaban and bisoprolol is not the correct answer.

The examination and ECG findings indicate atrial fibrillation which explains his symptom. There is no indication of a 24-hour ECG. Therefore referral for 24-hour ECG and commence on apixaban and bisoprolol is not required.

This patient has no signs or symptoms of heart failure, and there was no evidence of valvular heart disease on examination. Therefore, referral for an echocardiogram and commencing on apixaban and bisoprolol is not the appropriate option.

This patient is haemodynamically stable. Urgent referral to the hospital is not required.

Question:

A 24-year-old female presents with facial weakness, fever and painful red eyes. On examination you note a left sided facial palsy and tender swelling of the parotid glands. Laboratory results reveal a calcium level of 2.82 mmol/L.

What is the most likely diagnosis?

A.Mumps

B.Wegener's granulomatosis

C.Cat scratch disease

D.Sarcoidosis

E.Sjogren's syndrome

Answer:Sarcoidosis

Explanation:

Sarcoidosis is a multi-system disease involving abnormal collections of inflammatory cells known as granulomas. Sarcoidosis can cause facial palsies, parotid enlargement, hypercalcaemia and ocular problems, as seen in this case.

Question:

A 71-year-old woman with heart failure attends a review appointment. She has been feeling progressively more breathless since having a myocardial infarction seven months ago. The dyspnoea is now present during even minimal exertion, but not at rest. She is currently taking furosemide 40mg daily, ramipril 10mg daily and bisoprolol 10mg daily.

Observations:

Pulse: 88 bpm

BP: 128/86 mmHg

Respiratory rate: 18/min

Oxygen saturations: 96% on room air

Temperature: 37.1ºC

Na+ 140 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Bicarbonate 23 mmol/L (22 - 29)

Urea 5.0 mmol/L (2.0 - 7.0)

Creatinine 102 µmol/L (55 - 120)

An echocardiogram from six months ago reports that her ejection fraction is 30%.

What is the most appropriate medication to add to her management?

A.Digoxin

B.Losartan

C.Nifedipine

D.Spironolactone

E.Verapamil

Answer:Spironolactone

Explanation:

Offer a mineralcorticoid receptor antagonist, in addition to an ACE inhibitor (or ARB) and beta-blocker, to people who have heart failure with reduced ejection fraction if they continue to have symptoms of heart failure

Important for meLess important

This patient is having persistent and progressive symptoms of heart failure despite being on first-line medications. As such, she should be started on a mineralocorticoid receptor antagonist such as spironolactone, which is the next add-on therapy in heart failure with reduced ejection fraction. This reduces mortality and morbidity in patients with heart failure with reduced ejection fraction following myocardial infarction. One contraindication to spironolactone is hyperkalaemia, but this patient has a normal potassium level.

Digoxin is incorrect as this is reserved as a third-line management strategy for heart failure. If she continues to have persistent symptoms despite the addition of spironolactone, a specialist may consider starting digoxin, but this is not necessary yet.

Losartan is an angiotensin receptor blocker and therefore acts on the same pathway as ramipril, an ACE inhibitor. It would not be appropriate to prescribe both at the same time. Losartan might be used if ramipril was not tolerated by the patient.

Nifedipine is a dihydropyridine calcium channel blocker and is primarily used in the management of hypertension and angina. NICE recommend avoiding nifedipine in heart failure with reduced ejection fraction as it reduces cardiac contractility and therefore could worsen the ejection fraction.

Verapamil is a rate-limiting non-dihydropyridine calcium channel blocker and is primarily used in the management of angina. NICE recommend avoiding verapamil in heart failure with reduced ejection fraction as it reduces cardiac contractility and therefore could worsen the ejection fraction. Furthermore, verapamil should not be prescribed with beta blockers as this can precipitate severe bradycardia and hypotension.

Question:

A 48-year-old woman presents with progressively worsening pain in the right shoulder over the past few weeks. She is generally fit and well but smokes 20 cigarettes/day.

On examination there is diffuse mild tenderness over the lateral aspect of the right shoulder. The pain is recreated when abducting the shoulder to around 70-80 degrees.

A shoulder x-ray is requested:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Pancoast tumour

B.Supraspinatus tendonitis

C.Adhesive capsulitis

D.Humeral head fracture

E.Avascular necrosis

Answer:Supraspinatus tendonitis

Explanation:

The x-ray shows calcification of the supraspinatus tendon consistent with prolonged inflammation. On examination the patient exhibits the classical 'painful arc' associated with this condition.

Question:

You are an F2 working on the cardiology ward. One of the nurses come up to you to let you know that your recent warfarin prescription for Mrs Sanchez is wrong. Mrs Sanchez had been about to take her medicine when the nurse noticed and intervened. What is the most appropriate course of action?

A.Prescribe the correct dose, and then apologise to Mrs Sanchez for your mistake

B.Thank the nurse and ask her not to let anyone know about your mistake

C.Prescribe the correct dose, but don't apologise, as Mrs Sanchez was unharmed

D.Prescribe the correct dose but blame your colleague

E.Prescribe the correct dose, but reprimand the nurse for not checking with you first before intervening

Answer:Prescribe the correct dose, and then apologise to Mrs Sanchez for your mistake

Explanation:

This question deals with openness and honesty. The correct answer is option 1 because the GMC guidelines state that 'When you realise that something has gone wrong, and after doing what you can to put matters right, you or someone from the healthcare team must speak to the patient.' You should then apologise to the patient.

The other options do not include this two step process, but also may have aspects of blame, lying, deceit or unfair treatment of staff members, which reduces team morale and does not help the situation.

Asking the nurse to hide your mistake is deceitful, does not fit in with GMC guidelines, and is incorrect.

Prescribing the correct dose, but not apologising is incorrect according to the above GMC guidelines.

Prescribing the correct dose, but blaming your colleague is incorrect as it does not help the patient in any way, is unfair treatment of staff members, and devoid of an apology to the patient.

Prescribing the correct dose and reprimanding the nurse is incorrect as it also is unfair treatment of staff as well as devoid of an apology to the patient.

Reference: http://www.gmc-uk.org/guidance/ethicalguidance/27243.asp

Question:

A 29-year-old nulliparous female presents to gynaecology clinic with a history of worsening menstrual pain for three years. There is no relief from ibuprofen. She is sexually active with her husband and reports pain during intercourse. Dysuria and urgency in urination are also present. She has been trying to conceive for the past two years, but failed. On examination, her uterus is of normal size. Rectovaginal exam reveals uterosacral nodularity and tenderness.

Which of the following is the most likely diagnosis?

A.Endometriosis

B.Fibroid

C.Interstitial cystitis

D.Pelvic inflammatory disease

E.Uterine myoma

Answer:Endometriosis

Explanation:

The classic symptoms of endometriosis are pelvic pain, dysmenorrhoea, dyspareunia and subfertility

Important for meLess important

This patient has history of menstrual pain (dysmenorrhoea), pain during intercourse (dyspareunia), and subfertility (tried to conceive, but failed). These are classic symptoms of endometriosis. Uterosacral nodularity and tenderness further supports the diagnosis. Endometriosis is a common condition characterised by the growth of ectopic endometrial tissue outside of the uterine cavity. Some patients may also have urinary symptoms due to bladder involvement or adhesions, as seen in this patient.

Uterine leiomyoma (fibroid) is the common pelvic tumor in women. It causes abnormal uterine bleeding, pelvic pressure and pain, and reproductive dysfunction. On examination, there is an enlarged, mobile uterus. Uterosacral nodularity and tenderness on rectal examination is not seen in leiomyoma.

Interstitial cystitis causes urinary frequency and urgency. Patients typically complain of pain with a full bladder that is relieved upon voiding.

The pelvic inflammatory disease presents with fever, nausea, acute pain along with malodorous vaginal discharge, and cervical motion tenderness/adnexal tenderness.

Uterine myoma often presents with heavy and/or irregular menstrual bleeding. A pelvic exam may show an enlarged, nodular pelvic mass that can vary in size and shape.

Question:

A 47-year-old man attends the urgent treatment centre because he has noticed that there is a small insect that looks like a tick attached to his calf. He has been walking in local woodland this morning. There is no sign of erythema or infection in the skin surrounding the tick.

What would be the most appropriate management for this patient?

A.Irrigate the calf with a saline solution to 'soak' the tick off

B.Remove the tick using fine-tipped tweezers and then treat him with a course of oral antibiotics

C.Remove the tick using fine-tipped tweezers by squeezing the body of the tick and pulling gently upwards

D.Remove the tick using fine-tipped tweezers, grasping the tick firmly by the head as close to the skin as possible and pulling firmly upwards

E.Use a fine-toothed comb to remove the tick

Answer:Remove the tick using fine-tipped tweezers, grasping the tick firmly by the head as close to the skin as possible and pulling firmly upwards

Explanation:

The best way to remove a tick is using fine-tipped tweezers, grasping the tick as close to the skin as possible and pulling upwards firmly

Important for meLess important

The best way to remove a tick is by using fine-tipped tweezers, grasping the tick as close to the skin as possible and pulling upwards firmly. This action is intended to keep the head and body of the tick intact and prevent the body from detaching. This might result in mouthparts of the tick being left in the skin which may cause a local infection. Once the tick is removed, antiseptic should be applied to the bite area, or the area should be washed with soap and water. The patient should be advised to watch out for any changes for several weeks.

The body of the tick should not be grasped or removed with a fine-toothed comb because it can lead to the head detaching and remaining in the skin.

Likewise, trying to 'soak' off the tick by irrigating the area with a saline solution might lead to partial removal of the tick.

NICE guidance does not recommend the use of prophylactic antibiotics to prevent Lyme disease in patients with tick bites.

Question:

An 83-year-old female with a history of dementia presented to the emergency department with a suspected hip fracture. She received an x-ray, which diagnosed a subcapital fracture of the femur with partial displacement. What is the most likely surgical treatment option for this type of fracture?

A.Dynamic hip screw

B.Hemiarthroplasty

C.Kirschner wires

D.Intramedullary nail

E.Conservative management

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

A subcapital fracture is the commonest type of intracapsular fracture of the proximal femur.

The intertrochanteric line is the line connecting the greater and lesser trochanters. Any fracture proximal to that line is classed as intracapsular, while any fracture distal is classed as extracapsular.

Since the blood supply is threatened in intracapsular fractures, as a general rule:

Intracapsular femoral fracture - hemiarthroplasty

extracapsular femoral fracture - dynamic hip screw

Radiologymasterclass is a great revision tool and explains hip fractures here - http://www.radiologymasterclass.co.uk/tutorials/musculoskeletal/x-raytraumalowerlimb/hipfracturex-ray

Question:

A 25-year-old man presents to the GP with a 3-week history of an itchy and scaly rash over his chest and back. He denies any other symptoms, however, has recently recovered from a viral upper respiratory tract infection. The patient has no other past medical history and is a keen athlete.

On examination, the following rash is seen:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Guttate psoriasis

B.Pityriasis lichenoides

C.Pityriasis rosea

D.Pityriasis versicolor

E.Tinea corporis

Answer:Pityriasis rosea

Explanation:

Pityriasis rosea is correct. The image shows multiple erythematous oval-shaped patches on the patient's back which have emerged over the last 3 weeks. This pattern seen in the image is known as a centrifugal spread, where the rash spreads down from the neck to the upper extremities, then the trunk, and then the lower extremities. The lesions also roughly follow the lines of skin tension (lines of Langer), which suggests a diagnosis of pityriasis rosea. This patient's recent viral infection is also a risk factor for its development, however, preceding viral illness is not always seen and in some patients, there may be no obvious prodrome. Some patients may report a 'herald patch' which describes an itchy scaly patch that precedes the development of the other lesions, however, not all patients notice them.

Guttate psoriasis is incorrect. This tends to follow a sore throat due to an infection with Streptococcus species. This patient had a preceding viral upper respiratory tract infection, which is not associated with guttate psoriasis. Guttate psoriasis is characterised by tear-drop scaly papules on the trunk and limbs and tends to occur acutely over the span of a few days, which is not seen here.

Pityriasis lichenoides is incorrect as this is characterised by flat papules (raised lesions) with fine scale occurring over months, not weeks as in this patient.

Pityriasis versicolor is incorrect as this is characterised by hypo- to hyperpigmented macules and patches over the chest and back. The image here does not show variations in pigmentation as all the lesions are erythematous and of the same colour.

Tinea corporis is incorrect. Although athletes may be at an increased risk of developing Tinea corporis due to close contact with other affected individuals and sharing towels, there are typically fewer lesions present. The lesions tend to appear as well-defined annular (ring-shaped) erythematous lesions with pustules and papules, which is not the case here.

Question:

A 25-year-old woman presents to her GP with chronic shortness of breath. She occasionally coughs up small quantities of blood and small quantities of clear sputum. She has no chest pain and denies feeling feverish.

On examination, her heart rate is 70/min, respiratory rate 20/min, sats 93%, blood pressure 120/80mmHg and temperature 36.8ºC. There are a number of very small telangiectases on the lips. Chest expansion is equal, percussion and auscultation are normal.

Which of the following symptoms is she most likely to have experienced?

A.Wheeze

B.Epistaxis

C.Leg weakness

D.Frequent chest infections

E.Weight loss

Answer:Epistaxis

Explanation:

Hereditary haemorrhagic telangiectasia: can cause pulmonary, hepatic, cerebral and spinal AVMs

Important for meLess important

The giveaway in this question is the presence of multiple lip telangiectases. This is typical of hereditary haemorrhagic telangiectasia (HHT) and over 90% of patients with HHT experience epistaxis (nosebleeds). It is important to be aware of this condition as it is a favourite of finals examinations.

In this particular scenario, the patient has a lung arteriovenous malformation (AVM) causing the haemoptysis and dyspnoea. Many patients with lung AVMs are asymptomatic but large AVMs may cause cyanosis and clubbing. The AVM acts as a bypass to the normal pulmonary circulation and so clots which would otherwise be sieved out can progress to the left-sided circulation leading to an increased risk of stroke.

Other options:

1) Wheeze: this might be expected in an asthmatic patient which is a reasonable differential for shortness of breath in a young patient. However, haemoptysis does not fit with this

2) Leg weakness: HHT can cause spinal AVMs although these are very unusual. If there where a spinal AVM then it could cause leg weakness

3) Frequent chest infections: this might prompt the consideration of cystic fibrosis, However, there is only small volume clear sputum production. One might also expect some findings on chest examination

4) Weight loss: this non-specific symptom is not a feature of HHT. Its presence could prompt consideration of lymphoma given the age of the patient

Question:

A 27-year-old woman presents to the GP with lethargy and tiredness since moving out of her parents home 1 year ago. She also complains of aches and pains in her joints as well as easy bruising. She mentions that she has an appointment arranged with the dentist the next day for some bleeding from her gums. After further questioning, she is found to smoke 5 cigarettes per day and drink 1 bottle of wine per week.

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

A.Alcohol induced liver disease

B.Haemophilia B

C.Haemophilia A

D.Vitamin C deficiency

E.Acute lymphoblastic leukaemia

Answer:Vitamin C deficiency

Explanation:

Bleeding gums, think scurvy

Important for meLess important

This question is asking about a woman presenting with lethargy, arthralgia, easy bruising and bleeding gums. While there are many differentials for this presentation it is quite classic of a vitamin C deficiency (also known as scurvy). Scurvy is more common in people from low-income backgrounds, the elderly, alcoholics or those with a poor diet (as indicated in this case with the patient recently moving away from home). Bleeding gums is a characteristic symptom.

Alcohol-induced liver disease could also cause a patient to be lethargic and have clotting problems. However, in this case, drinking one bottle of wine per week would not be a significant enough drinking history to suggest this diagnosis, especially at age 27.

Haemophilia A is a congenital deficiency in clotting factor 8. It typically presents in childhood with bleeding into joints.

Haemophilia B is another congenital deficiency in clotting 9. While this typically presents with mucosal bleeding, it is again more common to occur in infancy.

Acute lymphoblastic leukemia could also explain most of this ladies symptoms. However, the onset is longer than would be expected for acute lymphoblastic leukemia. In acute lymphoblastic leukemia patients typically progress over a period of days or weeks, not 1 year like in this case. As with the other conditions, acute lymphoblastic leukemia commonly affects children.

Question:

A 34-year-old woman presents with a 3 month history of double vision. On examination the right eye fails to adduct and the left eye develops coarse nystagmus in abduction.

What is the most likely diagnosis?

A.Right cranial nerve III palsy

B.Left cranial nerve VI palsy

C.Left cranial nerve III palsy

D.Internuclear ophthalmoplegia

E.Supranuclear palsy

Answer:Internuclear ophthalmoplegia

Explanation:

Internuclear ophthalmoplegia (INO) occurs due to a lesion of the medial longitudinal fasciculus (MLF), a tract that allows conjugate eye movement. This results in impairment of adduction of the ipsilateral eye. The contralateral eye abducts, however with nystagmus.

Question:

A 64-year-old woman presents to the Emergency Department with several facial lesions. The lesions suddenly appeared 48 hours ago and are tender to touch. Last week she had an episode of burning pain over her forehead.

On examination, she is apyrexial. She has tenderness over the right side of her forehead. Several vesicles of around 4-6mm are noted on the right side. Hutchinson's sign is positive.

What feature of her presentation warrants an urgent ophthalmological assessment?

A.Lesions above the eyebrow

B.Lesions on the tip of the nose

C.Lesions on the top eyelid

D.Pain over the affected area

E.Tender lesions

Answer:Lesions on the tip of the nose

Explanation:

Hutchinson's sign: vesicles extending to the tip of the nose. This is strongly associated with ocular involvement in shingles

Important for meLess important

This patient has herpes zoster ophthalmicus, which is caused by the reactivation of herpes zoster affecting the ophthalmic branch of the trigeminal nerve. Lesions on the tip of the nose are typical of ocular involvement, also known as Hutchinson's sign, and warrant urgent ophthalmological review. Management would involve urgent review by ophthalmology and oral antivirals. Topical steroids can be given if there is secondary inflammation of the eye.

Lesions above the eyebrow can occur if the ophthalmic branch of the trigeminal nerve is implicated, but has no association with ocular involvement.

Pain over the affected area is a common symptom preceding the eruption of the vesicles. This is not indicative of ocular involvement.

Lesions on the top eyelid can occur if the ophthalmic branch of the trigeminal nerve is implicated.

Tender lesions are common with this condition and are not specific to ocular involvement.

Question:

Which one of the following features is not part of the modified Duke criteria used in the diagnosis of infective endocarditis?

A.Prolonged PR interval

B.Positive serology for Coxiella burnetii

C.Fever > 38ºC

D.Roth spots

E.Positive microbiology from embolic fragments

Answer:Prolonged PR interval

Explanation:

A prolonged PR interval is part of the diagnostic criteria of rheumatic fever. The modified Duke criteria have now been adopted in the latest guidelines from the European Society of Cardiology. Details can be found in the link below

Question:

A 20-year-old woman attends the emergency department with right-sided back pain and dysuria which has been present for the last two days. The pain is severe and constant and radiates around from her renal angle to her groin.

On examination her temperature is 38.1ºC, her heart rate is 101 bpm, her blood pressure is 139/91 mmHg and she has a ballotable mass on the right side of her abdomen with a tender renal angle.

Which of the following investigations is most appropriate to investigate her abdominal mass?

A.Urine dip

B.Plain abdominal x-ray

C.Intravenous urogram

D.CT abdomen and pelvis with contrast

E.Ultrasound of the renal tract

Answer:Ultrasound of the renal tract

Explanation:

Ultrasound is the best diagnostic investigation for hydronephrosis

Important for meLess important

Given the history, the likely diagnosis here is a ureteric stone causing obstruction of the right kidney and leading to hydronephrosis. This would be present as a ballotable mass on examination. The best investigation in the first instance would be an ultrasound of the renal tract as although it cannot directly show a stone, it is the best way to show if the renal tract is obstructed in any way. The first-line treatment for this would be a nephrostomy in the first instance, which again would be ultrasound guided, before doing further investigations. It is also always good practice to avoid irradiating a patient if possible, especially in those under 20 or women of child bearing age.

If a diagnosis of hydronephrosis is made, and a nephrostomy is performed to treat this, then you would consider performing investigations to look for the cause of her obstruction. This would be a CT abdomen and pelvis without contrast. Contrast agents are water soluble and therefore get filtered into the urine and opacify the contents of the ureters. As stones appear the same density as contrast agent it makes them effectively invisible to the scan and so a CT with contrast in this situation would be of no more help than an ultrasound in making a diagnosis. The same rules are true for an intravenous urogram although it is of even less help as unlike a CT or ultrasound, it does not provide 3-dimensional images and so does not allow a good assessment of the kidneys. Although it is sometimes possible to see stones on an abdominal plain film, it would provide no information about the kidneys and therefore is pointless in the first instance. A urine dip is helpful as if blood is seen it could suggest stone pathology, but it certainly would not help in telling you the cause of the ballotable mass.

Question:

Idiopathic thrombocytopenic purpura (ITP) is a condition characterised by autoimmune destruction of platelets.

What type of hypersensitivity is this defined as?

A.Type 1

B.Type 2

C.Type 3

D.Type 4

E.Type 5

Answer:Type 2

Explanation:

Type II hypersensitivity reaction - ITP

Important for meLess important

Hypersensitivity type 2 is antibody-mediated. Defective B cells produce IgM or IgG antibodies that directly attack host antigens. In idiopathic thrombocytopenic purpura, these antibodies attack platelets causing thrombocytopenia.

Question:

A 30-year-old man comes to surgery. He has been handed a slip from an ex-girlfriend stating she has tested positive for Chlamydia. He last slept with her 2 months ago. He has no symptoms of note, in particular no dysuria or discharge. What is the most appropriate management?

A.Reassure symptoms would have presented by now

B.Offer antibiotic therapy

C.Offer Chlamydia testing and antibiotic treatment immediately without waiting for the results

D.Offer Chlamydia testing and antibiotic treatment if positive

E.Notify public health

Answer:Offer Chlamydia testing and antibiotic treatment immediately without waiting for the results

Explanation:

Treatment is given on the basis of exposure to infection rather than proven infection

Question:

A 19-year-old man is started on isotretinoin for severe nodulo-cystic acne. Which one of the following side-effects is most likely to occur?

A.Low mood

B.Thrombocytopaenia

C.Raised plasma triglycerides

D.Reversible alopecia

E.Dry skin

Answer:Dry skin

Explanation:

Dry skin is the most common side-effect of isotretinoin

Important for meLess important

Question:

A 34-year-old man is reviewed four years after having an orchidectomy for a testicular teratoma. What are the most useful follow-up investigation(s) to detect disease recurrence?

A.CRP + beta-HCG

B.Testosterone + beta-HCG

C.ESR + alpha-fetoprotein

D.Alpha-fetoprotein + beta-HCG

E.LDH + ESR

Answer:Alpha-fetoprotein + beta-HCG

Explanation:

Question:

A 34 weeks pregnant woman, who is G2 P0, presents to the emergency department with vaginal bleeding. She had suffered from severe nausea and vomiting earlier in the pregnancy which has now resolved. She has no abdominal pain, no vaginal discharge, no headache, and no pruritus. On abdominal examination, purple striae were noted on the abdomen as well as a dark line running vertically down the middle of the abdomen. A transverse lie is noticed and there is no fetal engagement. The symphyseal-fundal height is 35cm.

What is the best gold standard investigation to do?

A.Cardiotocography

B.Digital vaginal examination

C.Hysteroscopy

D.Pelvic ultrasound

E.Transvaginal ultrasound scan

Answer:Transvaginal ultrasound scan

Explanation:

In suspected placenta praevia, digital vaginal examination should not be performed before an ultrasound as it may provoke a severe haemorrhage

Important for meLess important

Transvaginal ultrasound scan - this is the gold standard investigation to diagnose placenta praevia and determine the position of the placenta. The position of the placenta can affect the management. The purple lesions noted on the abdomen are the striae gravidarum and the dark line running vertically down the middle of the abdomen is the linea nigra.

Cardiotocography - although this is important as it will show any fetal distress, it does not diagnose placenta praevia.

Digital vaginal examination - a digital vaginal examination should be avoided in placenta praevia.

Hysteroscopy - this can be used to investigate causes of vaginal bleeding, such as endometrial cancer and uterine fibroids. It is not used in pregnant women.

Pelvic ultrasound - although this can be used to diagnose placenta praevia, a transvaginal ultrasound is more accurate and is the gold standard investigation for diagnosis.

Question:

A 14-year-old boy presents with vague, aching right knee pain and swelling worsened by his regular skating sessions. The boy also reports locking of the right knee joint and he can feel a painful 'clunk' when flexing or extending the right knee. Examination of the knee joint shows a mild effusion and a palpable loose body. In addition, pain can be elicited on palpating the femoral condyles when the knee is in flexion.

Which of the following best describes this condition?

A.Baker's cyst

B.Osgood-Schlatter disease

C.Osteoarthritis

D.Osteochondritis dissecans

E.Patellar tendonitis

Answer:Osteochondritis dissecans

Explanation:

Osteochondritis dissecans typically presents with knee pain after exercise, locking and 'clunking'

Important for meLess important

This boy has osteochondritis dissecans. It most commonly affects the knee joint. Overuse of joints due to sporting activity is one of the major risk factors for developing this condition. It may lead to secondary effects on joint cartilage, such as pain, oedema, possible formation of free bodies and mechanical symptoms, including joint locking.

Baker's cyst is incorrect. It may present with popliteal swelling, posterior knee aching or stiffness. Rarely, acute rupture or dissection may present with pain and calf swelling. The pain can get worse on full extension or flexion of the knees.

Osgood-Schlatter disease may cause similar symptoms in children and adolescents but the pain is usually localized to the tendinous insertion with overlying tibial tuberosity tenderness and swelling.

Osteoarthritis is incorrect because it is age-related, with manifestations often not occurring until middle age. It usually presents with activity-related, persistent pain and stiffness in the morning or after inactivity lasting 30 minutes or less.

Patellar tendonitis is a wrong diagnosis because it presents with anterior knee pain, usually present for several months and aggravated by running, walking downstairs, and jumping. However, it occurs most commonly in teenage boys, during a growth spurt.

Question:

A 35-year-old man attends his GP for a depression review. He was prescribed fluoxetine 3 months ago for an episode of moderate depression. He describes that over the past few weeks his mood has been ‘good’, that he no longer feels hopeless about the future, and that he has started to enjoy his hobbies of golf and painting again.

The patient expresses a preference to stop taking fluoxetine as he feels his depression has resolved.

What should be recommended?

A.Continue fluoxetine for at least 6 months

B.Continue fluoxetine for at least a year

C.Stop fluoxetine

D.Taper the fluoxetine dose over the course of 4 weeks and then stop

E.Taper the fluoxetine dose over the course of 8 weeks and then stop

Answer:Continue fluoxetine for at least 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

Continue fluoxetine for at least 6 months is the correct response. The BNF recommends that, following remission, antidepressant treatment should be continued at the same dose for at least 6 months (12 months in the elderly and 2 years in those with a history of recurrent depression) in order to reduce the risk of relapse.

Continue fluoxetine for at least a year is incorrect. This would be appropriate if the patient were elderly.

Stop fluoxetine is incorrect. Treatment should be continued for at least 6 months before stopping.

Taper the fluoxetine dose over the course of 2 weeks and then stop is incorrect. Treatment should be continued for 6 months before stopping, to reduce the risk of relapse. Additionally, when fluoxetine is stopped NICE recommends tapering over the course of 6-12 weeks (with the dose titrated against the development of withdrawal symptoms).

Taper the fluoxetine dose over the course of 8 weeks and then stop is incorrect. Treatment should be continued for 6 months before stopping, to reduce the risk of relapse.

Question:

You are conducting the annual review of a 44-year-old woman who has type 1 diabetes mellitus. You want to assess for diabetic neuropathy affecting the feet.

What is the most appropriate screening test to use?

A.A standardised questionnaire

B.Doppler flow studies of the dorsalis pedis pulse

C.Nerve conduction studies

D.Test sensation using cotton wool

E.Test sensation using a 10 g monofilament

Answer:Test sensation using a 10 g monofilament

Explanation:

A 10 g monofilament should be used to assess for diabetic neuropathy in the feet

Important for meLess important

Question:

A 75-year-old man has recently been referred by his GP for further investigations after having persistent cough, haemoptysis and weight loss for the past 6 months. He had rarely consulted his GP in the past except for occasional minor injuries and benign skin lesions. He has a 40-pack-year smoking history.

On examination, he is noted to be hypertensive with a blood pressure of 165/100 mmHg. He also has significant proximal myopathy in his quadriceps. Blood tests reveal the following:

Na+ 138 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

HbA1c 64 mmol/mol (<42)

A chest x-ray reveals a suspicious mass in his right lung.

What is the most likely underlying pathology?

A.Cortisol hypersecretion from adrenal metastases

B.Ectopic ACTH secretion from small cell lung cancer

C.Ectopic ACTH secretion from squamous cell lung cancer

D.Pancreatic endocrine insufficiency due to metastases

E.Primary hyperaldosteronism

Answer:Ectopic ACTH secretion from small cell lung cancer

Explanation:

Small cell lung carcinoma secreting ACTH can cause Cushing's syndrome

Important for meLess important

The persistent respiratory symptoms and significant smoking history are suggestive of lung malignancy, which is supported by the radiographic findings of a lung mass. The additional clinical features in this patient - hypertension, proximal muscle weakness, hyperglycaemia and hypokalaemia - are recognised features of Cushing's syndrome. This is seen in up to 5% of patients with small-cell lung cancer and is mediated by the ectopic production of ACTH. Of note, patients with this phenomenon do not tend to present with some other classical cushingoid features such as moon facies and buffalo hump as hypercortisolism occurs fairly rapidly.

Cortisol hypersecretion from adrenal metastases is incorrect. While small cell lung cancers can often metastasise to the adrenal glands, these are much more likely to result in adrenal insufficiency (if occurring bilaterally) rather than develop the capacity to synthesise glucocorticoids.

Ectopic ACTH secretion from squamous cell lung cancer is incorrect. Squamous cell lung cancers are associated with the secretion of other peptides such as parathyroid hormone-related peptide (PTHrp) which can cause hypercalcemia.

Pancreatic endocrine insufficiency due to metastases is incorrect. Although pancreatic tumours or metastases can certainly cause beta-cell dysfunction and subsequent hyperglycaemia, it would not explain the other findings in this patient such as hypokalaemia and hypertension.

Primary hyperaldosteronism is incorrect. Although it is a relatively more common cause of hypertension and hypokalaemia, the clinical scenario indicates that this patient has a lung malignancy and the electrolyte abnormalities are more likely to be a result of a paraneoplastic process.

Question:

A 67-year-old man is brought into the Emergency Department following a collapse in a supermarket.

He is brought in to resus as he has a reduced GCS and is unable to obey commands or speak coherently. He appears to have a right-sided weakness. The patient's only past medical history is hypertension, for which he takes amlodipine.

A CT brain is performed as shown below.

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Extradural haematoma

B.Intracerebral haemorrhage

C.Ischaemic stroke

D.Subarachnoid haemorrhage

E.Subdural haematoma

Answer:Intracerebral haemorrhage

Explanation:

The CT shows an intracerebral haemorrhage, which is the correct answer. There is a left-sided thalamic haemorrhage with associated hydrocephalus and blood in the third and both lateral ventricles. They are often a result of hypertension or anticoagulation and can present with focal neurology or with reduced GCS and headaches. Acute blood or bone is seen as white (high density or hyper-attenuating) on plain CT, whereas darker brain tissue (low density or hypo-attenuating) can indicate ischaemia.

Extradural haematoma is not correct. These are commonly caused by skull trauma with bleeding from the middle meningeal artery. The blood is seen on CT between the skull and dura and is described as a bi-convex mass. In this case, the blood is central, so this is incorrect.

Ischaemic stroke is incorrect as this would not cause intracerebral bleeding. You may see a high-density clot (white) in an artery suggesting a thrombus, or darkened ischaemic tissue, though, in a lot of cases of ischaemic stroke, you will not see anything on plain CT. It is important to note that a normal CT brain does not exclude ischaemic stroke and further testing with MRI may be indicated. The history of right-sided weakness makes this a main differential, but the CT appearances are quite different.

Subarachnoid haemorrhage is also incorrect. It can present with thunderclap headache and can cause meningism, focal neurology and reduced GCS. The blood is often more diffuse on CT as it pervades the subarachnoid space and would not be seen as a rounded central collection of blood as on this CT scan, as the blood is not within the cerebral tissues, instead confined to the subarachnoid space which is confluent with the ventricles and spinal cord.

Subdural haematoma is not correct. This can be acute or chronic in onset and is typically associated with trauma in older people. It is seen as a crescent shape collection of blood on CT and overlies the cerebral hemisphere. Again, you would not see the blood centrally, but at the outer edge of the brain tissue.

Question:

A 78-year-old female attends her general practice as she has a lesion on her head that she would like checked. She reports that she has had this lesion for around 2 years, and it appears to be growing slowly. She denies any itching, pain or bleeding but is worried that it might be something serious. The lesion is pictured below.

© Image used on license from DermNet NZ

Based on the history and clinical examination, what is the most likely diagnosis?

A.Actinic keratosis

B.Basal cell carcinoma

C.Malignant melanoma

D.Seborrhoeic keratosis

E.Squamous cell carcinoma

Answer:Seborrhoeic keratosis

Explanation:

The correct diagnosis is seborrhoeic keratosis. Seborrhoeic keratoses are benign skin lesions that are common in people over 50. They are typically described as well-circumscribed plaques or papules with a 'stuck on' appearance, and most commonly affect the torso or face. The colour of the lesions can vary, but they are most commonly grey-brown or black. Typically the lesions are asymptomatic therefore require no treatment. In the case above, note the 'stuck on' appearance of the lesion, with a greasy, scaly surface.

Actinic keratoses are typically flesh-coloured, irregularly shaped, small macules or plaques. They are associated with UV exposure and have the potential to progress to squamous cell carcinoma. Actinic keratoses are small (typically 1-5mm) and do not have a 'stuck on' appearance as in this case.

Basal cell carcinoma (BCC) is incorrect. BCC typically presents with a pearly white or pink nodule with 'rolled edges' and may contain telangiectasia.

Malignant melanoma is an important differential to consider in this case. However, a malignant melanoma typically varies more in colour, such as brown/blue/black and red. Furthermore, melanomas do not have a 'stuck on' appearance as in this case.

Squamous cell carcinoma (SCC) is incorrect. Typically, SCC develops over weeks to months, rather than years, and looks like a rough, scaly red or brown patch. SCC lesions may be painful and ulcerate.

Question:

A 17-year-old woman presents to the GP with a new rash. It is mildly itchy but otherwise, she feels well. She has presented twice in the last year, 6 months ago for an asthma check-up and 2 weeks ago she had a telephone consultation for a sore throat.

On examination, a papular rash with fine scale is seen on her anterior and posterior torso and parts of her proximal limbs.

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

A.Course of oxytetracycline

B.Emollients and reassurance

C.Refer to ENT for tonsillectomy

D.Refer to dermatology

E.Topical clobetasol propionate

Answer:Emollients and reassurance

Explanation:

Acute onset of tear-drop scaly papules on trunk and limbs → ?guttate psoriasis

Important for meLess important

The presence of a scaly papular rash affecting 2 weeks following an upper respiratory tract infection suggests a diagnosis of guttate psoriasis, which often occurs following a sore throat due to Streptococcus species in susceptible individuals.

Emollients and reassurance is correct. Most cases of guttate psoriasis resolve spontaneously within 2-3 months and emollients can help with managing dry skin, scaling, and itch.

Course of oxytetracycline is incorrect. Oxytetracycline is a tetracycline antibiotic that may be considered in acne vulgaris if topical therapies including retinoids and benzoyl peroxide are unsuccessful. This would present with open and closed comedones and would occur independently of a preceding sore throat. They do not play a role in the management of guttate psoriasis.

Refer to ENT for tonsillectomy is incorrect. This is considered if patients have recurrent episodes of guttate psoriasis following tonsillitis. This patient has only had one episode, therefore, it may not be necessary to jump to this step.

Refer to dermatology is incorrect. This may be considered for additional treatments such as narrow-band ultraviolet B (UVB) phototherapy, however, these treatments are reserved for severe cases or those that do not respond to initial treatment with emollients. This patient has not yet had any treatment, therefore jumping to this step may not be necessary.

Topical clobetasol propionate is incorrect. Although topical corticosteroids may be considered in the management of guttate psoriasis, clobetasol propionate is very potent and would not be an appropriate initial choice.

Question:

Sandra, a 53-year-old woman with type 2 diabetes, sees her practice diabetic nurse for her annual diabetes review. The practice nurse comments that her HbA1c has unfortunately increased since last year. Her results are as follows:

HbA1c 7.9% (63 mmol/mol)

Sandra states she has been compliant with all her medications, which are metformin 1g twice daily, gliclazide 160mg twice daily, and atorvastatin 20mg once daily.

The nurse comments her gliclazide is unlikely to be helping her hyperglycaemia at this stage and suggests she stop this and start empagliflozin. Sandra agrees but asks what common side effects she can expect.

Which of the following should be discussed with Sandra?

A.Hypoglycaemia

B.Increase risk of kidney stones

C.Increased risk of nephrotoxicity

D.Increased risk of urinary tract infections

E.Weight gain

Answer:Increased risk of urinary tract infections

Explanation:

Sodium-glucose co-transporter 2 inhibitors are associated with an increased risk of urinary tract infections

Important for meLess important

SGLT2 inhibitors such as empagliflozin come with an increased risk of urinary tract infections. As this is a common side effect, it would be important to discuss this, particularly in females.

Although hypoglycaemia is possible with SGLT2 inhibitors, the BNF suggests this is when taken in combination with insulin or sulfonylurea (in this scenario, her gliclazide is being stopped before commencing empagliflozin). In this case, her gliclazide is being stopped, however this may not always be necessary and they can be taken together.

Clinical studies with SGLT2 inhibitors have not shown any increase in renal calculi.

SGLT2 inhibitors are not known to be nephrotoxic, and in fact, according to some studies may be renoprotective.

SGLT2 inhibitors do not cause weight gain. In fact, according to the EMPA-REG trial, empagliflozin may help patients lose a small amount of weight.

It is important to know that SGLT2 inhibitors can rarely cause Fournier's gangrene (a serious necrotizing fasciitis of the perineum and genital region). The SGLT2 must be stopped and the gangrene treated promptly. They can also cause atypical ketoacidosis and patients must be warned about symptoms of this.

Question:

A 31-year-old man presents to the emergency department with severe stabbing left-sided abdominal pain. A subsequent CT confirms the diagnosis of renal colic secondary to numerous bilateral calculi.

Which of the following investigations should be followed up urgently?

A.Full blood count

B.Urea and electrolytes

C.Urine dipstick

D.Calcium

E.C-reactive protein

Answer:Urea and electrolytes

Explanation:

Renal function must be assessed in a patient with potential bilateral urinary tract obstruction

Important for meLess important

This patient presents with a classical feature of renal colic. However the important thing to note here is the presence of bilateral renal calculi, which may potentially compromise both renal tracts. It is therefore important to follow up his renal function, specifically his creatinine, in order to ensure the patient does not develop a post-renal AKI.

Urine dipstick and CRP would also be useful investigations in order to exclude any potential complicating infection which may change this patient's management.

Calcium may be useful in determining the cause of his calculi but is not immediately important at this stage.

Question:

A 73-year-old female is brought into the emergency department after slipping on ice. She has a painful right leg that appears shortened and externally rotated. There does not appear to be any skin break at the site and no neurovascular compromise peripherally. She is sent for an x-ray which shows a stable, complete, intertrochanteric proximal femur fracture. She has no past medical history and takes no regular medications. She is given analgesia for the pain and referred to the orthopaedic team.

What is the procedure that she will most likely be recommended?

A.Conservative management

B.Dynamic hip screw

C.Hemiarthroplasty

D.Intramedullary nail with external fixation

E.Total hip replacement

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 experienced an extracapsular proximal femoral fracture. Her presentation of hip pain with a shortened and externally rotated leg are typical appearances consistent with this type of fracture. She does not have any comorbidities which indicate that she would not be fit for optimal management which is a dynamic hip screw.

Conservative management would be inappropriate for this patient as she can resume a good quality of life post-operatively. Conservative management would lead to impaired ability to carry out activities of daily living and is only appropriate for patients who are not amenable or fit enough for surgical management.

An intramedullary nail with external fixation is used in the lower extremity, long bone fractures (such as a fracture of the femur or tibia). It involves placement of an intramedullary nail alongside external fixation (through a series of screws that are inserted into the bone and attached to an external device that sits outside the skin to allow further support and can be adjusted to realign the bone if necessary). External fixation is temporary support that will be later removed once the bone has healed sufficiently to no longer need that additional measure of stabilisation.

A hemiarthroplasty would be warranted in a displaced fracture. This involves the replacement of the femoral head and neck. It is less complicated than a total hip replacement (THR) and is usually adequate for patients who are less active, while still allowing them to return to a degree of normal activities of daily living. However, as THR are improving, their popularity is increasing.

THR involves the replacement of both the acetabular surface and the proximal femur. It is becoming the preferred option for more active patients with displaced femoral neck fractures. Due to the replacement of both sites, it is showing better outcomes in patients with pre-existent hip osteoarthritis. However, as this patient does not have a displaced fracture - it is unwarranted.

Question:

A 5-week-old infant is brought into the emergency department by his mother with vomiting after every feed. The vomit is non-bilious, large volume and projectile. His mother reports this was initially small amounts of vomit and infrequent, but has increased in volume and regularity over the past week. The infant appears keen to try feeding again after each vomiting episode.

Examination reveals an olive-sized mass in the right upper quadrant and a succussion splash can be heard on auscultation.

The infant is admitted and has an ultrasound which shows increased pyloric muscle thickness, length, pyloric volume and pyloric transverse diameter leading to a confirmation of the diagnosis of pyloric stenosis is made.

What is the surgical management that should be offered for this infant?

A.Abdominoperineal pull-through with diverting colostomy

B.Endoscopic pyloric stent

C.Heller myotomy

D.Hydrostatic or air-contrast enema

E.Ramstedt pyloromyotomy

Answer:Ramstedt pyloromyotomy

Explanation:

The management of pyloric stenosis is with Ramstedt pyloromyotomy

Important for meLess important

Ramstedt pyloromyotomy is the definitive surgical management for pyloric stenosis. It involves dividing the pyloric muscle to increase the diameter of the gastric outlet. The surgery is performed laparoscopically or through a single incision point.

Abdominoperineal pull-through with diverting colostomy may be used in surgical management of Hirschsprung disease after initial stabilisation with nasogastric tube decompression.

Endoscopic pyloric stenting is used in gastric outlet obstruction however is more common in gastric cancer management.

Hydrostatic or air-contrast enema is used in the management of intussusception .

A Heller myotomy may be appropriate in the management of achalasia.

Question:

A 48-year-old woman presents to gastroenterology clinic for follow up. She required treatment in hospital four weeks ago for an acute flare of ulcerative colitis. Currently she appears well and does not report symptoms suggesting another flare. This was the second time she has been admitted to hospital in the last year due to an exacerbation of ulcerative colitis.

What is the most appropriate maintenance treatment option for this woman?

A.Oral azathioprine

B.Oral ciclosporin

C.Oral methotrexate

D.Oral prednisolone

E.Topical 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 is suggestive of an episode of severe relapse. To maintain remission, oral azathioprine or oral mercaptopurine should be given.

Oral ciclosporin is used for inducing remission in episodes of severe colitis.

Oral methotrexate is not indicated for ulcerative colitis.

Oral prednisolone is not indicated in ulcerative colitis, in cases of severe colitis intravenous prednisolone would be appropriate for inducing remission.

Topical aminosalicylate may be used to induce and maintain remission of mild to moderate ulcerative colitis.

Question:

A 62--year-old woman attends with a chronic productive cough and shortness of breath on exertion. She has never smoked.

A CT scan is arranged:

CT scan Abnormal widening and thickening of the bronchi; Consolidation of the right lower lobe

You arrange for a sputum sample to be sent to microbiology.

What is the most likely organism that will be cultured?

A.Haemophilus influenzae

B.Klebsiella oxytoca

C.Klebsiella pneumonia

D.Pseudomonas aeruginosa

E.Streptococcus pneumoniae

Answer:Haemophilus influenzae

Explanation:

Bronchiectasis: most common organism = Haemophilus influenzae

Important for meLess important

Haemophilus influenzae is correct. This is the most common organism found in bronchiectasis.

Whilst all the other options are common organisms, the most common is Haemophilus influenza.

Question:

A 32-year-old woman presents to the Emergency Department with a two-day history of evolving fever, headache, vomiting and seizures. She has no past medical history of note and no allergies. A CT head identifies hypodensity of the left temporal lobe, while a lumbar puncture identifies:

Lymphocytes 57 cells/µL (0-5 cells/µL)

Protein 92 mg/100 mL (15-60 mg/100 mL)

Glucose 66 mg/100 mL (50-80 mg/100 mL)

Serum blood glucose is normal. A brain MRI is subsequently performed, showing prominent swelling and increased signal of the left temporal lobe and insular cortex.

What medication must be urgently started in this patient?

A.Aciclovir

B.Amantadine

C.Cefotaxime

D.Fluconazole

E.Vancomycin

Answer:Aciclovir

Explanation:

Start aciclovir in all cases of suspected encephalitis

Important for meLess important

The correct answer is aciclovir. This patient is presenting with symptoms (fever, headache, vomiting and seizures) and investigation findings (the most sensitive being prominent swelling and increased signal of the brain on MRI) suggestive of encephalitis. As over 95% of encephalitis cases are caused by herpes simplex virus (HSV), IV aciclovir (works against HSV) should be started in all patients urgently.

Amantadine is incorrect as this is an anti-viral agent used in the management of influenza.

Cefotaxime is incorrect as this is often used for empirical therapy of suspected meningococcal disease.

Fluconazole is incorrect as this is an anti-fungal medication and encephalitis is unlikely to be caused by a fungal infection.

Vancomycin is incorrect as this is used in conjunction with cefotaxime for empirical treatment of suspected meningococcal disease in patients with prolonged or multiple use of other antibacterials in the last 3 months, or if travelled, in the last 3 months, to areas outside the UK with highly penicillin- and cephalosporin-resistant pneumococci.

Question:

A mother arrives at the Emergency Department with her 2-year-old son. She is frantic, saying that he is “breathing funny”.

The mother explains that she had left him in his room to go to the bathroom, and when she returned he was coughing and looked red in the face. She states that the coughing has resolved but his breathing now sounds funny.

On examination, the patient appears mildly short of breath and has an audible wheeze with reduced air entry on one side.

Where is the underlying abnormality most likely to be found?

A.Larynx

B.Left lower lobe

C.Left main bronchus

D.Right lower lobe

E.Right main bronchus

Answer:Right main bronchus

Explanation:

Inhaled foreign objects are most likely to be found in the right main bronchus

Important for meLess important

Right main bronchus is the correct answer. This history is typical of an inhaled foreign object - a young child left alone, and an acute episode that starts with choking/coughing which resolves as the foreign object moves down the respiratory tract.

Inhaled foreign objects are most likely to be found in the right main bronchus as this is wider and sits at a steeper angle than the left main bronchus.

Larynx is incorrect. While it is very possible for inhaled objects to lodge in the larynx, one would not expect resolution of the initial symptoms of coughing/choking, and one would not see unilaterally reduced air entry on examination. Furthermore, stridor is more commonly seen than wheezing in laryngeal obstruction.

Left lower lobe is incorrect. It would be unlikely for an object large enough to cause coughing/choking to reach either lobe of the lung.

Left main bronchus is incorrect. Foreign objects can pass through the trachea and become lodged in the bronchi. However, as the left main bronchus is thinner and sits more perpendicular to the trachea than the right, objects are more likely to be found in the right main bronchus.

Right lower lobe is incorrect. This is the most common site of pneumonia secondary to aspiration because foreign bodies most often enter the right main bronchus. However, this presentation would have a far less acute onset.

Question:

A 50-year-old woman attends her GP wishing to commence hormone replacement therapy (HRT). Her last menstrual period (LMP) was 7 months ago and she complains of distressing vasomotor symptoms. She has never had any surgery, has no significant past medical history and is not sexually active. She has made changes to her lifestyle, with little benefit. What treatment would you recommend, providing that there are no contraindications?

A.Continuous oestrogen therapy

B.Cyclical combined HRT

C.Continuous combined HRT

D.Sertraline

E.Evening primrose oil

Answer:Cyclical combined HRT

Explanation:

When a woman wishes to discuss commencing HRT, a detailed history is important to determine the menopausal status. This includes the date of her LMP and bleeding patterns prior to this. In this scenario, the woman would be considered to be peri-menopausal (as she has not been amenorrhoeic for 1year).

The main clinical indication for starting HRT is for the relief of vasomotor symptoms. However, it can also be used to prevent osteoporosis only in women diagnosed with premature menopause.

In women with a uterus, HRT should comprise an oestrogen combined with a progesterone. The progesterone is paramount in reducing the risk of endometrial cancer, that can occur with the use of unopposed oestrogen. In women who have undergone a hysterectomy continuous oestrogen-only therapy is given.

Women should be prescribed cyclical combined HRT if their LMP was less than 1 year ago and continuous combined HRT if they have:

taken cyclical combined for at least 1 year or

it has been at least 1 year since their LMP or

it has been at least 2 years since their LMP, if they had premature menopause (menopause below the age of 40)

There are many non-hormonal treatments for vasomotor symptoms in women who are unable or unwilling to take HRT. These treatments include some selective serotonin and noradrenaline reuptake inhibitors, clonidine and gabapentin. Sertraline is not helpful in treating hot flushes.

The National Institute for Health and Clinical Excellence (NICE) do not recommend the use of herbal and complementary therapies for managing hot flushes and night sweats. Evening primrose oil has no proven benefit in reducing vasomotor symptoms.

NICE Clinical Knowledge Summaries on menopause.

Question:

A 68-year-old woman with a background of diverticular disease presents with 4 days of gradually worsening left lower abdominal pain, nausea and vomiting. Her bowels have not opened for 2 days but she is still passing flatus. She has noticed air bubbles in her urine over the last 24 hours.

On examination, her abdomen is soft and tender in the left lower quadrant. She has a low-grade fever and a urine dip is positive for nitrites and leukocytes.

What is the most likely cause of her urinary symptoms?

A.Colourethral fistula

B.Colouterine fistula

C.Colovesical fistula

D.Rectovaginal fistula

E.Urinary tract infection with a gas forming organism

Answer:Colovesical fistula

Explanation:

Diverticulitis symptoms + pneumaturia or faecaluria → ?colovesical fistula

Important for meLess important

Colourethral fistula is incorrect. Whilst fistulas formed between the large bowel and the urethra would theoretically cause symptoms of pneumaturia or faecaluria, these are significantly less common than colovesical fistulas in the context of diverticular disease.

Colouterine fistula is incorrect. Fistula formation between the large bowel and the uterus is a very rare complication of diverticular disease and would not result in pneumaturia.

Colovesical fistula is correct. Fistula formation is a possible complication of diverticular disease, occurring when a diverticular abscess ruptures into an adjacent organ. This most frequently happens between the sigmoid colon and the urinary bladder (i.e. colovesical), causing symptoms such as pneumaturia, faecaluria or recurrent urinary tract infections.

Rectovaginal fistula is incorrect. Fistula formation between the rectum and the vagina is the second most common fistula type seen in diverticular disease after colovesical fistulas. However, anatomically, this would not result in pneumaturia.

Urinary tract infection with a gas forming organism is incorrect. Whilst this is generally the most important differential to rule out in patients presenting with pneumaturia, the most likely cause in a patient with known diverticular disease presenting with typical diverticulitis symptoms, is a colovesical fistula. Infection with a gas forming organism is most likely in people with diabetes or urinary tract outflow obstruction.

Question:

A 54-year-old man presents with a 2-days-history of left-sided facial droop. He is otherwise well with no associated facial pain, eye symptoms or neurological symptoms. There is no history of trauma.

On examination, there is a unilateral facial weakness involving the whole left side of his face. He was unable to fully close his left eye. The rest of the neurological examination is normal. There is no rash on his ears, face or mouth. His neck is soft with no palpable swellings or lymphadenopathy.

What is the most appropriate management for this patient?

A.Commence on a course of prednisolone

B.Commence on a course of prednisolone and aciclovir

C.Commence on a course of prednisolone and give eye care advice

D.Referral to ophthalmology

E.Urgent referral to secondary care

Answer:Commence on a course of prednisolone and give eye care advice

Explanation:

Eye care is important in Bell's palsy - drops, lubricants and night time taping should be considered

Important for meLess important

The correct answer is commence on a course of prednisolone and give eye care advice. NICE recommends that for people presenting within 72 hours of the onset of symptoms of Bell's palsy, consider prescribing prednisolone. This patient has Bell's palsy and he also has eye symptoms where he is unable to close his eye fully. It is therefore important to keep the affected eye lubricated to avoid eye complications. Lubricating eye drops should be used frequently during the day and eye ointment used at night, and his eye should be taped closed at night using microporous tape. For this reason, option commence on a course of prednisolone is incorrect.

Aciclovir can be used if Ramsay Hunt syndrome is suspected. This condition is caused by the herpes zoster virus infecting the facial nerve. It is characterized by lesions in the ear, facial paralysis, and associated hearing and vestibular symptoms. He has no features to suggest Ramsay Hunt syndrome. Therefore commence on a course of prednisolone and aciclovir is incorrect.

Refer to an ophthalmologist is advised if the person has eye symptoms (for example, pain, irritation, or itch). This patient reports no eye symptoms, therefore option referral to ophthalmology is incorrect.

Urgent referral to an appropriate specialist is advised if the patient has facial nerve palsy and one of the following features:

Worsening of existing neurologic findings or new neurologic findings

Features suggestive of an upper motor neurone cause (for example limb paresis, facial paraesthesia, other cranial nerve involvement, postural imbalance)

Features suggestive of cancer (for example, gradual onset of symptoms, persistent facial paralysis for more than 6 months, pain in the distribution of the facial nerve, head or neck lesion suggestive of cancer, history of head and neck cancer, hearing loss on the affected side).

Systemic or severe local infection

Trauma

This patient does not have these features, therefore option urgent referral to secondary care is incorrect.

Question:

A 45 year old woman presents with a 3cm breast lump. She undergoes a mammogram, biopsy and CT scan for staging. Investigations reveal this to be a single ER+ve, HER2-ve tumour, confined to the breast. What is the next stage of management?

A.Mastectomy

B.Radiotherapy

C.Wide local excision

D.Tamoxifen

E.Herceptin

Answer:Wide local excision

Explanation:

Surgery is the first line management for breast cancer. If the tumour is less than 4cm a wide local excision (breast conserving surgery) is favoured.

Herceptin would not be an option for this lady as she is HER2-receptor negative however hormonal therapy with tamoxifen would be an option after surgery as the tumour is oestrogen receptor (ER) positive.

Question:

A 29-year-old G3P2 woman at 33 weeks gestation presents to the emergency department with severe, sudden-onset lower abdominal pain which began 30 minutes ago. She reports a small volume of vaginal bleeding but that her baby remains active, however movements are slightly less than normal.

Her pregnancy to date has been uncomplicated, with up-to-date antenatal care, and her past medical history is unremarkable. Both of her previous children are healthy, aged 3 and 5, born by vaginal delivery. She is a current smoker with a 9 pack-year history.

The mother is alert and oriented but in significant pain. Her vitals include a blood pressure of 148/91mmHg and heart rate of 115 beats per minute, with other values within normal limits. A cardiotocograph is reported as normal, with a non-concerning baseline fetal heart rate, as well as appropriate accelerations and no decelerations.

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

A.Admit the mother and administer steroids

B.Expectant management

C.Immediate emergency caesarean section

D.Induce vaginal delivery

E.Pelvic ultrasound

Answer:Admit the mother and administer steroids

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 woman is likely suffering from a placental abruption. Placental abruption is an obstetric emergency, however, management depends on the severity of the abruption and the morbidity and mortality risk to both the mother and the baby. Risk factors for placental abruption include chronic hypertension and smoking, both present in this patient, as well as illicit drug use such as cocaine, and abdominal trauma. Management of placental abruption when the fetus is alive, <36 weeks and not showing signs of distress is to admit and administer steroids to assist in fetal lung development.

Considering the mother's status, her vital signs are stable. The tachycardia may be due to pain and/or the stress of the scenario, considering her blood pressure is adequate. However, the volume of vaginal bleeding in cases of placental abruption can be misleading as patients can have a 'concealed bleed' where the intact placenta surrounds the affected area, preventing any blood loss through the vagina.

The status of the fetus is assessed using a cardiotocograph (CTG). Interpretation of these readouts is a learned skill, however, when reported as normal, it indicates that the fetus is not in acute distress and has an adequate and ongoing supply of blood and nutrients from the placenta.

Expectant management is inappropriate and may result in increased maternal or fetal mortality. Intervention is required in order to increase the chance of a positive outcome.

Immediate caesarean section would be indicated if the fetus was showing signs of distress, demonstrated by the CTG, or if the mother was going into shock from significant blood loss. Neither of these factors are present.

Vaginal delivery would be appropriate in the case of a fetal death in utero (FDIU), which is not present in this case.

Pelvic ultrasound may be able to visualise the degree of abruption, however, this would most likely be performed after steroid administration.

Question:

A 29-year-old woman is diagnosed with HIV after being contact traced from a recent sexual partner. She has no symptoms of an infection at this time. Examination of her cardiorespiratory and neurological systems reveals no abnormalities. She is not currently taking any medication. As part of the work-up, her CD4+ cell count is taken which shows the following:

CD4+ cell count 128/mm3

Hepatitis and sexually-transmitted infection screens are negative.

What is the most appropriate management option at this time?

A.Highly active anti-retroviral therapy alone

B.No treatment required, wait until CD4+ count is <100/mm3 to start

C.Highly active anti-retroviral therapy and oral co-trimoxazole

D.Urgent neuroimaging to exclude cerebral toxoplasmosis

E.Highly active anti-retroviral therapy and oral ketoconazole

Answer:Highly active anti-retroviral therapy and oral co-trimoxazole

Explanation:

All patients with a CD4 count lower than 200/mm3 should receive prophylaxis against Pneumocystis jiroveci pneumonia

Important for meLess important

All patients with HIV require highly active anti-retroviral therapy (HAART) at the time of diagnosis. As this patient has a CD4+ cell count <200/mm3, she also requires prophylactic co-trimoxazole, to cover against Pneumocystis jiroveci pneumonia.

HAART is one important aspect of this patient's management, but her CD4+ count is low enough for her to also require prophylaxis against Pneumocystis jiroveci pneumonia.

HAART should be started as soon as HIV is diagnosed, as this improves treatment outcomes. There is no reason to wait until CD4+ count is <100/mm3.

There is no indication that she has cerebral toxoplasmosis currently. This would present with neurological signs.

Co-trimoxazole is the drug of choice in prophylaxis against Pneumocystis jiroveci pneumonia. Ketoconazole is primarily used to treat fungal skin infections and is not indicated in this patient.

Question:

A 40-year-old female who has a past medical history of agoraphobia for the last 2 months is seen via telemedicine to discuss any issues she is currently facing. When asked why she feels she cannot leave the house she states that she feels that the outside is too dirty and she will catch an illness and die. Every day in her house she has to wash her hands 6 times with soap and water after touching anything. As a result she has lost her job as an accountant, due to not having the time to do her work and missing deadlines. She feels she cannot stop herself doing this and is washing her hands exactly 6 times every time.

Her mental state examination is unremarkable. Over the video conversation you ask to see her hands and note they appear erythematous, dry and cracked.

What is the best management option for her?

A.Antipsychotic medication

B.Cognitive behavioural therapy (CBT)

C.Intensive exposure and response prevention (ERP)

D.SSRI and CBT (including ERP)

E.Selective serotonin reuptake inhibitor (SSRI)

Answer:SSRI and CBT (including ERP)

Explanation:

For more severe OCD, or if unresponsive to CBT/exposure and response prevention then add an SSRI

Important for meLess important

SSRI and CBT (including ERP) is the correct option as the above case describes a severe form of obsessive-compulsive disorder (OCD) with functional impairment resulting in the loss of her job and the break-down of the skin integrity of her hands. The obsession here is the cleanliness of her hands and the dirtiness of the outside and the compulsions are the resultant action of washing her hands 6 times.

Antipsychotic medication is incorrect as there are no features of psychosis present here and the mental state examination does not show evidence of a psychotic disorder.

CBT alone is incorrect as this is not a mild form of OCD, which would be more amenable to CBT alone. However, ERP addition is specific for OCD and would be more likely to be successful if given as a component of the CBT and is indicated for milder OCD, without the requirement of psychotropic medication.

Intensive exposure and response prevention (ERP) is incorrect as this measure alone is unlikely to be successful in this form of severe OCD, where concurrent SSRIs would raise the likelihood of successful treatment.

SSRI is incorrect as the pharmacological option alone would not be effective without the talking therapies of CBT with ERP for this severe OCD case.

Question:

A 24-year-old woman undergoes a vaginal delivery at 39 weeks gestation and opts for a physiological third stage of labour. Shortly after, she loses 700 ml of blood. Help is called for and an obstetric consultant carries out an ABCDE approach and commences a warmed crystalloid infusion. She has no past medical history, nor has there been any trauma during delivery.

What is the most appropriate next step in her management?

A.Compress the uterus and catheterise her

B.Give IM carboprost

C.Give IV carboprost

D.Give IV oxytocin

E.Intrauterine balloon tamponade

Answer:Compress the uterus and catheterise her

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

Compress the uterus and catheterise her is correct. This patient is likely to be experiencing a primary postpartum haemorrhage (PPH) which is characterised by >500 ml blood loss within 24 hours of delivery. The most common cause of PPH is uterine atony. The initial steps of managing PPH involve an ABCDE approach and giving IV warmed crystalloid. The next most appropriate step would be to compress the uterus (rub up the uterus) which can stimulate contractions and catheterise the patient to prevent bladder distention and monitor urine output. This is known as 'mechanical management'.

Give IV oxytocin is incorrect. This is a medical management step and would be appropriate if mechanical management (compressing the uterus and catheterising the patient) was unsuccessful. Given that this patient has not yet had any mechanical management steps tried, this stop may not be necessary and compression of the uterus and catheterisation should be tried first.

Give IM carboprost is incorrect. Similarly to the above, this is another medical management option that should be considered if mechanical methods fail. Given that this patient has had no mechanical methods tried yet, this may not be necessary and compression and catheterisation should be tried first.

Give IV carboprost is incorrect. Carboprost is given intramuscularly and is not administered intravenously as it can lead to bronchospasm, hypertension, and anaphylaxis if given intravenously.

Intrauterine balloon tamponade is incorrect. This is the first-line 'surgical' option for the management of PPH where mechanical and medical methods have failed. Given that this patient has not yet tried either, it would be inappropriate to jump to this step as it may not be necessary and mechanical methods alone may be sufficient.

Question:

A 47-year-old man is on the ward recovering after a cholecystectomy. An examination is unremarkable and there is nothing of concern and it is decided to prescribe pain relief. He has been suffering from nausea and has been unable to keep down food or fluid in the last hour. His drug chart shows maintenance fluids and having taken eight 500mg tablets of paracetamol so far today. There are no recorded allergies and he weighs 75 kg.

What form of analgesia is most appropriate to be offered?

A.1g paracetamol IV over 15 minutes

B.30mg oral codeine maximum 4-hourly as required

C.400mg oral ibuprofen 3 times a day + 20mg omeprazole once daily

D.IV morphine controlled by patient-controlled analgesia (PCA)

E.Two 500mg oral tablets of paracetamol STAT

Answer:IV morphine controlled by patient-controlled analgesia (PCA)

Explanation:

Patient-Controlled Analgesia (PCA) is an option for the management of pain in the post-operative period

Important for meLess important

IV morphine controlled by patient-controlled analgesia (PCA) is correct. This patient is currently in pain and requires pain relief. We know he has had the maximum dose of paracetamol and is still in pain, which means he cannot have any more paracetamol today and stronger analgesia is justified. He has been actively vomiting over the past hour so oral analgesia is inappropriate. PCA would allow the patient to control their analgesia intake by their level of pain, and as their pain is better controlled, patients will often reduce the amount of PCA used.

1g paracetamol IV over 15 minutes is incorrect. The patient has had the maximum dose of daily paracetamol (4g per day).

30mg oral codeine maximum 4-hourly as required is incorrect. Although a good option, given his recent vomiting, IV would be preferred.

400mg oral ibuprofen 3 times a day + 20mg omeprazole once daily is incorrect. Although a good option, given his recent vomiting, IV would be preferred.

Two 500mg oral tablets of paracetamol STAT is incorrect. The patient has had the maximum dose of daily paracetamol (4g per day) and is vomiting.

Question:

A 29-year-old female was recently asked by her GP practice to attend for a repeat smear test. Her initial test results 12 months ago showed that the sample was positive for high risk HPV (hrHPV), but cytologically normal. The patient felt very anxious about having to be called back and asked the practice nurse what will happen next.

Assuming that the results return as hrHPV negative, which pathway will the patient be advised to follow?

A.Attend colposcopy

B.Return to normal recall

C.Repeat the test again in 1 week

D.Repeat the test again in 1 month

E.Repeat the test again in 12 months

Answer:Return to normal recall

Explanation:

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

Important for meLess important

If a smear test is found to be high risk HPV (hrHPV) positive, but cytologically normal, the patient will be recalled for a repeat test 12 months later.

Following this, if the second test is hrHPV negative, the patient will return to normal recall.

Alternatively, if the second test is positive, but still cytologically normal, it will be repeated again in 12 months time.

Question:

A 23-year-old woman presents to her GP due to left breast pain. Yesterday (24 hours ago), the patient had a telephone consultation due to a similar pain and was diagnosed with lactational mastitis. Since this appointment, they have continued to breastfeed with effective removal of milk, but the symptoms have not improved.

On examination, the left breast is erythematous and tender. No masses are felt. The patient is otherwise well and observations are within normal ranges. They have no past medical history and no known allergies.

What is the next best management step?

A.Incision and drainage

B.Organise urgent hospital admission

C.Prescribe oral flucloxacillin

D.Stop breastfeeding and monitor

E.Watch and wait for a further 24 hours with effective milk removal

Answer:Prescribe oral flucloxacillin

Explanation:

If effective removal of milk has not improved the symptoms of lactational mastitis after 12-24 hours flucloxacillin is the 1st line empirical treatment

Important for meLess important

This scenario describes a 23-year-old woman presenting with lactational mastitis. The patient has followed the initial advice of continuing with the effective removal of milk but symptoms have not improved. Examination reveals signs and symptoms of mastitis with no evidence of masses. As symptoms have not improved after 12-24 hours of effective milk removal, the next best management step for this patient is to prescribe oral flucloxacillin.

Incision and drainage is not correct. Incision and drainage is a possible approach for a breast abscess, which can result from untreated mastitis. Clinical examination did not identify any masses, suggesting a more likely diagnosis of mastitis. Oral antibiotic therapy should first be initiated and monitored for response/resolution.

Organise urgent hospital admission is incorrect. Hospital admission for lactational mastitis may be indicated if the patient is acutely unwell, septic, or immunocompromised, but this has not been described in this clinical case.

Stop breastfeeding and monitor is not correct. In lactation mastitis, it is recommended to continue to breast feed. As the patient has not improved with breastfeeding, antibiotic therapy should be started.

Watch and wait for a further 24 hours with effective milk removal is not correct. This patient has already been effectively removing milk for 12-24 hours with no improvement in symptoms, and therefore antibiotics should be started.

Question:

A 43-year-old woman presents to the GP regarding contraception. She has recently entered a new relationship and is not interested in using barrier methods. Her medical history includes hypertension which is controlled with ramipril. Her periods are generally heavy and she takes tranexamic acid.

The patient is comfortable taking any form of contraception and does not have any preferences except for avoiding anything that can cause weight gain.

What is the most appropriate contraceptive choice?

A.Combined oral contraceptive pill

B.Depo Provera (medroxyprogesterone injection)

C.Intrauterine device (copper device)

D.Intrauterine system (Mirena)

E.Progesterone-only pill

Answer:Intrauterine system (Mirena)

Explanation:

An intrauterine system (e.g. Mirena) is particularly useful if patients have underlying medical problems (e.g. hypertension) +/- menstrual problems such as heavy periods

Important for meLess important

Intrauterine system (Mirena) (IUS) is correct. This patient is willing to use any form of contraception (except for injections) that is appropriate for them and has a history of hypertension and heavy and irregular periods. Of the options listed, the most appropriate form of contraception would be the IUS (such as the Mirena IUS) as it is associated with initial frequent uterine bleeding and spotting, but menses become lighter, and some women become amenorrhoeic. The IUS is generally helpful in patients with underlying conditions such as hypertension that would increase the risk of adverse effects in other contraceptive choices and helps with menstrual problems such as heavy periods.

Intrauterine device (copper device) (IUD) is incorrect. Although this does not contain a hormonal component, reducing the risks of adverse effects such as venous thromboembolism as seen in oral oestrogen-containing hormonal contraceptives, the IUD often makes periods heavier, longer, and more painful, which is less appropriate in this scenario as this patient has heavy periods and takes tranexamic acid.

Combined oral contraceptive pill (COCP) is incorrect as controlled hypertension is classed by the UK Medical Eligibility Criteria (UKMEC) as UKMEC 3, where the disadvantages (such as venous thromboembolism and stroke) generally outweigh the advantages. If this patient had uncontrolled hypertension, this would be UKMEC 4, where there is an unacceptable health risk.

Depo Provera (medroxyprogesterone injection) is incorrect as out of the options listed, this contraceptive is most associated with weight gain. This patient has stated they do not want any form that contributes to weight gain.

Progesterone-only pill (POP) is incorrect as a key side effect is irregular vaginal bleeding. Although both the POP and IUS cause this, the IUS is associated with lighter menses over time, and some people become completely amenorrhoeic, which may be helpful in this patient as she has heavy periods.

Question:

A 46-year-old man is an inpatient on a stroke ward following the onset of left sided arm weakness earlier that day.

On examination, the doctor auscultates a carotid bruit. A head computerised tomography (CT) scan is performed which shows an area of cortical hypodensity suggestive of ischaemia.

How should the carotid bruit be investigated?

A.Angiography

B.Chest X-ray

C.Duplex ultrasound

D.Computerised tomography (CT) angiography

E.Magnetic resonance imaging (MRI) scan

Answer:Duplex ultrasound

Explanation:

Carotid artery stenosis is diagnosed (and degree of stenosis assessed) via duplex ultrasound

Important for meLess important

Carotid artery stenosis is implicated in 10-15% of strokes. The first-line imaging method for carotid artery stenosis is duplex ultrasound.

Angiography is the gold-standard method for assessing the coronary arteries. It would therefore be used in the investigation of the carotid artery stenosis but it is not considered first line. CT angiography may also be used to, but this is not considered first line.

Chest X-ray would not allow visualisation of the carotid arteries.

An MRI may be indicated in this patient to rule out stroke. However, this would not give information on the degree of stenosis of the carotid arteries and a CT has already been performed.

Question:

A 56-year-old man has a total anterior circulation ischaemic stroke. He is also found to be in permanent atrial fibrillation. He has been prescribed aspirin 300 mg daily for the first two weeks, after which he will be switched to clopidogrel 75 mg daily.

What additional therapy will he require for secondary prevention of stroke?

A.Long term modified-release dipyridamole starting immediately

B.Long term warfarin starting immediately

C.Long term warfarin starting after 1 week

D.Long term apixaban starting after 2 weeks

E.Long term atorvastatin starting after 2 weeks

Answer:Long term apixaban starting after 2 weeks

Explanation:

A patient with AF + an acute stroke (not haemorrhagic) should have anticoagulation therapy started two weeks after the event

Important for meLess important

This patient has a CHA₂DS₂-VASc score of 2. In absence of any significant contraindications, he should be commenced on an anticoagulant 2 weeks post-stroke.

Options include warfarin, a direct factor Xa inhibitor or a direct thrombin inhibitor.

Long term modified-release dipyridamole is used in patients in whom clopidogrel is contraindicated.

Anticoagulants are started 2 weeks post-stroke, not immediately or after 1 week.

High dose statins should be commenced 48 hours after stroke onset in patients not already taking a statin.

Question:

Of the following, which one is the most useful prognostic marker in paracetamol overdose?

A.ALT

B.Prothrombin time

C.Paracetamol levels at presentation

D.Paracetamol levels at 12 hours

E.Paracetamol levels at 24 hours

Answer:Prothrombin time

Explanation:

An elevated prothrombin time signifies liver failure in paracetamol overdose and is a marker of poor prognosis. However, arterial pH, creatinine and encephalopathy are also markers of a need for liver transplantation

Question:

You see a 40-year-old man with reduced hearing on the right side. You examine his ears and note the right ear canal is blocked with wax but the left ear is clear. What would be the expected findings on testing Rinne and Weber?

A.Weber: sound localises to the left; Rinne: BC > AC on the right and AC > BC on the left

B.Weber: sound localises to the right; Rinne: BC > AC on the right and AC > BC on the left

C.Weber: sound localises to the right; Rinne: AC > BC on the right and AC > BC on the left

D.Weber: sound localises to the left; Rinne: AC > BC on the right and AC > BC on the left

E.Weber: sound is heard centrally; Rinne: BC > AC on the right and AC > BC on the left

Answer:Weber: sound localises to the right; Rinne: BC > AC on the right and AC > BC on the left

Explanation:

The Rinne and Weber tests are used to distinguish conductive from sensorineural hearing loss.

This gentleman has wax blocking the right ear canal, so you would expect to find a conductive hearing loss on the right side.

When performing the Weber test, the patient should localise the sound to the side of a conductive hearing loss, as bone conduction is increased. The sound will localise away from a sensorineural hearing loss.

The Rinne test is negative if there is a conductive hearing loss, as bone conduction is better than air conduction. It is positive if air conduction is better than bone conduction, which can be the case for mild-moderate sensorineural hearing loss or if there is normal hearing.

In this case, the wax causes a conductive hearing loss on the right side, so when performing the Weber test sound should localise to the right, and Rinne should be negative on the right side and positive on the left.

Question:

You have just started as a new FY1 in cardiology, you work alongside another FY1, SHO, and registrar with a rotating consultant. When looking at the rota, you notice that you have been put down to work the next 4 weekends in a row. While the hours balance for the amount of time worked in a week, you feel that it is unfair. What do you do about this situation?

A.Ask to speak to the person in charge of the rota and explain your feelings

B.Ask to speak to the head of clinical staffing and explain the person in charge of the rota is demonstrating poor care of your team

C.Accept the rota and reassure yourself these things often balance out in time

D.Speak to the other FY1 and say you have weekend plans so need them to cover these shifts

E.Accept these shifts as they have been worked out according to hours, but call in sick if you feel too tired to work them

Answer:Ask to speak to the person in charge of the rota and explain your feelings

Explanation:

Just because you are a doctor doesn't mean you should be subjected to unfair shift patterns. When the rota coordinator makes the rota up, this should be fair and equal for all involved.

This is clearly not the case in this situation.

Just accepting it and working the shifts is not good for you and developing your work-life balance. You need to be able to enjoy life outside of work to ensure good patient safety in work. Thus any options that involve you simply working the shifts is not the best thing for you.

In addition dropping out of shifts due to being too tired will leave rota gaps which can put patient safety at risk.

Asking your other FY1 to cover the shifts as you have weekend plans is untruthful and doesn't demonstrate good probity.

Thus speaking to the person in charge and explaining your feelings is your best option. Speaking to the head of clinical staffing is an unnecessary escalation where this could be dealt with more locally.

Question:

A mother and her 5-year-old son come into your Child and Adolescent Mental Health Service (CAMHS) clinic, as he has just received a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). She has already completed an evening education programme on ADHD. She is quite distraught as he is a challenge to manage at home and has heard that there are some medicines that can help.

Bearing in mind the interventions previously tried, what would be next most appropriate treatment for his ADHD?

A.Agomelatine

B.Melatonin

C.Fluoxetine

D.Commencement of a low sugar diet

E.Methylphenidate

Answer:Methylphenidate

Explanation:

ADHD: first-line treatment is methylphenidate

Important for meLess important

Methylphenidate (ritalin) is the first-line treatment for ADHD, to be initiated following a period of watchful waiting, behavioural advice and educational programme for the parents/carers.

Unless a food diary has shown a link, there is no basis for avoiding artificial colourings or fatty foods.

Fluoxetine and agomelatine are antidepressants, and not part of the recommended treatments for ADHD.

Melatonin is used off-license in children with sleeping disorders.

Question:

A 52-year-old man who has 30 pack years, is seen in the respiratory clinic with suspected chronic obstructive pulmonary disease (COPD). He has had mild shortness of breath and chronic productive cough for 3 years. On post-bronchodilator spirometry testing, he has a FEV1 of 25%, FEV1/FVC of 0.45.

How would you classify his COPD?

A.Mild

B.Moderate

C.No COPD

D.Severe

E.Very severe

Answer:Very severe

Explanation:

The severity of COPD is based upon the FEV1 spirometry reading

Important for meLess important

Severity of COPD is based upon FEV1 readings, not on symptoms or FEV1/FVC. This man has severe COPD due to his FEV1 being <30%. Mild COPD can have normal FEV1 results, as long as symptoms are present and FEV1/FVC is <0.7. Moderate has an FEV1 50-70%, severe is 30-49%, and very severe is <30%.

Question:

A 74-year-old female presents to the emergency department with a severe, unrelenting headache, confusion and an abducted, depressed left eye. She has a past medical history of antiphospholipid syndrome. A contrast CT is performed which identifies a distended cavernous sinus and a third cranial nerve palsy is suspected.

What positive findings are likely to be seen on examination of this patient's eyes?

A.Left-sided ptosis, pupil constriction and an intact light reflex

B.Left-sided ptosis, pupil dilation and an absent light reflex with intact consensual constriction

C.Left-sided ptosis, pupil dilation and an intact light reflex

D.No ptosis with a unilaterally dilated pupil and a relative afferent pupillary defect

E.Ptosis with bilaterally constricted pupils which are difficult to assess with light

Answer:Left-sided ptosis, pupil dilation and an absent light reflex with intact consensual constriction

Explanation:

Ptosis + dilated pupil = third nerve palsy; ptosis + constricted pupil = Horner's

Important for meLess important

This patient has likely suffered a cavernous sinus thrombosis, suggested by her presentation, past medical history of antiphospholipid syndrome and CT findings. A common complication of cavernous sinus thrombosis is a third cranial nerve palsy. This nerve supplies the ocular muscles with the exception of superior oblique and lateral rectus, in a third nerve palsy these muscles are unopposed and give a classical 'down and out' position of the eye (abducted, depressed left eye). The third nerve also innervates levator palpebrae superiors (lifts the upper eyelid), meaning palsy will produce ptosis. A further function of the third nerve is to carry the efferent fibres controlling the light reflex, a palsy will therefore result in a dilated pupil which will be unable to constrict in response to light on the affected side, but as the second nerve carries the afferent fibres and as the patients right-sided third nerve is intact, a consensual response will still be present. Please note that if left untreated, a cavernous sinus thrombosis will likely result in bilateral third nerve palsies.

Left-sided ptosis, pupil constriction and an intact light reflex is incorrect as this is characteristic of horners syndrome, a collection of symptoms that result from obstruction of the sympathetic trunk on the ipsilateral side. Symptoms, therefore, include Ptosis, pupil constriction, and anhidrosis (central lesions only).

Left-sided ptosis, pupil dilation and an intact light reflex is incorrect, this combination of signs is unlikely to result from any pathological condition.

No ptosis with a unilaterally dilated pupil and a relative afferent pupillary defect is incorrect as this would classically result from an optic nerve injury.

Ptosis with bilaterally constricted pupils which are difficult to assess with light is incorrect as this is more commonly observed in opiate overdose.

Question:

A 65-year-old woman presents to the breast clinic with complaints of a palpable mass in her right breast. The diagnostic mammogram shows a spiculated mass measuring 1.9 cm. Ultrasound detects a hypoechoic mass measuring 1.9 cm x 1.1 cm x 0.9 cm. Incisional biopsy reveals a well-differentiated mucinous carcinoma which is negative for oestrogen (ER) and human epidermal growth factor receptor 2 (HER2). Lumpectomy is performed with 5 mm normal tissue margins.

Which of the following is the recommended course of treatment to prevent recurrence in this patient?

A.Biological therapy

B.Chemotherapy

C.Hormonal therapy

D.Partial breast radiotherapy

E.Whole breast radiotherapy

Answer:Whole breast radiotherapy

Explanation:

Whole breast radiotherapy is recommended after a woman has had a wide-local excision as this may reduce the risk of recurrence by around two-thirds

Important for meLess important

After the initial surgery, about one-third of all breast cancer patients experience a local recurrence of their tumour. Whole breast radiotherapy is recommended after a woman has had a wide-local excision as this may reduce the risk of recurrence by around two-thirds.

Biological therapy is used in patients who are HER2-positive and is effective in only 20-25% of the tumours. Trastuzumab (Herceptin) is the most common type that is used. However, this patient is HER2 negative, therefore biological therapy is not recommended in this patient.

Chemotherapy is used either prior to surgery (neoadjuvant chemotherapy) to downstage a primary lesion or after surgery for the purpose of treatment depending on the stage of the tumour. However, it does not prevent the recurrence of the tumour.

Hormonal therapy is only offered if tumours are positive for hormone receptors. These include tamoxifen in pre-and peri-menopausal women and aromatase inhibitors in postmenopausal women who are ER-positive. The carcinoma in this patient is ER-negative, thus hormonal therapy is of no benefit.

Partial breast radiotherapy does not prevent recurrence and is therefore not advised in patients with breast cancer who undergo a local excision.

Question:

A 36-year-old man is attending fracture clinic with a fracture of his radius. Which of the following medications may slow the rate of healing of his fracture?

A.Proton pump inhibitors

B.Metformin

C.Selective serotonin reuptake inhibitors

D.Non steroidal anti inflammatory drugs

E.Beta blockers

Answer:Non steroidal anti inflammatory drugs

Explanation:

Use of NSAIDS will slow bone healing

Important for meLess important

This question is asking about medications that slow fracture healing. Of the above options, only Non-steroidal anti-inflammatory drugs (NSAIDS) are linked to slow bone healing.

Other drugs that slow the rate of healing include steroids, immunosuppressive agents and anti neoplastic drugs. It is also imperative that you recommend patients stop smoking as this also has a large effect on bone healing time.

Question:

A 4-year-old boy, who has been wetting the bed at night attends surgery today with his grandmother, as his mother is at work. His grandmother is worried because it was also an issue for his older brother, who is 9-years-old and he is prescribed desmopressin. The boy in front of you is otherwise well and his bowels open regularly. An examination is unremarkable and he has a soft non-tender abdomen.

What should you advise?

A.Bedtime monitor

B.Behaviour based consequences

C.Family therapy

D.Prescribe desmopressin

E.Reassurance and general advice

Answer:Reassurance and general advice

Explanation:

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

Important for meLess important

Reassurance and general advice - this is the correct answer. It is common for children to have nocturnal enuresis under the age of 5. Simple reassurance and general advice about bedtime routine, sleep hygiene, and safety netting on when to return are the most practical suggestions.

Bedtime monitor - this is recommended for those over 5 or where general advice and nighttime routine measures have failed.

Behaviour based consequences - this implies punishment rather than reward behaviour. Gentle reinforcement of bedtime routine and sitting on the toilet (action rather than result) with star charts and psychological reward can be very useful. Punitive consequences for undesirable behaviours are not recommended and can veer towards abuse.

Family therapy - although his mother is not present, there is no reason to suspect that family dynamics are the issue here. It is common for children to have nocturnal enuresis under the age of 5.

Prescribe desmopressin - this is recommended for children over 5 years of age when alarm use is inappropriate or undesirable, or when rapid or short-term results are the priority. This should be reassessed regularly.

Question:

A 63-year-old gentleman presents to the GP surgery with a two-day history of rectal bleeding. He has had eight episodes of diarrhoea in the past 24 hours with visible blood mixed with stool. There is associated nausea and abdominal pain. His past medical history includes ulcerative colitis, hypertension and type 2 diabetes. His medication includes mesalazine enteric coated 800mg twice daily, amlodipine 10mg once daily and metformin 500mg twice daily.

On examination, he is pale. His temperature is 38ºC. His heart rate is 108/min with a blood pressure of 112/74mmHg. Abdominal exam shows generalised tenderness and guarding. There is no rebound tenderness.

What is the appropriate next step in management?

A.Commence on a short course of oral steroids

B.Urgent hospital admission

C.Commence on rectal mesalazine

D.Commence on loperamide

E.Increase dose of mesalazine to 800mg three times a day

Answer:Urgent hospital admission

Explanation:

A severe flare of ulcerative colitis should be treated in hospital with IV corticosteroids

Important for meLess important

Urgent hospital admission is the correct answer. Patient's symptoms are suggestive of a flare up of ulcerative colitis. Using Truelove and Witts' severity index, patient is having a severe flare up as he is opening his bowel more than 6 times per day with features of systemic upset (temperature of 38ºC and tachycardia). NICE recommends urgent hospital admission in this instance for assessment and IV corticosteroids.

A short course of oral steroids or rectal mesalazine can be used in mild to moderate flare-up of ulcerative colitis. As this is a severe flare-up, this answer is incorrect.

Loperamide is the wrong answer. It should not be used as mainstay of management of flare-up of ulcerative colitis. It is associated with the risk of megacolon.

Dose increase of mesalazine may be appropriate in mild to moderate flare-up of ulcerative colitis after seeking specialist advice. As this is a severe flare-up, this answer is incorrect.

Question:

A 72-year-old man presents with a painful, red eye to the Emergency Department. Due to the severity of his symptoms and reduced visual acuity he is referred on to ophthalmology who make a diagnosis of acute glaucoma. Which of the following should be the aims of treatment?

A.Reducing aqueous secretion + inducing pupillary constriction

B.Increasing intraocular pressure to reduce the risk of optic nerve compression

C.Increasing aqueous secretion + inducing pupillary constriction

D.Lowering systemic blood pressure + inducing pupillary dilation

E.Reducing aqueous secretion + inducing pupillary dilation

Answer:Reducing aqueous secretion + inducing pupillary constriction

Explanation:

Question:

A 20-year-old woman is brought into the emergency department by the police after being arrested in a local bar for odd and aggressive behaviour. Whilst taking a history she tells you that she can't understand why she has been arrested as she was just celebrating the fact that she has recently figured out how to solve world hunger and she wants to share this with everyone. You struggle to keep up with her pace of speech and throughout the consultation, she is aggressive and at times sexually inappropriate. An initial drug screen is clear and and her bloods are unremarkable.

Which of the following is the most likely cause?

A.Alcohol intoxication

B.Bipolar disorder

C.Schizophrenia

D.Manic episode

E.Drug induced psychosis

Answer:Manic episode

Explanation:

This woman is displaying clear signs of having a manic episode as shown by her pressure of speech, disinhibited behaviour and delusions of grandeur.

Given her drug screen and blood tests you can rule out alcohol intoxication or drug induced psychosis. Schizophrenia is not a diagnosis given to a first presentation and given her symptoms, mania or bipolar disorder are more likely.

Whilst it is possible that this patient does have an underlying bipolar disorder, it is impossible to make that diagnosis without evidence of depressive symptoms also present, therefore in this case, an isolated manic episode of as of yet unknown cause is the correct answer.

Question:

A 73-year-old man is recovering following an emergency Hartmann's procedure performed for an obstructing sigmoid cancer. The pathology report shows a moderately differentiated adenocarcinoma that invades the muscularis propria, with 3 of 15 lymph nodes showing evidence of disease. What is the correct stage for this?

A.Astler Coller Stage B2

B.Dukes stage A

C.Dukes stage B

D.Dukes stage C

E.Dukes stage D

Answer:Dukes stage C

Explanation:

The involvement of lymph nodes makes this Dukes C. In the Astler Coller system the B and C subsets are split to B1 and B2 and C1 and C2. Where C2 denotes involvement of the nodes in conjunction with penetration of the muscularis propria.

Question:

A 35-year-old male attends his GP practice complaining of difficulties with erections over the last few weeks, which is straining his relationship with his partner. Despite still wanting to pursue intercourse, he is unable to achieve an erection. He thinks this started suddenly a few weeks ago but cannot recall exactly.

He reports no change in mood and has had no previous psychiatric or medical conditions. The patient smoked occasionally during his teenage years but hasn't smoked for over 16 years now. His diet is healthy and he exercises by cycling for an hour a week.

Which of the following features in this patient’s history are most in favour of an organic cause of his complaint?

A.Normal libido

B.Regular cycling

C.Relationship problems

D.Smoking history

E.Time course of his symptoms

Answer:Normal libido

Explanation:

Having a normal libido is suggestive of an organic cause of ED

Important for meLess important

Erectile dysfunction (ED) is a common symptom and can be roughly divided into organic or psychogenic factors explaining the aetiology. A normal libido in a patient with ED is highly suggestive of an organic cause.

In this patient, the time course of symptoms is not convincing for differentiating between organic and psychogenic causes. He reports a sudden onset of ED, which is less suggestive of an organic issue.

Whilst smoking is a risk for ED in general, it does not help to differentiate between organic and psychogenic causes. Moreover, the smoking history in this patient is weak with only occasional smoking during teenage years. This is unlikely to be contributing to the current presentation.

Problems with, or changes in, a relationship are related to psychogenic issues with ED.

Some studies have suggested that cycling for more than three hours per week can contribute to ED. This is because straddling a bike compresses the nerves and arteries running through the Alcock canal (pudendal canal), which is situated against the ischiopubic ramus.

Question:

A 15-year-old girl attends the emergency department with a three-hour history of shortness of breath on a background of asthma. She was treated with oxygen, intravenous magnesium, and ipratropium/salbutamol nebulisers on admission.

Despite treatment, her respiration rate is 35/min, saturations 93%, heart rate is 112/min, and temperature 37.3ºC. Her peak expiratory flow rate is 40% of predicted. On examination, she is having difficulty completing sentences and there is widespread wheeze on auscultation.

A subsequent arterial blood gas is shown below:

pH 7.37 (7.35-7.45)

pO2 10.1 kPa (>9 kPa)

pCO2 4.9 kPa (4.7-6.0 kPa)

Base excess 1.1 (-2 to 2)

Lactate 1.9 mmol/L (<2 mmol/L)

What is the most appropriate classification for this asthma attack?

A.Severe

B.Life-threatening

C.Mild

D.Moderate

E.Near-fatal

Answer:Life-threatening

Explanation:

A normal pCO2 in a patient with acute severe asthma is an indicator that the attack may classified be life-threatening

Important for meLess important

This young woman fulfils the criteria for a life-threatening asthma attack due to the normal pCO2 recorded on the arterial blood gas. Note that this is a worrying feature and a sign of tiring respiratory effort as the high respiratory rate driven by her hypoxia should result in a low pCO2.

Severe is incorrect due to this girl's normal pCO2 as discussed above.

Mild does not exist as a classification for an acute asthma attack.

This girl demonstrates several criteria that make moderate an incorrect answer. These include her respiratory rate, pulse rate, PEFR, difficulty completing sentences, and pCO2.

Near-fatal is defined as a raised pCO2 rather than a normal pCO2.

Question:

A 52-year-old woman with suspected diabetes mellitus has an oral glucose tolerance test, following the standard WHO protocol. The following results are obtained:

Time (hours) Blood glucose (mmol/l)

0 5.9

2 8.4

How should these results be interpreted?

A.Impaired fasting glucose and impaired glucose tolerance

B.Normal

C.Diabetes mellitus

D.Impaired glucose tolerance

E.Impaired fasting glucose

Answer:Impaired glucose tolerance

Explanation:

Question:

A 37-year-old woman presents to the GP regarding contraception. She has recently started a new relationship with a partner and would like to discuss the use of the combined oral contraceptive pill. The patient smokes 16 cigarettes daily and has never drunk alcohol.

Her blood pressure is measured and is 118/63 mmHg, her height is 160 cm, and her weight is 65 kg. She has no past medical history of hypertension, thromboembolic disease, or personal or family history of breast cancer.

What UK Medical Eligibility Criteria (UKMEC) category best describes this patient?

A.UKMEC 1

B.UKMEC 2

C.UKMEC 3

D.UKMEC 4

E.UKMEC 5

Answer:UKMEC 4

Explanation:

More than 35 years old and smoking more than 15 cigarettes/day is an absolute contraindication to the COCP

Important for meLess important

UKMEC 4 is correct as this patient is older than 35 years and smokes more than 15 cigarettes daily, making the combined oral contraceptive pill (COCP) an absolute contraindication due to the unacceptable risk of adverse cardiovascular events such as stroke and myocardial infarction. UKMEC 4 is reserved for conditions that pose an unacceptable health risk for COCP use.

UKMEC 1 is incorrect as this is where the patient has no associated conditions that would restrict the use of the COCP. Since this patient smokes, they automatically cannot be UKMEC 1, and since they are >35 years old and smoke >15 cigarettes daily, they are UKMEC4.

UKMEC 2 is incorrect as this is where the patient has conditions that may increase the risk of adverse effects (such as stroke or myocardial infarction), but the advantages of using the COCP outweigh the risks posed. Since this patient smokes and is >35 years old, they are automatically UKMEC3, and since they smoke >15 cigarettes daily, they are UKMEC4.

UKMEC 3 is incorrect. Although smoking places a patient in UKMEC3, this is when patients >35 years old smoke fewer than 15 cigarettes per day. Since this patient smokes more than 15 cigarettes daily, they are UKMEC 4.

UKMEC 5 is incorrect as there is no UKMEC 5 category. The scale goes from UKMEC 1 to UKMEC 4.

Question:

An eight-year-old boy presents to the emergency department with his mother, having fallen onto his outstretched left hand earlier that afternoon during school sports day. He is complaining of pain and swelling around his left elbow and forearm.

On examination:

Heart rate: 90/minute. Respiratory rate: 22/minute. Blood pressure: 100/68 mmHg. Oxygen saturations: 98%. Temperature: 37.2 ºC. Capillary refill time: 2 seconds.

Left arm: swollen and erythematous elbow. Skin intact. Tender on palpation of the joint and reduced range of movement. Sensation intact. Pulses present.

Right arm: normal.

X-rays of the patient’s left elbow and forearm are carried out which show a proximal fracture of the ulna in association with a dislocation of the proximal radial head.

What is the name is given to this pattern of injury?

A.Colles’ fracture

B.Bennett’s fracture

C.Monteggia fracture

D.Galeazzi fracture

E.Smith's fracture

Answer:Monteggia fracture

Explanation:

A Monteggia fracture involves dislocation of the proximal radioulnar joint in association with an ulnar fracture

Important for meLess important

This patient has a Monteggia fracture (3): a fracture of the proximal ulna in association with a dislocation of the proximal head of the radius. It is most commonly seen in children aged between 4 and 10 years.

A Galeazzi (4) fracture is a fracture of the distal radius with an associated dislocation of the distal radioulnar joint.

A method to remember the difference between the two of these is by combining the name of the fracture with the bone that is broken:

Monteggia ulna (Manchester United), Galeazzi radius (Galaxy rangers)

A Colles fracture (1) is a distal radius fracture with dorsal displacement.

A Smith’s fracture (5) is a distal radius fracture with volar displacement.

A Bennett’s fracture (2) is a fracture of the base of the first metacarpal, that extends into the carpometacarpal joint.

Question:

A 16-year-old female visits her GP with her mother. Her mother is concerned about her daughter's recent behaviour. She describes her daughter repetitively checking the light-switches in her house, often taking as long as several hours to get ready to leave for school as a result. She tells you this habit has been going on for several months.

What is the most appropriate initial management for this condition?

A.Selective serotonin re-uptake inhibitor

B.Exposure and response prevention

C.Inter-personal therapy

D.Active monitoring

E.Electroconvulsive therapy

Answer:Exposure and response prevention

Explanation:

OCD: Defined as obsessions or compulsions, or both, persisting for greater than 2 weeks

Important for meLess important

This patient is exhibiting signs of obsessive compulsive disorder, OCD. The most appropriate initial management would be a form of low-intensity psychological therapy. NICE guidelines recommend exposure and response prevention as a beneficial therapy for patients with OCD.

The use of selective serotonin re-uptake inhibitors is also recommended by NICE guidelines, but is typically commenced following a stepwise approach where non-pharmacological interventions are recommended first.

Inter-personal therapy is not recommended for OCD.

Active monitoring is not appropriate in this instance as the history describes the patients condition interfering with her daily activities and would therefore merit a less conservative approach.

Electroconvulsive therapy is only indicated if there are severe depressive symptoms, since it appears to have little effect anti-obsessional effects.

Question:

A 43-year-woman had a tonsillectomy one week ago. She presents to her GP one week later because she has noticed a small amount of blood pooling in her mouth from this morning. She believes that the blood is coming from the wound site.

The GP examines her mouth and throat and sees no other obvious source of the bleeding. A set of basic observations are all normal.

What is the most appropriate next step for the GP to take?

A.Admit to hospital for ENT review and antibiotic therapy

B.Admit to hospital for ENT review and urgent surgical exploration

C.Prescribe oral antibiotics and tell her to return if bleeding hasn't resolved in 3 days

D.Refer to ENT for outpatient review within 2 weeks

E.Tell her that a small amount of bleeding up to 2 weeks after the procedure is normal

Answer:Admit to hospital for ENT review and antibiotic therapy

Explanation:

Haemorrhage 5-10 days after tonsillectomy is commonly associated with a wound infection and should therefore be treated with antibiotics

Important for meLess important

Admit to hospital for ENT review and antibiotic therapy is the correct answer. This patient presented with bleeding from the surgical site one week following tonsillectomy - this describes a secondary haemorrhage. All secondary post-tonsillectomy haemorrhages should be urgently reviewed by ENT. The most common cause of this is an infection of the wound site, and thus antibiotic therapy would most likely be indicated here.

Admit to hospital for ENT review and urgent surgical exploration is incorrect. This woman has presented with a secondary post-tonsillectomy haemorrhage, so she does need to be seen urgently by ENT. However, surgical intervention is typically only required in severe haemorrhages - this haemorrhage is not severe, indicated by only a small amount of blood and normal observations, and thus surgical intervention is not required.

Prescribe oral antibiotics and tell her to return if bleeding hasn't resolved in 3 days is incorrect. While antibiotics will be indicated as the haemorrhage is most likely secondary to wound infection, all post-tonsillectomy haemorrhages require ENT review.

Refer to ENT for outpatient review within 2 weeks is incorrect. Post-tonsillectomy haemorrhage requires immediate review and treatment to prevent further complications such as major haemorrhage.

Tell her that a small amount of bleeding up to 2 weeks after the procedure is normal is incorrect. This is not normal and poses a significant risk to the patient. Post-tonsillectomy haemorrhages always require immediate review by ENT and treatment.

Question:

A 43-year-old woman presents for follow-up in clinic. She was diagnosed with Hashimoto's thyroiditis four months ago and is currently being treated with levothyroxine 75 mcg od. What is the single most important blood test to assess her response to treatment?

A.ESR

B.TSH

C.Free T4

D.Total T4

E.Free T3

Answer:TSH

Explanation:

Question:

A 52-year-old woman presents to the GP with a new groin swelling, which she has noticed for the last 2 weeks. A mass is noted inferolateral to the pubic tubercle. It is not tender or reducible. There is no soft tissue swelling or erythema to the overlying skin.

What is the most likely diagnosis?

A.Incarcerated femoral hernia

B.Incarcerated inguinal hernia

C.Littre's hernia

D.Strangulated femoral hernia

E.Strangulated inguinal hernia

Answer:Incarcerated femoral hernia

Explanation:

Femoral hernias are inferolateral to the pubic tubercle

Important for meLess important

Incarcerated femoral hernia is correct. The femoral canal is a conical structure with its oval base, i.e. the opening, directed upward and named the femoral ring. It is the most medial structure in the femoral triangle. Abdominal viscera can protrude into this structure, which is known as a femoral hernia. The fact that the swelling is non-reducible means that it is incarcerated. The absence of tenderness and systemic upset however most likely indicates that strangulation has not occurred. Note that femoral hernias require urgent surgical management, as they are at much higher risk of strangulation than inguinal hernias.

Incarcerated inguinal hernia is incorrect, as inguinal hernias are superomedial to the pubic tubercle.

Littre's hernia is a hernia containing Meckel's diverticulum. Most cases are located in the inguinal region. It is very rare and therefore not the most likely diagnosis.

Strangulated femoral hernia is incorrect, as strangulation is unlikely given the clinical picture.

Strangulated inguinal hernia is incorrect, as this is neither an inguinal hernia nor is it strangulated.

Question:

A 23-year-old woman has been recently diagnosed with Hodgkin's lymphoma. She had been feeling fatigued and was found to have multiple palpable lymph nodes when she originally saw the GP. She has now seen the oncologist and is told that her lymphoma is stage III.

What feature would have resulted in this classification?

A.Lymph nodes greater than 4cm in diameter

B.Lymph nodes in both the left and right axilla

C.Lymph nodes in neck and groin

D.Presence of 'B' symptoms

E.Splenomegaly

Answer:Lymph nodes in neck and groin

Explanation:

Stage III of the Ann-Arbor clinical staging of lymphomas involve lymph nodes on both sides of the diaphragm

Important for meLess important

Lymph nodes in neck and groin is the correct answer. Hodgkin lymphoma is staged using the Ann-Arbor classification, which is based on the number of lymph nodes and where they are. Stage III means there are lymph nodes on both sides of the diaphragm e.g. in the neck and groin.

Lymph nodes greater than 4cm in diameter - this is incorrect, as the size of the lymph node does not dictate staging in the Ann-Arbor classification.

Lymph nodes in both the left and right axilla is not correct. This would be stage II as it is two lymph node regions on the same side of the diaphragm.

Presence of 'B' symptoms - this is incorrect as weight loss, fever, and night sweats do not dictate the Ann-Arbor stage but the staging is then subdivided into A or B classification, depending on systemic symptoms, i.e. stage IIIA.

Splenomegaly is incorrect as this would indicate spread beyond lymph nodes and therefore be categorised as Ann-Arbor stage IV.

Question:

A 35-year-old woman presents to her GP complaining of intermittent double vision that comes on throughout the day. She finds that after resting her eyes her vision normalises.

She has been troubled by this for the last six months, and symptoms have been deteriorating. She has already seen her optician who was unable to find a cause. There have been no features of peripheral nerve or muscle problems.

Given the likely diagnosis, what medication is likely to be trialled first-line?

A.Azathioprine

B.Intravenous immunoglobulin therapy

C.Mycophenolate

D.Prednisolone

E.Pyridostigmine

Answer:Pyridostigmine

Explanation:

Pyridostigmine is the 1st line drug in the management of ocular myasthenia gravis

Important for meLess important

Pyridostigmine is correct. This patient is experiencing ocular myasthenia gravis. In ocular myasthenia gravis, pyridostigmine is the first-line drug in management. Pyridostigmine is a long-acting acetylcholinesterase inhibitor that works to prevent the breakdown of acetylcholine in the synaptic clefts.

Azathioprine and mycophenolate are incorrect. These drugs are both immunosuppressants that can be used in treatment-resistant myasthenia gravis, but these are not first-line options.

Intravenous immunoglobulin therapy is incorrect. This may be utilised in an inpatient setting if a person has a suspected myasthenic crisis. There is nothing to suggest in the history that the patient requires an inpatient admission, therefore this is not the correct answer.

Prednisolone is incorrect. If the pyridostigmine does not improve symptoms sufficiently on an outpatient basis, prednisolone may be used, but this is not the first-line management option.

Question:

A 23-year-old man undergoes electroconvulsive therapy (ECT) for treatment-resistant depression.

Which of the following side effects is he most likely to experience?

A.Constipation

B.Retrograde amnesia

C.Anterograde amnesia

D.Galactorrhea

E.Hypothermia

Answer:Retrograde amnesia

Explanation:

ECT can cause memory impairment

Important for meLess important

Memory loss is the most important side effect of ECT. NICE guidelines state that memory should be assessed at the start and end of each course of treatment. Retrograde amnesia (remembering events prior to the insult) is far more common that anterograde amnesia (loss of ability to form new memories after the insult)

Other side effects can be categorised immediate and longer-term side effects;

Immediate side effects

Drowsiness

Confusion

Headache

Nausea

Aching muscles

Loss of appetite

Long term side effects

Apathy

Anhedonia

Difficulty concentrating

Loss of emotional responses

Difficulty learning new information

Hypothermia, Galactorrhea and constipation are not recognised side effects of ECT.

Question:

A 24-year-old man self-presents to the eye casualty department. He admits to being persuaded to attend by his girlfriend as he is not normally keen on seeing doctors. The patient has a past medical history of ulcerative colitis.

The doctor performs a preliminary examination of the eyes and decides that either the episclera or the sclera are inflamed. He subsequently performs a slit lamp examination.

Which key feature of the history or examination classically differentiates between the two diagnoses?

A.Association with autoimmune disease

B.Fluorescein staining

C.Laterality

D.Pain

E.Redness of eyes

Answer:Pain

Explanation:

Scleritis is painful, episcleritis is not painful

Important for meLess important

The correct answer is the presence of pain. Classically, episcleritis is a milder condition without any pain (although occasionally may be uncomfortable). Scleritis is almost always painful and is a more serious condition. Whilst episcleritis is usually self-limiting, scleritis requires intervention.

Association with autoimmune disease would not particularly help to differentiate between episcleritis and scleritis. Both are commonly associated with a number of autoimmune and rheumatological diseases, including rheumatoid arthritis, ulcerative colitis and granulomatosis with polyangiitis.

Fluorescein staining would not help to differentiate between the two. This is used to detect corneal abnormalities; as such, it does not help with regards to episcleritis and scleritis.

Laterality is not a particularly useful discriminator between the two conditions either - episcleritis is bilateral in about 40% of cases and, similarly, scleritis is bilateral in approximately 50% of cases.

The redness of the eyes would not help to differentiate between scleritis and episcleritis - in both conditions, the eyes will be visibly red.

Question:

A 55-year-old male present to his GP with severe groin pain. The pain started two days ago and has increased significantly since then. He also feels he has started to develop a fever. He lives at home with his wife, who is his only sexual partner.

He is otherwise fit and well. His only regular medication is tamsulosin.

On examination, the right testis is swollen and acutely tender. The pain is somewhat relieved by elevating the testis. A diagnosis of epididymo-orchitis is made.

Which of the following organisms is the most likely cause of this gentleman's symptoms?

A.Chlamydia trachomatis

B.Neisseria gonorrhoeae

C.Mycobacterium tuberculosis

D.Mumps virus

E.Escherichia coli

Answer:Escherichia coli

Explanation:

Epididymo-orchitis in individuals with a low STI risk (e.g. married male in 50s, wife only partner) is likely due to enteric organisms (e.g. E. coli)

Important for meLess important

Epididymo-orchitis is a potential complication of other local genitourinary infections. Classically these will be sexually transmitted infections, however, in individuals over the age of 35 or with a low STI risk, the causative organism is more likely to be an enteric pathogen such as E. coli. This is particularly the case in those with a recent UTI, with catheter use, or in those with any obstruction to the free flow of urine.

This gentleman has a low STI risk, given his age and that he has a single partner. The use of tamsulosin indicates he is also being treated for prostatic hypertrophy, which will additionally increase the risk of an infection from an enteric pathogen such as E. coli due to urinary obstruction.

Extrapulmonary tuberculosis can present as epididymo-orchitis, however this is rare. This would be a potential differential in those with a history of TB exposure and immunocompromised patients in particular.

Mumps orchitis is a complication of mumps infection that affects approximately 40% of post-pubertal males. Orchitis onset is around 5 -7 days post infection.

Of note: the relief of pain on elevation of the testis is known as a +ve Prehn's sign, which importantly is negative (i.e. the pain is not relieved) in cases of testicular torsion.

Question:

A hirsute 28-year-old lady attends the GP practice complaining that her periods are absent. Which one of these is part of the diagnostic criteria for polycystic ovarian syndrome (PCOS)?

A.Menorrhagia

B.Dysmenorrhoea

C.Oligomenorrhoea

D.Body mass index of >28

E.Low levels of oestrogen

Answer:Oligomenorrhoea

Explanation:

Although PCOS can be suspected on clinical features alone (infrequent or absent ovulation) and hyperandrogenism (hirsutism, alopecia, acne vulgaris occurring after adolescence) NICE CKS currently recommend the use of the following diagnostic criteria:

PCOS should be diagnosed if 2/3 of the following criteria are present:

Infrequent or no ovulation (thus oligomenorrhoea is the correct answer in this scenario)

Clinical or biochemical signs of hyperandrogenism or elevated levels of total or free testosterone (no mention of 'low levels of oestrogen')

Polycystic ovaries on ultrasonography or increased ovarian volume

It is of note that a high BMI is not part of the diagnostic criteria for PCOS however indirect evidence of insulin resistance for example acanthosis nigricans, may help the physician suspect this condition.

Question:

A neonate begins to turn blue and becomes tachypnoeic 5 minutes after birth. They are administered 100% oxygen for 15 minutes and an arterial blood gas is performed.

pH 7.42 7.38 - 7.42

PaO2 12 kPa 10.5 - 13.5

PaCO2 6.0 kPa 5.1 - 5.6

On auscultation, the neonate has no murmur but a loud single S2. On palpation, there is a prominent ventricular pulse.

What is the most likely diagnosis?

A.Coarctation of the aorta

B.Pulmonary valve stenosis

C.Tetralogy of Fallot

D.Transposition of the great arteries

E.Tricuspid atresia

Answer:Transposition of the great arteries

Explanation:

Transposition of the great arteries presents with no murmur but typically a loud single S2 is audible and a prominent right ventricular impulse is palpable on examination

Important for meLess important

This patient has developed cyanosis soon after birth. The nitrogen (hyperoxia) test is performed which is positive because the pO2 after 15 minutes of 100% oxygen is <15kPa. Therefore, this is a cyanotic heart defect. Transposition of the great arteries is the most likely cyanotic heart defect to presents soon after birth and these examination findings are typical.

Pulmonary valve stenosis may be cyanotic if the lesion is large enough. It is associated with Noonan syndrome. It causes a mid-systolic crescendo-decrescendo murmur.

Tetralogy of Fallot is the most common cyanotic heart defect but it tends to present between 1 and 6 months. It causes a loud ejection systolic murmur which is loudest at the left upper sternal edge with radiation to the axillae.

Tricuspid atresia is a cyanotic heart defect which causes an ejection systolic murmur which is loudest at the left upper sternal edge and a prominent apical impulse.

Question:

A 65-year-old female with type 2 diabetes mellitus is found to have inadequate glycaemic control despite dual therapy with metformin and pioglitazone. The decision is therefore made to add canagliflozin (an SGLT2 inhibitor) to her medications.

What is this patient at increased risk of developing as a result of starting this new medication?

A.Fluid retention

B.Hypoglycaemia

C.Lactic acidosis

D.Pancreatitis

E.Urinary tract infections

Answer:Urinary tract infections

Explanation:

Sodium-glucose co-transporter 2 inhibitors are associated with an increased risk of urinary tract infections

Important for meLess important

SGLT-2 inhibitors are associated with an increased risk of urinary tract infections, making this the correct answer.

Fluid retention is linked to thiazolidinediones (e.g. pioglitazone).

Hypoglycaemia is a potential complication of sulfonylureas (e.g. gliclazide).

Lactic acidosis is most closely associated with metformin.

Pancreatitis is associated with both DPP4 inhibitors (e.g. sitagliptin) and GLP1 agonists (e.g. exenatide).

Question:

A 55-year-old man presents to the emergency department with a worsening cough. His cough has been present for 3 days, and was initially dry but is now productive. He reports having a sore throat and a runny nose. He denies any other symptoms but on examination, a mild bilateral wheeze is heard. No bronchial breathing or dullness to percussion is heard.

He has some bloods taken. His results are as follows:

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

Female: (115 - 160)

Platelets 172 \* 109/L (150 - 400)

WBC 5.4 \* 109/L (4.0 - 11.0)

Na+ 150mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 75µmol/L (55 - 120)

CRP 116mg/L (< 5)

Given the most likely diagnosis, which aspect of his clinical presentation or results is used to guide the requirement for antibiotic therapy?

A.Cough is now productive

B.Mild bilateral wheeze

C.Sore throat

D.55 years old

E.CRP >100mg/L

Answer:CRP >100mg/L

Explanation:

The CRP level can be used to guide whether patients with acute bronchitis require antibiotics

Important for meLess important

This patient is presenting with classic symptoms of acute bronchitis. The need to prescribe antibiotics in patients with acute bronchitis is indicated by a CRP>100mg/L. NICE Clinical Knowledge Summaries/BNF currently recommends doxycycline first-line. Other factors that indicate the immediate prescription of antibiotics include multiple comorbidities and becoming systemically very unwell.

E

Bronchitis follows a clinical pattern of an initial dry cough over 3-4 days followed by a productive cough that usually resolves within 3 weeks. This is a normal clinical finding in bronchitis and does not indicate the need for antibiotics. The same can be said for a concurrent sore throat.

Examination of a patient with acute bronchitis will often reveal a mild bilateral wheeze with no other findings. Patients may also present with low-grade fever.

Age does not play a significant role in the requirement of antibiotics.

Question:

A 24-year-old woman who is 18 weeks pregnant presents for review. Earlier on in the morning she came into contact with a child who has chickenpox. She is unsure if she had the condition herself as a child. What is the most appropriate action?

A.Advise her to present within 24 hours of the rash developing for consideration of IV aciclovir

B.Reassure her that there is no risk of fetal complications at this point in pregnancy

C.Give varicella immunoglobulin

D.Check varicella antibodies

E.Prescribe oral aciclovir

Answer:Check varicella antibodies

Explanation:

Chickenpox exposure in pregnancy - first step is to check antibodies

Important for meLess important

If there is any doubt about the mother previously having chickenpox maternal blood should be checked for varicella antibodies

Question:

What is the most common type of renal stone?

A.Calcium phosphate

B.Cystine stones

C.Triple phosphate stones

D.Calcium oxalate

E.Xanthine stones

Answer:Calcium oxalate

Explanation:

Question:

A 55-year-old man presents with the following lesions on his forearm. He complains that they itch and has tried over the counter creams without any success. The patient is worried and would like to know how this condition can be treated.

© Image used on license from DermNet NZ

What should this patient be treated with?

A.Mild topical corticosteroids

B.Oral acitretin

C.Oral corticosteroids

D.Oral methotrexate

E.Potent topical corticosteroids

Answer:Potent topical corticosteroids

Explanation:

This patient has purple, polygonal, pruritic papules which are consistent with lichen planus. This is an immune-mediated skin disorder that is typically treated with potent topical corticosteroids. Factors that lead to this condition include genetic predisposition, stress, injury, hepatitis C and medications (gold, quinine).

Although it is correct that topical corticosteroids are required for treatment, mild topical corticosteroids are insufficient to treat this condition. These may be considered in areas where topical steroids may lead to adverse effects such as the face or axillae.

Oral acitretin can be used in cases of severe lichen planus while the patient is being weaned off oral corticosteroids as a steroid-sparing agent. This patient should be trialled on potent topical corticosteroids prior to this treatment option being considered. Acitretin requires monitoring of liver function due to potential toxicity.

Oral corticosteroids can be used in cases of severe lichen planus but are not used as initial treatment. In this case, the patient should be trialled on potent topical corticosteroids in the first instance and then reviewed for progression. Only if necessary, should oral corticosteroids be started given their myriad of side effects.

Oral methotrexate can be used in cases of severe lichen planus while the patient is being weaned off oral corticosteroids as a steroid-sparing agent. This patient should be trialled on potent topical corticosteroids prior to this treatment option being considered. Methotrexate requires even more monitoring than acitretin and can be toxic to the liver and lungs.

Question:

A 65-year-old male presents with sudden onset visual disturbance whilst watching TV. He attends the emergency department and is found to have a right homonymous hemianopia. His past medical history includes gout for which he takes allopurinol 100mg OD. ECG shows an irregular narrow complex bradycardia with no discernible P waves. CT head is performed and shows a subacute posterior cerebral artery infarction on the left side.

Given this history and the investigation findings what would be the likely management of this patient?

A.Aspirin 300mg OD for 2 weeks then lifelong anti-coagulation

B.Aspirin 300mg OD + dipyridamole 100mg TDS for 2 weeks

C.Aspirin 75mg OD + clopidogrel 75mg OD

D.Permanent pacemaker insertion + aspirin 75mg OD lifelong

E.Aspirin 300mg OD for 2 weeks

Answer:Aspirin 300mg OD for 2 weeks then lifelong anti-coagulation

Explanation:

This is a case a atrial fibrillation with a slow ventricular response.

Current NICE guidance (CG68) recommend 2 weeks of aspirin 300mg OD before consideration of anti-coagulation in cases of ischaemic stroke and atrial fibrillation. Currently, there is no evidence of other anti-platelets aside from aspirin (e.g. clopidogrel monotherapy or in combination with aspirin) in the acute phase of an ischaemic stroke to improve patient outcomes. This patient would then require lifelong anti-coagulation with either warfarin or a direct oral anti-coagulant to prevent the risk of further strokes.

Lesions affect the contralateral side i.e. contralateral homonymous hemianopia.

Question:

A 55-year-old female presents with irritability, tremors, unexplained weight loss, diarrhoea, palpitations and fatigue.

On examination, her pulse rate is 118/min and regular. Her thyroid gland is also noted to be symmetrically enlarged but non-tender.

Blood tests reveal the following:

Thyroid stimulating hormone (TSH) 0.2 mU/L (0.5-5.5)

Free thyroxine (T4) 25 pmol/L (9.0 - 18)

TSH receptor antibodies (TRAb) 15 IU/L (<1.7)

Which medication will manage the patient's symptoms quickly while she is waiting to see the endocrinologist?

A.Carbimazole

B.Metoprolol

C.Propranolol

D.Propylthiouracil

E.Radioactive iodine treatment

Answer:Propranolol

Explanation:

Propranolol should be used in new cases of Graves' disease to help control symptoms

Important for meLess important

Propranolol is a non-selective beta-blocker that is used to prevent the adrenergic effects of hyperthyroidism. It is effective and works relatively quickly to help control the symptoms.

Carbimazole is an anti-thyroid medication that should also be used in this situation but is usually initiated by the endocrinologist. It will improve her thyroid levels in the long-term and eventually improve her symptoms by blocking excess thyroid hormone synthesis, but does not achieve rapid symptom improvement compared to beta-blockers.

Metoprolol is a selective beta-blocker for beta-1 adrenergic receptors commonly used in heart-failure and after myocardial infarction. It is thought to be beneficial in reducing the bronchoconstricting effects that may occur with non-selective beta-blockers. The evidence for propranolol is much stronger and since it is non-selective, it is a more appropriate choice in this setting.

Propylthiouracil is another anti-thyroid medication that can be used in this situation instead of carbimazole. Like carbimazole, it may improve her thyroid levels in the long-term but may not improve her symptoms quickly enough while she waits to see an endocrinologist.

Radioactive iodine is a specialist treatment option used by endocrinologists in patients who are not successfully treated with anti-thyroid medications. It will not help with her symptoms in the short-term.

Question:

A 35-year-old man with no known psychiatric history is admitted to the psychiatry ward, after presenting to the emergency department with delusions and homicidal ideations.

Following a negative drugs screen, antipsychotic treatment is initiated with haloperidol.

The patient is reviewed 3-hours after the initiation of treatment and is noted to have a sustained upward deviation of both eyes. When asked, he reports that his eyes are extremely painful.

Based on the likely diagnosis, what initial management option is most appropriate?

A.Diazepam

B.Intravenous (IV) fluids

C.Levodopa

D.Procyclidine

E.Tetrabenazine

Answer:Procyclidine

Explanation:

Acute dystonia secondary to antipsychotics is usually managed with procyclidine

Important for meLess important

The scenario described refers to an oculogyric crisis, an acute dystonic reaction that can occur as part of the spectrum of extrapyramidal side-effects (EPSEs) of antipsychotics. EPSEs are more common with first-generation antipsychotics (haloperidol, chlorpromazine) than second-generation (olanzapine, risperidone) or third-generation (aripiprazole) anti-psychotics. These acute dystonic reactions are most likely to occur following initiation of anti-psychotics, or upon increasing the dose. Around 90% of these reactions occur within the first 4 days of initiation/ dose increase. The treatment of acute dystonia requires anti-cholinergic procyclidine, which can take effect within 5-minutes. Following acute management, reducing the dose of anti-psychotic can help prevent future attacks.

Benzodiazepines such as diazepam are not indicated to treat acute dystonic reactions such as oculogyric crisis. However, they can be used in the treatment of serotonin syndrome, which occurs following administration of serotonin agonists, including selective serotonin reuptake inhibitors (SSRIs) and monoamine oxidase inhibitors (MAOIs). Serotonin syndrome presents with rigidity, hyperreflexia and autonomic dysfunction.

Levodopa is a dopamine precursor used in the treatment of Parkinson's disease. EPSEs are caused by blockage of dopamine at the mesolimbic pathway, not a dopamine deficiency. Therefore, levodopa is not used to manage EPSEs of anti-psychotics.

IV fluids will not specifically help to treat the oculogyric crisis in this case. IV fluids are useful in the treatment of neuroleptic malignant syndrome, another side-effect which can occur with antipsychotic treatment. Neuroleptic malignant syndrome presents with lead-pipe muscle rigidity, pyrexia and autonomic dysfunction.

Tetrabenazine is a drug which depletes monoamines (including dopamine, serotonin, histamine) and is used in the treatment of tardive dyskinesia, another EPSE caused by antipsychotics. Tardive dyskinesia involves abnormal and involuntary choreoathetosis (twitching or writhing), especially chewing and lip pouting. Tetrabenazine is also used to manage chorea in Huntington's disease. Side-effects include an increased risk of depression and suicidal ideations.

Question:

A 31-year-old woman has requested a telephone consultation to discuss her cervical smear results.

She had a cervical smear test as part of the routine screening programme and is currently asymptomatic.

Her previous cervical smear was 3 years ago and was normal.

Her results are as follows:

High-risk human papillomavirus (hrHPV): POSITIVE.

Cytology: NEGATIVE.

What is the next step in her management?

A.Repeat cervical smear in 3 months

B.Repeat cervical smear in 12 months

C.Repeat cervical smear in 3 years

D.Routine referral to colposcopy

E.Urgent referral to colposcopy

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

Repeat cervical smear in 12 months is the correct answer. 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.

Repeat cervical smear in 3 months is an incorrect answer. If the hrHPV test result is unavailable or cytology is inadequate then the sample is repeated in no less than 3 months, this would not be the case for this patient because the results are available and cytology is negative.

Repeat cervical smear in 3 years is an incorrect answer. If the hrHPV test result is negative the patient is returned to routine cervical screening every 3 years if aged 25 to 49 years (every 5 years if aged 50 to 64 years). As the hrHPV result is positive, it would not be appropriate to wait this long for a repeat smear.

Routine referral to colposcopy is an incorrect answer. Only patients with abnormal cytology will be referred to colposcopy. In this case, it is not needed due to the normal cytology.

Urgent referral to colposcopy is an incorrect answer. Patients are only referred urgently if the cytology reports cervical cancer, which is not the case for this patient.

Question:

A 35 year old construction worker is brought in by ambulance after falling from scaffolding. The paramedic crew say that he fell from a height of about 8 meters onto his left side. In the trauma room he does not open his eyes, he is groaning in pain but not forming any words, and he withdraws his hand when you apply a painful nail stimulus. What is his Glasgow Coma Score?

A.6

B.7

C.8

D.9

E.10

Answer:7

Explanation:

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

Important for meLess important

Eyes not opening = a score of 1 out of a possible 4

Groaning in pain but not forming words = 2 out of a possible 5

Withdrawing from painful stimuli = 4 out of a possible 6

Question:

A 36-year-old woman who is currently 32 weeks pregnant has been monitoring her capillary blood glucose (CBG) at home following a diagnosis of gestational diabetes mellitus (GDM) 4 weeks ago.

She has been given appropriate dietary and exercise advice, as well as review by a dietitian. She has also been taking metformin and has been on the maximum dose for the past 2 weeks.

Fetal growth scans have been normal with no signs of macrosomia or polyhydramnios.

She has brought her CBG diary today, which shows that her mean pre-meal CBG is 5.9 mmol/L and mean 1-hour postprandial CBG is 8.3 mmol/L.

What is the most appropriate management?

A.Add gliclazide

B.Add sitagliptin

C.Commence insulin

D.Stop metformin

E.Continue current treatment and review in 2-3 weeks

Answer:Commence insulin

Explanation:

In gestational diabetes, if blood glucose targets are not met with diet/metformin then insulin should be added

Important for meLess important

Pregnant women with GDM should be advised to maintain their CBGs below the following target levels:

fasting: 5.3mmol/L

AND

1 hour postprandial: 7.8 mmol/L or

2 hours postprandial: 6.4 mmol/L

If these targets are not met with diet, exercise and metformin, then insulin should be offered as add-on therapy.

The only sulphonylurea that is advocated by the National Institute of Health and Clinical Excellence (NICE) is glibenclamide, which can be considered in women who decline insulin, or who cannot tolerate metformin initially, hence gliclazide is an incorrect option here. Note that the use of any sulphonylurea in GDM is an off-license indication.

There is insufficient evidence to advise the safe use of gliptins in pregnancy, hence it is currently not recommended in GDM management.

It would not be correct to continue the same management or de-escalate treatment by stopping metformin as the CBG readings are above target levels. Although fetal growth is currently normal, there are serious ongoing risks to both mother and fetus if glycaemic control is not achieved, including pre-eclampsia, pre-term labour, stillbirth and neonatal hypoglycaemia.

Question:

A 55-year-old man presents with a 6 month history of upper abdominal discomfort and bloating, which worsens on lying flat. He has noticed these symptoms especially after mealtimes. He denies dysphagia, vomiting, haematemesis, or melaena. Other than ibuprofen, which he has been taking regularly for 1 year due to hip pain, he takes no other medications. On direct questioning he admits to losing 5kg weight in the last month. He reports losing this weight due to loss of appetite as larger meals cause him increased discomfort.

What is the next most important step in management?

A.Advise weight reduction

B.Arrange contrast swallow

C.Start eradication therapy for Helicobacter pylori

D.Test for Helicobacter pylori

E.2 week wait referral for upper gastrointestinal endoscopy

Answer:2 week wait referral for upper gastrointestinal endoscopy

Explanation:

With dyspepsia, weight loss is a key symptom warranting an urgent referral

Important for meLess important

This 55-year-old man has presented with a 6 month history of dyspepsia. Weight loss is one of the key symptoms requiring an urgent referral for upper gastrointestinal endoscopy, making this option the correct option. Significant weight loss can be defined as a loss of 5% of someone's total body weight over the past month. Unintentional weight loss occurs secondary to a loss of appetite, or can occur despite eating the same amount of calories as usual. Other key symptoms that would require urgent referral include anorexia, anaemia, dysphagia, melaena, haematemesis, or recent progression of symptoms.

Arranging a contrast swallow may be of benefit in classifying benign motility disorders but has no place in the assessment of tumours. Given this patient has presented with dyspepsia and unintentional weight loss, it is important to refer for endoscopy to assess for possible tumours rather than arranging a contrast swallow.

Eradication therapy for Helicobacter pylori includes antibiotics and full dose of a proton pump inhibitor. You should start treatment for Helicobacter pylori if you have a positive test for Helicobacter pylori , or if there is evidence of peptic ulcer disease on endoscopy. Therefore, this is not the next most important step in management in this case.

Lifestyle advice can be offered to patients suffering with dyspepsia - this can include weight reduction, smoking cessation, and a reduction of alcohol consumption. However, the patient has already reported recent significant weight loss. This weight loss also means that this man needs urgent referral for endoscopy. Therefore, advising weight reduction for this patient is not the correct answer.

Testing for Helicobacter pylori is an important investigation for those presenting with dyspepsia. Usually testing for Helicobacter pylori is done if symptoms persist despite treatment with a proton pump inhibitor. Usually a 2 week washout period is recommended after stopping the proton pump inhibitor prior to testing for Helicobacter pylori . Due to the key symptom of weight loss requiring urgent referral, and due to proton pump inhibitors not yet being trialled in this patient, this option is not the next most important step in management.

Question:

A 55-year-old woman presented to her GP complaining of severe pain around the anal region, and recalled that the pain started soon after straining to pass stool. She had been constipated for the previous 5 days and been trying over-the-counter laxatives. Examination by the GP revealed a tender, tense blue-black swelling at the anal margin.

Which one of the following is the likely cause of her symptoms?

A.Anal fissure

B.Anal fistula

C.External haemorrhoid

D.Rectal prolapse

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 haemorrhoids present as an acutely painful and tender blue-black lump originating from the anal margin. They are often preceded by straining to pass stool. It does not normally present with bleeding but this can occur if the haematoma spontaneously bursts. Treatment includes analgesia and using an icepack. However, if the pain is severe or presentation is within the first 72 hours, admission can be considered for excision under anaesthesia.

An anal fissure, caused by a crack in the wall of the anal mucosa, normally causes fresh rectal bleeding when a patient passes stool. Additionally, examination reveals a longitudinal tear that normally occurs posteriorly and in the midline.

An anal fistula is an abnormal connection that develops between the perianal skin and the anal or rectal lumen. Patients normally complain of intermittent discharge, pain or discomfort in the perianal area. The examination normally reveals the abnormal opening of the fissure.

Haemorrhoids can cause pain, itching and bleeding. Although grades 2-4 can reveal a rectal mass, these are normally red or flesh coloured.

A rectal prolapse, more common in the elderly and in females, normally presents with constipation, pain, faecal incontinence, discharge of mucus and sometimes rectal bleeding. Examination reveals the classical concentric rings of mucosa on a rectal mass and possible reduced anal sphincter tone.

Question:

A 34-year-old man presents with a three week history of an intensely itchy rash just below his knees. On examination he has a symmetrical vesicular rash as shown below and also some early lesions on the back of his arms.

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

Which one of the following antibodies is most likely to be positive?

A.Anti-mitochondrial antibody

B.Anti-tissue transglutaminase antibody

C.Anti-nuclear antibody

D.Anti-neutrophil cytoplasmic antibody

E.Anti-Jo-1 antibody

Answer:Anti-tissue transglutaminase antibody

Explanation:

Question:

A 37-year-old patient is brought into the emergency department after rescue from a house fire. He has full-thickness burns across his face and neck. He also has an open left tibial fracture from a falling beam. A full A-E assessment is performed on arrival. Notable findings are:

Airway stridor

Respiratory rate = 25/min

SpO2 = 95% in room air

Heart rate = 128bpm

GCS = 13 (E4V4M5)

Exposure: full-thickness burns covering 9% of body surface area. Soot covering face, neck and intra-orally. Gustilo-Anderson type II tibial fracture.

What is the most important initial aspect of management to consider for this patient?

A.Consider early intubation

B.Escharotomy

C.External fixation of the tibial fracture

D.Fluid resuscitation in line with NICE sepsis guidance

E.Oral analgesia (e.g. codeine or Oramorph)

Answer:Consider early 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

The correct answer is consider early intubation. Burns patients are at high risk of laryngeal injury and oedema secondary to soot inhalation and burns to the face or neck, leading to airway compromise, so intubation is a key early step in burns management. Stridor is the key initial feature here.

Escharotomy is the surgical debridement of burn scar tissue, which is very inelastic and constricts as the wound heals, to prevent compartment syndrome and poor wound healing. Whilst it could be helpful for this patient's long-term recovery, it would not be part of the early steps in management for this patient. It would be considered if, for example, the patient had a significant lower limb burn causing compartment syndrome to the distal leg and foot.

External fixation of the tibial fracture might be considered by the trauma surgeons once the patient is stabilised, but after the airway is effectively managed. For an open fracture like this in a conscious patient, the best route initially would be to organise antibiotics and wound photography (so the orthopods can see the initial injury), cover the wound in sterile saline-soaked gauze, and reduce the fracture under sedation (e.g. ketamine or morphine/midazolam), once the patient is stable. Gustilo-Anderson is the grading system for open fractures.

Fluid resuscitation in line with sepsis guidance is incorrect. Fluid resuscitation is a critical aspect of burn care but only for large burns where fluid extravasation becomes an issue. So fluids are only indicated in more significant surface area burns: 15% total body surface area for adults or 10% for children. Additionally, fluid resuscitation for burns patients is guided by the Parkland formula (4 x burned body surface area (%) x weight (kg)), not sepsis guidance. Most importantly, the patient's airway is likely to be compromised by burn injuries; fluid resuscitation could be started for larger burns whilst the intubation is organised but it would be useless if the airway was neglected.

Oral analgesia is incorrect. Analgesia is essential in almost every burns patient, but in this case, oral preparations would not be suitable as the patient's airway is potentially compromised. IV opioids are generally first-line for significant burns such as this.

Question:

A 65-year-old woman, currently on the respiratory ward, is being reviewed during the morning ward round. She seems to be quite confused and unable to recall where exactly she is. All that she is saying is 'it burns...it burns' and points to her lower abdomen. A mid-stream urine shows a growth of 107 organisms/mL. Her past medical history includes hypertension and rheumatoid arthritis for which she takes ramipril and methotrexate respectively.

Which of the following medications would be the most appropriate in this scenario?

A.Co-amoxiclav

B.Levofloxacin

C.Nitrofurantoin

D.Amphotericin B

E.Trimethoprim

Answer:Nitrofurantoin

Explanation:

A pure growth of >10^5 organisms/mL on a mid-stream urine is diagnostic of a urinary tract infection

Important for meLess important

This lady is suffering from an acute urinary tract infection, likely hospital acquired, which is causing her acute confusion. The most appropriate management, as per NICE guidelines, would be nitrofurantoin for 3 days.

1 - incorrect - co-amoxiclav is not routinely used first line to treat urinary tract infections, as per the BNF. It can be used if organisms are resistant to first-line treatments.

2 - incorrect - levofloxacin is used to manage urinary tract infections, however not first-line as per NICE guidelines.

4 - incorrect - Amphotericin B is an anti-fungal and so is not routinely used to manage urinary tract infections.

5 - incorrect - trimethoprim is an option usually to treat UTI, however in this case it must not be given as she is also on methotrexate.

Question:

A 44-year-old woman undergoes a hysterectomy for severe dysmenorrhoea. She had completed her family and pharmacological management had failed. A few months later she suffers from a vaginal vault prolapse and is referred to the gynaecologists.

Which surgical treatment is most suitable?

A.Anterior colporrhaphy

B.Vaginoplasty

C.Vaginal hysterectomy

D.Bilateral oophorectomy

E.Sacrocolpopexy

Answer:Sacrocolpopexy

Explanation:

The treatment for vaginal vault prolapse is sacrocolpoplexy

Important for meLess important

The most suitable surgical option is sacrocolpopexy. This procedure suspends the vaginal apex to the sacral promontory. This support is usually afforded by the uterosacral ligaments.

Anterior colporrhaphy is when the vaginal wall is repaired following a cystocele.

Vaginoplasty is reconstruction of the vagina to make it 'tighter' following childbirth, for example.

Vaginal hysterectomy involves the removal of the uterus via the vagina.

Bilateral oophorectomy involves the removal of the ovaries and again would not be appropriate as the ovaries are not involved in the pathology of the underlying disease.

Question:

A 24-year-old man from Sudan presents with a lymphadenopathy and weight loss. A diagnosis of tuberculosis is suspected and a lymph node biopsy is performed. Staining with which of the agents below is most likely to facilitate identification of the causative organism?

A.Gram stain

B.Ziehl-Neelsen stain

C.Von Kossa stain

D.Van Gieson stain

E.Masson Trichrome stain

Answer:Ziehl-Neelsen stain

Explanation:

Ziehl-Neelsen stain is typically used to identify mycobacteria. They are not stained in the Gram staining process. Van Gieson and Masson trichrome are histological staining methods for identification of connective tissues. The Von Kossa technique is useful for identifying tissue mineralisation.

Question:

A 48-year-old male presents to the GP as he has recently coughed up small amounts of blood on several occasions. He has also noticed his nose is 'always blocked' and has had a few episodes of nosebleeds. Upon questioning, he admits that his clothes feel a little looser but he has not weighed himself.

On examination, you notice a palpable rash on his lower legs.

Based on the most likely diagnosis, which antibodies are most likely to be found in this patient's blood?

A.Anti-CCP

B.Anti-GBM

C.Anti-dsDNA

D.cANCA

E.pANCA

Answer:cANCA

Explanation:

Consider granulomatosis with polyangiitis when a patient presents with ENT, respiratory and kidney involvement

Important for meLess important

This patient most likely has granulomatosis with polyangiitis (GPA) based on the history which includes ENT symptoms (rhinosinusitis and epistaxis), respiratory symptoms (cough and haemoptysis), and weight loss. Palpable purpura is also a common feature of GPA. cANCA is the antibody most commonly found in patients with GPA.

Anti-CCP antibodies are associated with rheumatoid arthritis, this patient has not mentioned any joint symptoms.

Anti-GBM is associated with Goodpasture syndrome (autoantibodies against type 4 collagen in the renal basement membrane). Whilst Goodpasture syndrome would cause respiratory involvement and haemoptysis, it would not explain the rhinosinusitis or epistaxis.

Anti-dsDNA antibodies are associated with systemic lupus erythematosus. The patient has no arthralgia, malar rash and no Raynaud phenomenon. This makes the diagnosis of systemic lupus erythematosus unlikely.

pANCA is more commonly associated with Churg-Strauss syndrome or Eosinophilic Granulomatosis with Polyangiitis (EGPA, previously known as allergic granulomatosis). EGPA would present with symptoms similar to asthma and/or rhinitis initially, followed by high eosinophils and constitutional symptoms, followed by a vasculitis phase. EGPA is very rare and occurs in atopic individuals. Granulomatosis with polyangiitis can also be associated with pANCA (25% of cases), but cANCA (>90% of cases) is more common and more likely to be found in the patient's blood, therefore pANCA would be incorrect.

Question:

A 75-year-old man presents to the GP with a 10-week history of worsening oedema in his lower legs and breathlessness that he feels is getting worse. Initially, he was only breathless walking up the stairs but now he feels he is breathless sitting in his chair at rest. Occasionally, he can wake up at night gasping for breath. On examination, pitting oedema is present up the mid-calf, his respiratory rate is 24 breaths/ minute, his heart rate is 110 beats/ minute, his blood pressure is 105/60 and his oxygen saturation on air is 91%. The GP refers the patient for an echocardiogram which shows a reduced left ventricular ejection fraction (LVEF).

What is the first-line treatment for this patient's most likely diagnosis?

A.ACE inhibitor + beta blocker

B.ACE inhibitor + calcium channel blocker

C.ACE inhibitor only

D.Beta blocker only

E.Beta blockers + calcium channel blocker

Answer:ACE inhibitor + beta blocker

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

This is a typically presentation of heart failure with bilateral pitting oedema, breathlessness and paroxysmal nocturnal dyspnoea. His examination findings are in keeping with a diagnosis of heart failure. The first line treatment of heart failure is an ACE inhibitor and a beta blocker.

Calcium channel blockers, with the exception of amlodipine, are contraindicated in heart failure as they can depress heart function further and exacerbate symptoms. In patients with a reduced LVEF and pulmonary congestion, they can even increase mortality. Calcium channel blockers have a negative inotropic effect; they reduce heart rate and cardiac output. Calcium channel blockers are typically used in the treatment of angina, hypertension and arrhythmias.

The second line treatment is an aldosterone antagonist such as spironolactone.

Third line treatments, such as ivabradine, hydralazine and nitrates, should only be started by a specialist.

Question:

A 24-year-old patient presents to the emergency department worried that she is experiencing an allergic reaction to a recently prescribed medication.

She was prescribed penicillin 2 days ago for suspected tonsillitis. She has felt feverish and experienced joint pains for the past 24-hours. She also reports that a pruritic macular rash has formed on her torso.

Blood tests are performed and the results are reported below:

Hb 132 g/L (115 - 160)

Platelets 165 \* 109/L (150 - 400)

WBC 13 \* 109/L (4 - 11)

Na+ 137 mmol/L (135 - 145)

K+ 4.9 mmol/L (3.5 - 5.0)

Urea 9.8 mmol/L (2.0 - 7.0)

Creatinine 270 µmol/L (55 - 120)

CRP 34 mg/L (< 5)

Based on the most likely diagnosis, which of the following positive findings from a urinalysis sample is most likely in the patient?

A.'Muddy' brown casts

B.Bilirubin

C.Raised ketones

D.Raised leucocytes and nitrites

E.White cell casts

Answer:White cell casts

Explanation:

Acute interstitial nephritis causes an 'allergic' type picture consisting usually of raised urinary WCC, IgE, and eosinophils, alongside impaired renal function

Important for meLess important

Acute interstitial nephritis (AIN) is a hypersensitivity reaction causing inflammation of the space between the cells and the tubules of the kidney. It occurs in response to drugs (often antibiotics, including penicillin), infection (including staphylococcal infection) and systemic disease (such as systemic lupus erythematosus or systemic sclerosis). The presentation involves an allergic-type response, with an acute kidney injury (AKI) and hypertension. The abnormal blood results and fever, arthralgia and rash that this patient presents with are classic of AIN. A differential white cell count in this patient would likely have revealed raised eosinophils. Urinalysis consists of visual examination, a dipstick test and a microscopic examination. The microscopic examination of the urine of a patient with AIN would reveal white cell casts, with sterile pyuria (presence of raised urinary white cell count in the absence of bacteria). Treatment of this condition involves treatment of the AKI, with steroids to reduce inflammation.

'Muddy' brown casts represent cylindrical secretions of necrotic cells in the urine. This finding is pathognomonic of acute tubular necrosis, due to ischaemia or toxins. Although this can also present with an AKI, it is unlikely to cause the allergic-type reaction seen in this scenario.

Bilirubin may be present in the urine of patients with liver or biliary disease. It causes a dark 'tea' coloured urine.

Raised ketone levels in the urine may indicate starvation, diabetic ketoacidosis or alcoholic ketoacidosis. It is an indication that the body is utilising fat as an energy source to a greater extent than is normal, thus producing more ketones than normal as a by-product.

A urinalysis revealing raised leucocyte and nitrite levels usually indicates a urinary tract infection (UTI). This patient has not presented with urinary symptoms. Therefore, a UTI is an unlikely diagnosis.

Question:

A 68-year-old man is started on amitriptyline for his neuropathic pain. Ten days later, he complains of frequent urinary leakage.

What type of urinary incontinence is the most associated with amitriptyline?

A.Functional incontinence

B.Urge incontinence

C.Overflow incontinence

D.Stress incontinence

E.Mixed incontinence

Answer:Overflow incontinence

Explanation:

Tricyclic antidepressants can cause overflow incontinence (anticholinergic effect)

Important for meLess important

Amitriptyline belongs to the drug class of tricyclic antidepressants (TCAs). TCAs have anticholinergic effects which may lead to urinary retention, leading to frequent leaking.

Urge incontinence is due to detrusor over-activity and could be treated with an antimuscarinic drug. Stress incontinence is when urine leaks when the bladder is under pressure; for example when coughing or laughing. Mixed incontinence is both urge and stress incontinence. Functional incontinence is a form of urinary incontinence in which a person is usually aware of the need to urinate, but for one or more physical or mental reasons they are unable to get to a bathroom.

Question:

A 23-year-old man was driving a car at high speed whilst intoxicated, he was wearing a seat belt. The car collides with a brick wall at around 140km/h. When he arrives in the emergency department he is comatose. His CT scan appears to be normal. He remains in a persistent vegetative state. What is the most likely underlying cause?

A.Extradural haemorrhage

B.Subdural haemorrhage

C.Subarachnoid haemorrhage

D.Intracerebral haemorrhage

E.Diffuse axonal injury

Answer:Diffuse axonal injury

Explanation:

Diffuse axonal injury occurs when the head is rapidly accelerated or decelerated. There are 2 components:

1. Multiple haemorrhages

2. Diffuse axonal damage in the white matter

Up to 2/3 occur at the junction of grey/white matter due to the different densities of the tissue. The changes are mainly histological and axonal damage is secondary to biochemical cascades. Often there are no signs of a fracture or contusion.

Question:

A 60-year-old man presents to the emergency department with acute left-sided weakness and dysphagia, which resolves 25 minutes later and he becomes asymptomatic. A CT head is normal. He has a past medical history of hypertension and takes amlodipine.

He is subsequently referred to a specialist clinic where investigations are performed. An ECG shows absent P-waves and an irregularly irregular rhythm. A diffusion-weighted MRI shows no pathology. The patient does not smoke or drink alcohol and denies any other symptoms.

What is the most appropriate step in his long-term management?

A.Prescribe aspirin for 2 weeks followed by lifelong clopidogrel

B.Prescribe clopidogrel for 2 weeks followed by lifelong apixaban

C.Prescribe lifelong apixaban now

D.Prescribe lifelong aspirin and dipyridamole now

E.Prescribe lifelong clopidogrel now

Answer:Prescribe lifelong apixaban now

Explanation:

Following a TIA, anticoagulation for AF should start immediately once imaging has excluded haemorrhage

Important for meLess important

This patient has had a transient ischaemic attack (TIA) characterised by his brief period of focal neurological defects, which have resolved, along with the diffusion-weighted MRI showing no pathology, including ischaemia or haemorrhage. The ECG has demonstrated absent P-waves and an irregularly irregular rhythm, which indicates this patient may have atrial fibrillation (AF), which is likely to have contributed to his TIA.

Prescribe lifelong apixaban now is correct. The NICE guidelines state that after a TIA, all patients with AF should be given anticoagulation immediately once imaging has excluded a haemorrhage, as AF can predispose patients to further TIAs and strokes. The anticoagulants of choice are direct-acting oral anticoagulants (DOACs), such as apixaban as they are more efficacious in patients with AF.

Prescribe aspirin for 2 weeks followed by lifelong clopidogrel is incorrect. This describes secondary prevention following a stroke, not a TIA. Given that this patient has had a TIA, has AF, and imaging has ruled out a haemorrhage, they should be started on a DOAC such as apixaban now as they are more efficacious in patients with AF compared to clopidogrel. Since this patient's symptoms have resolved and there is no evidence of tissue damage, they have had a TIA and so, treatment with apixaban should be considered now as this is what the NICE guidelines state.

Prescribe clopidogrel for 2 weeks followed by lifelong apixaban is incorrect. Although clopidogrel does play a role in the management of TIA, it would be more appropriate to start the DOAC now rather than after 2 weeks of using clopidogrel, as this patient has AF and imaging has ruled out a haemorrhage. This is because DOACs are more effective in reducing the risk of stroke or a further TIA than clopidogrel in patients with AF. NICE recommends that anticoagulation for AF should start immediately after imaging has ruled out haemorrhage in TIA.

Prescribe lifelong aspirin and dipyridamole now is incorrect. This would be appropriate if this patient had a TIA without underlying AF and if clopidogrel was contraindicated. The ECG shows absent P-waves and an irregularly irregular rhythm characteristic of AF, meaning anticoagulation using DOACs such as apixaban should be started instead.

Prescribe lifelong clopidogrel now is incorrect. This would be appropriate if this patient had a TIA without underlying AF. The ECG shows absent P-waves and an irregularly irregular rhythm characteristic of AF, meaning anticoagulation using DOACS should be started instead.

Question:

A 25-year-old medical student has attended her GP practice for her first smear test. She is interested in the testing process and understands that the sample is initially tested for high risk strains of HPV. The student asks the practice nurse what will happen if the smear test is found to be positive in the laboratory.

If the smear test is found to be high risk HPV (hrHPV) positive, what test will be performed next?

A.Colposcopy testing

B.Cytology testing

C.Histology testing

D.Testing for high risk HSV

E.Testing for low risk HPV

Answer:Cytology testing

Explanation:

If a cervical smear sample is hrHPV +ve then it is examined cytologically

Important for meLess important

Cervical smear samples are initially tested for high risk HPV (hrHPV). Cytology testing will only be performed if the sample is found to be hrHPV positive. If the sample is hrHPV negative, cytology testing is not required.

Question:

You have arranged a semen analysis for a 39-year-old man who has been unsuccessful in trying to conceive with his wife for the last 12 months.

The results are as follows:

Semen volume 1.7 ml (1.5ml or more)

pH 7.3 (7.2 or more)

Sperm concentration 11 million per ml (15 million per ml or more)

Total sperm number 19 million (39 million or more)

Total motility 38% progressively motile (32% or more)

Vitality 66% live spermatozoa (58% or more)

Normal forms 4% (4% or more)

His partner is also currently awaiting investigation results. You plan on referring onwards to fertility services.

What action should be taken with regards to these semen analysis findings?

A.Repeat test as soon as possible

B.Repeat test in 1 month

C.Repeat test in 2 months

D.Repeat test in 3 months

E.Repeat test in 6 months

Answer:Repeat test in 3 months

Explanation:

If a semen sample is abnormal, a repeat test should be arranged, ideally 3 months later

Important for meLess important

This man has mild oligozoospermia/oligospermia based on World Health Organisation criteria (sperm concentration of 10 to 15 million per ml).

A repeat confirmatory test should therefore be undertaken. This should be postponed for 3 months after the initial analysis to allow time for the cycle of spermatozoa formation to be completed.

Guidelines recommend that an immediate recheck should only be performed if there is gross spermatozoa deficiency (azoospermia or severe oligozoospermia - defined as a sperm concentration of <5 million per ml) has been detected.

Question:

A 19-year-old student presents to the emergency department with a 1 day history of a high fever, headache and neck stiffness. On examination, photophobia is noted. Bloods are taken for culture, lumbar puncture is done within the hour and antibiotics are commenced. She is diagnosed with meningococcal meningitis. When asked, she discloses she currently lives with 4 other students in a household. She is not in close contact with any other individuals.

Which of the below antibiotics should be given as prophylaxis for her household members?

A.Amoxicillin

B.Benzylpenicillin

C.Cefotaxime

D.Ciprofloxacin

E.Gentamicin

Answer:Ciprofloxacin

Explanation:

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

Important for meLess important

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

Amoxicillin is used as part of initial therapy if listeria is the cause or if <3months of age or older than 50 years.

Cefotaxime is generally used for initial therapy, not prophylaxis.

Benzylpenicillin is used if patient presents with a non-blanching rash or meningococcal septicaemia in community, before hospital transfer.

Gentamicin can be used as part of initial therapy if meningitis is caused by listeria.

Question:

A 72-year-old male presents to the emergency department with a 2-hour history of tearing chest pain that radiates to the back. He has a past medical history of poorly controlled hypertension. Auscultation of the heart identifies a diastolic murmur, heard loudest over the 2nd intercostal space, right sternal border.

Which of the following CT angiography findings would result from this patient's likely diagnosis?

A.Blurring of the posterior wall of the descending aorta

B.Ballooning of the aorta

C.False lumen of the descending aorta

D.False lumen of the ascending aorta

E.Pericardial thickening and calcification

Answer:False lumen of the ascending aorta

Explanation:

A false lumen is a key finding suggestive of aortic dissection on CT angiography

Important for meLess important

The correct answer is a false lumen of the ascending aorta.

This patient presents with tearing, chest pain, hypertension, both of which suggest a likely diagnosis of aortic dissection. They also present with aortic regurgitation (diastolic murmur over the 2nd intercostal space, right sternal border). This is likely to be located in the ascending aorta as lesions in the descending aorta will usually present with normal heart sounds. A dissection occurs due to a tear in the tunica intima of the wall of the aorta, creating a false lumen that fills with large volumes of blood and can be easily seen on angiographic CT.

Blurring of the posterior wall of the descending aorta is incorrect as this is a sign of a retroperitoneal, contained rupture of an aortic aneurysm.

Ballooning of the aorta is incorrect as this describes an aortic aneurysm rather than a dissection.

False lumen of the descending aorta is incorrect. This describes a dissection of the descending aorta, which is unlikely given this patient is presenting with aortic regurgitation.

Pericardial thickening and calcification is incorrect. This is a common finding in constrictive pericarditis, a condition defined as a thickening of the pericardium with associated loss of elasticity.

Question:

Which one of the following scenarios is the most common presentation of testicular cancer?

A.Painful testicular lump in a 56-year-old man

B.Painless testicular lump in a 27-year-old man

C.Painless testicular lump in a 43-year-old man

D.Painful testicular lump in a 25-year-old man

E.Painful testicular lump associated with dysuria in a 38-year-old man

Answer:Painless testicular lump in a 27-year-old man

Explanation:

Question:

A 50-year-old woman attends her GP accompanied by her daughter, who is concerned about her mother's increasing drowsiness and confusion. The GP does blood tests, and the U&Es return as:

Na+ 112 mmol/l

K+ 3 mmol/l

Urea 14 mmol/l

Creatinine 186 µmol/l

She is immediately sent to the ED. In ED, the doctor attending to her finds that she is clinically very dry on examination. Her pulse rate is 110/min and her blood pressure is 88/45 mmHg. He prescribes 1 L of IV 0.9% sodium chloride stat for fluid resuscitation.

Two days later, the patient still appears confused and drowsy. She is noted to be drooling saliva, her speech is slurred, and she demonstrates a coarse tremor in her hands.

What is the most likely diagnosis?

A.Limbic encephalitis

B.Osmotic demyelination syndrome

C.Multiple sclerosis

D.Hypokalaemic periodic paralysis

E.Ischaemic stroke

Answer:Osmotic demyelination syndrome

Explanation:

Rapid correction of hyponatraemia can cause osmotic demyelination syndrome

Important for meLess important

The key to this question is recognising that the patient had severe hyponatraemia, and that patients with severe hyponatraemia are particularly vulnerable to complications from overly rapid correction of hyponatraemia. The main complication to be concerned about is osmotic demyelination syndrome, which can present with a variety of symptoms, including speech disturbances, swallowing dysfunction, limb paralysis, movement disorders, and behavioural and psychiatric disturbances.

Question:

A 55-year-old woman presents to the emergency department after a fall. Her son describes how his mother tripped forwards over an exposed tree root onto her extended arms. After the fall, she has been cradling her right arm and complaining of severe pain.

You request an x-ray which shows a fracture of the distal radius with posterior displacement. The tip of the ulnar is also fractured. The fracture is across the metaphysis of the radius and there is no involvement of the articular cartilage.

What is the name of this kind of fracture?

A.Bennett fracture

B.Colle's fracture

C.Dupuytren fracture

D.Galeazzi fracture

E.Smith fracture

Answer:Colle's fracture

Explanation:

Fall onto an outstretched hand (FOOSH) commonly results in Colle's fracture

Important for meLess important

Colle's fracture is the correct answer. This describes a fracture of the distal radius along the metaphysis with no articular involvement. They are the most common type of distal radius fractures.

Bennett fracture is an incorrect answer. A Bennett fracture describes a break of the thumb base due to forced abduction of the first metacarpal.

Dupuytren fracture is an incorrect answer. This is an old term which describes a type of ankle fracture. It most commonly describes an injury pattern involving a medial malleolus avulsion fracture, tibiofibular ligament rupture and posterior malleolus fracture.

Galeazzi fracture is an incorrect answer. These describe a common fracture in children in which a distal radius fracture is accompanied by dislocation of the radioulnar joint.

Smith fracture is another incorrect answer. Sometimes thought as 'reverse-colle's fractures', these breaks in the in the distal radius associated with anterior angulation/displacement and are commonly caused by falling onto the posterior aspect of the hand.

Question:

Harry, 40, sees his GP as he has been experiencing bone and joint pain. He was diagnosed with polycystic kidney disease when he was 17 years old, and his kidney function has gradually decreased. Harry's blood test results are as follows:

Ca2+ 1.8 mmol/l

PTH 12.1 pmol/l (normal range = 0.8 - 8.5)

Upon return of these results more blood tests were ordered, and Harry was found to have a vitamin D deficiency. Which one of the following diagnoses is most likely?

A.Multiple endocrine neoplasia type 1

B.Hypervitaminosis D

C.Malignancy

D.Primary hyperparathyroidism

E.Secondary hyperparathyroidism

Answer:Secondary hyperparathyroidism

Explanation:

This patient has secondary hyperparathyroidism. Harry's decreasing kidney function has resulted in his kidneys not being able to convert enough vitamin D to its active form and they are also not able to adequately excrete phosphate. Due to this insoluble calcium phosphate forms, removing calcium from the circulation, which results in hypocalcaemia. The parathyroid glands detect this and secrete parathyroid hormone to try and raise serum calcium levels. This is achieved through several mechanisms, including increasing the osteoclastic activity of bone, resulting in renal osteodystrophy.

Treatment of secondary hyperparathyroidism involves addressing the underlying cause of hypocalcaemia. In individuals with chronic kidney disease, this being the most common cause of secondary hyperparathyroidism, treatment consists of dietary restriction of phosphorous, supplemented with active vitamin D and phosphate binders. Most patients will improve following renal transplantation.

Question:

A 58-year-old man with no past medical history of note is admitted to hospital with crushing central chest pain. ECG on arrival shows anterior ST elevation and he is subsequently thrombolysed with a good resolution of symptoms and ECG changes. Four weeks following the event, which combination of drugs should he be taking?

A.ACE inhibitor + beta-blocker + statin + aspirin

B.Spironolactone + beta-blocker + statin + aspirin

C.ACE inhibitor + beta-blocker + statin + aspirin + ticagrelor

D.ACE inhibitor + statin + aspirin + clopidogrel

E.Beta-blocker + statin + aspirin + clopidogrel

Answer:ACE inhibitor + beta-blocker + statin + aspirin + ticagrelor

Explanation:

Question:

A 38-year-old male presents to the emergency department with nausea and confusion. He has a background medical history of bipolar affective disorder, type two diabetes mellitus, alcohol dependency and he was recently in a road traffic accident where he sustained a minor head injury. His regular medications include lithium, carbamazepine, and metformin. He has been binge drinking more than 28 units of alcohol at a time for the last 3 months. On examination, he appears euvolemic.

Further investigations reveal:

Na+ 119 mmol/L (135 - 145)

Serum osmolality 264 mOsm/kg (275 - 300)

Urinary sodium 42 mEq/L

Urine osmolality 556 mOsm/kg (50 - 1200)

Lithium level 1.4 mmol/L (0.4 – 1.0)

What is the most likely cause for this patient’s hyponatremia?

A.Alcohol binge drinking

B.Carbamazepine

C.Cranial diabetes insipidus secondary to head trauma

D.Lithium

E.Metformin

Answer:Carbamazepine

Explanation:

SIADH - drug causes: carbamazepine, sulfonylureas, SSRIs, tricyclics

Important for meLess important

Carbamazepine is the correct answer. The above clinical scenario is consistent with the syndrome of inappropriate antidiuretic hormone secretion (SIADH). Carbamazepine tricyclic antidepressants, serotonin selective reuptake inhibitors (SSRIs), and sulfonylureas are known to cause SIADH. SIADH causes hyponatremia with low serum osmolality and concentrated urine (urinary sodium >40 mEq/L) with inappropriate urine osmolality (>100 mOsm/kg) levels. In the setting of serum hypotonicity (serum osmolality <275 mOsm/kg), it is expected that the urine osmolality would be <100 mOsm/kg. These are the key features of SIADH.

Alcohol binge drinking is an incorrect answer. Alcohol bingeing can lead to ADH suppression in the posterior pituitary gland subsequently leading to polyuria. This is similar to cranial diabetes insipidus or partial cranial diabetes insipidus and typically causes hypernatremia with a raised serum osmolality and decreased urine osmolality. This is clearly inconsistent with the hyponatremia with low serum osmolality in this scenario.

Cranial diabetes insipidus secondary to head trauma is an incorrect answer. Diabetes insipidus is characterised by hypernatremia with a raised serum osmolality and decreased urine osmolality. This is inconsistent with the scenario above. The road traffic accident and minor head trauma in the patient’s history is a red herring.

Lithium is an incorrect answer. Lithium is associated with diabetes insipidus rather than SIADH. Diabetes insipidus is characterised by hypernatremia with a raised serum osmolality and decreased urine osmolality. Although lithium toxicity can cause nausea and confusion, it is important to note that the question is asking for the most likely cause of this patient’s hyponatremia and not his presenting symptoms. Additionally, this patient has a supratherapeutic lithium level (1.4 mmol/L), however, lithium toxicity is not typically seen with levels <1.5 mmol/L. Mild symptoms, including nausea, fatigue, and tremor occur at lithium levels between 1.5 to 2.5 mmol/L. Moderate symptoms, including confusion, tachycardia, ataxia, and hypertonia occur at lithium levels between 2.5 to 3.5 mmol/L. Severe symptoms, including hyperthermia, hypotension, seizures and coma occur at lithium levels between >3.5 mmol/L.

Metformin is an incorrect answer. Metformin is not associated with SIADH. However, sulfonylureas, such as glimepiride and glipizide, are associated with SIADH.

Question:

A 26-year-old woman presents with a 6-month history of pain and discomfort in both hands when she is exposed to cold. She mentions that, in response to cold, her fingertips initially turn white or red, then blue. Her general physical examination is unremarkable and is a non-smoker. Her blood tests are normal and autoantibodies are negative.

Given the most likely diagnosis in this scenario, what should be given as a first-line pharmacological treatment?

A.Aspirin

B.Beta blocker

C.Calcium-channel blocker

D.Ganglion blocker

E.Phosphodiesterase-5 (PDE-5) inhibitor

Answer:Calcium-channel blocker

Explanation:

Raynaud's phenomenon is characterised by an exaggerated vasoconstrictive response to the cold

Important for meLess important

The symptoms in this scenario are characteristic of primary Raynaud’s phenomenon, an exaggerated vasospasm in response to cold temperatures. It is important to note the pattern of colour change and its duration in order to differentiate Raynaud's phenomenon from simple cold sensitivity. In contrast to a normal response to cold, Raynaud's is typically characterised by biphasic colour response in the form of a demarcated area of white/red skin followed by cyanosis, whereas in simple cold sensitivity, skin can be mottled (with no biphasic changes) which tend to resolve quickly after re-warming of the hands.

The correct answer is calcium-channel blockers which are generally considered the first-line pharmacological treatment in Raynaud's phenomenon due to their vasodilator effect, in particular nifedipine.

Aspirin may be used in severe secondary Raynaud's phenomenon; as it helps prevent microthrombi in patients who present with digital ulcers.

Beta blockers are contraindicated in patients with Raynaud's phenomenon because of their vasoconstriction effect.

PDE-5 inhibitors are used in moderate to severe secondary Raynaud's or when first- and second-line pharmacological treatments are not tolerated.

Ganglion blockers are rarely used now to treat Raynaud's phenomenon as other treatments, such as calcium-channel blockers, have proven to be more efficacious with fewer side effects.

Question:

A 35-year-old man with epilepsy who takes lamotrigine is asking about the potentially serious side effects that may result from his medication.

Which of these is a rare but recognised adverse effect of lamotrigine therapy?

A.Agranulocytosis

B.Pulmonary fibrosis

C.QT prolongation

D.Stevens-Johnson syndrome

E.Vitiligo

Answer:Stevens-Johnson syndrome

Explanation:

A rare but recognised adverse effect of lamotrigine therapy is Stevens-Johnson syndrome

Important for meLess important

Stevens-Johnson syndrome is a rare but recognised adverse effect of lamotrigine therapy. Stevens-Johnson syndrome is usually caused by taking certain medications, others including certain antibiotics and anti-inflammatory painkillers. It is a serious skin reaction and needs to be treated immediately in hospital.

Agranulocytosis is incorrect as it is not a recognised adverse effect of lamotrigine therapy. It can be seen with clozapine therapy and is a form of neutropenic sepsis, often presenting with a sore throat.

Pulmonary fibrosis is incorrect as it is not a recognised adverse effect of lamotrigine therapy. It can be seen with methotrexate therapy and often presents sub-acutely with cough and shortness of breath and changes on chest CT scans.

QT prolongation is incorrect as it is not a recognised adverse effect of lamotrigine therapy. It can be seen with a range of antipsychotics such as olanzapine and some antibiotics. It is usually asymptomatic and picked up on ECG but can lead to re-entrant tachycardias.

Vitiligo is incorrect as it is not a recognised adverse effect of lamotrigine therapy. It can however be caused by carbamazepine and presents as a loss of skin pigmentation.

Question:

A 19-year-old female returns from Ghana. She presents with pyrexia (40°C). She complains of bloody stools preceding this. On examination, she has abdominal distension, hepatosplenomegaly and rose spots on her abdomen. Before empirical treatment has started she passes away due to bowel perforation, resulting in overwhelming sepsis. Which organism is responsible for this type of pathology?

A.Giardia lamblia

B.Salmonella typhi

C.Treponema pallidum

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Salmonella typhi

Explanation:

Salmonella typhi infection can cause rose spots on the abdomen

Important for meLess important

Rose spots appear in Salmonella typhi infections. They also appear in C.psittaci infections although it is more associated with typhoid than psittacosis.

Giardiasis would not present this severely and acutely.

Syphilis would present with painless chancre.

Staphylococcus aureus would present within hours following ingestion and it is associated with violent vomiting.

Streptococcus pneumoniae does not usually cause gastroenteritis.

Question:

A 33-year-old woman is brought to the psychiatry clinic by her friend. The friend reports that the patient has been exhibiting unusual behaviour. This behaviour includes staying up all night, talking rapidly, excessive gambling, and saying she will conquer the stock market and become a billionaire.

The patient has a background of depression for which she takes sertraline.

On examination of her mental state, there is evidence of overly familiar behaviour, pressured speech, and flight of ideas.

What is the most appropriate pharmacological treatment?

A.Continue sertraline and add fluoxetine

B.Continue sertraline and add lithium

C.Continue sertraline and add olanzapine

D.Stop sertraline and start mirtazapine

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: this is the correct answer. The patient is suffering from an episode of mania, as evidenced by insomnia, pressured speech, flight of ideas, and delusions of grandeur. NICE recommends an antipsychotic (e.g. olanzapine) to treat acute mania. Sertraline should be stopped since antidepressant treatment can worsen the symptoms of mania.

Continue sertraline and add fluoxetine: adding an additional antidepressant (fluoxetine) is likely to worsen the episode of mania, so this is incorrect.

Continue sertraline and add lithium: antidepressant therapy should be stopped as the patient is suffering from an episode of mania. Continuing the antidepressant may worsen the symptoms of mania. Lithium can be given as a mood stabiliser in the long-term management of bipolar disorder, but it should not be given to manage an acute episode of mania. Therefore, this answer is incorrect.

Continue sertraline and add olanzapine: starting treatment with an antipsychotic (olanzapine) is the correct treatment for an episode of mania. However, antidepressants (e.g. sertraline) should also be stopped rather than continued, as the continuation of the antidepressant may worsen the symptoms of mania. Therefore, this answer is incorrect.

Stop sertraline and start mirtazapine: switching to another antidepressant would not improve the symptoms of mania. Antidepressants could worsen the patient's symptoms of mania and should be avoided in this scenario. Therefore, this answer is incorrect.

Question:

A 65-year-old man has had routine bloods done for his annual well-man check via his general practitioner. He has recently felt quite lethargic and has noticed his hands sometimes shaking. He has put these changes down to old-age.

He has a past medical history of chronic dyspepsia, osteoarthritis of his knees and long-standing high blood pressure. His list of repeat medications include: omeprazole, cimetidine, ibuprofen, paracetamol, codeine phosphate and amlodipine.

His blood results from the clinic are as follows:

Hb 150 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+ 3.4 mmol/L (3.5 - 5.0)

Urea 6.6 mmol/L (2.0 - 7.0)

Creatinine 110 µmol/L (55 - 120)

CRP 1 mg/L (< 5)

Bilirubin 15 µmol/L (3 - 17)

ALP 60 u/L (30 - 100)

ALT 21 u/L (3 - 40)

γGT 25 u/L (8 - 60)

Albumin 44 g/L (35 - 50)

Calcium 2.0 mmol/L (2.1-2.6)

Phosphate 0.9 mmol/L (0.8-1.4)

Magnesium 0.5 mmol/L (0.7-1.0)

Thyroid stimulating hormone (TSH) 5.1 mU/L (0.5-5.5)

Free thyroxine (T4) 15 pmol/L (9.0 - 18)

Amylase 100 U/L (70 - 300)

Uric acid 0.30 mmol/L (0.18 - 0.48)

Creatine kinase 120 U/L (35 - 250)

Which drug is the most likely cause of these blood results?

A.Amlodipine

B.Cimetidine

C.Codeine Phosphate

D.Ibuprofen

E.Omeprazole

Answer:Omeprazole

Explanation:

Proton pump inhibitors are a common cause of hypomagnesaemia

Important for meLess important

Omeprazole is the correct answer with the BNF stating that the hypomagnesaemia from proton-pump inhibitors is “more common after 1 year of treatment, but sometimes after 3 months of treatment”. Moreover, hypomagnesaemia can cause an associated hypocalcaemia and hypokalaemia.

Amlodipine is incorrect and is a calcium-channel blocker used for hypertension in those over the age of 55 and has not been linked to hypomagnesaemia.

Cimetidine is incorrect and is an histamine 2 antagonist used for the treatment of dyspepsia and has not been linked to hypomagnesaemia.

Codeine phosphate is incorrect and is an opioid analgesic used for this patient’s osteoarthritis and has not been linked to hypomagnesaemia.

Ibuprofen is incorrect and is a non-steroidal anti-inflammatory medication and has not been linked to hypomagnesaemia.

Question:

A 50-year-old woman with a known extensive-stage small-cell lung cancer attends the emergency department with a 2-day history of lethargy, weakness, and nausea. She has a past medical history of hypertension. Her observations are done and blood samples are taken. The observations are as follows: blood pressure 115/80mmHg, pulse 75bpm, oxygen saturations 98% on air, respiratory rate 12 breaths/minute, temperature 36.5ºC.

Over the next few hours, the patient gradually becomes more drowsy and loses consciousness. She has a Glasgow Coma Scale score of 3 but is breathing with a regular pulse. She is taken to intensive care and intubated.

What is the likeliest explanation for her loss of consciousness?

A.Cardiac arrhythmia

B.Cerebral oedema

C.Hypercapnia

D.Hypoxia

E.Pulmonary embolism

Answer:Cerebral oedema

Explanation:

Acute severe hyponatraemia can cause cerebral oedema

Important for meLess important

Small-cell lung cancer is a neuroendocrine tumour, meaning that the malignant cells often secrete ectopic hormones. One of the more common ectopic hormones this type of tumour secretes is an anti-diuretic hormone (ADH), which leads to the condition known as 'syndrome of inappropriate antidiuretic hormone hypersecretion (SIADH). The most common electrolyte imbalance secondary to this is hyponatraemia, which can often be severe and lead to cerebral oedema and coma. In this case, the history and 2-day course of symptoms point to acute hyponatraemia which has caused cerebral oedema over the course of a few hours.

Though hyponatraemia can affect the cardiac rhythm, this patient has a regular pulse, both during her initial observations and after she loses consciousness.

Hypercapnia can cause drowsiness and coma, but usually in those who are hypo-ventilating (e.g. compression of the chest, motor neurone disease) or who have an obstructive lung disease like chronic obstructive pulmonary disease (COPD). On initial assessment, she had normal oxygen saturation and respiratory rate, so this is unlikely. Lung cancer doesn't necessarily predispose a patient to carbon dioxide retention.

Hypoxia can cause drowsiness as well, though her oxygen saturations were fine on the initial assessment. Lung cancer may cause hypoxia, but this would tend to be in the end stages of the disease.

A pulmonary embolism (PE) would tend to present more acutely with chest pain and shortness of breath, and wouldn't tend to lead to loss of coma without significant hypoxia or a cardiac arrest.

Question:

A 32-year-old man with Crohn's disease presents to his general practitioner with pain around his anus. He reports foul-smelling pus being present when he wipes himself.

On examination, a discharging orifice is seen on his perineum. A digital rectal examination confirms this as a perianal fistula.

What is the most appropriate choice of imaging for this condition?

A.Barium enema

B.CT pelvis

C.Endo-anal ultrasound

D.MRI pelvis

E.Rigid sigmoidoscopy

Answer:MRI pelvis

Explanation:

MRI is the investigation of choice for suspected perianal fistulae in patients with Crohn's

Important for meLess important

A perianal fistula is an abnormal connection between the rectum and the perineum. Imaging of fistulas is needed to accurately map out the track and extent of the fistula, as well as identify any other fistulas or abscesses associated with it. This information is required to correctly plan management. It is a soft tissue pathology and is, therefore, best visualised using an MRI pelvis.

Barium enema is incorrect. This is used for identifying large colon pathologies, such as polyps or cancer, and has shown to not be reliable in the imaging of small structures such as fistulas.

CT pelvis is incorrect. Whilst a CT scan can potentially identify fistulas, an MRI is preferable due to greater sensitivity and accuracy in relation to soft tissue. An MRI may also be preferable in adults of reproductive age to prevent unnecessary radiation exposure to the reproductive organs.

Endo-anal ultrasound is incorrect. This may potentially be used to image some perianal fistulas. However, given the increased likelihood of complex fistulas being present in Crohn's disease, an MRI is preferable.

Rigid sigmoidoscopy is incorrect. Whilst this may identify the other side of the fistula entering into the rectum, it does not offer any sort of mapping of the internal fistula structure.

Question:

A 32-year-old woman attends for advice as she has recently found out she is pregnant for the first time. She has a family history of diabetes (mother, aunt, grandmother). She is otherwise fit and well and does not take any regular medications other than folic acid.

What is the most appropriate screening to offer her?

A.HBA1c at the start of the pregnancy and every 3 months

B.HbA1c at the start of the pregnancy

C.Oral glucose tolerance test (OGTT) at 24-28 weeks

D.Oral glucose tolerance test (OGTT) at 16-20 weeks

E.Oral glucose tolerance test (OGTT) at 12-14 weeks

Answer:Oral glucose tolerance test (OGTT) at 24-28 weeks

Explanation:

Pregnant women who have a first degree relative with diabetes should be screened for gestational diabetes with an oral glucose tolerance test (OGTT) at 24-28 weeks

Important for meLess important

Oral glucose tolerance test (OGTT) at 24-28 weeks is the correct answer as her mother has diabetes. This puts her at risk of gestational diabetes.

NICE states: 'Offer women with any of the other risk factors for gestational diabetes a 75-g 2‑hour OGTT at 24 to 28 weeks.'

Question:

A 65-year-old female with metastatic breast cancer is reviewed in clinic. Her husband reports that she is increasingly confused and occasionally appears to talk to relatives that are not in the room. She undergoes investigations for reversible causes, of which none are found. If conservative measures fail and she continues to be confused/agitated, what is the most appropriate management?

A.Subcutaneous midazolam

B.Oral lithium

C.Oral haloperidol

D.Oral diazepam

E.Oral quetiapine

Answer:Oral haloperidol

Explanation:

Oral haloperidol is the most appropriate treatment here. If the patient was in the terminal phase and agitated then subcutaneous midazolam would be indicated

Question:

A 66-year-old male presents to his general practice with progressive shortness of breath on exertion and a non-productive cough. He has a 40-pack-year smoking history. He denies weight loss, haemoptysis or chest pain. In the past, he has been prescribed bronchodilators for a presumed diagnosis of COPD, but these did not improve his symptoms.

On examination, fine crackles are audible at the lung bases bilaterally, and he has significant finger clubbing.

The general practitioner orders a chest X-ray, pulmonary function tests and refers him urgently to respiratory clinic.

Based on the likely underlying diagnosis, what pattern would you expect to see on pulmonary function tests?

A.FEV1:FVC normal or increased, TLCO increased

B.FEV1:FVC normal or increased, TLCO reduced

C.FEV1:FVC normal, TLCO normal

D.FEV1:FVC reduced, TLCO increased

E.FEV1:FVC reduced, TLCO reduced

Answer:FEV1:FVC normal or increased, TLCO reduced

Explanation:

Pulmonary fibrosis causes restrictive spirometry picture (FEV1:FVC >70%, decreased FVC) and impaired gas exchange (reduced TLCO)

Important for meLess important

The most likely diagnosis, in this case, is idiopathic pulmonary fibrosis (IPF). The most common symptoms of IPF are chronic, dry cough and progressive exertional dyspnoea. Risk factors for the development of IPF include male sex, increasing age, cigarette smoking and positive family history. Clinical examination findings include fine inspiratory bibasal crepitations, and clubbing of the fingers may be present in up to 25% of cases. IPF is a restrictive lung disease, resulting in a reduced FEV1 and reduced FVC, making the FEV1:FVC ratio normal or increased. The TLCO (gas transfer test) measures the oxygen uptake from air into the lungs. In IPF, the TLCO is reduced.

FEV1:FVC normal or increased, TLCO reduced is incorrect. TLCO is reduced in IPF.

FEV1:FVC normal, TLCO normal is incorrect. TLCO is reduced in IPF.

FEV1:FVC reduced, TLCO increased is incorrect. A reduced FEV:FVC ratio would indicate obstructive lung disease, such as COPD or asthma.

FEV1:FVC reduced, TLCO reduced is incorrect. A reduced FEV:FVC ratio would be indicative of obstructive, rather than restrictive lung disease, as explained above.

Question:

A 11-week-old boy is reviewed in surgery. As part of a general assessment his head circumference is noted to be between the 0.4th and 2nd centile. Which one of the following would NOT explain this finding?

A.Congenital infection

B.Fragile X syndrome

C.Normal variant

D.Craniosynostosis

E.Hypoxic ischaemic encephalopathy

Answer:Fragile X syndrome

Explanation:

Whilst not a classic cause of macrocephaly, children with Fragile X syndrome tend to have a head larger than normal.

Question:

A 5-year-old boy is seen in the paediatric assessment unit. His parents are worried about a purpuric, non-blanching rash that has appeared on his arms and legs. He also complains of abdominal pain and joint pain in his knees. Whilst he is on the ward, you notice that his urine looks red. He appears unwell and is crying.

Blood tests reveal raised white cell count and raised ESR.

What is the most likely diagnosis?

A.Juvenile idiopathic arthritis

B.Henoch-Schonlein purpura

C.Meningitis

D.Alport syndrome

E.Acute lymphocytic leukaemia

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

This combination of symptoms is the classic description of Henoch-Schonlein purpura, which can also caused raised WCC and ESR. Meningitis does not cause haematuria, abdominal pain or joint pain. The rash of juvenile idiopathic arthritis is 'salmon-pink', not purpuric. Alport syndrome causes haematuria but none of the other symptoms. Acute lymphocytic leukaemia would cause a low WCC.

Question:

An 8-year-old boy has been brought to the emergency department with swelling of the throat, stridor and dizziness that came on suddenly after eating a slice of cake at a birthday party. He has been given intravenous (IV) hydrocortisone and chlorphenamine in the ambulance. His heart rate is 102 beats per minute and his blood pressure is 102/64 mmHg. The last dose of intramuscular (IM) adrenaline was given 5 minutes ago.

What is the next appropriate step in management?

A.Salbutamol nebuliser

B.5mg IV chlorphenamine

C.100mg IV hydrocortisone

D.300 micrograms IM adrenaline

E.500 micrograms IM adrenaline

Answer:300 micrograms IM adrenaline

Explanation:

In the treatment of anaphylaxis, you can repeat adrenaline every 5 minutes

Important for meLess important

The correct answer is 300 micrograms IM adrenaline.

This patient is suffering from an anaphylactic reaction to the food he ate. While a dose of adrenaline has already been given it can be repeated every 5 minutes. Given that the patient remains symptomatic and hypotensive this would be the next appropriate step in his management. 300 micrograms is the correct dose for a patient of his age.

A salbutamol nebuliser can help to relieve symptoms of bronchoconstriction that may occur as part of an anaphylactic reaction, however this would not be the most appropriate next step in management as further adrenaline is more important.

While this is the correct dose of IV chlorphenamine for this patient he has already been given this in the ambulance and the Resus Council no longer recommend giving this routinely.

This is the correct dose of IV hydrocortisone for this patient but he has also been given this in the ambulance and the Resus Council no longer recommend giving this routinely.

500 micrograms would be the correct dose of IM adrenaline for patients older than 12.

Question:

A 52-year-old man with a known history of alcoholic liver disease and cirrhosis undergoes an oesophago-gastro-duodenoscopy (OGD) to screen for oesophageal varices. A number of high-risk varices are reported and medical prophylaxis is recommended.

Which of the following medications would be most appropriate?

A.Propranolol

B.Bisoprolol

C.Metoprolol

D.Terlipressin

E.Amlodipine

Answer:Propranolol

Explanation:

A non-cardioselective B-blocker (NSBB) is used for the prophylaxis of oesophageal bleeding

Important for meLess important

Propranolol is a non-selective beta-blocker and is the correct answer in this instance.

Bisoprolol and metoprolol are both cardio-selective beta-blockers and, as such, would be less effective than propranolol for long term management of varices.

Terlipressin is a vasopressin analogue that is indicated in the acute management of variceal bleeding.

Amlodipine is a calcium channel blocker typically used in the management of systemic hypertension, not portal hypertension or oesophageal varices.

Question:

A 46-year-old male presented to the emergency department with a 3-week history of “tightness” and “stiffness” in his upper and lower limbs. He reports that he feels as if he has 'pulled a muscle' in his left leg. He has a background medical history of well-controlled type two diabetes mellitus, multiple sclerosis, hypertension and hypercholesterolaemia.

On examination, he has brisk deep tendon reflexes and hypertonia.

Given the likely diagnosis, what is the first-line treatment?

A.Baclofen

B.Botulinum toxin injection

C.Diazepam

D.Physiotherapy

E.Pregabalin

Answer:Baclofen

Explanation:

Baclofen and gabapentin are first-line for spasticity in multiple sclerosis

Important for meLess important

Baclofen is the correct answer. This patient has a history and examination consistent with increased muscle spasticity secondary to multiple sclerosis. Baclofen and gabapentin are the first-line treatments for spasticity in multiple sclerosis.

Botulinum toxin injection is an incorrect answer. Botulinum toxin injection is not a first-line treatment for spasticity in multiple sclerosis. Its role in the management of spasticity in multiple sclerosis is still under investigation.

Diazepam is an incorrect answer. Diazepam is a second-line treatment for spasticity in multiple sclerosis.

Physiotherapy is an incorrect answer. It is not a first-line treatment for spasticity in multiple sclerosis, however, it is a very useful adjunct treatment to the first-line agent's baclofen and gabapentin.

Pregabalin is an incorrect answer. Gabapentin, not pregabalin, is one of the first-line treatments for spasticity in multiple sclerosis.

Question:

You are working in general practice. Your next patient is Mr Hart. He is previously known to the surgery due to his opioid addiction 3 years ago, which has now been resolved. He is very thankful for the recent quick diagnosis of his testicular cancer. He offers you a cheque for £1000 and tells you to treat yourself. What should you do?

A.Accept the money and thank him for his generosity

B.Tell him you can't spend the money on yourself, but you can donate it to charity

C.Ask the practice manager for permission to accept the money

D.Tell him you would only be able to accept a cheque for £100 or less

E.Thank him for his offer, but suggest he gives you a 'thank you' card instead

Answer:Thank him for his offer, but suggest he gives you a 'thank you' card instead

Explanation:

According to GMC guidelines:

'You may accept unsolicited gifts from patients or their relatives provided:

a. this does not affect, or appear to affect, the way you prescribe for, advise, treat, refer, or commission services for patients

b. you have not used your influence to pressurise or persuade patients or their relatives to offer you gifts.

However, if you receive a gift or bequest from a patient or their relative, you should consider the potential damage this could cause to your patients trust in you and the publics trust in the profession. You should refuse gifts or bequests where they could be perceived as an abuse of trust.'

As a rule, you should not accept any gifts from patients. In this case, the patient had a recent opioid addiction. Accepting a gift from him may influence any future care, for example you may feel obliged to prescribe opioids when asked with no clinical indication. This damages both the doctor patient relationship and future care of this patient.

Reference: http:www.gmc-uk.org/guidance/ethicalguidance/21161.asp

Question:

A 33-year-old woman attends the emergency department with headaches, difficulties finding her words, visual disturbances without photophobia and vomiting. In the department, she has 3 self-terminating seizures within 2 hours. She has a 2-day history of fever and lethargy prior to the onset of the above symptoms. Her partner has noticed she has been irritable for the last few days.

Her CT head is unremarkable. A lumbar puncture is performed which shows raised lymphocytes and protein.

Considering the likely diagnosis, what should this patient be treated with?

A.IV aciclovir

B.IV ceftriaxone

C.IV dexamethasone

D.IV doxycycline

E.IV vancomycin

Answer:IV aciclovir

Explanation:

Start aciclovir in all cases of suspected encephalitis

Important for meLess important

The patient's presentation, alongside a lumbar puncture finding of raised lymphocytes and protein, supports a diagnosis of viral encephalitis. If the lumbar puncture had shown raised neutrophils, rather than lymphocytes, this would be more suggestive of bacterial meningitis. Patients should be empirically managed with IV aciclovir, as the most common causative organism is herpes simplex virus 1.

IV ceftriaxone is used for the first-line management of suspected meningitis. This is due to its broad-spectrum nature and rapid ability to sterilise cerebrospinal fluid. Whilst this patient presents with a fever and neurological symptoms, the vignette specifically indicates that the patient has suspected encephalitis. Therefore, this answer is incorrect.

IV dexamethasone is given in bacterial meningitis to reduce the risk of neurological sequelae but is not recommended in the management of viral encephalitis.

IV doxycycline is a less common preparation than oral doxycycline. This antibiotic is used in the treatment of acute exacerbations of chronic obstructive pulmonary disease, cellulitis, and pelvic inflammatory disease.

IV vancomycin is used in resistant strains of meningitis. However, it has no clinical use against the herpes simplex virus, the most common cause of encephalitis.

Question:

A 23-year-old male is seen in clinic having been referred with persistent lower back pain. The patient informs you that his pain appears to improve with activity, despite him having a physically demanding role on a construction site. He also has been experiencing pain in both hands and his knees. On examination, you discover that he has limited lumbar spine motion, and therefore decide to order X-rays of the hands, knees, and spine.

Which of the following features are you most likely to see?

A.Chondrocalcinosis at the patellofemoral joint

B.Pencil-in-cup deformity of the digits

C.Rounding of the lumbar vertebrae

D.Subchondral sclerosis at the patellofemoral joint

E.Subchondral sclerosis of the sacroiliac joint

Answer:Subchondral sclerosis of the sacroiliac joint

Explanation:

Ankylosing spondylitis - x-ray findings: subchondral erosions, sclerosis

and squaring of lumbar vertebrae

Important for meLess important

The patient appears to be suffering from ankylosing spondylitis, which is a seronegative spondyloarthropathy. The condition results in the fusion of the spine and sacroiliac joints. X-ray of the sacroiliac joints typically demonstrates subchondral sclerosis and erosions, which means that the correct answer is 'subchondral sclerosis of the sacroiliac joint'. X-ray of the spine may show a classic 'bamboo spine' appearance and squaring of lumbar vertebrae.

Chondrocalcinosis at the patellofemoral joint is a classic finding in pseudogout.

Pencil-in-cup deformity is a classic finding in psoriatic arthropathy but may also be seen in rheumatoid arthritis.

As opposed to 'rounding' of the lumbar vertebrae, 'squaring' is seen on lumbar X-ray in those with ankylosing spondylitis.

Subchondral sclerosis is a common feature at the patellofemoral joint for those with osteoarthritis.

Question:

A young woman presents to the emergency department. She has taken a paracetamol overdose after splitting up with her boyfriend. Two days later she is in a new relationship which is troubled by her repeated outbursts of anger. She has a history of childhood abuse and difficulties with relationships. The patient describes her mood fluctuating frequently from low to elevated. The overdose was not planned and the patient immediately sought medical help. She has taken several similar overdoses in the past.

What diagnosis is most likely?

A.Bipolar affective disorder

B.Borderline personality disorder

C.Dependent personality disorder

D.Histrionic personality disorder

E.Major depressive disorder

Answer:Borderline personality disorder

Explanation:

A young woman takes a paracetamol overdose after splitting with her boyfriend. Two days later she is in a new relationship which is troubled by her repeated outbursts of anger - borderline personality disorder

Important for meLess important

Borderline personality disorder is the correct answer. Symptoms include intense emotions which can change quickly, difficulties with relationships, feelings of emptiness, fears of abandonment, impulsive behaviour and self-harm.

Bipolar affective disorder is incorrect. This would present with periods of depression and periods of mania. Though the patient describes a fluctuating mood, no manic features are reported.

Dependent personality disorder is incorrect. This would present with difficulties making decisions without support from others, requiring others to take responsibility for them, having low confidence and believing others are much more capable than they are.

Histrionic personality disorder is incorrect. Symptoms include feeling uncomfortable not being the centre of attention, making rash decisions, being easily influenced by others and behaving provocatively to remain the focus of attention.

Major depressive disorder is an incorrect answer. The speed of entering a new relationship, the anger outbursts and the fluctuating mood is not in keeping with this.

Question:

A 57-year-old gentleman comes into your GP practice as he has noticed pain in both his legs. These problems only started 2 months ago. Whenever he gets the pain, he notices that it is achy in nature, comes on gradually, and increases in severity while he walks his dog uphill every morning.

Which of the following factors most likely contributes to his condition?

A.Atorvastatin therapy

B.Alcohol

C.Smoking

D.Diabetes

E.B12 deficiency

Answer:Smoking

Explanation:

Smoking is a risk factor for peripheral arterial disease

Important for meLess important

The patient most likely has intermittent claudication, an early stage of peripheral arterial disease. Smoking is highly associated with its development.

Diabetes is another risk factor, but smoking has the strongest association with the development of PVD.

Muscular pain in the calves as a result of statin therapy is usually present without movement. Atorvastatin therapy can also rarely result in peripheral neuropathy, and the reason that is the incorrect answer is explained below.

Alcohol and B12 deficiency can both result in peripheral neuropathy. However, the type of pain people with peripheral neuropathy describe is neuropathic in nature (burning/tingling) and is not associated with activity as it is in this case.

Question:

A normally well 23-year-old woman presents to her GP with frequent bloody stools. She started with intermittent symptoms six months ago but things have deteriorated rapidly in the last week.

She is opening her bowels eight times a day with blood present each time, and has severe abdominal pain in her left lower quadrant. The patient's temperature is 38.0ºC and heart rate 110bpm.

She is admitted to the hospital with queried severe ulcerative colitis and receives intravenous corticosteroids.

What investigation is the most appropriate to diagnose this patient?

A.CT abdomen + pelvis

B.Colonoscopy

C.Faecal calprotectin

D.Flexible sigmoidoscopy

E.Laparotomy

Answer:Flexible sigmoidoscopy

Explanation:

In patients with severe colitis, colonoscopy should be avoided due to the risk of perforation - a flexible sigmoidoscopy is preferred

Important for meLess important

Flexible sigmoidoscopy is correct. This is the preferred investigation of choice in patients with severe colitis, as there is a lower risk of perforation than other useful methods of investigation. A biopsy will be taken to confirm the diagnosis.

CT abdomen + pelvis is incorrect. This is sometimes used in patients with abdominal symptoms including pain and altered stool habit but is inappropriate in this patient. Whilst the scan may show colonic changes consistent with inflammation, it will not help facilitate a biopsy. It will also unnecessarily expose this woman to radiation which will increase her chance of infertility, and future cancer.

Colonoscopy is incorrect. This would usually be the preferred investigation in patients with bloody stools, however, the likely severity of the colitis (as per Truelove and Witt's criteria) means that there is a risk of perforation with colonoscopy. A flexible sigmoidoscopy should provide answers as to the cause of this patient's symptoms.

Faecal calprotectin is incorrect. This test is used to detect colonic inflammation, but given the severity of the patient's symptoms, it is likely this would not be hugely helpful in the context of a firm diagnosis.

Laparotomy is incorrect. This may be undertaken if there is a suggestion of bowel perforation and/or peritonitis. This patient is still passing stools and has pain in her left lower quadrant only. Peritonitis usually presents with widespread abdominal pain and tenderness alongside other clinical signs. The risks of this surgery are not low, and a flexible sigmoidoscopy is more likely to provide better information as a first-line invasive investigation for suspected ulcerative colitis, even during a flare-up. Laparotomy is therefore incorrect.

Question:

A 51-year-old woman has recently been diagnosed with a renal calculus following a CT scan after presenting to hospital with loin pain. Her blood results are shown below:

Calcium 2.85 mmol/L (2.1-2.6)

Phosphate 0.72 mmol/L (0.8-1.4)

Parathyroid hormone 7.0 pmol/L (1.6-6.9)

Vitamin D 85 nmol/L (50-250)

Creatinine 76 µmol/L (55 - 120)

Her 24-hour urinary calcium excretion and dual-energy X‑ray absorptiometry (DEXA) results are both normal.

She has no other symptoms and no other medical problems.

What would be the most appropriate definitive management strategy for her condition?

A.Commence bisphosphonate

B.Commence cinacalcet

C.Intravenous fluids

D.Observe with regular serum calcium and PTH measurements

E.Referral for parathyroid surgery

Answer:Referral for parathyroid surgery

Explanation:

The definitive management of primary hyperparathyroidism is total parathyroidectomy

Important for meLess important

This patient has symptoms and biochemical findings compatible with primary hyperparathyroidism.

Current NICE guidance recommends referral for consideration of parathyroid surgery if a patient has one or more of the following:

Symptoms of hypercalcaemia (e.g. thirst, polyuria, constipation)

End-organ disease (renal calculi, fragility fractures or osteoporosis)

Corrected serum calcium of 2.85 mmol/L or above

As she has renal calculi, the broad consensus is that surgery is beneficial as it is curative of the underlying condition, relieves symptoms and can prevent future adverse events.

Calcimimetics can be considered in some patients who decline or are unsuitable for surgery.

Bisphosphonates can be considered in patients with primary hyperparathyroidism who have a high fracture risk.

Intravenous fluids are not necessary for mild or moderate hypercalcaemia.

Question:

A 2-year-old girl develops a rash on her legs. The next day she is brought to surgery, by which time the rash has spread to the rest of her body.

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Erythema multiforme

B.Erythema chronica migrans

C.Erythema nodosum

D.Urticaria

E.Dermatitis artefacta

Answer:Erythema multiforme

Explanation:

The classic 'target' lesions of erythema multiforme can be seen clearly on this image.

Question:

A man presents with severe vomiting. He reports not being able to keep fluids down for the past 12 hours. You suspect a diagnosis of gastroenteritis and on discussing possible causes he mentions reheating curry with rice the night before. What is the most likely causative organism?

A.Escherichia coli

B.Campylobacter

C.Salmonella

D.Shigella

E.Bacillus cereus

Answer:Bacillus cereus

Explanation:

Bacillus cereus characteristically occurs after eating rice that has been reheated

Important for meLess important

Bacillus cereus infection most commonly results from reheated rice.

Question:

Ms Adepitan, a 24-year-old patient, presents feeling tired all the time. She thinks this has gradually happened over a few months. She had no other specific physical symptoms. Her only prescribed medication is the combined oral contraceptive pill. She is a non-smoker and reports her alcohol consumption is a bottle of wine a week. She has a family history of thyroid disease and wonders whether she is developing a thyroid problem too. She also mentions she became a vegan a couple of years ago and asks if this could be related.

You arrange various blood tests. The full blood count is abnormal.

Hb 91 g/L Male: (135-180)

Female: (115 - 160)

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

WBC 6.7 \* 109/L (4.0 - 11.0)

MCV 109 fL (80-100)

Which of the following is the likely underlying cause of her fatigue?

A.Vitamin B12 deficiency

B.Alcohol consumption

C.Iron deficiency

D.Hyperthyroidism

E.Inadequate dietary protein

Answer:Vitamin B12 deficiency

Explanation:

Vegan diet is a risk factor for B12 deficiency

Important for meLess important

Vitamin B12 deficiency is the correct answer. B12 deficiency is one of the causes of a megaloblastic anaemia. Vegans are at particular risk of B12 deficiency as it only occurs naturally in animal products. Vegans need to ensure they get B12 in their diet through products fortified with B12, or by taking a supplement.

Alcohol excess can cause a megaloblastic anaemia but there is nothing in the history to suggest this is the most likely cause.

Iron deficiency is incorrect as this causes a microcytic anaemia. Vegans do need to ensure their diet isn't lacking in iron however.

Hyperthyroidism is incorrect, it is hypothyroidism that causes macrocytic anaemia.

Inadequate dietary protein is incorrect, the findings of megaloblastic anaemia is more in-keeping with B12 deficiency. Non-animal sources of protein include tofu and pulses.

Question:

You are in your GP practice and are counselling a 25-year-old female about the contraceptive patch.

What is the correct way to utilise the contraceptive patch effectively?

A.Change patch fortnightly with no breaks

B.Wear patch continually for 1 month then have 1 week break

C.Change patch every 3 days with no breaks

D.Change patch weekly with a 1 week break after 3 patches

E.Change patch weekly with no breaks

Answer:Change patch weekly with a 1 week break after 3 patches

Explanation:

Contraceptive patch regime: wear one patch a week for three weeks and do not wear a patch on week four

Important for meLess important

This form of combined contraception is becoming increasingly common as the patch change can be delayed for up to 48 hours without the need for additional contraception. This reduces human error in contraceptive effectiveness. Furthermore, its transdermal absorption means that additional precautions are not required in cases of diarrhoea and vomiting.

This form of contraception is taken similarly to the pill in the sense that there are 3 weeks of contraception use and then a 1 week break when the woman will have a withdrawal bleed. Therefore option 4 is the correct answer in this scenario.

Question:

A 60-year-old woman presents to the emergency department after suffering a fall. She hit her face against the footpath and reported extensive nose-bleeding for the first 10 minutes. She denies loss of consciousness or vomiting. There is no past medical history of note and she takes no regular medications.

On examination, there is bruising over the bridge of her nose that is tender to touch. There is crusted blood around the nostrils. On examination of the internal nasal cavity, there are bilateral purple swellings outpouching from the nasal septum.

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

A.Anterior nasal packing

B.CT head

C.Facial bone x-ray

D.Incision and drainage

E.Reassurance and discharge

Answer:Incision and drainage

Explanation:

Bilateral purple swelling of the nasal septum suggests septal haematoma

Important for meLess important

Incision and drainage is correct. This patient has clinical features of a septal haematoma, given the bilateral purple swellings that are seen to be outpouching from the nasal septum. A septal haematoma is a complication of a nasal bone injury and is an ENT emergency due to the risk of pressure necrosis and septal perforation. Treatment includes incision and drainage of the septal haematoma along with antibiotic administration to prevent infection.

Anterior nasal packing is incorrect. This is used in the treatment of anterior epistaxis that does not resolve with first aid measures. It is not used in the management of septal haematoma which this patient likely has given the bilateral septal swellings.

CT head is incorrect. Although this patient has suffered a head injury, there are no indications as per the NICE guidelines for a CT head. Indications include GCS < 13 on initial assessment, seizure activity, or loss of consciousness with vomiting or amnesia.

Facial bone x-ray is incorrect. It is likely that this patient has fractured her nasal bone. However, it is not recommended to request a facial bone x-ray for a suspected nasal bone fracture as it will not change management. Rather, patients are brought back to an ENT clinic within 7-10 days for review.

Reassurance and discharge is incorrect. It would be inappropriate to discharge this patient home without follow-up due to the risk of nasal septal perforation secondary to the haematomas evidenced by bilateral swelling of the nasal septum.

Question:

A 45-year-old woman attends the GP surgery as she is experiencing heavy vaginal bleeding. Her cycle is regular and there is no intermenstrual or postcoital bleeding. She has no significant gynaecological history, and takes no regular medications. She does not have a regular partner, and uses condoms for contraception. She does not want children. What is the most appropriate first line treatment?

A.Tranexamic acid

B.Mefenamic acid

C.Intrauterine system

D.Combined oral contraceptive pill

E.Intrauterine device

Answer:Intrauterine system

Explanation:

Menorrhagia - intrauterine system (Mirena) is first-line

Important for meLess important

The intrauterine system would be the most appropriate choice in this scenario. Levonorgestrel intrauterine systems such as the Mirena are highly effective treatment for menorrhagia, whilst also functioning as a long acting reversible contraception.

The combined oral contraceptive pill, tranexamic acid, and mefenamic acid may all provide symptomatic relief but would not be the first line treatment.

The intrauterine device is not appropriate as it would not provide treatment for this patient's menorrhagia.

Question:

A 30-year-old woman with rheumatoid arthritis and on long-term methotrexate presents to clinic today as she is very worried that 3 days ago whilst attending her niece's birthday party, she came into contact with another child who was found to have chickenpox. She cannot remember if she had chickenpox as a child and is wondering whether she requires any treatment.

What is the next most appropriate course of action?

A.Booster dose of the chickenpox vaccine

B.She should receive IV aciclovir if antibody tests are negative

C.She should receive VZIG if antibody tests are negative

D.She should receive VZIG if she starts to show signs of chickenpox infection

E.She should receive oral aciclovir

Answer:She should receive VZIG if antibody tests are negative

Explanation:

Patients who are immunosuppressed secondary to long-term steroids or methotrexate should receive VZIG if they are exposed to chickenpox and have no antibodies to varicella

Important for meLess important

The correct answer is after antibody testing if the patient is shown to be negative, they will require VZIG to protect them from potentially developing serious chickenpox infection due to being immunosuppressed as a result of being on methotrexate for their rheumatoid arthritis.

Whilst a chickenpox vaccine does exist, it is not part of the routine childhood vaccination schedule. It is mainly offered to non-immune healthcare workers and people who are in close contact with someone who is particularly vulnerable to chickenpox or its complications. It is a live vaccine therefore is not recommended in immunosuppressed individuals.

IV aciclovir can be given for chickenpox infection in immunocompromised individuals, but since these patients are at high risk of severe chickenpox infection VZIG is more appropriate as it can help prevent the infection manifesting.

Giving VZIG when the patient starts showing signs of chickenpox is too late as they have already manifested symptoms of the condition. VZIG has no therapeutic benefit once chickenpox has developed.

Oral aciclovir can be given for chickenpox prophylactically or to reduce the severity of symptoms, but since immunosuppressed patients are at high risk of severe chickenpox infection VZIG is more appropriate.

Question:

A 23-year-old homeless man is brought to the emergency department with fluctuating consciousness who had been complaining of abdominal pain whilst intoxicated a few hours prior. You are aware of previous alcohol and overdose admissions.

A - Airway is patent.

B - Respiratory rate: 34bpm. Oxygen saturation: 100%. Abnormal pattern of respiration with deep laboured inspiration.

C - Heart rate: 124bpm. Blood pressure: 95/62mmHg. Capillary refill: 4s. Dry mucous membranes.

D - GCS 10.

pH 7.18 (7.35 - 7.45)

pCO2 4.3kPa (4.5 - 6.0kPa

Bicarbonate 14mmol/L (22 -28 mmol/L)

Glucose 22.3mmol/L

Ketones 4.5mmol/L

What is the most likely diagnosis?

A.Alcoholic ketoacidosis

B.Diabetic ketoacidosis

C.Hyperosmolar hyperglycaemic state

D.Opioid overdose

E.Paracetamol overdose

Answer:Diabetic ketoacidosis

Explanation:

Abdominal pain may be the presenting symptom in DKA

Important for meLess important

Answer: diabetic ketoacidosis. In this case scenario, a young man is presenting with diabetic ketoacidosis (DKA). The signs suggestive of this include the presenting complaint of abdominal pain, significant dehydration, the pattern of breathing consistently with Kussmaul respiration and the significantly raised capillary glucose. Patients presenting with DKA are depleted around 5-8 litres which need to be corrected as a matter of urgency.

The diagnostic criteria for diagnosing DKA are:

pH <7.3 and/or bicarbonate <15mmol/L.

Blood glucose >11mmol/L or known diabetes mellitus.

Ketonaemia >3mmol/L or significant ketonuria ++ on urine dipstick.

Alcoholic ketoacidosis is incorrect as this would usually present with low or normal glucose levels and usually occurs due to patients being able to tolerate oral nutrition resulting in a state of starvation with associated ketoacidosis.

Hyperosmolar hyperglycaemic state is incorrect. HHS is a life-threatening complication of type 2 diabetes and will usually present with marked hyperglycaemia without ketoacidosis.

Opioid overdose is incorrect. This would usually present with respiratory depression, pinpoint pupils with a lowered GCS. This patient has a raised respiratory rate and abnormal respirations consistent with Kussmaul respirations.

Paracetamol overdose is incorrect. Whilst a good differential as a paracetamol overdose would present with metabolic acidosis and abdominal pain. The marked hyperglycaemia and ketoacidosis are more consistent with diabetic ketoacidosis.

Question:

A 22-year-old is admitted to the intensive care unit with an extensive blistering and necrotic skin rash affecting the whole body including the mucous membranes. The patient was treated for an infection by her GP the previous week. Given the diagnosis, which medication was she most likely to have been prescribed?

A.Aciclovir

B.Co-amoxiclav

C.Topical clotrimazole

D.Metronidazole

E.Nitrofurantoin

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

The diagnosis here is toxic epidermal necrolysis (TEN). Of all the antibiotics listed, co-amoxiclav (penicillins generally) have been implicated in the development of TEN. None of the others are known to be causes. Other medications are known to induce TEN - they are listed below.

Question:

A 28-year-old Welsh woman attends her GP with a month history of fatigue and depression. Her blood pressure is 124/80 mmHg lying and 92/58 mmHg standing. Blood tests reveal a mild hyponatraemia and mild hyperkalaemia. The GP arranges a short synacthen test and the results are as follows: (expected 30-minute level >580 nmol/l)

Baseline cortisol 300 nmol/l

30 minute cortisol 350 nmol/L

What is the most likely underlying cause?

A.Waterhouse-Friderichsen syndrome

B.Tuberculosis

C.Metastatic disease

D.Autoimmune adrenalitis

E.Amyloidosis

Answer:Autoimmune adrenalitis

Explanation:

This woman has Addison's disease as she has failed a short synacthen test. Synacthen is a synthetic adrenocorticotrophic hormone (ACTH) analogue which should stimulate cortisol secretion from the adrenal glands.

The most common cause of Addison's disease in industrialised nations is autoimmune disease. Tuberculosis (TB) is the most common cause worldwide but given the patient's Welsh ethnicity and the absence of any TB risk factors, it is less likely in this case. Metastatic disease, amyloidosis and Waterhouse-Friderichsen syndrome are all less common causes of Addison's disease.

Question:

A 23-year-old man presents to neurology with an 8 month history of increasing muscle wasting in his calves and forearms. Alongside this, he has also described difficulty walking and has sprained his ankle of several occasions in the past 6 months as well noticing some tingling in his fingers. He also states his mother has a similar problem.

On examination, there is clear evidence of wasting in his calf muscles and high arches in his feet.

What is the most likely diagnosis?

A.Chronic inflammatory demyelinating polyneuropathy

B.Multiple sclerosis

C.Charcot-Marie-Tooth disease

D.Guillain Barre disease

E.Motor neuron disease

Answer:Charcot-Marie-Tooth disease

Explanation:

Charcot-Marie-Tooth Disease is the most common hereditary sensorimotor neuropathy

Important for meLess important

As there is evidence of some sensory deficit, motor neuron disease can be ruled out immediately.

The fact that this has developed over a longer period of time means the Guillain Barre can also be ruled out.

Multiple Sclerosis (MS) is another possible diagnosis, however, the lower motor neuron symptoms and hereditary pattern make Charcot-Marie-Tooth more likely. Lesions on a gadolinium-enhanced MRI in combination with two separate episodes of symptoms in both space and time would make MS more likely.

The most likely of the remaining two is Charcot-Marie-Tooth (CMT) as this is the most common inherited sensorimotor disorder. There is a clear description of the inverted champagne bottle sign and pes cavus as well as a family history which points to CMT over chronic inflammatory demyelinating polyneuropathy.

Question:

A woman with stage 3a chronic kidney disease attends her GP for the results of her annual eGFR test. These are the results from the past 3 years:

Date 31/10/17 31/10/18 31/10/19

eGFR (ml/min/1.73m²) 59 51 35

What is the most appropriate next step in her management?

A.Step up eGFR monitoring to 3-monthly

B.Prescribe an ACE inhibitor

C.Referral to nephrologist

D.Urine dipstick

E.Step up eGFR monitoring to 6-monthly

Answer:Referral to nephrologist

Explanation:

NICE guidelines suggest referring to a nephrologist from primary care if eGFR falls below 30 or progressively by > 15 in a year

Important for meLess important

NICE recommend arranging a referral to a nephrology specialist if there is:

An estimated glomerular filtration rate (eGFR) of less than 30 mL/min/1.73 m2.

A sustained decrease in eGFR of 25% or more, and a change in GFR category or sustained decrease in eGFR of 15 mL/min/1.73 m2 or more within 12 months.

A urinary albumin:creatinine ratio (ACR) of 70 mg/mmol or more, unless proteinuria is known to be associated with diabetes mellitus and is managed appropriately.

A urinary ACR of 30 mg/mmol or more together with persistent haematuria, after exclusion of a urinary tract infection (UTI).

Hypertension that remains uncontrolled despite the use of at least four antihypertensive drugs at therapeutic doses.

A suspected or confirmed rare or genetic cause of CKD, such as polycystic kidney disease.

Suspected renal artery stenosis.

A suspected complication of CKD.

Question:

A 60-year-old man with benign prostatic hyperplasia presented with lower abdominal pain and inability to urinate. After inserting a catheter, >2L of clear urine drained, with immediate relief of the pain.

Three hours later you are asked to review the patient as his urine is now a pale pink colour. The patient feels well in himself, and his observations are stable.

What is the most appropriate management?

A.Bladder washout

B.Give tranexamic acid

C.Monitor - no immediate action required

D.Start bladder irrigation

E.Transfuse 2 units of red blood cells

Answer:Monitor - no immediate action required

Explanation:

Decompression haematuria does not require further management if the patient is haemodynamically stable

Important for meLess important

This patient has decompression haematuria. Decompression haematuria occurs commonly after catheterisation for chronic urinary retention due to the rapid decrease in the pressure in the bladder. It usually does not require further treatment and resolves spontaneously over a few days. Patients should be monitored to ensure the bleeding does not become severe.

Bladder washouts are indicated for moderate or severe haematuria, but are not needed in this case as the bleeding from decompression haematuria is likely to settle on its own.

Similarly, bladder irrigation is helpful to control haematuria, but is not needed in this case as the bleeding from decompression haematuria is likely to settle on its own.

Tranexamic acid is generally contra-indicated in haematuria as it causes clots to form in the bladder, leading to bladder outflow obstruction. Therefore, this is an incorrect answer.

Red blood cell transfusion would only be needed if the patient was haemodynamically unstable due to the haematuria or a drop in haemoglobin levels were noted on blood tests.

Question:

A 12-week-old baby is bought to his GP by his mother. She reports he has had regurgitation and vomiting after most feeds and ongoing diarrhoea which contains significant amounts of mucus. She is particularly concerned about his crying, as she finds it very hard to settle him and she has noted that he often pulls his legs up to his chest during these episodes.

He was born at full term and was a healthy weight at birth (although he has recently trailed off of his centile). He is formula-fed. Other than his apparent gastrointestinal problems, his only past medical history is some eczema managed with emollients.

What is the next step in management?

A.Creon

B.Gaviscon

C.Omeprazole

D.Pyloromyotomy

E.Trial of extensively hydrolysed formula

Answer:Trial of extensively hydrolysed formula

Explanation:

If a formula-fed baby is suspected of having mild-moderate cow's milk protein intolerance then a extensive hydrolysed formula should be tried

Important for meLess important

Trial of extensively hydrolysed formula is the best option here as the baby's symptoms of vomiting mucus stool and 'colic'-type episodes fit most with cow's milk protein allergy. If the extensively hydrolysed formula resolves the symptoms then this essentially confirms this diagnosis and must be continued instead of normal formula milk. If it does not, amino acid-based formula (AAF) may be trialled and/or further investigations may be required.

Creon would be an option if the symptoms were due to pancreatic insufficiency causing malabsorption (such as in cystic fibrosis) but, other than diarrhoea, there are no other symptoms to suggest this. This would not, therefore, be the next appropriate step in management.

Gaviscon would be a management option for a baby suffering from gastroesophageal reflux disorder however the mucus stools and diarrhoea make this a less likely diagnosis and thus not the best next step in management.

Omeprazole would also be a management option for a baby suffering from gastroesophageal reflux disorder however the mucus stools and diarrhoea make this a less likely diagnosis and thus not the best next step in management.

Pyloromyotomy would be a management option for an infant suffering from pyloric stenosis however this would generally present at a younger age and with forceful vomiting (often of curdled milk), weight loss, reduced bowel movements and significant dehydration so is not a likely diagnosis.

Question:

A 7-year-old girl is reviewed in an acute paediatric clinic after some unexplained bruising. She has hepatosplenomegaly on examination.

Her past medical history includes Down's syndrome. She was taken into foster care immediately after her birth, however, it is known that her birth mother smoked during pregnancy, was aged 43 at delivery, and has a past medical history of osteosarcoma.

Further investigations, including a full blood count and bone marrow aspirate, are suggestive of a diagnosis of acute lymphocytic leukaemia.

What risk factor is most strongly associated with this condition?

A.Family history of malignancy

B.Female sex

C.History of Down's syndrome

D.Maternal age

E.Maternal smoking

Answer:History of Down's syndrome

Explanation:

Children with Down syndrome have an increased risk of acute lymphoblastic leukaemia

Important for meLess important

A history of Down's syndrome is correct. Chromosomal abnormalities, particularly trisomies, are a strong risk factor for both acute lymphoblastic leukaemia (ALL) and acute myeloid leukaemia (AML). Children with Down syndrome are over 30 times more likely to develop ALL, and over 100 times more likely to develop AML. For ALL, this link is thought to be due to the loss of a gene that inhibits lymphocyte proliferation known as PCR2.

Family history of malignancy is incorrect. A family history of ALL is a known risk factor for the development of ALL, but other malignancies are not as closely associated, and therefore the family history of osteosarcoma is likely irrelevant.

Female sex is incorrect. ALL is slightly more common in males, with a ratio of 1.1:1.0, male to female.

Maternal age is incorrect. Whilst this has been hypothesised to increase the likelihood of childhood ALL, there have been no studies confirming this direct link. The link is likely mediated by the greater prevalence of chromosomal abnormalities in offspring of older mothers.

Maternal smoking is incorrect. There is no clear link between maternal smoking during pregnancy and ALL. Exposure to smoking during childhood is a known risk factor for ALL, but this has not been indicated in this case, given she was taken into foster care after birth.

Question:

A 6-year-old girl falls over whilst playing at school and presents to the Emergency Department with an extremely painful right arm. X rays show a closed, posteriorly displaced supracondylar fracture of the distal humerus.

Which of the following would indicate an urgent need for surgery?

A.Angulation

B.Distal neurovascular deficit

C.Pain

D.Significant clinical deformity

E.Significant posterior displacement on X-ray

Answer:Distal neurovascular deficit

Explanation:

Fractures in this region are a risk for injury to important structures in the arm, particularly the brachial artery. The fractured end of the distal humerus could shear the traversing artery and give rise to distal neurovascular loss and indicate immediate need for exploration. Each of the other options could occur without any neurovascular injury, although they are important to consider when managing patients such as this.

Angulation is important but not the most important - this can occur without causing any distal deficits.

Pain would not normally be an indication for surgery on it's own, as many injuries can be painful without serious consequences.

Although highly suggestive of serious injury, significant clinical deformity can occur without any limb-threatening consequences.

Posterior displacement does not necessarily correlate with neurovascular injury - important structures may be missed by bone fragments.

Therefore if there is any distal deficit at all, surgery is urgently indicated, no matter how the arm or X ray looks.

Question:

A 41-year-old man presents to the emergency department with malaise, fever and rigours. A CT scan is performed which demonstrates fulminant pancolitis. A decision is made to perform an emergency subtotal colectomy with stoma formation.

Which of the following descriptions most closely describes the stoma he will have after surgery?

A.Flush with the skin, double opening in the epigastrium

B.Flush with the skin, single opening in the left iliac fossa

C.Spouted from the skin, double opening in the right iliac fossa

D.Spouted from the skin, single opening in the left iliac fossa

E.Spouted from the skin, single opening in the right iliac fossa

Answer:Spouted from the skin, single opening in the right iliac fossa

Explanation:

An ileostomy is usually in the right iliac fossa, spouted and has a liquid output

Important for meLess important

The correct answer is an end ileostomy which would be spouted from the skin, a single opening and located in the right iliac fossa. A subtotal colectomy is an emergency procedure performed in cases of fulminant colitis where most of the large bowel, except the rectum, is resected. An end ileostomy is formed and the rectal stump is oversewn. An ileostomy is a stoma formed from the small bowel, specifically the terminal ileum, and it is spouted from the skin to prevent alkaline bowel contents from causing skin irritation when attaching and removing stoma bags. Ileostomies are usually located in the right iliac fossa as this is the closest place to bring them out near the small bowel mesentery.

A stoma that is flush with the skin usually represents a colostomy. The contents of the large bowel are not irritant to the skin and more solid so a stoma can be more easily managed when changing bags and does not need to be spouted. Colostomies are usually located in the left iliac fossa although the exception is defunctioning loop transverse colostomies which are located in the epigastrium. These stomas are usually formed to bypass and decompress bowel obstructed by left-sided tumours.

A single opening, flush stoma in the left iliac fossa is an end colostomy. This is most often formed after a Hartmann’s procedure for sigmoid perforation secondary to diverticulitis or a tumour.

A spouted stoma with a double opening in the right iliac fossa is a loop ileostomy. The most common reason for fashioning a loop ileostomy is to protect a distal large bowel anastomosis, for example following anterior resection for rectal cancer. Loop ileostomies can be easily reversed, however, in the case of a subtotal colectomy, as the distal bowel is resected a loop stoma is not possible.

A left iliac fossa, single opening spouted stoma describes an end ileostomy. However, it is rare to find this in the left iliac fossa, especially after a subtotal colectomy. The only reason a left-sided ileostomy would be fashioned is if there was an anatomical reason it could not be brought out on the right such as adhesions or right-sided sepsis. In a subtotal colectomy, it is more likely the left side of the abdomen will be more hostile and less amenable to stoma formation.

Question:

A 20-year-old patient with sickle cell disease presents to the emergency department with significant chest pain and shortness of breath. They know they are having a chest crisis. The doctor starts high-flow oxygen, IV analgesia and gives a 500ml fluid bolus. Bloods return as:

Hb 104 g/L (135-180)

Platelets 347 \* 109/L (150 - 400)

WBC 5.1 \* 109/L (4.0 - 11.0)

Na+ 144 mmol/L (135 - 145)

K+ 4.8 mmol/L (3.5 - 5.0)

Urea 6.6 mmol/L (2.0 - 7.0)

Creatinine 111 µmol/L (55 - 120)

Reticulocytes 4.2 % (0.5 - 1.5)

Despite support, the patient's respiratory function worsens; they are intubated and transferred to ICU.

What other treatment would be most appropriate to consider?

A.Blood transfusion with packed red cells

B.Dialysis

C.Exchange transfusion

D.Haemofiltration

E.Platelet transfusion

Answer:Exchange transfusion

Explanation:

Exchange transfusions are a way of reducing the number of sickle red cells and increasing the number of normal red cells, in order to improve oxygenation

Important for meLess important

The correct answer is exchange transfusion. This is the process of removing the patient's blood and replacing it with non-sickle donor red cells, in order to support oxygenation and reduce tissue destruction due to the sickle cell crisis. The decision on whether to complete donor transfusion vs exchange is complex, but generally exchange transfusion is indicated in acutely deteriorating sickle crises (e.g. chest crises such as this one, those precipitated by sepsis, or stroke), and in those individuals with a 'high' haemoglobin (>90g/L), where a blood transfusion could worsen the outcome by increasing serum viscosity and clogging the vessels more.

Blood transfusion with packed red cells are useful in sickle cell crises as they can support oxygenation and reduce the chances of deterioration. However, they are less helpful in patients with 'higher' red cells (>90g/L) as they can exacerbate symptoms by increasing blood viscosity and precipitating further sickling. Whilst transfusion thresholds for patients without acute coronary syndrome are typically <70g/L, often thresholds are higher for sickle cell patients; consider blood transfusion early in sickle cell patients in crisis where significant anaemia is present. In this case, the patient has a relatively high haemoglobin for a patient with sickle cell disease, and so the issue here is not their anaemia. A blood transfusion could make things worse, so an exchange transfusion would be wiser here.

Dialysis would not be useful for this patient. Dialysis involved the filtration of cell-free serum, not cells, and so would have no effect. Whilst the risk of kidney injury in sickle cell crisis is high, this patient has no indication of kidney injury at this point, so dialysis is unnecessary.

Haemofiltration would not be useful here. As with dialysis, haemofiltration is a form of renal replacement therapy that is most useful in kidney injury. Like the kidney, haemofiltration and dialysis only affect the soluble parts of plasma, and would not alter sickling. Remember that the primary difference between haemofiltration and dialysis is the method of solute movement from plasma to waste filtrate; haemofiltration uses pressure, dialysis uses passive diffusion. Again, the lack of kidney injury at this point means haemofiltration would be unhelpful.

Platelet transfusion would also not be useful. The patient's platelets are normal and there's no indication of acute bleeding or platelet destruction (e.g. disseminated intravascular coagulation or thrombotic thrombocytopenic purpura).

Question:

A 14-year-old boy presents to his GP with his mother worried about the appearance of his face. He feels very self-conscious, which has impacted his self-confidence to the extent that he refuses to attend school. He has previously tried a 12-week course of combined topical adapalene and benzoyl peroxide with oral lymecycline. This was ineffective.

A picture of his face is shown below.

© Image used on license from DermNet NZ

What is the next most appropriate step in his management?

A.Prescribe another 12-week course of combined topical treatment with a different oral antibiotic

B.Prescribe combined oral contraceptive pill

C.Prescribe oral isotretinoin

D.Prescribe topical and oral antibiotic

E.Refer to dermatology

Answer:Refer to dermatology

Explanation:

Refer to dermatology is the correct answer. The patient in the vignette has severe acne (there are extensive inflammatory lesions with some pitting and potential evidence of scarring). He has already tried a first-line course of treatment (12 weeks of combined topical treatment with oral lymecycline/doxycycline) which has had no effect. NICE suggest that individuals with severe acne who have not responded to treatment that includes an oral antibiotic should be referred to dermatology. They also recommend referring individuals with scarring. It is likely that oral isotretinoin will be considered as a treatment, but this is initiated in secondary care, not primary.

Prescribe another 12-week course of combined topical treatment with a different oral antibiotic is incorrect. NICE suggests that individuals who haven't responded to this boy's treatment should be referred to dermatology, so trying a different antibiotic is not the best next step.

Prescribe combined oral contraceptive pill is incorrect. The combined contraceptive pill may be used in combination with topical therapies instead of oral antibiotics, but only in females. This patient is male, so the combined pill is not appropriate.

Prescribe oral isotretinoin is incorrect. While this may be the next step in treatment for this boy, oral isotretinoin is not given in primary care and is prescribed/managed by a specialist. Referring to dermatology is more appropriate as this is the NICE-recommended step and would be needed for a prescription of oral isotretinoin.

Prescribe topical and oral antibiotic is incorrect. NICE suggests that you shouldn't use combined topical and oral antibiotics in acne management.

Question:

A 78-year-old patient comes into the hospital for an elective total hip replacement. She receives dalteparin preoperatively for thromboprophylaxis. Eight days post-operatively she goes on to develop shortness of breath and pleuritic chest pain and her full blood count results are shown below. She is diagnosed with a pulmonary embolism.

Hb 124 g/L Male: (135-180)

Female: (115 - 160)

Platelets 76 \* 109/L (150 - 400)

WBC 6 \* 109/L (4.0 - 11.0)

What is the most likely cause of her pulmonary embolism?

A.Disseminated intravascular coagulation

B.Heparin-induced thrombocytopenia

C.Hypersplenism

D.Idiopathic thrombocytopenic purpura

E.Thrombotic thrombocytopenic purpura

Answer:Heparin-induced thrombocytopenia

Explanation:

Heparin can cause drug induced thrombocytopaenia

Important for meLess important

This patient suffered from heparin-induced thrombocytopenia (HIT). HIT occurs due to an immune response is initiated when heparin binds to a protein on the surface of inactivated platelets called platelet factor 4 (PF-4) and they form a heparin-PF4 complex. Some people develop IgG antibodies that recognise the heparin-PF4 complex and mark it for destruction in the spleen. This binding action of IgG to the heparin-PF4 complex causes the activation of platelets and results in clot formation and consumption of platelets therefore reduces the platelet count. It can cause pulmonary embolism, stroke, and myocardial infarction. Treatment involves STOPPING the heparin and starting a non-heparin anticoagulant.

DIC is a condition where blood clots form throughout the body, occluding small blood vessels. It can be caused by sepsis, trauma, or malignancy and on examination, you can see multiple petechiae, ecchymosis, and patients tend to be hypoxic and hypotensive. DIC would present much more acutely and the patient would be severely unwell.

Hypersplenism would present with splenomegaly where the spleen is felt on examination. The patient does not show any signs of hypersplenism in the scenario.

Idiopathic thrombocytopenic purpura (ITP) is usually more common in children and comes on 1-2 weeks after an infection and is the least unlikely in this patient.

Thrombotic thrombocytopenic purpura (TTP) would usually present with fever, fluctuating neurological signs, and renal failure. It is a rare condition and most common in adult females. The patient did not have any of the symptoms or signs of TTP.

Question:

A 16-year-old girl presents to the GP with concerns regarding menstruation, as she has not yet started her periods. She has no past medical history.

On examination, there is little to no axillary or pubic hair, and she has a tall stature. Bilateral lower pelvic masses are noted. Her BMI is 19 kg/m².

Investigations are performed:

Hb 130 g/L (115 - 160)

Platelets 200 \* 109/L (150 - 400)

WBC 5.7 \* 109/L (4.0 - 11.0)

FSH 9 IU/L (1 - 12)

LH 7 IU/L (1 - 9)

Testosterone 100 ng/dL (15-70)

Estradiol 30 pg/mL (30 - 400)

What is the most likely diagnosis?

A.Androgen insensitivity syndrome

B.Congenital adrenal hyperplasia

C.Functional hypothalamic amenorrhoea

D.Polycystic ovarian syndrome

E.Turner's syndrome

Answer:Androgen insensitivity syndrome

Explanation:

Primary amenorrhoea, little or no axillary and pubic hair, elevated testosterone → androgen insensitivity syndrome

Important for meLess important

Androgen insensitivity syndrome (AIS) is correct in this case. This patient has presented with primary amenorrhoea as she has failed to establish menstruation by 15 years of age. The blood tests show increased testosterone and her examination shows little to no axillary or pubic hair and bilateral lower pelvic masses. These findings all point in the direction of AIS, which is an X-linked recessive condition characterised by end-organ resistance to testosterone, causing genetically male children (46XY) to have a female phenotype. The bilateral lower pelvic swellings are likely to be undescended testes and testosterone is elevated due to tissues being unresponsive to it.

Congenital adrenal hyperplasia (CAH) is incorrect in this case. Although this can also cause primary amenorrhoea, this is associated with the development of male secondary sexual characteristics in females (such as deep voice and hirsutism). This is because of impaired cortisol synthesis leading to surplus progesterone which is converted to extra testosterone to reduce the levels of progesterone. Unlike AIS, the body is still responsive to testosterone, therefore, this would mean that this patient would have hirsutism and excess male-pattern hair growth, including axillary and pubic hair, which is not seen here. A diagnosis of CAH would also not explain the bilateral lower pelvic swellings, which are likely to be undescended testes.

Functional hypothalamic amenorrhoea is incorrect in this case. This patient's BMI falls within the normal range of 18.5 - 24.9 kg/m², and functional hypothalamic amenorrhoea typically occurs secondary to causes of low adipose tissue, such as anorexia or excessive exercise. As well as this, this patient's FSH and LH are within the normal ranges, indicating that there is no hypothalamic dysfunction, as these would be decreased instead. This diagnosis would also not explain the bilateral lower pelvic swellings, which are likely to be undescended testes.

Polycystic ovarian syndrome (PCOS) is incorrect in this case. This typically causes secondary amenorrhoea, and patients often have a history of irregular periods, rather than not starting them at all. Patients also have features of hyperandrogenism, including excessive hair growth, including the pubic and axillary regions, which does not apply here. PCOS would not explain the bilateral lower pelvic swellings, which are likely to be undescended testes.

Turner's syndrome is incorrect in this case. Although this can present with primary amenorrhoea and no evidence of starting puberty, including axillary and pubic hair, patients with Turner's syndrome have hypogonadism due to their ovaries failing to produce sex hormones including oestrogen. If this patient were to have Turner's syndrome, FSH and LH would be elevated as negative feedback controls their secretion. Patients with Turner's syndrome have little to no sex hormones including estradiol, meaning negative feedback is not exerted on FSH and LH. This diagnosis would also not explain the bilateral lower pelvic swellings, which are likely to be undescended testes.

Question:

A 65-year-old man undergoes an anterior resection for colorectal cancer. He received a transfusion of 5 units of packed red cells to cover perioperative blood loss. He is currently asymptomatic.

Investigations show the following:

Hb 136 g/L Male: (135-180)

Platelets 200 \* 109/L (150 - 400)

WBC 10.0 \* 109/L (4.0 - 11.0)

Na+ 137 mmol/L (135 - 145)

K+ 6.1 mmol/L (3.5 - 5.0)

Urea 6.0 mmol/L (2.0 - 7.0)

Creatinine 119 µmol/L (55 - 120)

What is the most appropriate next step?

A.Calcium resonium

B.Check potassium on venous blood gas (VBG)

C.ECG

D.IV calcium gluconate

E.IV insulin + dextrose

Answer:ECG

Explanation:

An ECG should be done in all new cases of hyperkalaemia

Important for meLess important

ECG is correct. This patient has hyperkalemia which is likely to be secondary to the large-volume transfusion of packed red cells. Using larger volumes of packed red cells carries an increased risk of hyperkalemia as more of the red cells are likely to lyse, releasing potassium ions. An ECG should be performed initially in all new cases of hyperkalemia due to the risk of complications (e.g. arrhythmia), even if the patient is asymptomatic. The guidelines state that treatment should be initiated immediately if the potassium ion level is ≥6.5 mmol/L (severe). Since this patient has a level of 6.1 mmol/L, they should be offered an ECG first to assess for any ECG changes (e.g. peaked or tall-tented T waves). The ECG would allow identification of any risk of immediate danger, which can guide the patient's management and how urgently they need to be treated.

Calcium resonium is incorrect. Although this is a possible option for removing potassium ions from the body, this patient requires an ECG first. The guidelines state that treatment should be initiated immediately if the potassium ion level is ≥6.5 mmol/L (severe). Since this patient has a level of 6.1 mmol/L, they should be offered an ECG first to assess for any ECG changes (e.g. peaked or tall-tented T waves). The ECG would allow identification of any risk of immediate danger, which can guide the patient's management and how urgently they need to be treated.

IV calcium gluconate is incorrect. This is the first option that should be performed if a patient has hyperkalemia that is either severe (≥6.5 mmol/L) or there are ECG changes present, as it works by stabilising the cardiac membrane and reduces the risk of complications due to arrhythmia that can arise due to hyperkalemia. It is important to remember that calcium gluconate does not lower serum potassium ion levels. This patient requires an ECG first. The guidelines state that treatment should be initiated immediately if the potassium ion level is ≥6.5 mmol/L (severe). Since this patient has a level of 6.1 mmol/L, they should be offered an ECG first to assess for any ECG changes (e.g. peaked or tall-tented T waves). The ECG would allow identification of any risk of immediate danger, which can guide the patient's management and how urgently they need to be treated.

IV insulin + dextrose is incorrect. This leads to a short-term shift in potassium from the extracellular fluid into cells, however, this patient needs an ECG first. The guidelines state that treatment should be initiated immediately if the potassium ion level is ≥6.5 mmol/L (severe). Since this patient has a level of 6.1 mmol/L, they should be offered an ECG first to assess for any ECG changes (e.g. peaked or tall-tented T waves). The ECG would allow identification of any risk of immediate danger, which can guide the patient's management and how urgently they need to be treated.

Check potassium on venous blood gas (VBG) is incorrect. This is not necessary as the blood tests already show hyperkalemia. Performing another test and waiting for the result can delay treatment and increase the risk of complications occurring (such as arrhythmia). As well as this, VBG tends to give potassium values that are falsely elevated. The guidelines state that treatment should be initiated immediately if the potassium ion level is ≥6.5 mmol/L (severe). Since this patient has a level of 6.1 mmol/L, they should be offered an ECG first to assess for any ECG changes (e.g. peaked or tall-tented T waves). The ECG would allow identification of any risk of immediate danger, which can guide the patient's management and how urgently they need to be treated.

Question:

A 50-year-old woman presents to her GP with fatigue and weakness. Over the last 2 months, she has found it difficult to get up from chairs, lift objects and climb steps. However other movements like knitting or writing remain normal.

On examination, she has bilateral hip and shoulder weakness. Blood tests are performed which show:

Calcium 2.4 mmol/L (2.1-2.6)

Thyroid stimulating hormone (TSH) 4.5 mU/L (0.5-5.5)

Free thyroxine (T4) 12.4 pmol/L (9.0 - 18)

Creatine kinase (CK) 1752 U/L (35 - 250)

ESR 62 mm/hr (< 40)

What is the most likely diagnosis?

A.Dermatomyositis

B.Motor neuron disease

C.Myasthenia gravis

D.Polymyalgia rheumatica

E.Polymyositis

Answer:Polymyositis

Explanation:

Proximal muscle weakness + raised CK + no rash → ?polymyositis

Important for meLess important

Polymyositis is correct. This patient has difficulty with tasks involving the use of proximal muscles. Combined with a raised CK and ESR this suggests muscle inflammation and disease, making polymyositis the most likely diagnosis. Being female and above 40 years of age are risk factors for this condition. A good way to examine proximal leg muscle strength is to have the patient stand from the sitting position (especially from a low footstool) with the arms crossed.

Dermatomyositis is incorrect. This presents similarly to polymyositis but with a rash - commonly a heliotrope rash with eyelid oedema or Gottron's papules on the hands.

Motor neuron disease is incorrect. This would present with generalised weakness rather than specifically proximal muscle weakness. Raised CK is occasionally seen in motor neuron disease however it would not be expected to be higher than 1000 U/L. As well as this, motor neurone disease is associated with fasciculations and a mixture of upper and lower motor neurone signs, which are not seen here.

Myasthenia gravis is incorrect. This would present with fluctuating weakness that increases with repeated or sustained exertion. It most commonly affects extra-ocular muscles and patients often have dysphagia. There is no mention of weakness that worsens with sustained exertion in this question, which is a key feature of myasthenia gravis.

Polymyalgia rheumatica is incorrect. While this does also affect the proximal muscles it is not true weakness. Rather patients often feel weak because of the pain and stiffness in proximal muscles. Furthermore, in polymyalgia rheumatica, creatine kinase (CK) is not elevated.

Question:

Michelle is a 18-year-old girl who presents with a viral exacerbation of her asthma. On examination there is widespread wheeze bilaterally however her saturations are 96%. You prescribe her a short course of steroids as well as advise her to take 2 puffs of her salbutamol inhaler every 4 hours.

What is the minimum amount of time she needs to wait between the first and second puff?

A.10 seconds

B.30 seconds

C.90 seconds

D.2 minutes

E.5 minutes

Answer:30 seconds

Explanation:

When using an inhaler, for a second dose you should wait for approximately 30 seconds before repeating

Important for meLess important

You should wait at least 30 seconds between the first and second puff to give the propellant and medication enough time to together.

10 seconds is too short a duration.

The question asks for the minimum time and therefore 90 seconds, 2 minutes and 5 minutes are all too long.

Question:

A 36-year-old homeless man is admitted to hospital as he sees what he describes as an 'ocean of bees' all around him. He says that the bees appeared suddenly. He struggles to give a comprehensive history as he is extremely anxious and confused, repeatedly shouting that the 'buzzing is deafening.' His heart rate is 140 beats per minute and his respiratory rate is 23 breaths per minute. On looking through his notes, you see that he has had repeated admissions into the emergency department following alcohol intoxication.

What is the first line treatment for his condition?

A.Haloperidol

B.Aripiprazole

C.Fluoxetine

D.Chlordiazepoxide

E.Acetylcysteine

Answer:Chlordiazepoxide

Explanation:

Chlordiazepoxide or diazepam are used in the treatment of delirium tremens/alcohol withdrawal

Important for meLess important

This man has come in with delirium tremens, which is the result of alcohol withdrawal following dependency. It commonly results in the development of visual and auditory hallucinations. Although haloperidol would be helpful in calming him down, the first line treatment for delirium tremens is 10-30 mg of chlordiazepoxide 4 times a day.

Acetylcysteine is used in the treatment of paracetamol overdose.

Fluoxetine is used in the long-term treatment of anxiety and depression.

Aripiprazole is an antipsychotic usually used in the treatment of schizophrenia and the manic phase of bipolar disorder.

Question:

A 76-year-old man is referred to the urgent transient ischaemic attack clinic, after having an episode of right arm weakness the day before, which lasted for about 1 hour. He has had 3 previous such episodes in the past year, 1 of which was in the last month, and his CT head scan is normal. Currently, in-clinic he is asymptomatic. He has a past medical history of hyperlipidaemia, hypertension and diabetes, and he is on atorvastatin, amlodipine, clopidogrel and metformin. He is not known to have atrial fibrillation (AF) and an echocardiogram a month ago was normal. A doppler scan of his carotid arteries is performed, which shows plaques occluding 45% and 75% of his right and left carotid arteries, respectively.

What is the most appropriate management option to be offered to this patient?

A.Carotid endarterectomy bilaterally

B.Carotid endarterectomy of the left carotid artery

C.Carotid endarterectomy of the right carotid artery

D.Dual anti-platelet therapy with aspirin and clopidogrel

E.Echocardiography

Answer:Carotid endarterectomy of the left carotid artery

Explanation:

Carotid endarterectomy is considered in a patient who has had a TIA with carotid artery stenosis exceeding 70%

Important for meLess important

Carotid endarterectomy of the left carotid artery is correct. The patient was referred to the urgent TIA clinic as he had an increased frequency of TIAs. His right-sided symptoms are in keeping with the high percentage of carotid stenosis on the left. As his left carotid is stenosed by over 50%, which is now the cutoff rin patients with previous history of TIA or stroke, carotid endarterectomy on that side should be offered. 70% is the cutoff now used for patients without a prior history of TIA/stroke.

Carotid endarterectomy bilaterally is incorrect. At this point, only his left carotid is stenosed above the recommended cut-off of 50%.

Carotid endarterectomy of the right carotid artery is incorrect as the right carotid is stenosed at 45%, which is lower than the current cut-off for endarterectomy, even in patients with previous TIA/stroke.

Dual antiplatelet therapy with aspirin and clopidogrel is not indicated at the moment for the treatment of TIA or stroke.

Echocardiography may be reasonable to exclude structural heart disease which could predispose him to AF or identify a thrombus in the left atrium. However, he has had a previous echocardiogram a month ago and all his risk factors, as well as the doppler scans, are indicating that the source of his TIAs is from the left carotid artery. He is also not known to have AF and if this suspected clinically, an ECG first would be a more reasonable investigation.

Question:

A patient presents to the emergency department with shortness of breath. They undergo an erect chest X-ray. The report states:

The left hemithorax demonstrates blunting of the costophrenic angle and cardiophrenic angle with fluid within the horizontal or oblique fissures.

Pleural fluid analysis demonstrates the following:

pH 7.55 7.60-7.64

protein 36g/L 10-20g/L

Which of the following diagnoses would be most strongly associated with this result?

A.Heart failure

B.Hepatitis

C.Meigs syndrome

D.Nephrotic syndrome

E.Pulmonary embolism

Answer:Pulmonary embolism

Explanation:

Pleural fluid with a protein level >30g/L is indicative of an exudate

Important for meLess important

The X-ray report and pleural fluid analysis are suggestive of an exudative pleural effusion. A more severe effusion would demonstrate a meniscus and mediastinal shift on X-ray. Pulmonary embolism is the only option which can cause exudative pleural effusion.

Heart failure is the most common cause of transudative pleural effusion.

Both hepatitis and nephrotic syndrome can cause low albumin which is a cause of transudate pleural effusion.

Meigs syndrome causes a transudative pleural effusion and ascites in the presence of a benign ovarian tumour.

Question:

A 44-year-old swimmer attends his GP with recurrent otitis externa.

His GP takes a swab of the affected ear given the recurrent presentation.

The swab is reported as growing a non-lactose fermenting, oxidase-positive, gram-negative bacilli.

What is the most likely causative organism?

A.Bacillus cereus

B.Escherichia coli

C.Proteus mirabilis

D.Pseudomonas aeruginosa

E.Staphylococcus aureus

Answer:Pseudomonas aeruginosa

Explanation:

Lab features suggestive of Pseudomonas aeruginosa include:

Gram-negative rod

non-lactose fermenting

oxidase positive

Important for meLess important

The correct answer is Pseudomonas aeruginosa which is one of the two common bacteria that cause otitis externa, the other being Staphylococcus aureus.

Pseudomonas aeruginosa is a gram-negative, oxidase-positive, non-lactose fermenting bacillus. It shows a high level of resistance to penicillins and beta-lactams and is often treated with aminoglycosides (such as gentamicin) or quinolones (such as ciprofloxacin). Both are available as ear drops.

Bacillus cereus is incorrect. It is a bacillus but it is a gram-positive organism. It is a cause of gastrointestinal illnesses such as gastroenteritis and is found in uncooked rice, so does not fit the presentation here.

Escherichia coli is a common gram-negative bacillus that is implicated in a wide range of infections, typically urinary tract infections or other intra-abdominal infections such as cholecystitis. It is not the correct answer as it is highly lactose fermenting, rather than non-lactose fermenting, and a less likely cause of otitis externa.

Proteus mirabilis is incorrect. Although it is a gram-negative bacillus, and also non-lactose fermenting, it is oxidase negative unlike Pseudomonas aeruginosa. It would also be unusual for this to cause otitis externa as it classically causes urinary tract infections and is often associated with kidney stones.

Staphylococcus aureus is a gram-positive cocci so is not correct. It is however one of the most common causes of otitis externa, as well as other skin and soft tissue infections.

Question:

A 45-year-old man who takes chlorpromazine for schizophrenia presents with severe restlessness. What side-effect of antipsychotic medication is this an example of?

A.Akathisia

B.Neuroleptic malignant syndrome

C.Acute dystonia

D.Tardive dyskinesia

E.Parkinsonism

Answer:Akathisia

Explanation:

Antipsychotics may cause akathisia (severe restlessness)

Important for meLess important

Question:

Which one of the following statements regarding coarctation of the aorta is true?

A.It is associated with Prader-Willi syndrome

B.Notching of the inferior border of the ribs is more common in children than adults

C.It is associated with having a bicuspid aortic valve

D.An early diastolic murmur is typically heard

E.It is more common in females

Answer:It is associated with having a bicuspid aortic valve

Explanation:

Question:

A 26-year-old woman presents to the emergency department with abdominal pain and vomiting.

She has a past medical history of type 1 diabetes mellitus and is known to be poorly compliant with her insulin therapy.

Her relevant blood results are shown below:

pH 7.31 (7.35-7.45)

Ketones 3.3 mmol/L (<0.6)

Serum glucose >30 mmol/L (4.0-11.1)

What is the most appropriate initial management?

A.Fixed-rate insulin infusion

B.IV 0.9% sodium chloride

C.IV 0.9% sodium chloride with potassium chloride

D.IV 1.26% sodium bicarbonate

E.Stat dose of rapid-acting insulin

Answer:IV 0.9% sodium chloride

Explanation:

Diabetic ketoacidosis: isotonic saline should be used initially, even if the patient is severely acidotic

Important for meLess important

IV 0.9% sodium chloride is correct. The priority in treatment is restoring circulatory volume. Sodium chloride is the preferred fluid to achieve this in diabetic ketoacidosis.

Fixed-rate insulin infusion is incorrect. Although fixed-rate insulin infusion forms part of the management, it is only initiated after fluid therapy has begun. Restoring circulatory volume is the priority.

IV 0.9% sodium chloride with potassium chloride is incorrect. The first bag of sodium chloride given does not need to contain potassium chloride. Subsequent bags can have potassium chloride added depending on the patient's serum potassium.

IV 1.26% sodium bicarbonate is incorrect. Sodium bicarbonate is not recommended due to the risk of causing a paradoxical increase in cerebrospinal fluid acidosis. Also, the use of bicarbonate does not reduce ketones as effectively as 0.9% sodium chloride.

Stat dose of rapid-acting insulin is incorrect. Although insulin forms part of the management, it is delivered by fixed-rate insulin infusion.

Question:

A 56-year-old woman visits her GP to discuss her ischaemic heart disease, which was diagnosed 8 months ago. On questioning, she reports that her chest pain is ongoing, despite starting medications for her disease.

An electrocardiogram (ECG) is performed and shows no acute changes. She is currently taking 5mg bisoprolol once daily and glyceryl trinitrate (GTN) spray as required for the chest pain. She also takes daily aspirin, atorvastatin and ramipril.

What is the most appropriate next step in her management?

A.Add isosorbide mononitrate

B.Add modified release nifedipine

C.Add nicorandil

D.No changes

E.Refer for coronary artery bypass graft

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

In this scenario, this patient's stable angina is not controlled by a beta blocker alone. The next step in her management would be combination therapy of a beta blocker and a calcium channel blocker. A long-acting calcium channel blocker (such as modified release nifedipine) is preferred in combination therapy. When used in monotherapy for stable angina, a rate-limiting calcium channel blocker such as verapamil is preferred.

Isosorbide mononitrate (long-acting nitrate) may be a future options for this patient. This may be indicated when combination therapy of a beta blocker and calcium channel blocker has failed to control symptoms and the patient is waiting referral for bypass graft.

Nicorandil (potassium channel activator) is an alternative option to isosorbide mononitrate to use on failure of combination therapy of a beta blocker and calcium channel blocker, once the patient has been referred for a bypass graft.

The option of 'no change' to the treatment of this patient's ischaemic heart disease would be inappropriate at this stage. She is having ongoing symptoms, suggesting her disease is not controlled by beta blockers alone. Failure to control her condition would increase her risk of an acute coronary event.

Again, a coronary artery bypass graft may be an option for this patient further down the line, if the combination therapy of a beta blocker and a calcium channel blocker were to fail to control symptoms.

Question:

A 35-year-old man presents to the emergency department after being involved in a fight in a local beer garden. He is obviously intoxicated and is proclaiming loudly that he was bitten on the hand while he tried to punch someone.

On examination, there is evidence of a bite mark on the man's right hand. It has broken the skin but has not drawn blood. The wound site is non-erythematous and there is no swelling, no necrotic tissue, and no discharge. Apart from being agitated and disruptive, the man is fine in himself and has no fever.

What would be the most appropriate management of the man's condition?

A.A swab of the wound taken for microbiological sampling

B.Co-amoxiclav

C.Doxycycline with metronidazole

D.Flucloxacillin

E.Wound irrigation and debridement only

Answer:Co-amoxiclav

Explanation:

Human bites, like animal bites, should be treated with co-amoxiclav

Important for meLess important

The correct answer is co-amoxiclav. With a human bite, antibiotics should be offered if a bite has broken the skin and drawn blood. This is not the case with the man in the scenario, but he has been bitten in what NICE guidelines denote as a 'high-risk area'. High-risk areas include the hands, feet, face, genitals, skin overlying cartilaginous structures or an area of poor circulation. If a bite has broken the skin but not drawn blood, such as in this scenario, antibiotics should be considered if it is in a high-risk area or if the person is at high risk (immunosuppression, diabetes, asplenia or decompensated liver disease). The first choice antibiotic to be used in the prophylaxis and treatment of human and animal bites is co-amoxiclav.

Doxycycline with metronidazole would be the antibiotic of choice if the patient had a penicillin allergy or if co-amoxiclav is unsuitable.

Flucloxacillin does not play a role in the prophylaxis and treatment of human and animal bites.

From NICE guidance, a swab taken for microbiological sampling is indicated if there is discharge (purulent or non-purulent) present from the wound site. Antibiotic choice can then be reviewed based on the swab results. This, however, is not the case in the scenario as there is no discharge present.

Initial management of the wound site should include removing foreign bodies, irrigating the site, and debridement (especially if the wound is dirty), as well as analgesia for the management of pain. However, due to the location of the bite being in a high-risk area, antibiotics are also indicated.

Question:

A 55-year-old male comes in to see his GP as he's noticed that he's been feeling fatigued over the past month despite getting his usual 8 hours of sleep every night. You notice that he is overweight and he reports no significant changes in his mood.

Which scale would you use to help identify the most likely cause of his problems?

A.Epworth

B.PHQ-9

C.Beck Depression Inventory

D.Activities of Daily Living

E.GAD-7

Answer:Epworth

Explanation:

The Epworth Sleepiness Scale is used in the identification of obstructive sleep apnoea

Important for meLess important

Males and overweight people are more likely to develop obstructive sleep apnoea. A common presentation is a partner's complaints about them snoring. Fatigue is a common symptom. To assess their sleepiness/fatigue objectively, the Epworth Sleepiness Scale is used.

PHQ-9 and Beck Depression Inventory are scales used to assess depression. GAD-7, on the other hand, is used for generalised anxiety disorder.

Activities of Daily Living, ADL, looks at the basic actions needed for self care. It is often used in geriatrics.

Question:

A 38-year-old pregnant woman presents to antenatal clinic complaining of headaches and rapid swelling of her ankles over the last 3 days. She is 30+4 weeks pregnant, gravida 1 para 0. She has a past medical history of diabetes mellitus type II which is lifestyle controlled. On examination the fundal height is measuring small for dates and she is sent for an ultrasound scan which reveals oligohydramnios.

Which of the following is the most likely cause of this patient’s oligohydramnios?

A.Pre-eclampsia

B.Anencephaly

C.Diabetes mellitus

D.Multiple pregnancy

E.Oesophageal atresia

Answer:Pre-eclampsia

Explanation:

Pre-eclampsia is a cause of oligohydramnios

Important for meLess important

Pre-eclampsia can cause oligohydramnios due to hypoperfusion of the placenta. Anencephaly, diabetes mellitus, twin pregnancies and oesophageal atresia are all associated with polyhydramnios. In twin pregnancies it is usually twin-to-twin transfusion syndrome that causes the polyhydramnios. When the mother has diabetes there is foetal polyuria due to foetal hyperglycaemia. In oesophageal atresia and anencephaly the baby is unable to swallow the amniotic fluid.

Question:

A 57-year-old man presents with a distended painful abdomen. On examination his liver border is felt 2 cm below the costal margin, it is tender and there is evidence of shifting dullness. Blood tests and ascitic tapping reveal a serum-ascites albumin gradient (SAAG) of 16g/L (normal <11g/L). Which of the following conditions is the most likely diagnosis?

A.Budd-Chiari syndrome

B.Intra-abdominal malignancy

C.Spontaneous bacterial peritonitis

D.Nephrotic syndrome

E.Malnutrition

Answer:Budd-Chiari syndrome

Explanation:

Budd-Chiari syndrome presents with the triad of sudden onset abdominal pain, ascites, and tender hepatomegaly

Important for meLess important

The SAAG is used to determine if the ascites has been caused by portal hypertension or not. A raised SAAG (>11g/L) indicates that it is portal hypertension that has caused the ascites. Budd-Chiari syndrome (hepatic vein thrombosis) is the only option that causes portal hypertension.

All the other options do not cause portal hypertension and would therefore result in a SAAG < 11g/L.

Question:

A 38-year-old woman gives birth to a baby boy. On initial examination he is noted to have poor tone and further examination reveals features of Down's syndrome. Which one of the following features is he least likely to have?

A.Single palmar crease

B.Sandal gap

C.Brushfield spots

D.Rocker-bottom feet

E.Epicanthic folds

Answer:Rocker-bottom feet

Explanation:

This question focuses on the features of Down's syndrome. This is an important topic to know for clinical practice and for final examinations. In this case, answer 4 is correct. Rocker-bottom feet are characteristic of trisomy 18 or Edward's syndrome, but are not commonly seen in Down's syndrome.

Question:

A woman presents to her GP complaining of bleeding after sexual intercourse. What is the most common identifiable cause of postcoital bleeding?

A.Cervical ectropion

B.Cervical cancer

C.Cervical polyps

D.Vaginal trauma

E.Cervicitis secondary to Chlamydia

Answer:Cervical ectropion

Explanation:

Cervical ectropion is the most common identifiable cause of postcoital bleeding

Important for meLess important

Question:

A 44-year-old man presents to the Emergency Department with a 4-hour history of intense retrosternal pain. He mentions drinking heavily yesterday for the first time in years, causing extensive regurgitation.

Crepitus is present on palpation of the chest wall. His ECG shows sinus tachycardia.

What investigation should be performed to confirm the most likely diagnosis?

A.Blood alcohol concentration

B.CT contrast swallow

C.Endoscopy

D.Transoesophageal echocardiogram

E.Transthoracic echocardiogram

Answer:CT contrast swallow

Explanation:

CT contrast swallow is the investigation of choice for suspected Boerhaave's syndrome

Important for meLess important

CT contrast swallow. This is the correct answer, as this man is likely suffering from Boerhaave's syndrome, the spontaneous rupture of the oesophagus usually after repeated vomiting/retching. The history of binge drinking is common. It is important to diagnose this early, as it can be fatal. The investigation of choice is a CT contrast swallow, which classically shows pneumomediastinum (hence the crepitus on palpation due to subcutaneous emphysema), pneumothorax, pleural effusion, and oral contrast leaking into the mediastinum.

Blood alcohol concentration. This is incorrect. While serum ethanol levels can be performed, usually breath tests are adequate. There is no indication this man is still intoxicated nor that it is the cause of his pain. Furthermore, the crepitus pointing towards emphysema, in particular, should suggest there is something more to this clinical picture.

Endoscopy. While endoscopy should pick up Boerhaave's syndrome if performed, it is not the choice investigation for the syndrome and a CT contrast is preferred. It is also important to note that an endoscopy carries the risk of further perforation.

Transoesophageal echocardiogram. Incorrect. A transoesophageal echocardiogram (TOE) is used to assess suspected aortic dissection if patients are too unstable to have a CT scan (usually in the more serious Stanford type A dissections of the ascending aorta), or used in cardiothoracic surgery for monitoring.

Transthoracic echocardiogram. A transthoracic echocardiogram would not be indicated here as it is usually used to assess cardiac function; for example, an echocardiogram could be ordered to assess the ejection fraction in a patient with heart failure.

Question:

A 71-year-old man attends his GP practice with ongoing diarrhoea. He has a past medical history of gastro-oesophageal reflux disease.

He was recently discharged from hospital where he was treated for pneumonia with IV antibiotics. During admission, he developed watery diarrhoea, nausea and abdominal discomfort. Based on the results of a stool sample he completed a 10-day course of oral vancomycin and was discharged home but his diarrhoea has not resolved.

On examination he is alert, his observations are within normal range and his abdomen is non-tender.

What treatment might you consider next?

A.Fidaxomicin

B.Further course of vancomycin

C.Loperamide for symptom relief

D.Piperacillin-tazobactam

E.Refer to surgical team for admission

Answer:Fidaxomicin

Explanation:

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

Important for meLess important

This patient likely has Clostridium difficile infection, as he developed diarrhoea after a course of antibiotics in the hospital. He has a history of gastro-oesophageal reflux disease, suggesting he might be on a proton-pump inhibitor, which increases the risk of this infection.

The correct answer is oral fidaxomicin. This is an option for second-line treatment of Clostridium difficile that has not responded to first-line vancomycin.

Further course of vancomycin is incorrect. Fidaxomicin is recommended as the second-line treatment of Clostridium difficile that has not responded to first-line vancomycin.

Loperamide for symptoms relief is incorrect. Anti-diarrhoeal medicines such as loperamide should not be used if Clostridium difficile infection is suspected because it may slow the rate at which the toxins produced by the bacteria are cleared from the gut.

Piperacillin-tazobactam is incorrect. This is an example of a broad-spectrum antibiotic that is associated with an increased risk of Clostridium difficile infection.

Refer to surgical team for admission is incorrect. In the small number of cases of Clostridium difficile that progress to fulminant colitis surgery may be needed, but there is nothing in the scenario to suggest this. The patient does not have bloody diarrhoea, significant abdominal pain, a distended abdomen or fever and his observations are stable.

Question:

A 61-year-old man, who takes warfarin, comes to the GP for a blood test to measure his international normalised ratio (INR). He has a past medical history of atrial fibrillation and epilepsy. His target INR range is between 2 and 3. However, the blood test reveals an INR of 4. On questioning, he informs you that he was recently started on a new medication.

Which of these medications is most likely responsible for the change in INR?

A.Carbamazepine

B.Phenobarbital

C.Phenytoin

D.Rifampicin

E.Sodium valproate

Answer:Sodium valproate

Explanation:

Sodium valproate is an enzyme INhibitor so can INcrease warfarin levels if used concurrently

Important for meLess important

The patient's INR has increased to 4. The patient was most likely started on sodium valproate, as it is the only drug listed that is a cytochrome P450 (CYP450) INHIBITOR. This means there is decreased CYP450 activity, so warfarin is cleared more slowly and has a greater effect on the body. As a result, the anticoagulant effect of warfarin increases, leading to a raised INR.

All of the remaining drugs (carbamazepine, phenobarbital, phenytoin and rifampicin) are CYP450 inducers. They would, therefore, cause warfarin to be cleared more quickly. This would result in a decreased INR.

Question:

A 30-year-old woman presents with a three-month history of indigestion. There is no history of weight loss, anorexia, dysphagia, vomiting or change in bowel habit and abdominal examination is unremarkable. Which one of the following may decrease the accuracy of a 13C-urea breath test?

A.Use of Gaviscon around 10 days ago

B.Use of ranitidine stopping 4 weeks ago

C.Course of amoxicillin stopping 3 weeks ago

D.Use of lansoprazole stopping 6 weeks ago

E.Current use of the combined oral contraceptive pill

Answer:Course of amoxicillin stopping 3 weeks ago

Explanation:

Urea breath test - no antibiotics in past 4 weeks, no antisecretory drugs (e.g. PPI) in past 2 weeks

Important for meLess important

Question:

A 71-year-old male presents to your general practice with an inflamed left large toe, which you diagnose as his second episode of gout this year. Recent bloods indicate normal renal functioning.

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

A.Commence febuxostat immediately

B.Commence febuxostat ten days after the acute attack

C.Commence allopurinol once the inflammation has settled and the patient is no longer in pain

D.Commence allopurinol 2 weeks after the inflammation has settled and the patient is no longer in pain

E.Commence allopurinol 4 weeks after the inflammation has settled and the patient is no longer in pain

Answer:Commence allopurinol once the inflammation has settled and the patient is no longer in pain

Explanation:

Allopurinol - should be started once the inflammation has settled and the patient is no longer in pain

Important for meLess important

Question:

You are called to the neonatal ward to attend to a baby suffering from bilious vomiting. The neonate was born at term, has a diagnosis of Down's syndrome and is currently three hours after birth. An abdominal x-ray shows the double bubble sign. Which one of the following is the likely cause of bilious vomiting in this baby?

A.Necrotising enterocolitis

B.Meconium ileus

C.Jejunal atresia

D.Malrotation with volvulus

E.Duodenal atresia

Answer:Duodenal atresia

Explanation:

Neonatal bilious vomiting with a double bubble sign on AXR: Duodenal atresia

Important for meLess important

All of the conditions listed above can present as bilious vomiting in a neonate, however, the presentation above is most typical of duodenal atresia, and the abdominal x-ray findings confirm this. Duodenal atresia is the absence of the duodenum or complete closure of a part of the duodenal lumen. One-third of children with duodenal atresia have Down's syndrome. Bilious vomiting occurs a few hours after birth and the diagnosis is confirmed by the appearance of 2 bubbles rather than the usual one stomach bubble on AXR- known as the double bubble sign.

The other conditions usually present later and have different signs on AXR. These are described in more detail in the notes below.

Question:

A 19-year-old woman presents to her General Practitioner with a bilateral sensorineural hearing loss. An MRI brain is requested and it reveals what are likely to be bilateral vestibular schwannomas.

What neurocutaneous syndrome is the patient very likely to have?

A.Sturge Weber syndrome

B.Von Hippel Lindau syndrome

C.Tuberous sclerosis

D.Neurofibromatosis type 1

E.Neurofibromatosis type 2

Answer:Neurofibromatosis type 2

Explanation:

Neurofibromatosis type 2 is associated with bilateral vestibular schwannomas

Important for meLess important

Neurofibromatosis type 2 is a rare neurocutaneous syndrome. A classical feature includes bilateral vestibular schwannomas (previously known as acoustic neuromas), which present as a sensorineural hearing loss. Patients may have multiple schwannomas, meningiomas and ependymomas of the brain or spine. Other findings include retinal hamartomas, cataracts, Cafe Au Lait markings and peripheral nerve tumours.

Neurofibromatosis type 1, also known as von Recklinghausen disease, does not typically feature bilateral vestibular schwannomas. The typical features are Cafe au Lait spots, axillary freckling, Lisch nodules, neurofibromas and optic nerve gliomas.

Von Hippel Lindau syndrome is a condition featuring visceral cysts and benign tumours in any system, including the brain. It is not associated with bilateral vestibular schwannomas.

Tuberous sclerosis is a rare genetic disorder due to mutation of either the TSC1 or TSC2 genes. Its features are multiple central nervous system hamartomas (tubers), subependymal giant cell astrocytomas of the brain, kidneys angiomyolipomas, cardiac rhabdomyomas, facial angiofibromas, Shagreen patches and retinal astrocytic hamartomas.

Sturge Weber syndrome characterised by a 'port-wine stain' of the forehead, learning disabilities, seizures and glaucoma.

Question:

A 42-year-old woman presents to the emergency department after noticing one of her pupils was larger than the other.

On examination, there is an anisocoria of >1mm. It appears that when shining a light onto the patient's face, the anisocoria is greater than when the room is darkened. All eye movements are normal. A slit-lamp examination shows no signs of synechiae.

Based on this finding, what condition could have caused this?

A.Adie's tonic pupil

B.Horner syndrome

C.Oculomotor nerve palsy

D.Physiological anisocoria

E.Pilocarpine eyedrops administration

Answer:Adie's tonic pupil

Explanation:

Anisocoria worse in bright light implies a problem with the dilated pupil

Important for meLess important

This question is about a patient who presents with anisocoria. When a patient has anisocoria, we need to identify if there is a problem with dilation (sympathetic innervation) or constriction (parasympathetic innervation). In this case, the anisocoria is worsened by bright light. This means that there is an issue with the parasympathetic innervation as the pupil cannot constrict and therefore the affected eye looks much larger than the constricted, unaffected eye.

Adie's tonic pupil is correct. When anisocoria is greater in bright light, this means there is an issue with the dilated pupil and its inability to constrict. This could be due to a problem with the parasympathetic nervous system, the oculomotor nerve, the ciliary ganglion, or the iris. Adie's tonic pupil is a cause of ciliary ganglion dysfunction. This would cause a dilated pupil and the anisocoria would be greater in bright light.

Horner syndrome is incorrect. This would cause miosis of the affected eye. This would be more observable in the dark as there would be an issue with dilation, causing the pupil to be constricted, whereas the other unaffected eye would be dilated.

Oculomotor nerve palsy is incorrect. This would cause an anisocoria which is worse in bright light due to the parasympathetic fibres travelling along the course of this nerve. However, this would be accompanied by other signs such as ptosis and restricted eye movements which this patient does not have. Therefore this answer is incorrect.

Physiological anisocoria is incorrect. In a physiological anisocoria, we would expect the anisocoria to be equal in both eyes irrespective of bright light and darkness. Additionally, there would be an anisocoria of less than 1mm. In this patient, the anisocoria is greater than 1mm.

Pilocarpine is incorrect. Pilocarpine is a miotic that acts on the M3 receptors. This would cause constriction and therefore would cause an anisocoria that is more pronounced in darkness than in bright light.

Question:

A 2-year-old boy is brought to the GP by his mother. She has noticed a red rash on the flexor aspects of his elbows and on the abdomen and reports he is constantly trying to scratch. On examination the child appears well. There is evidence of excoriation over red patches of dry skin but there is no crusting or evidence of infection. A diagnosis of eczema is made. What is the first line treatment in a child of this age?

A.Topical corticosteroids

B.Topical calcineurin inhibitors

C.Topical emollients

D.Phototherapy

E.Bandages and dressings

Answer:Topical emollients

Explanation:

This question focuses on the stepwise management of eczema in children. The child in this scenario has a new diagnosis and has not tried any treatment. The first-line treatment is topical emollients. If necessary, topical steroids can be used alongside the emollients, but emollients must be used before steroids can be added.

Bandages and dressings may help to prevent excoriation but will not treat the eczema.

Calcineurin inhibitors and phototherapy are not suitable in this scenario.

Question:

While working in general practice you see a 21-year-old female with pityriasis rosea. How long does the associated rash last?

A.2-4 weeks

B.6-12 weeks

C.15-20 weeks

D.30-34 weeks

E.Indefinitely

Answer:6-12 weeks

Explanation:

The rash from pityriasis rosea to resolve in 6-12 weeks

Important for meLess important

The rash from pityriasis rosea will typically resolve in 6-12 weeks from the presentation.

Question:

A woman complains of severe itching at 34 weeks gestation. The itching started 2 weeks previously and has been preventing her from sleeping. She is itchy all over her body, especially in her hands and feet. She has not noticed any rashes. Her mother reports similar symptoms when she was pregnant with her 2nd child. She is otherwise well. What is the most appropriate action?

A.Dermatology referral

B.Give topical steroids

C.Check uric acid levels

D.Check renal function

E.Check liver function tests

Answer:Check liver function tests

Explanation:

The most important diagnosis to exclude here is obstetric cholestasis, as this can increase the risk of preterm birth and intrauterine demise. This is diagnosed if there are abnormal liver function tests, with pruritis in the absence of a skin rash. It is bile acids that are raised in obstetric cholestasis, rather than uric acid.

Question:

A 26-year-old woman requests screening for sexually transmitted infections after embarking on a new relationship. Which one of the following is the most commonly diagnosed sexually transmitted infection in the UK?

A.Chlamydia

B.Gonorrhoea

C.Genital warts

D.Genital herpes

E.Syphilis

Answer:Chlamydia

Explanation:

The 2014 Public Health England report stated:

In 2014, the total number of new cases of STIs diagnosed in England decreased by 0.3% when compared to 2013 (439,243 vs. 440,707). Of the 439,243 new STI diagnoses made in 2014, the most commonly diagnosed STIs were chlamydia (206,774; 47%), genital warts (first episode; 70,612; 16%), gonorrhoea (34,958; 8%) and genital herpes (first episode; 31,777; 7%).

Please see the link for the full document.

Question:

A 16-year-old boy is brought into the emergency department by ambulance. Whilst competing in a sports event he started struggling to breathe and could not catch his breath despite using his salbutamol inhaler. He has known asthma.

On initial assessment, he has a heart rate of 107 bpm, and a respiratory rate of 27 /min, and cannot complete full sentences. Auscultation of the chest reveals a widespread wheeze.

Investigations show the following:

PEFR 49% (>75%)

pH 7.44 (7.35-7.45)

pO2 10.8 kPa (11-14.4)

pCO2 4.8 kPa (4.6-6.0)

What is this patient's acute asthma episode classified as?

A.Mild

B.Moderate

C.Severe

D.Life-threatening

E.Near-fatal

Answer:Life-threatening

Explanation:

A normal pCO2 in a patient with acute severe asthma is an indicator that the attack may classified be life-threatening

Important for meLess important

Life-threatening is correct. When classifying asthma severity, only one part of the criteria of a specific severity needs to be satisfied for the diagnosis to fall into that criteria. This patient has normal carbon dioxide, pCO2 (4.6-6.0 kPa). As this falls within the life-threatening classification, this patient is deemed to have life-threatening asthma, even though for example, the PEFR of 49% falls with severe severity. A normal pCO2 suggests that the patient is getting tired. Initially in acute asthma, patients are tachypnoeic and this leads to the pCO2 being low, as it is being removed from the body at a faster rate due to hyperventilation, but once patients start to tire out their respiratory muscles, it starts to increase, returning to normal. It is important that this distinction is made, as a patient with life-threatening asthma requires urgent admission to the hospital.

Mild is incorrect. There is no mild classification of asthma. The inability to complete full sentences and PEFR of 49% alone make this patient a severe severity, with the normal pCO2 allowing the classification to be finalised as life-threatening.

Moderate is incorrect. Due to the normal pCO2, this patient has symptoms consistent with life-threatening criteria of asthma.

Severe is incorrect. Whilst the inability to complete full sentences and PEFR fall within the severe severity, the normal pCO2 results make the classification life-threatening.

Near-fatal is incorrect. Asthma is classified as near-fatal when the pCO2 is raised. This is because, as the patient begins to tire and fatigue, they are unable to breathe off the carbon dioxide which starts to build in their bloodstream. This is very dangerous and requires urgent hospital admission and sometimes intensive care input.

Question:

A 51-year-old man presents to his general practice with a 4-month history of chest pain which is waking him from sleep at night. He has also experienced shortness of breath, fatigue and multiple chest infections over the last six months. He has a past medical history of hypertension which is managed with ramipril, and he is a lifelong smoker.

Initial blood tests reveal:

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

Female: (115 - 160)

Platelets 180 \* 109/L (150 - 400)

WBC 2.5 \* 109/L (4.0 - 11.0)

Na+ 125 mmol/L (135 - 145)

K+ 5.8 mmol/L (3.5 - 5.0)

Bicarbonate 16 mmol/L (22 - 29)

Urea 10.4 mmol/L (2.0 - 7.0)

Creatinine 326 µmol/L (55 - 120)

Calcium 3.8 mmol/L (2.1-2.6)

What is the most likely diagnosis?

A.Bacterial pneumonia

B.Bronchiectasis

C.COPD

D.Chronic myeloid leukaemia

E.Multiple myeloma

Answer:Multiple myeloma

Explanation:

'CRAB' features of multiple myeloma = hyperCalcaemia, Renal failure, Anaemia (and thrombocytopenia) and Bone fractures/lytic lesions

Important for meLess important

Multiple myeloma presents with hypercalcaemia, renal failure and anaemia along with lytic lesions which result in bone pain. These are most commonly found in the vertebrae, causing back pain, but can occur anywhere, including in the ribs, leading to chest pain. The patient's fatigue and shortness of breath can be attributed to his anaemia and the chest infections are a consequence of leucopenia, which is commonly seen in multiple myeloma. Hyponatraemia in multiple myeloma is secondary to renal failure and also to the disruption of the acid-base balance by positively charged M proteins which results in a decrease in serum sodium levels.

Bronchiectasis can cause chest pain, shortness of breath and recurrent chest infections but would not explain the blood results. Patients with multiple myeloma may be at risk of developing bronchiectasis if they suffer leukopenia-induced chest infections but there is not enough evidence to make a diagnosis at this stage.

Bacterial pneumonia can cause chest pain, shortness of breath and fatigue and fits with the patient's history of chest infections. It would be unusual for the chest pain to wake the patient from sleep at night and would not explain his blood tests, in particular the hypercalcaemia and neutropaenia.

COPD can lead to shortness of breath and chest pain, especially with a significant smoking history. It would be unusual for this pain to wake patients up at night and would not explain the initial blood results.

Chronic myeloid leukaemia can cause anaemia but is more likely to present with leukocytosis and would not explain the hypercalcaemia or renal failure. It is unlikely to cause chest pain.

Question:

A man is brought into the emergency department after collapsing with acute onset chest pain. The pain is severe, centrally located and radiates to his left arm. He feels sweaty and nauseous.

His ECG shows some ST depression, most prominent in leads I-III and V3-6, and troponin is raised. Oxygen saturations are 97%.

He is initially given morphine, GTN spray and aspirin 300mg.

What is the most appropriate next step for this man?

A.Calculate GRACE score, if >2% offer coronary angiography (with follow-on PCI if necessary) within 12 hours of admission

B.Calculate GRACE score, if >3% offer coronary angiography (with follow-on PCI if necessary) within 72 hours of admission

C.Carry out an ECG with posterior leads and then initiate treatment for a STEMI

D.Give NSAIDs and colchicine

E.Give percutaneous coronary intervention within 120 mins of admission

Answer:Calculate GRACE score, if >3% offer coronary angiography (with follow-on PCI if necessary) 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 man's presentation fits with a classic case of acute coronary syndrome - he has central chest pain radiating to the left arm with sweatiness/clamminess and nausea. The results of the troponin and ECG are in keeping with the non-ST elevation myocardial infarction. After initial management, individuals with NSTEMI must have a GRACE score calculated. If above 3% coronary angiography (with follow-on PCI if necessary) should be attempted within 72 hours.

Calculate GRACE score, if >2% offer coronary angiography (with follow-on PCI if necessary) within 12 hours of admission is incorrect as a GRACE score over 3%, not 2%, is an indication for coronary angiography (with follow-on PCI if necessary), and intervention should occur within 72 hours.

Carry out an ECG with posterior leads and then initiate treatment for a STEMI is incorrect. Although a posterior STEMI can present with ST depression, this is generally seen in V1-3, not I-III and V3-6 (changes in V1-3 in a posterior MI are reciprocal to normal STEMI changes due to the location of the normal chest leads in relation to the area of damage; ST elevation would be demonstrated in posterior leads V7-9). This ECG is more in keeping with an NSTEMI than a STEMI, so another ECG with extra leads won't be helpful and we would not treat it as STEMI.

Give NSAIDs and colchicine is incorrect. This would be the appropriate treatment if we suspected acute pericarditis, however, that does not fit in this case. Pericarditis tends to present with pleuritic pain, relieved on sitting forward, a pericardial rub and flu-like symptoms. The ECG also doesn't fit with a pericarditis picture, where we might expect to see widespread PR depression or saddle-shaped ST elevation.

Give percutaneous coronary intervention within 120 mins of admission is incorrect this is the treatment for a STEMI. NSTEMI management depends on the GRACE score.

Question:

A 59-year-old woman presents to the Emergency Department with a 10-hour history of central crushing chest pain. A STEMI is diagnosed and fibrinolysis performed as PCI was not available at this hospital or the closest tertiary centre, within an appropriate time frame. Around 90 minutes after fibrinolysis the patient's ECG still demonstrates persistent ST elevations in the lateral leads.

What is the most appropriate next step in management?

A.Commence a heparin infusion

B.Give a second dose of fibrinolysis

C.Load with fondaparinux

D.Monitor; ST elevation is still expected at this point

E.Transfer the patient for percutaneous coronary intervention (PCI)

Answer:Transfer the patient for percutaneous coronary intervention (PCI)

Explanation:

If patients have persistent myocardial ischaemia following fibrinolysis then PCI should be considered

Important for meLess important

In this case, at the time of presentation, PCI could not be offered within the appropriate time frame of 2 hours recommended by NICE, hence fibrinolysis was performed. Persisting ischaemia on the ECG here, following fibrinolysis, demonstrates a failure of the intervention. Fibrinolysis should not be repeated, so although it may take longer than the recommended window to obtain PCI, it should still be the next step in management. The 2-hour window for PCI only applies to the initial presentation, and following failed fibrinolysis, the evidence shows improved outcomes in patients that then undergo PCI compared to repeat fibrinolysis.

A heparin infusion may be used during PCI, but isolated infusion is not an adequate management strategy for ongoing cardiac ischaemia following fibrinolysis.

Repeat fibrinolytic therapy after an initial failure is not associated with improved clinical outcome and may cause harm; rescue PCI has been shown to improve clinical outcomes following failed fibrinolysis.

This patient ultimately requires rescue PCI and fondaparinux administration should not be administered if PCI is being considered. Furthermore, fondaparinux is likely to have already been administered prior to fibrinolysis.

ST-elevation 90 minutes indicates ongoing ischaemia of the myocardium and should have improved by this point. It is an indication that further urgent intervention is required.

Question:

A 66-year-old woman was recently diagnosed with breast cancer. After undergoing a mastectomy, her oncologist has started her on anastrozole to reduce the risk of recurrence.

She has a history of depression and hypothyroidism, for which she takes fluoxetine and levothyroxine respectively.

What complication is she most likely to experience with her breast cancer treatment?

A.Increased likelihood of cancer recurrence due to drug interaction

B.Reduced serum HDL cholesterol levels

C.Myocardial infarction

D.Venous thromboembolism

E.Osteoporotic fracture

Answer:Osteoporotic fracture

Explanation:

Aromatase inhibitors (e.g. anastrozole) may cause osteoporosis

Important for meLess important

Osteoporotic fracture is the most likely complication of anastrozole (an aromatase inhibitor) treatment from the list above. Aromatase inhibitors block the synthesis of oestrogen in peripheral tissues, which is the primary source of oestrogen in postmenopausal women. However, in doing so, this has a detrimental effect on bone mineral density and increased risk of fracture. Measurement of bone density is therefore essential before commencing treatment and at regular intervals thereafter, with strong consideration for bisphosphonate prophylaxis.

The increased likelihood of cancer recurrence due to drug interaction is incorrect. Fluoxetine is known to decrease the efficacy of some breast cancer drugs, namely selective oestrogen receptor modulators (SERMs) such as tamoxifen and hence the two should not be co-prescribed. However, there has been no interaction shown with aromatase inhibitors.

Reduced serum HDL cholesterol levels is an incorrect option. Anastrozole is commonly associated with hypercholesterolaemia, and evidence from clinical trials suggest that it leads to a rise in total, HDL and LDL cholesterol levels.

Myocardial infarction is incorrect as it is not recognised as a direct adverse reaction to anastrozole. In a large randomised controlled trial (ATAC) evaluating this drug, myocardial infarction occurred in 1.2% of patients after 5 years (compared to 10.2% who suffered fractures).

Venous thromboembolism is also not linked to anastrozole treatment. This is usually more of a risk in postmenopausal women who are prescribed oestrogen (rather than oestrogen-depleting drugs), such as those receiving hormone replacement therapy.

Question:

A 35-year-old man presents to you with symptoms of an acute exacerbation of asthma. You test his peak expiratory flow rate. This is 210 litres per minute. His usual best is 600 litres per minute.

Using his peak expiratory flow rate, which category is his asthma exacerbation stratified into?

A.Life-threatening

B.Mild

C.Moderate

D.Near-fatal

E.Severe

Answer:Severe

Explanation:

Severe asthma PEFR 33 - 50% best or predicted

Important for meLess important

His peak expiratory flow rate (PEFR) is 35% of his best. This is within 33-50% so it is severe.

Mild is not a category for acute asthma categorisation.

Moderate has a PEFR of 50-75% of their best or predicted.

Life-threatening has a PEFR of <33% of their best or predicted.

The near-fatal category does not use PEFR as a feature. To class as near-fatal, the PaCO2 has to be raised or mechanical ventilation is required with raised inflation pressures according to the BNF.

Question:

A 59-year-old male with type 2 diabetes mellitus and hypertension presents to clinic for a check-up. You note his blood pressure to be 145/90mmHg. His current prescription includes ramipril. You note the following in his most recent blood results:

HbA1c 63mmol/mol

Which of the following additional anti-hypertensives should you avoid prescribing in this patient?

A.Amlodipine

B.Atenolol

C.Indapamide

D.Lercanidipine

E.Doxazosin

Answer:Indapamide

Explanation:

Thiazides can worsen glucose tolerance

Important for meLess important

Indapamide is a thiazide diuretic and should be avoided as this patient likely has inadequate glucose control at present.

Amlodipine is a calcium channel blocker and could be added to his prescription.

Atenolol is a beta-blocker and could be added to his prescription.

Lercanidipine is a calcium channel blocker and could be added to his prescription.

Doxazosin is an alpha blocker and could be added to his prescription.

Question:

A 29-year-old woman presents with several months of an intermittently painful left hand, especially when outside in cold weather. She describes a spasming pain, associated with numbness and a colour change in the hand.

On examination, she is currently well and there are no signs or symptoms. Both hands appear normal. A non-specific, eczema-like rash is noted in the flexure creases.

Blood tests are taken and the patient is referred for more specialist testing.

What would point towards primary disease rather than secondary?

A.Onset under 40 years

B.Positive findings on nailfold capillary microscopy

C.Presence of autoantibodies

D.Rashes

E.Unilateral symptoms

Answer:Onset under 40 years

Explanation:

Raynaud's disease (i.e. primary) presents in young women with bilateral symptoms

Important for meLess important

The history is highly suggestive of Raynaud's - spasming of the vessels of the hand, leading to colour changes, particularly in cold weather. Of the features listed above, the only one which points towards primary Raynaud's, rather than secondary, is the age of onset under 40 years. Primary Raynaud's is typically seen in young patients, under 30, as with this woman. Onset over 40 points more towards secondary Raynaud's (for instance, as part of a connective tissue disorder).

The scenario mentions specialist testing - this may involve nail fold capillary microscopy. Positive findings would indicate underlying pathology suggestive of secondary Raynaud's, rather than primary, and so this option is incorrect.

The presence of autoantibodies is also incorrect - these would indicate the possibility of a systemic disorder, such as systemic sclerosis, causing secondary Raynaud's.

The rash mentioned in the question is very non-specific and may just be eczema. The presence of a rash may be more indicative of secondary Raynaud's, as many systemic conditions that cause Raynaud's are also associated with rashes.

Unilateral symptoms are again more indicative of secondary Raynaud's. The classic presentation of primary Raynaud's is that of bilateral symptoms.

Question:

Which one of the following antibodies is most specific for limited cutaneous systemic sclerosis?

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

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:

You are asked to complete a neonatal check for a 40-week gestation baby, born to South Asian parents. They are planning a trip to Bangladesh in the next 4 months to see relatives. Beyond the recommended routine vaccinations on the immunisation schedule for all children in the UK, are there any additional vaccines you would recommend for their baby?

A.Yellow fever vaccination

B.Hepatitis A vaccine

C.MERS vaccine

D.BCG vaccine

E.Meningococcal ACWY vaccine

Answer:BCG vaccine

Explanation:

BCG vaccination against TB should be offered to babies with family history of TB or from high risk region/country with TB (defined as >40 cases/100000) as defined by WHO

Important for meLess important

BCG vaccination is recommended for babies up to one year of age who:

are born in areas of the UK with high rates of TB

have a parent or grandparent who was born in a country with high rates of TB

Meningococcal ACWY vaccine is offered to all teenagers who will be attending university for the first time.

There is no MERS vaccine yet available nor is it relevant in this case based on the location of patient travel.

Yellow fever vaccination is recommended for travellers over 1-year old arriving from countries with risk of yellow fever transmission, including sub-Saharan Africa and tropical South America.

Hepatitis A vaccine is recommended children over 1-year-old travelling to certain countries including much of Africa, Asia and Central and South America.

Question:

A 32-year-old man presents to the emergency department with reduced vision in his left eye. He says that he first noticed it around 6 hours ago and that he's in pain, especially when he moves his eye. He also describes that everything 'looks a funny colour'.

Upon performing the swinging light there is a normal constriction of both pupils when the light is shone into the right eye. When the light is shone into the left eye there is a reduced constriction of both pupils.

Which disease most commonly causes this man's presentation?

A.Behçet's disease

B.Rheumatoid arthritis

C.Multiple sclerosis

D.Ulcerative colitis

E.Ankylosing spondylitis

Answer:Multiple sclerosis

Explanation:

Multiple sclerosis is the most common cause of optic neuritis

Important for meLess important

The patient describes symptoms that suggest optic neuritis, which is most commonly caused by multiple sclerosis. Optic neuritis is inflammation of the optic nerve which causes pain on movement, reduced visual acuity, and an RAPD due to reduced response to light of the afferent pathway in the affected eye. Multiple sclerosis is a demyelinating disease in which the myelin sheaths of nerves are damaged and can cause a wide range of symptoms, a common area that is affected is the optic nerve, leading to optic neuritis.

Rheumatoid arthritis is an inflammatory autoimmune condition affecting the joints primarily but can cause extra-articular manifestations throughout the body. The manifestations in the eye tend to be scleritis, episcleritis, and keratoconjunctivitis sicca. Optic neuritis is not caused by RA.

Behçet's disease is an inflammatory disorder affecting multiple parts of the body, the ocular manifestation is anterior uveitis.

Ulcerative colitis is an inflammatory bowel disease that involves inflammation of the lower GI tract. Extraintestinal manifestations affecting the eye include scleritis and anterior uveitis.

Ankylosing spondylitis is a spondyloarthropathy in which the main feature is inflammation of the spine and progressive fusion of the vertebra. This can cause systemic features, including anterior uveitis in the eye.

Question:

A 24-year-old heroin addict is admitted following an overdose. He is drowsy and has a respiratory rate of 6 / min. Which of the following arterial blood gas results (taken on room air) are most consistent with this?

A.pH = 7.49; pCO2 = 4.9 kPa; pO2 = 10.1 kPa

B.pH = 7.52; pCO2 = 2.9 kPa; pO2 = 13.1 kPa

C.pH = 7.31; pCO2 = 7.4 kPa; pO2 = 8.1 kPa

D.pH = 7.55; pCO2 = 3.4 kPa; pO2 = 14.3 kPa

E.pH = 7.32; pCO2 = 3.4 kPa; pO2 = 8.3 kPa

Answer:pH = 7.31; pCO2 = 7.4 kPa; pO2 = 8.1 kPa

Explanation:

This patient is likely to have developed a respiratory acidosis secondary to hypoventilation.

Question:

You review a phlebotomist who has received a needlestick injury after taking blood from a haemophiliac. What is the latest time that HIV post-exposure prophylaxis may be given?

A.6 hours after the event

B.12 hours after the event

C.24 hours after the event

D.48 hours after the event

E.72 hours after the event

Answer:72 hours after the event

Explanation:

Question:

A 29-year-old woman is seen in the maternity unit 2 days following undergoing an uncomplicated vaginal delivery at 38 weeks gestation. She had a physiological third stage of labour and since then, has had intermittent episodes of vaginal bleeding and brown-coloured mucousy discharge. Around 100 ml is estimated to have been lost. The patient has a medical history of asthma.

Her temperature is 37.1ºC, her heart rate is 95 bpm, and her blood pressure is 123/75 mmHg. There is no abdominal tenderness and a pelvic and vaginal examination are unremarkable.

What is the most appropriate next step in her management?

A.Admit and give IM carboprost

B.Admit and give IV carboprost

C.Admit and give IV oxytocin

D.Admit and give intrauterine balloon tamponade

E.Reassure and advise sanitary towel use

Answer:Reassure and advise sanitary towel use

Explanation:

Postpartum haemorrhage is defined as blood loss of 500 ml after a vaginal delivery

Important for meLess important

Reassure and advise sanitary towel use is correct. This patient has had intermittent episodes of vaginal bleeding with brown-coloured discharge following delivery and has lost around 100 ml of blood, and given that she is stable and there are no abnormal signs on examination, she is likely to be experiencing lochia, which is defined as passing vaginal discharge containing blood, mucous, and uterine tissue which can continue for 6 weeks following childbirth. A postpartum haemorrhage is defined as the loss of >500 ml of blood following delivery, which does not apply here.

Admit and give IV oxytocin is incorrect. This may be used if the patient was experiencing a primary postpartum haemorrhage (PPH), which is defined as losing >500 ml of blood within 24 hours following delivery. This patient has lost much less blood and has been passing mucousy discharge, making PPH less likely.

Admit and give IM carboprost is incorrect. Similarly to the above, this is another medical management step in patients with PPH, but given this patient has lost much less than 500 ml of blood and is passing mucousy brown discharge, PPH is less likely. As well as this, carboprost should be avoided in patients with asthma as it can exacerbate bronchoconstriction.

Admit and give IV carboprost is incorrect. PPH is less likely for the same reasons as above and carboprost should not be given to patients with asthma as it can cause bronchoconstriction. Carboprost is also given intramuscularly, not intravenously.

Admit and give intrauterine balloon tamponade is incorrect. This is the first-line 'surgical' step in the management of PPH, which this patient is not likely to have given that she has lost 100 ml of blood and passed mucousy brown discharge, which is more likely to be lochia given her presentation. If she were to have PPH, palpating the uterus and medical management using IV oxytocin would be tried first before trying an intrauterine balloon tamponade.

Question:

A 25-year-old male presents to the general practitioner (GP) with testicular swelling. He describes a 'squidgy' feel to the top of his left testicle. He denies any pain and reports no problems with urination or achieving erections.

The GP refers the patient for an ultrasound. The report states:

'Mild left sided varicocoele. Right testis normal. No other abnormalities detected'.

What is the next best step in the management of this patient?

A.Reassure and observe

B.Recommend semen cryopreservation

C.Laparoscopic repair of the varicocoele

D.Open repair of the varicocoele

E.Percutaneous embolisation of the varicocoele

Answer:Reassure and observe

Explanation:

Mild varcicoeles do not need intervention and can be managed conservatively

Important for meLess important

In adult males with subclinical or Grade I (mild) varicocoeles, reassurance and observation is the appropriate measure to take. Therefore in this patient, the alternative option are inappropriate at this stage.

When considering Grade II or III varicocoeles, management depends on whether fertility is a concern and whether the patient is symptomatic.

Grade II or III varicocoele Management

Asymptomatic and normal semen parameters Semen analysis every 1-2yrs

Symptomatic or abnormal semen parameters Surgery

Varicocoele treatment has a success rate of approximately 90%.

Question:

A 75-year-old woman telephones her GP for advice. Her late husband passed away from cancer, and she has now been widowed for 4 months. The patient has a supportive family and is not clinically depressed, though was initially very tearful following her husband's death. She occasionally feels apathetic and low-spirited, though this has significantly improved with time. However, for the last 2 weeks, she has heard her late husband talking to her on several occasions. She also thought she could see him once when out shopping with her friend, though recognises this is not possible.

What is the most appropriate next step in management?

A.Arrange blood tests and urinalysis

B.Offer an antidepressant

C.Reassure and safety-net

D.Refer urgently to psychiatry

E.Section the patient under the Mental Health Act

Answer:Reassure and safety-net

Explanation:

Pseudohallucinations can form a part of the normal greiving process

Important for meLess important

Pseudo hallucinations can form part of the normal grieving process. Sufferers describe hearing, visualising, or even smelling their deceased loved one. These phenomena are often associated with acute grief, though can occur at any stage of bereavement. The above patient can therefore be reassured.

There is no evidence of an organic cause of this patient's presentation. Therefore arranging blood tests and urinalysis would most likely be inappropriate.

Although antidepressants might sometimes be used to treat severe or atypical cases of grief, the above patient is not clinically depressed. Therefore antidepressants are unlikely to provide any significant benefit and may result in harm due to their adverse effects.

The bereaved patient has full insight into the current situation and is aware her husband has passed away. There is no role for sectioning under the Mental Health Act 1983 or urgent psychiatrist involvement.

Question:

A 46-year-old man with suspected diabetes mellitus has an oral glucose tolerance test, following the standard WHO protocol. The following results are obtained:

Time (hours) Blood glucose (mmol/l)

0 5.7

2 7.6

How should these results be interpreted?

A.Normal

B.Impaired fasting glucose and impaired glucose tolerance

C.Diabetes mellitus

D.Impaired glucose tolerance

E.Impaired fasting glucose

Answer:Normal

Explanation:

Both the fasting and two-hour glucose are within normal limits.

Question:

A 7-month-old child is referred to clinic by her general practitioner because of asymmetrical hip creases. You suspect developmental dysplasia of the hip (DDH). What is the first-line investigation in this case?

A.MRI scan

B.X-ray

C.CT scan

D.PET scan

E.Bone density scan

Answer:X-ray

Explanation:

DDH in a child >4.5 months: x-ray is the first-line investigation

Important for meLess important

In the UK, the vast majority of DDH is diagnosed in newborns. In this age-group, an ultrasound scan of the hip is the first-line investigation. However, there are some cases in which a diagnosis of DDH is suspected in an older child. In a child >4.5 months, an x-ray is the first-line investigation. This is because ossification of the femoral head has occurred, meaning that x-rays are better able to visualise the joint.

https://patient.info/doctor/developmental-dysplasia-of-the-hip-pro

Question:

A 3-year-old boy, Lionel, is brought into the general practitioner by his mother. She is worried about an umbilical hernia which Lionel has had since birth. She was advised that this would likely self-resolve, however, it has not yet resolved. The general practitioner performs an examination which identifies a 1cm umbilical hernia which is easily reducible. His mother would like to know how this should be managed. Which one of the following is the most appropriate management plan?

A.Compression therapy

B.Referral for elective outpatient surgical repair

C.Advising her that it will self-resolve over time without any intervention

D.Immediate referral to the hospital for an emergency operation

E.Delaying referral for elective outpatient surgical repair until 5 years of age, if still unresolved

Answer:Delaying referral for elective outpatient surgical repair until 5 years of age, if still unresolved

Explanation:

Umbilical hernias: Usually self-resolve, but if large or symptomatic perform elective repair at 2-3 years of age. If small and asymptomatic peform elective repair at 4-5 years of age.

Important for meLess important

Umbilical hernias are relatively common in newborn children, and in 80% will spontaneously close by 4-5 years of age. Usually, hernias are observed until 4-5 years of age. If a hernia persists beyond this age, it should be managed with elective outpatient surgical repair due to the risk of incarceration.

For a large or a symptomatic umbilical hernia, surgeons advocate elective repair at 2-3 years of age. This applies to hernias >1.5 cm (as this size fascial defect is unlikely to resolve spontaneously), or to hernias causing intermittent symptoms of incarceration or recurring pain. This child has a small hernia and is 3 years old and hence can be simply observed until the age of 5 years of age.

If a hernia incarcerates during the observation period, it should be manually reduced with pressure and surgically repaired within 24 hours. If it can't be reduced, an emergency operation is required. His hernia has not incarcerated and hence does not require an emergency operation.

Compression therapy (e.g. abdominal binders) are sometimes used post hernia surgery. However, these may actually be harmful and complicate the repair and hence should not be used.

Advising them simply to wait for it to self-resolve is inappropriate as after the age of 5 it is unlikely to self-resolve and could potentially incarcerate

(BMJ Best Practice)

Question:

A 51-year-old woman attends surgery with hot flushes, vaginal soreness, and loss of libido. Her last menstrual period (LMP) was 1 year ago. The patient understands that she is menopausal and would like to start hormone replacement therapy (HRT). However she is concerned about the risk of venous thromboembolism (VTE).

In terms of her VTE risk, which of the following HRT options is safest?

A.Oral HRT - conjugated oestrogens

B.Oral HRT – combined continuous

C.Oral HRT – combined cyclical

D.Oral HRT – synthetic estradiol only

E.Transdermal HRT

Answer:Transdermal HRT

Explanation:

Transdermal HRT does not appear to increase the risk of VTE (vs. oral)

Important for meLess important

NICE advise that the rates of venous thromboembolism (VTE) in patients on transdermal HRT are no greater than in the baseline population. The reason for this is not understood, although it is possible that first-pass metabolites from orally-ingested oestrogens might promote VTE.

Question:

You are a doctor working on-call when you're bleeped by a nurse on a post-surgical ward. She tells you that a patient is complaining of headache and visual changes and asks you to review him.

The patient is a 62-year-old man who has been on bed rest following a Hartmann's procedure.

On performing a neurological exam, you note that the patient has homonymous hemianopia with macular sparing. The nurse also informs you that the patient, whom she knows well, was unable to recognise who she was when she came to see him. You elicit no other neurological signs.

What is the most likely location of the defect?

A.Anterior cerebral artery

B.Anterior inferior cerebellar artery

C.Middle cerebral artery

D.Posterior cerebral artery

E.Posterior inferior cerebellar artery

Answer:Posterior cerebral artery

Explanation:

Contralateral homonymous hemianopia with macular sparing and visual agnosia - posterior cerebral artery

Important for meLess important

Posterior cerebral artery (PCA) strokes can present with contralateral homonymous hemianopia with macular sparing and visual agnosia (the inability to recognise objects/faces). PCA strokes often present with mild/vague signs/symptoms which may delay diagnosis. It's important to remember that this patient is at high risk of clotting due to his recent history of surgery and immobility. This would warrant urgent neurological review.

Anterior cerebral artery (ACA) strokes often present with contralateral hemiparesis and sensory loss, with the lower extremity being more affected than the upper. As this patient has no sensorimotor signs an ACA stroke is not likely.

Anterior inferior cerebellar artery (AICA) strokes often present with sudden-onset vertigo and vomiting, ipsilateral facial paralysis, and deafness. This patient has none of these signs/symptoms and thus an AICA stroke is not likely.

Middle cerebral artery (MCA) is the most common artery involved in stroke. Signs of MCA stroke include contralateral hemiparesis and sensory loss with the upper extremity being more affected than the lower, contralateral homonymous hemianopia and aphasia. This patient has no sensorimotor symptoms and has agnosia which both makes MCA stroke less likely.

Posterior inferior cerebellar artery (PICA) stroke symptoms include sudden-onset vertigo and vomiting, dysphagia, ipsilateral facial pain and temperature loss, contralateral limb pain and temperature loss, and ataxia, which this patient has none of.

Question:

A 24-year-old lady who is 8 weeks pregnant came in to the GP complaining of slight vaginal bleed and lower abdominal pain. The GP sent her for an assessment in the early pregnancy assessment unit and a transvaginal ultrasound scan was done. An ectopic pregnancy was then diagnosed. Which of the following is the most likely location of the ectopic pregnancy?

A.Isthmus of fallopian tube

B.Ampulla of fallopian tube

C.Ovaries

D.Pouch of Douglas

E.Broad Ligament

Answer:Ampulla of fallopian tube

Explanation:

These are the various sites of ectopic pregnancy and their prevalence in % :

tubal ectopic: 93-97%

ampullary ectopic: most common ~70% of tubal ectopics and ~65% of all ectopics

isthmal ectopic: ~12% of tubal ectopics and ~11% of all ectopics

fimbrial ectopic: ~11% of tubal ectopics and ~10% of all ectopics

interstitial ectopic/cornual ectopic: 3-4%; also essentially a type of tubal ectopic

ovarian ectopic/ovarian pregnancy; 0.5-1%

cervical ectopic/cervical pregnancy; rare <1%

scar ectopic: site of previous Caesarian section scar; rare

abdominal ectopic: rare; ~1.4%

(source: Radiopaedia)

Question:

A 55-year-old man presents to the emergency department with intense abdominal pain, bloating and fever. He denies vomiting, urinary symptoms and has opened his bowels this morning with no signs of blood. He is known to have decompensated liver disease and underwent an ascitic tap 4 days ago in a specialist nurse clinic.

For the likely working diagnosis, what is the gold standard diagnostic investigation?

A.Abdominal x-ray

B.Colonoscopy

C.Liver ultrasound scan

D.Paracentesis

E.Urine dipstick

Answer:Paracentesis

Explanation:

In suspected SBP- diagnosis is by paracentesis. Confirmed by neutrophil count >250 cells/ul

Important for meLess important

The working diagnosis for this man is spontaneous bacterial peritonitis (SBP.) It is a form of peritonitis, usually seen in patients with ascites secondary to liver cirrhosis. Common symptoms include abdominal pain and fever in patients with ascites. Diagnosis is made from paracentesis, with a raised neutrophil count of over 250 cells. The most common causative organism is Escherichia coli .

An abdominal x-ray is incorrect; the patient denies vomiting and has opened his bowels. This makes the diagnosis of bowel obstruction unlikely.

Colonoscopy is the wrong answer; there is no clear indication for colonoscopy as ascites does not affect the large bowel. Colonoscopy is required to assess the large bowel for signs of pathology (e.g. in the case of bleeding, diverticulum or suspicion of colorectal cancer.)

A liver ultrasound scan is the wrong answer; this investigation would not explain the new symptoms of fever and abdominal pain.

Urine dipstick is the wrong answer; the patient has no urinary symptoms.

Question:

A 77-year-old man, Henry, reports that he has had increasing difficulty hearing over the past few months. He usually plays bingo on Tuesday evenings and has noticed that he often has to ask the number caller to repeat themselves. He has also had a complaint from his neighbour who has said that Henry's television volume is often too loud. Henry comes to see you as he would like to know whether his hearing problems could be something to do with his medications.

Which one of the following medications may be responsible for his symptoms?

A.Simvastatin

B.Bendroflumethiazide

C.Quinine

D.Aciclovir

E.Amlodipine

Answer:Quinine

Explanation:

Ototoxicity results from exposure to drugs or chemicals that damage the inner ear or the vestibulocochlear nerve and hence causes disturbances in hearing and/or balance.

Ototoxic medicines include gentamicin, quinine, furosemide, aspirin and some chemotherapy agents. Quinine may be given for nocturnal leg cramps or as an antimalarial. Other side effects of quinine include tinnitus, sweating, low platelets and increased sweating.

Ototoxicity is not stated as a side-effect of bendroflumethiazide in the BNF.

Question:

A 25-year-old man presents to his general practitioner with a 7-day history of a new, itchy rash on his upper arm. He denies any recent infective symptoms or changes in topical creams or detergents. There is no past medical history of note and he has no allergies.

On examination, his observations are within normal limits. His rash is examined, as shown below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Atopic eczema

B.Erythema marginatum

C.Erythema multiforme

D.Pityriasis rosea

E.Tinea corporis

Answer:Tinea corporis

Explanation:

The image shows a single well-demarcated, erythematous circular patch with a raised edge and central hypopigmentation. Combined with the history of itch, the most likely diagnosis is tinea corporis (ringworm). Pustules and papules may also be seen. Tinea corporis is a fungal skin infection secondary to Trichophyton rubrum and is capable of affecting most parts of the body. Treatment is with antifungal drugs such as oral fluconazole.

Atopic eczema usually presents as dry, flaky and eczematous patches of skin that are commonly very itchy. It would be unusual for this to be the patient’s first presentation of atopic eczema, as most first cases happen in childhood. On closer inspection of the image, the skin does not appear to be dry, crusted or flaky and therefore makes a diagnosis of atopic eczema unlikely.

Erythema marginatum is a manifestation of acute rheumatic fever. It is most commonly seen in children and is rare in adults. It presents as annular erythematous macules or papules that spread outwards with central clearance. The lesions are not itchy or painful and may be asymptomatic.

Erythema multiforme is an acute, self-limiting skin eruption most commonly secondary to an infective trigger (e.g. herpes simplex virus or Mycoplasma pneumoniae). The rash appears abruptly and affects the upper limbs most often before spreading down towards the trunk. Erythema multiforme presents as multiple target lesions with an outermost erythematous ring and paler centre.

Pityriasis rosea is a viral rash that is characterised by an initial herald patch followed by multiple red plaques developing over the trunk. The rash is usually asymptomatic with the only symptoms present being of an underlying viral infection (e.g. cough and coryza). There is no history of a herald patch in this question and the location and appearance of the lesions are not in keeping with pityriasis rosea.

Question:

In November one year, a pregnant woman contacts your surgery to enquire about influenza (flu) vaccination. What advice would you give her?

A.She should be offered the flu vaccination during flu season (October to January)

B.She should avoid contact with anyone who has recently received the flu vaccine as the flu virus can be contagious following vaccination

C.She should attend the surgery for a flu vaccine if anyone she is in close contact with develops flu symptoms

D.Check immunity status on booking bloods before offering the vaccination

E.She should not have the flu vaccine as it can cross the placenta and there is a theoretical risk of harm to the unborn infant

Answer:She should be offered the flu vaccination during flu season (October to January)

Explanation:

Pregnant women are considered to be an at risk group for influenza, and therefore should be offered the vaccination. The inactivated influenza vaccine are safe to use during any stage of pregnancy, and cannot cause adverse effects to either the foetus or mother. Additionally, the vaccination gives some passive immunity to the infant against influenza in the first few months of life, thus offering some protection from influenza.

Question:

A 56-year-old-lady with no past medical history presents to the emergency department with a 12 hour history of severe abdominal pain and vomiting. On examination, she is tender in the epigastrium and has a low-grade pyrexia. An ultrasound of the abdomen is performed which shows gallstones but no evidence of cholecystitis. Blood tests are as follows:

Hb 121 g/L (115 - 160)

Platelets 450 \* 109/L (150 - 400)

WBC 15.5 \* 109/L (4.0 - 11.0)

Calcium 1.9 mmol/L (2.1-2.6)

Amylase 1056 U/L (70 - 300)

Bilirubin 5 µmol/L (3 - 17)

ALP 92 u/L (30 - 100)

ALT 33 u/L (3 - 40)

γGT 41 u/L (8 - 60)

Albumin 32 g/L (35 - 50)

While awaiting transfer to the ward, she becomes increasingly short of breath and tachypnoeic. She develops central cyanosis.

What is the most likely cause of her deterioration?

A.Pulmonary haemorrhage

B.Pulmonary embolism

C.Pneumothorax

D.Acute respiratory distress syndrome

E.Acute heart failure

Answer:Acute respiratory distress syndrome

Explanation:

Acute respiratory distress syndrome is a recognised complication of acute pancreatitis

Important for meLess important

The most likely diagnosis for the patient's initial presentation is acute pancreatitis as confirmed by the raised serum amylase. Given her age is >55, serum calcium <2mmol/L and white cell count is > 15 x 109/L, she is her Modified Glasgow Score is already >3. This puts her at risk of severe pancreatitis and its associated complications.

While the other answers may all cause increasing shortness of breath and cyanosis, the most likely explanation, in this case, is acute respiratory distress syndrome, which is a recognised complication of acute pancreatitis.

Question:

A 70-year-old male arrives at his GP following the return of some blood test results. He initially presented a week ago with aches and pains. The aching is in his shoulders and hips and had been getting worse over the last 3 months. On examination, there is bilateral pain in the shoulders and hips, which is worse on movement. There are no signs of muscular atrophy or weakness.

Given the likely diagnosis, what would be the first-line investigation?

A.Antibody screen

B.ESR and CRP

C.Full-body MRI

D.Ultrasound of shoulders and hips

E.X-ray of shoulders and hips

Answer:ESR and CRP

Explanation:

Raised inflammatory markers are the key investigation in the diagnosis of polymyalgia rheumatica

Important for meLess important

The most likely diagnosis is polymyalgia rheumatica. Firstly, the bilateral nature of the pain which affects both the pelvic and shoulder girdle is very typical of this diagnosis. Secondly, the fact there are no signs of weakness or wasting points to a diagnosis of polymyalgia rheumatica. Thirdly, the age and gender of this patient are also typical of this diagnosis.

In terms of the first-line investigation, ESR and CRP is the correct answer because blood inflammatory markers are often raised in polymyalgia rheumatica. Often this is an isolated abnormality, which corrects following steroid treatment.

Polymyalgia rheumatic is not associated with auto-antibodies and therefore would not be picked up on an antibody screen.

A full-body MRI would not be appropriate as it would not identify polymyalgia rheumatica. Moreover, it would be unusual to order a full-body MRI before performing other less invasive tests first.

Ultrasound of the affected joints would not be appropriate as there are no structural abnormalities that would be picked up in polymyalgia rheumatica.

Similarly, X-raying the shoulders and hips would not point to a diagnosis of polymyalgia rheumatica. Moreover, X-rays do not facilitate visualisation of the muscle.

Question:

A 68-year-old gentleman was diagnosed with glaucoma and commenced on treatment. He returned in one month for review, his eye pressures had improved but he complains his eyelashes have increased in length. What medicine is likely to have caused his eyelashes to grow in length?

A.Brinzolamide

B.Timolol

C.Dorzolamide

D.Brimonidine

E.Latanoprost

Answer:Latanoprost

Explanation:

Key side effects of prostaglandin analogues include increased eyelash length, iris pigmentation and periocular pigmentation

Important for meLess important

A known side effect of Prostaglandin analogues are an increased eyelash length, so as Latanoprost is the only drug in this class it is the correct answer. Another clue to this being correct is that Prostaglandin analogues are the first line treatment for primary open angle glaucoma.

Question:

You are the FY1 working on the acute stroke ward in August. A 52-year-old male has been admitted with a transient ischaemic attack (TIA). He informs you that he is due to go on a driving holiday around France with his wife next week. You advise him that the guidelines state you must not drive for 1 month following a TIA. Following a long conversation with you and the consultant, he is still adamant to go and do the driving. What do you do?

A.Contact the DVLA but don't inform the patient of your actions

B.Do nothing, he has the capacity to make this decision

C.Inform him you will be contacting his GP to make a follow-up appointment to continue this discussion

D.Inform the police but don't tell the patient of your actions

E.Contact the DVLA and inform the patient of your actions

Answer:Contact the DVLA and inform the patient of your actions

Explanation:

This patient must stop driving for 1 month following his TIA. Not following this advice places both the patient themselves and the public at risk of harm.

The GMC have written guidance on confidentiality specifically regarding 'reporting concerns about patients to the DVLA'

Within this, they state that 'the driver is legally responsible for informing the DVLA about such a condition or treatment.'. 'If you do not manage to persuade the patient to stop driving, or you discover that they are continuing to drive against your advice, you should contact the DVLA immediately and disclose any relevant medical information, in confidence, to the medical adviser.'

Question:

A 56-year-old man with a history of diabetes, hypertension and atrial fibrillation arrives in the emergency department feeling severely unwell. He has had several episodes of diarrhoea and has vomited on one occasion. He is suspected to have norovirus. His blood pressure on arrival to the emergency department is 130/70 mmHg. All other observations are stable and examination is unremarkable. His baseline creatinine from 2 months ago was 90 µmol/l. These are his blood results.

Na+ 138 mmol/l

K+ 5.5 mmol/l

Urea 21 mmol/l

Creatinine 156 µmol/l

Which of his regular medications should be stopped immediately in light of these results?

A.Apixaban

B.Atorvastatin

C.Bisoprolol

D.Metformin

E.Paracetamol

Answer:Metformin

Explanation:

Metformin predisposes to lactic acidosis and should therefore be used with caution in patients with acute kidney injury

Important for meLess important

If you suspect a patient has an acute kidney injury (AKI), it is advisable to immediately stop nephrotoxic medications such as NSAIDs, diuretics, ACE inhibitors, and metformin. Although lactic acidosis is incredibly rare, it remains important in the context of exams.

With direct oral anticoagulants, there is a theoretical risk of accumulation leading to increased risk of bleeding. However, the doses can be adjusted without the need to stop it completely.

Statins should only be stopped if the AKI is due to rhabdomyolysis or if the patient experiences unexplained muscle pains. Otherwise, they can be continued with close monitoring.

Bisoprolol is not directly toxic to the kidneys. However, it may be withheld in severe AKI as hypotension can reduce kidney perfusion. In this case, however, the patient is not hypotensive so it would not need to be stopped immediately.

Paracetamol would need to be prescribed with caution in liver dysfunction, but is less significant in AKI.

Question:

A 23-year-old woman presents with dysuria, malaise, vaginal pain, fever, and myalgia. She consents to a vaginal examination which reveals multiple painful ulcerations around the vagina and perineum. Urinalysis reveals trace leukocytes, no nitrites, and microscopic haematuria. Swabs are taken and sent and a urine MCS is also sent.

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

A.Trimethoprim at night for 3 days

B.Valaciclovir twice daily for 3 days

C.Doxycycline daily for 7 days

D.Trimethoprim at night for 7 days

E.Valaciclovir twice daily for 10 days

Answer:Valaciclovir twice daily for 10 days

Explanation:

Genital ulcers

painful: herpes much more common than chancroid

painless: syphilis more common than lymphogranuloma venereum

Important for meLess important

This patient most likely has genital ulceration and systemic symptoms from a primary herpes simplex genital infection. This is a common cause of painful genital ulcers and while awaiting swabs, treatment should be commenced. An antiviral such as valaciclovir should be used for a longer course in an initial infection.

Trimethoprim for 3 days is a suitable choice if a simple urinary tract infection was suspected. In this case, dysuria and the trace leukocytes may be consistent with a urinary tract infection. However, these are common findings with primary herpes simplex infection too.

Valaciclovir is the correct treatment to provide this patient, however, a 3-day course is insufficient for a primary infection. This would be more suitable for a recurrence of genital herpes.

Doxycycline daily for 7 days is a suitable choice if suspecting lymphogranuloma venereum. This is less likely in this case because this would lead to painless ulceration and is also uncommon.

Trimethoprim for 7 days is a suitable choice if a complicated urinary tract infection was suspected. Due to the painful ulceration, this case is most likely secondary to herpes infection regardless of the urinalysis results and dysuria.

Question:

You see a 52 year old lady in the General Practice surgery. She is complaining of progressive dyspepsia, dysphagia and fatigue. She describes a long history of dark brown stools, but no fresh blood is present. She has not had any unexpected weight loss. She had surgery for a peptic ulcer 10 years ago.

Investigations discover she has H. pylori.

What is the next step?

A.Routine referral to endoscopy

B.Treat H. pylori

C.3 month proton pump inhibitor trial

D.2 week referral to endoscopy

E.Triple therapy + ongoing proton pump inhibitor treatment

Answer:2 week referral to endoscopy

Explanation:

The most worrying diagnosis here would be upper GI cancer, and this patient warrants an urgent 2 week referral due to the presence of dysphagia. The fatigue is also suggestive of iron deficiency anaemia due to chronic upper GI bleeding (as shown by dark brown stools)

H. pylori status should not affect decision to refer for suspected cancer.

Question:

A 34-year-old who has recently returned from a business trip to New York presents with a one-day history of a painful rash on his neck:

What is the most appropriate management?

A.Topical fusidic acid

B.Topical clotrimazole + hydrocortisone

C.Oral aciclovir + prednisolone

D.Oral aciclovir

E.Send blood for antibodies to Borrelia burgdorferi

Answer:Oral aciclovir

Explanation:

One of the main clues in the question is the combination of a rash with pain. Other than shingles, there are not many conditions which cause both.

Whilst there is some evidence that systemic steroids speed up the healing of shingles, consensus guidelines do not advocate their use as adverse effects probably outweigh potential benefits

Question:

A 51-year-old man with a history of paroxysmal atrial fibrillation presents with palpitations. He has no other history of note and a recent echocardiogram was normal. An ECG confirms fast atrial fibrillation. In the notes you find a recent echocardiogram which shows no evidence of structural heart disease. Which one of the following agents is most likely to cardiovert him into sinus rhythm?

A.Sotalol

B.Procainamide

C.Flecainide

D.Disopyramide

E.Digoxin

Answer:Flecainide

Explanation:

Atrial fibrillation - cardioversion: amiodarone + flecainide

Important for meLess important

This question is asking about drugs which may be used to pharmacologically cardiovert patients with paroxysmal atrial fibrillation. Clearly if a patient is haemodynamically unstable electrical cardioversion is required but pharmacological cardioversion is often performed on stable patients and may be useful in determining which 'pill-in-the-pocket' drug is most suitable. Please see the European Society of Cardiology guidelines for more details.

In younger patients a rhythm control strategy is more likely to be used. If it is decided to simply control the rate then beta-blockers, calcium channel blockers or digoxin may be used.

Question:

A 25-year-old man with a history of type 1 diabetes mellitus is admitted to the Emergency Department. He developed diarrhoea and vomiting three days ago and stopped taking his insulin as he was not eating. On admission his heart rate is 120/min, respiratory rate is 30/min and blood pressure is 92/60 mmHg. He is confused and slightly combative. His bedside blood glucose readings measures 'HI'.

Arterial blood gases show the following:

pH 6.98

pCO2 2.6 kPa

pO2 16.1 kPa

Bicarbonate 6.1 mmol/l

Base excess - 21.6 mmol/l

What do the arterial blood gases show?

A.Metabolic acidosis with no respiratory compensation

B.Metabolic acidosis with a full respiratory compensation

C.Metabolic acidosis with a partial respiratory compensation

D.Respiratory acidosis with no renal compensation

E.Respiratory acidosis with with a partial renal compensation

Answer:Metabolic acidosis with a partial respiratory compensation

Explanation:

This patient has clearly developed diabetic ketoacidosis which has resulted in a metabolic acidosis. There is only a partial respiratory compensation. Emergency treatment with fluids and insulin should be commenced.

Question:

A 55 year old gentleman presents with a new skin lesion to the forehead. On examination there is a 6mm diameter scaly patch which does not appear indurated or ulcerated. He works as a gardener. He has a past medical history of type 1 diabetes and renal transplant, and his medications include insulin, aspirin, simvastatin, and tacrolimus. What is the most appropriate course of action?

A.Urgent referral to dermatologist

B.Non-urgent referral to dermatologist

C.Prescribe course of topical diclofenac (Solareze)

D.Cryotherapy

E.Prescribe course of topical fluorouracil (Efudix)

Answer:Urgent referral to dermatologist

Explanation:

Although this lesion may turn out to be a simple actinic keratosis, squamous cell carcinomas are more common in patients who are immunosuppressed, and may present atypically and grow rapidly. NICE therefore advises all patients who have received organ transplants are referred urgently to a dermatologist if they present with any new or growing skin lesions.

Source: NICE Referral guidelines for suspected cancer

http://www.nice.org.uk/guidance/cg27/chapter/1-recommendations

Question:

A mother brings her 4-week-old daughter to your GP. Her daughter has been unwell with coryzal symptoms for the past two weeks. She has now developed a cough which had caused concern. The mother describes coughing followed by periods in which the child stops breathing and turns blue. The child appears lethargic.

What is the most likely causative organism in this illness?

A.Bordetella pertussis

B.Klebsiella pneumoniae

C.Staphylococcus aureus

D.Streptococcus pneumoniae

E.Streptococcus pyogenes

Answer:Bordetella pertussis

Explanation:

Infants with pertussis may present with apnoeas rather than the classic whoop

Important for meLess important

Young infants who develop whooping cough often do not have the classic whoop as they are unable to take the large breath required for this after the coughing fit. They instead may have apnoeas with cyanosis.

Bordetella pertussis is most likely the cause of this child's condition as the history of coryzal symptoms followed by violent coughing fits is highly suggestive of pertussis.

Klebsiella pneumoniae is unlikely to be the cause as this bacteria does not commonly affect well patients and is usually a healthcare-acquired infection.

Staphylococcus aureus most commonly causes skin infections. Pneumonia from Staphylococcus aureus is more common following surgery such as joint replacement.

Streptococcus pneumoniae causes pneumococcal disease which could be possible in this case since young children are at greater risk from this condition. However pneumococcal pneumonia normally presents with a sudden onset fever and malaise with a cough productive of purulent or blood-stained sputum.

Streptococcus pyogenes most commonly causes skin infections of varying severity ranging from impetigo to necrotising fasciitis. It is also a cause of pharyngitis. It is therefore not the most likely causative organism in this case.

Question:

A 42-year-old man is referred to the rheumatology clinic by his GP who suspects that he may be suffering from systemic lupus erythematosus (SLE). The patient reports a 3-month history of symmetrical arthralgia affecting the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints, mouth ulcers and photosensitivity.

A history of which of the following conditions would be consistent with a diagnosis of SLE?

A.Back pain

B.Lupus pernio

C.Pericarditis

D.Psoriasis

E.Type 1 diabetes

Answer:Pericarditis

Explanation:

Serositis (pleuritis or pericarditis) forms part of the revised ARA criteria for the classification of lupus

Important for meLess important

Pericarditis is the most common cardiac manifestation of systemic lupus erythematosus (SLE) and is included in many classification criteria including those outlined by the British Society for Rheumatology in their 2018 guidelines for SLE.

The other possible answers are not part of these classification criteria (which, it should be said, are not exhaustive but are considered a useful diagnostic tool).

Question:

A 56-year-old man has poorly controlled type 2 diabetes despite being on metformin treatment. His GP started him on gliclazide treatment in addition to metformin with the aim of improving his glycaemic control. However he presents to the local emergency department 2 days later after feeling tired since that morning and short of breath when walking upstairs. When asked if anyone in his family has had adverse reaction to medications, he says that he is not aware of that. He recalls that he was previously advised not to take primaquine, although he does not know the reason for this. On examination he appears visibly jaundiced. A blood film reveals the presence of Heinz bodies and bite cells.

What investigation would confirm the diagnosis?

A.Direct antiglobulin test

B.Serum LDH

C.Thick and thin blood films

D.G6PD enzyme assay at time of presentation

E.G6PD enzyme assay at time of presentation and after 3 months

Answer:G6PD enzyme assay at time of presentation and after 3 months

Explanation:

G6PD enzyme assays should be repeated around 3 months after acute haemolytic episodes to avoid false negatives

Important for meLess important

This patient is G6PD deficient and is experiencing an acute haemolytic episode. The presence of Heinz bodies on the blood film, an inclusion of denatured haemoglobin in red blood cells, is characteristic of G6PD deficiency following exposure to oxidants. Sulfonylureas, such as gliclazide, can cause oxidative stress and precipitate an acute intravascular haemolytic episode in patients with G6PD deficiency. Primaquine, an anti-malarial, can also precipitate an acute haemolytic episode in G6PD deficiency which would explain why he was advised not to take a particular anti-malarial.

To diagnose G6PD deficiency, enzyme assay should be repeated around 3 months after an acute episode of haemolysis. RBCs with the most severely reduced G6PD activity will have haemolysed and young new RBCs may have enough G6PD enzyme so G6PD activity may not be reduced. Therefore false negative results may occur when G6PD enzyme assay is done at time of presentation.

Direct antiglobulin test would help to identify if the haemolysis was autoimmune. However it would not identify G6PD deficiency.

Serum LDH would be raised in all cases of haemolytic anaemia and would not distinguish the underlying cause.

Thick and thin blood films would be used to investigate for malaria as a cause of haemolytic anaemia. However there is no feature from the history that indicates malaria as a potential diagnosis such as pyrexia or recent foreign travel.

Question:

A 72-year-old woman is brought into the Emergency Department after suffering an apparent stroke.

She is stabilised and triaged for urgent neurological review. The neurologist notes the following pertinent findings on full examination:

Left Right

Upper limb power 0/5 5/5

Lower limb power 1/5 5/5

Upper limb sensation absent normal

Lower limb sensation absent normal

Left-sided homonymous hemianopia. Word-finding difficulty when conversing. Able to understand speech but struggles with repetition.

Where is the most likely location of this patient's stroke?

A.Anterior inferior cerebellar artery

B.Left anterior cerebral artery

C.Left middle 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 (MCA) is the most likely location of the stroke in this patient. The MCA is the commonest vessel affected by strokes and MCA strokes can present with contralateral hemiparesis and sensory loss with the upper extremity being more affected than the lower, contralateral homonymous hemianopia, and aphasia.

Anterior inferior cerebellar artery (AICA) can present with sudden-onset vertigo and vomiting, ipsilateral facial paralysis, and deafness. None of these signs/symptoms have been noted in this patient.

Left/right anterior cerebral artery (ACA) strokes can present with contralateral hemiparesis and sensory loss with the lower extremity being more affected than the upper. The upper limb being more affected than the lower points more towards the middle cerebral artery - the homunculus is a great aid for remembering body area involvement by the cerebral artery.

Left middle cerebral artery is incorrect. This patient has had an MCA stroke but remember that this will cause contralateral sensorimotor symptoms and contralateral hemianopia.

Question:

A 43-year-old man is attending today following a referral from his GP. He has a history of poorly controlled hypertension and has come in today to have his aldosterone: renin ratio performed. The results showed high aldosterone and low renin levels. The patient also has a CT scan which shows bilateral hyperplasia of the adrenal glands.

How should this patient be managed?

A.Adrenalectomy

B.Fludrocortisone

C.Hydrocortisone

D.Reassure and discharge

E.Spironolactone

Answer:Spironolactone

Explanation:

Primary hyperaldosteronism: manage with spironolactone

Important for meLess important

This patient is presenting with primary hyperaldosteronism which is due to bilateral hyperplasia of his adrenal glands. The aldosterone levels are elevated due to hyperplasia and this leads to increased sodium retention which then gives negative feedback to renin release. This is the most common cause of this condition accounting for around 2/3 of cases, and unilateral adrenal adenoma for around 1/3 cases. When the underlying cause is due to bilateral adrenal hyperplasia the preferred treatment is 4 weeks of spironolactone which is an antagonist of aldosterone receptors.

Adrenalectomy is used in the management of primary hyperaldosteronism if the underlying cause is found to be unilateral adrenal adenoma. This tends to be performed laparoscopically and may be curative. As this patient has bilateral adrenal hyperplasia this would not be appropriate as removing one of the enlarged adrenal glands would only be removing half of the problem.

Fludrocortisone is a corticosteroid that is used in adrenal insufficiency, not in hyperaldosteronism. This would exacerbate this patient's condition as it acts on mineralocorticoid receptors, just like aldosterone which this patient has in excess.

Hydrocortisone would be inappropriate and would exacerbate this patient's condition for the same reason as above, as like fludrocortisone, it is a corticosteroid.

Reassurance and discharge would be inappropriate, primary hyperaldosteronism has a good prognosis following treatment with spironolactone and if left untreated the patient is likely to have a chronic elevation of blood pressure, increasing his risk of cardiovascular disease, stroke, and kidney damage.

Question:

A 10-year-old boy is brought in by ambulance after being found drowsy and confused by his parents this morning. He is usually fit and well with no past medical history.

You perform an A-E assessment with the following findings:

A Maintaining own airway

B Respiratory rate - 35 per minute

Oxygen saturation - 100% on 15L/min oxygen

Chest examination - NAD

C Capillary refill time - 4 seconds centrally

Heart rate - 130 per minute

Blood pressure - 80/54

Heart sounds - normal

Abdomen - diffusely tender

D Glasgow coma scale - 12/15 E3V4M5

Blood glucose - unrecordable

E Temperature - 36.5ºC

What is the most likely diagnosis?

A.Appendicitis

B.Diabetic ketoacidosis

C.Hypoglycaemia

D.Influenza

E.Meningitis

Answer:Diabetic ketoacidosis

Explanation:

DKA can present with an 'unrecordable' blood sugar measurement with confusion and abdominal pain

Important for meLess important

Its important to remember that 'unrecordable' blood glucose always means that the blood sugar is high rather than low. Therefore hypoglycaemia can be ruled out here.

This is a classic presentation of diabetic ketoacidosis (DKA) in children.

Appendicitis is unlikely to cause such an unwell presentation without also causing a raised temperature.

Influenza and meningitis are also possible, but less likely than DKA given the abdominal pain and absence of a temperature.

Question:

Which of these is a contraindication for using epidural anaesthesia during labour?

A.Coagulopathy

B.Obesity

C.Multiple gestation

D.Pre-eclampsia

E.Prolonged labour

Answer:Coagulopathy

Explanation:

Coagulopathy is the only answer which contraindicates using epidural anaesthesia in labour - all other answers make using epidural anaesthesia more likely.

There are a number of anaesthetic techniques during labour which can be broadly classified as regional and non-regional, with non-regional being the most widely used. Non-regional anaesthetics include inhaled nitrous oxide, and systemic analgesics such as pethidine. Regional techniques include epidural anaesthesia, which has been shown to be extremely effective in pain management, however there is an association with prolongation of labour and increased operative vaginal delivery. No association between epidural analgesia and an increased risk of Caesarean delivery or post-partum backache has been found.

See: Epidural Analgesia in Labour - Guideline

Question:

A 7-year-old child presents to the paediatric clinic for a follow-up appointment. He has been referred by his general practitioner due to vitamin D supplementation-resistant rickets. On examination, he looks short in stature. His parents say that he has been drinking a lot more recently. The doctor sends the urine to be analysed, showing glycosuria, proteinuria, and a pH of 4.8. Blood tests show the following:

Na+ 144 mmol/L (135 - 145)

K+ 2.7 mmol/L (3.5 - 5.0)

Bicarbonate 20 mmol/L (22 - 29)

Chloride 114 mmol/L (98 - 105)

Urea 7.0 mmol/L (2.0 - 7.0)

Creatinine 100 µmol/L (55 - 120)

Which one of the following is the most likely cause of the symptoms?

A.Familial hypercalciuria

B.Type 1 renal tubular acidosis

C.Type 2 renal tubular acidosis

D.Type 3 renal tubular acidosis

E.Type 4 renal tubular acidosis

Answer:Type 2 renal tubular acidosis

Explanation:

Hypokalaemia, osteomalacia - type 2 renal tubular acidosis

Important for meLess important

The correct answer is type 2 renal tubular acidosis. This disorder is caused by a dysfunctional proximal convoluted tubule, that is unable to reabsorb HCO3-. The defect can either be isolated, affecting only the reabsorption of HCO3- or, more commonly, the dysfunction is generalized in which case the condition is referred to as Fanconi syndrome.

Breaking down the question, we can see that the patient has many classical features of type 2 tubular acidosis:

He has vitamin D-resistant rickets that is caused by phosphaturia and hypophosphatemia.

He has short stature and has polydipsia.

His urine pH is less than 5.5, characteristic of patients with type 2 tubular acidosis with depleted HCO3.

Additionally, he has hyperchloremic metabolic acidosis and hypokalemia, as the calculation below shows: anion gap = (Na + K) - (chloride + bicarbonate) = (144 + 2.7) – (114 + 20) = 12.7 (normal 8-14).

Looking at the investigations we can conclude that in this patient the disorder is caused by Fanconi syndrome, as the urine dipstick shows glycosuria and proteinuria, which indicate a more generalized defect.

Familial hypercalciuria is a genetic condition characterized by the formation of stones at an early age. Subjects with familial hypercalciuria have a generalized increase in calcium turnover, which includes increased gut calcium absorption, decreased renal calcium reabsorption, and a tendency to lose calcium from bone. This patient has symptoms that are not compatible with this diagnosis.

Type 1 renal tubular acidosis presents with very similar blood results such as hypokalemia and hyperchloremic metabolic acidosis, but the presenting complaint is almost always nephrolithiasis, and urine pH is characteristically greater than 5.5. This patient does not complain about stones and has no haematuria.

Type 3 renal tubular acidosis is extremely rare and is caused by carbonic anhydrase II deficiency. It is due to an impaired H+ secretion by the distal convoluted tubule and HCO3- wasting by the proximal convoluted tubule. It presents with a urine pH greater than 5.5, whilst this patient has a pH of 5.3.

Type 4 renal tubular acidosis is caused by a reduction in aldosterone that leads in turn to a reduction in proximal tubular ammonium excretion. It causes hyperkalemia, making this diagnosis extremely unlikely.

Question:

You are a F2-doctor working in the Emergency Department. A nurse asks you to look at an admission ECG from a recent admission.

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What is shown on the ECG?

A.Broad-complex tachycardia

B.Left bundle branch block

C.Non-ST elevation myocardial infarction

D.Right bundle branch block

E.ST elevation myocardial infarction

Answer:ST elevation myocardial infarction

Explanation:

There is significant ST elevation in the inferior leads (II, III and aVF) and V5-V6. This patient requires urgent percutaneous coronary intervention or thrombolysis.

Question:

Which one of the following is an absolute contraindication to combined oral contraceptive pill use?

A.Controlled hypertension

B.History of cholestasis

C.36-year-old woman smoking 20 cigarettes/day

D.BMI of 38 kg/m^2

E.Migraine without aura

Answer:36-year-old woman smoking 20 cigarettes/day

Explanation:

Question:

A 57-year-old man with a known history of alcohol abuse presents to the Emergency Department (ED) after an episode of frank haematemesis. He is treated with fluids in the ED and stabilised. An upper GI endoscopy is performed which identifies variceal haemorrhage. This is subsequently banded.

After the procedure, the patient questions the FY1 about the chances of this happening to him again.

What score could be used to guide their response in this scenario?

A.AIMS65 score

B.AUDIT score

C.Child-Pugh classification

D.Glasgow-Blatchford score

E.Rockall score

Answer:Rockall score

Explanation:

Upper GI bleed: the Rockall score is used after endoscopy and provides a percentage risk of rebleeding and mortality

Important for meLess important

Rockall score is correct. The Rockall score would be most appropriate here, as it is typically used after GI endoscopy to determine the percentage risk of rebleeding and mortality in patients with upper GI bleeding, based on the endoscopy results along with other factors.

AIMS65 score is incorrect. The AIMS65 score is used to calculate the risk of in-hospital mortality in patients with an upper GI bleed. This is calculated based on albumin levels, coagulation results, and degree of altered mental status, and so would not typically be calculated after endoscopy.

Glasgow-Blatchford score is incorrect. The Glasgow-Blatchford score is also used in an upper GI bleed. However, it is calculated before a procedure to determine whether a patient will need to be admitted for medical intervention.

Child-Pugh classification is incorrect. This classification system is used to assess the severity of liver cirrhosis. While liver cirrhosis is a common complication of alcohol abuse, it has no use in the acute management of an upper GI bleed.

AUDIT is incorrect. The AUDIT screening tool is used to determine the severity of alcohol abuse. While assessment and treatment of this patient's alcohol use may be an important part of his long-term management, this will not help assess his ongoing bleeding risk.

Question:

A 55-year-old woman was found wandering in the street wearing inappropriate clothing for the current climate. She admitted having memory issues for a while but denied any past medical history. She was discharged home after a normal CT head scan to the memory clinic. One month later she was readmitted due to acute deterioration of mental status, failure to thrive, and mutism.

Upon assessment, she was bed-bound and mute. A neurological exam demonstrated spastic contractions of her limbs with diffuse myoclonic twitching.

What is the most likely diagnosis here?

A.Frontotemporal dementia

B.Huntington's disease

C.Sporadic Creutzfeldt-Jakob disease (CJD)

D.Transient global amnesia

E.Vascular dementia

Answer:Sporadic Creutzfeldt-Jakob disease (CJD)

Explanation:

Creutzfeldt-Jakob disease is characterised by rapid onset dementia and myoclonus

Important for meLess important

Sporadic Creutzfeldt-Jakob disease is a subacute spongiform encephalopathy that presents with rapidly progressive dementia and is the most frequent among rare prion diseases. In such a patient like this with rapidly progressive dementia and focal neurological signs, CJD should be the first-line diagnosis given the triad dementia, myoclonus, and rigidity.

Transient global amnesia is a sudden, temporary episode of memory loss that can't be attributed to a more common neurological condition, such as epilepsy or stroke. Given the patient has had a longstanding memory problem this answer is incorrect.

Huntington's disease is clinically characterised by a triad of motor, cognitive and psychiatric symptoms. Motor features include impairment of involuntary (chorea) and voluntary movements; reduced manual dexterity, balance problems and falls. Cognitive features are characterised initially by loss of speed and flexibility in thinking but later develop into global dementia. Psychiatric features may include depression (most common), irritability, anxiety, agitation, and social withdrawal.

Vascular dementia is caused by reduced blood flow to the brain. Risk factors include advanced age, diabetes, hypertension, atherosclerosis, and stroke which are all absent in this case.

Frontotemporal dementia is generally associated with personality, behaviour and language changes which are not really depicted in this case.

Question:

A 24-year-old woman presents to the emergency department with a 2-hour history of left-sided flank pain radiating down towards her groin. The pain is constant and unrelieved by changes in position. She feels nauseous and has vomited once. Her past medical history is unremarkable and she takes no regular medications.

On examination, she is tender over the left costovertebral angle. There is evidence of guarding but no rebound tenderness. Her observations are heart rate 112/min, blood pressure 120/76mmHg, temperature 38.1ºC, respiratory rate 14/min, saturations 97%.

An ultrasound scan of the kidneys demonstrates dilation of the renal pelvis on the left. CT scan of the kidneys, ureters and bladder shows a 4mm stone in the left ureter. What is the most appropriate management?

A.Nifedipine

B.Extracorporeal shock wave lithotripsy

C.Surgical decompression

D.Increase oral fluids and analgesia

E.Watch and wait

Answer:Surgical decompression

Explanation:

Patients with obstructive urinary calculi and signs of infection require urgent renal decompression and IV antibiotics due to the risk of sepsis

Important for meLess important

This patient is presenting with complicated urinary calculi - the stone is obstructing the ureter and causing hydronephrosis (ultrasound scan shows dilation of the renal pelvis) and she is pyrexial which suggests super-added infection. These patients are at risk of urosepsis so urgent renal decompression via a ureteric stent or percutaneous nephrostomy should be performed to relieve the obstruction. They must also receive antibiotics for the upper urinary tract infection.

Nifedipine may be used in some patients with small, uncomplicated renal stones. It relaxes the ureters and aids passing of the renal stone.

Extracorporeal shock wave lithotripsy uses shock waves to break up the stone within the ureter. This aids passing of the fragments. It is used for larger, uncomplicated stones or in patients for which medical therapy has failed.

Conservative measures (such as increasing oral fluids and waiting for the stone to pass) are not suitable for patients with obstructing renal stones complicated by infection.

Question:

A 22-year-old woman who is pregnant at 38 weeks gestation develops spontaneous labour. She has a history of pre-eclampsia. Her blood pressure is 180/115 mmHg.

Blood results are as follows:

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

Female: (115 - 160)

Platelets 95 \* 109/L (150 - 400)

WBC 14.2 \* 109/L (4.0 - 11.0)

A decision is made to start the patient on magnesium sulphate.

Shortly after administering the magnesium sulphate, the patient develops respiratory depression with a respiratory rate of 6 breaths per minute.

What treatment is urgently required?

A.Bilevel positive airway pressure (BiPAP)

B.Calcium gluconate

C.Continuous positive airway pressure (CPAP)

D.Intubation and ventilation

E.Naloxone

Answer:Calcium gluconate

Explanation:

Magnesium sulphate - monitor reflexes + respiratory rate

Important for meLess important

The patient has several features of severe pre-eclampsia, namely a very high blood pressure (> 160/110 mmHg) and the presence of thrombocytopenia. Urgent delivery and magnesium sulphate are therefore indicated. Magnesium sulphate is used to both prevent seizures in patients with severe pre-eclampsia and treat seizures once they develop.

Symptoms of magnesium sulfate toxicity include loss of deep tendon reflexes, respiratory depression, and cardiac arrest. Loss of deep tendon reflexes is the first sign of magnesium toxicity.

The patient in this case has therefore likely developed magnesium sulphate toxicity due to the presence of respiratory depression.

Calcium gluconate is correct. Calcium gluconate is the first-line treatment for magnesium sulphate induced respiratory depression.

Bilevel positive airway pressure (BiPAP) is incorrect. This is used to treat acute hypercapnic respiratory failure.

Continuous positive airway pressure (CPAP) is incorrect. In general patients with poor respiratory drive require invasive ventilation.

Intubation and ventilation is incorrect. Although this may be required, non-invasive strategies should be pursued first e.g. calcium gluconate.

Naloxone is incorrect. Opioid-induced respiratory depression is potentially fatal but may be reversed by the opioid receptor antagonist naloxone, an agent with a short elimination half-life (30 min). Although this remains within the differential diagnosis, and a careful drug history should be elicited, the history is more in keeping with magnesium sulphate toxicity.

Question:

A 23-year-old woman presents because she is suffering from a low mood for around 1 week every month, just before her period begins. She states that she feels tearful and lacks motivation, these symptoms improve when her period starts. The symptoms bother her but are not impacting her work or personal life.

She has a 28-day regular cycle, does not have heavy or painful periods and denies any inter-menstrual bleeding. She is in a long term relationship and uses condoms for contraception. She does not want to conceive in the next few years.

What treatment should you offer for relief of her premenstrual symptoms?

A.A new generation combined contraceptive pill

B.Evening primrose oil

C.Insertion of an intrauterine contraceptive device

D.Selective serotonin re-uptake inhibitor (SSRI)

E.Prescription of a non-steroidal anti-inflammatory drug (NSAID)

Answer:A new generation combined contraceptive pill

Explanation:

Premenstrual syndrome: a new-generation combined oral contraceptive pill may be helpful

Important for meLess important

A new generation combined oral contraceptive pill can be useful to relieve symptoms of mild to moderate premenstrual syndrome. Taken appropriately, they may have the additional benefit of making periods lighter and less frequent (if the patient takes the pill packets back to back or 'tricycles').

Evening primrose oil is not indicated in the management of premenstrual syndrome (although it is sometimes used in the treatment of cyclical mastalgia).

Whilst this patient may wish to consider her long-term contraceptive options, the hormones released by intra-uterine contraceptive devices are not absorbed systemically and therefore will not improve her pre-menstrual symptoms, making this an incorrect answer.

NICE guidance states that SSRIs can be used to treat premenstrual syndrome in women who have severe symptoms. They can be taken continuously or just during the luteal phase. Whilst this would be an option if her symptoms deteriorated, she is currently describing 'mild' symptoms, making the prescription of an SSRI inappropriate at this stage.

Giving this patient a non-steroidal anti-inflammatory drug would be inappropriate as she does not have symptoms of dysmenorrhoea and it would not have any effect on her mood or pre-menstrual symptoms.

Question:

A 23-year-old man is given intravenous adenosine to treat a supraventricular tachycardia. What is the approximate half-life of adenosine?

A.10 seconds

B.1 minute

C.10 minutes

D.2 hours

E.6 hours

Answer:10 seconds

Explanation:

Adenosine has a very short half-life of about 8-10 seconds

Important for meLess important

Patients who are given adenosine will experience unpleasant, but short-lived, side-effects.

Question:

A 72-year-old presents to the surgery complaining of dizziness. An ECG is taken and shows the following:

What is the diagnosis?

A.Ventricular tachycardia

B.Second degree heart block - Mobitz type 2

C.First degree heart block

D.Second degree heart block - Mobitz type 1

E.Third degree heart block

Answer:Third degree heart block

Explanation:

Note how the P waves are not related to the QRS complexes in the ECG - this is the hallmark of third degree (complete) heart block. The QRS complexes represent a ventricular escape rhythm which characteristically has a rate of 35 - 40 bpm.

Question:

You are working on a respiratory ward analysing the results of the blood tests for patients that were taken this morning. You notice that Mr Powell, an 84-year-old male patient, who was admitted 2 days ago with community-acquired pneumonia, has results that are outside of the normal ranges. He has been treated with IV amoxicillin and IV clarithromycin and appears to be clinically improving, with no temperature spikes since admission, respiratory rate is now within the normal range and oxygen saturations of 98% on room air. He also states that he is feeling much better. The patient has no other medical conditions and is normally fit and well.

Blood tests from today show:

Hb 138 g/L Male: (135-180)

Female: (115 - 160)

Platelets 228\* 109/L (150 - 400)

WBC 10 \* 109/L (4.0 - 11.0)

CRP 180 mg/L (< 5)

Blood tests from the previous day show:

Hb 137 g/L Male: (135-180)

Female: (115 - 160)

Platelets 233 \* 109/L (150 - 400)

WBC 12.4 \* 109/L (4.0 - 11.0)

CRP 140 mg/L (< 5)

What is the most likely cause of the blood results seen in this patient?

A.An underlying chronic inflammatory condition that has been flared by the infection

B.The pneumonia is worsening

C.The pneumonia is improving but the CRP has lagged

D.Myelosuppression

E.Side effect of amoxicillin treatment

Answer:The pneumonia is improving but the CRP has lagged

Explanation:

C-reactive protein shows a lag in decreasing in comparison to the white cell count in treatment of acute bacterial infection

Important for meLess important

As C-reactive protein (CRP) is an acute phase reactant it can show a lag in response to infection. This can happen in two ways 1) when the patient first develops an infection the CRP can be inappropriately low or normal 2) when the infection is resolving, the CRP can be unexpectedly high given the clinical picture.

Often in bacterial infections such as pneumonia, the white cells can drop back into normal ranges faster than the CRP as the CRP response 'lags.' In this patient, as the infection is resolving the white cells have returned to the normal range. The CRP, in this case, is lagging and so has not come down in the same way as the white cells. Often the CRP will decrease as the white cells return to normal levels. Sometimes the CRP will decrease slower than the white cells, and in some cases, the CRP can continue to increase whilst the white cells decrease, as is the case here. It is likely that, if the patient continues to improve, his CRP will decrease over the coming days. Therefore option 3 is correct.

The patient has no past medical history of any chronic inflammatory disorders and he is clinically improving after an infective pathology. There is no mention in the question stem of any symptoms suggestive of a chronic inflammatory disorder, and the only symptoms the patient displays are those of a resolving community-acquired pneumonia. Therefore option 1 is incorrect.

As this patient is clinically improving, it is likely that their infection is resolving. This rules out option 2.

Myelosuppression is a condition leading to decreased red blood cells, white blood cells and platelets. This condition is most commonly associated with treatment for cancers, specifically chemotherapy, but can be caused by other medications such as non-steroidal anti-inflammatory drugs. It can be ruled out in this instance as the patient has normal haemoglobin, white cell count and platelets.

Although amoxicillin can very rarely cause agranulocytosis and neutropenia, this is highly unlikely in this patient who is clinically and biochemically showing signs of recovering from recent community-acquired pneumonia. Clinically their observations have normalised and biochemically the white cells have returned to a normal level. It would not be expected to see a white cell count of 10.0 in a patient with agranulocytosis. Therefore option 5 is incorrect.

Question:

Marie is a 14-year-old who has come to her GP for contraception advice. She explains she has been sexually active with a 14-year-old male partner for the last 2 months. She has researched various methods of contraception and would like to try the combined oral contraceptive pill (COCP). She has previously had depression after being abused as a child and remains under the care of the Child and Adolescent Mental Health Services. However, she says her mood has been much better since meeting her partner. Her parents do not know about the situation and she can not be convinced to tell them. What is the right course of action?

A.Do not prescribe the COCP and try to convince her to tell her parents

B.Prescribe the COCP, only after a full STI screen and pregnancy test

C.Prescribe the COCP, providing there are no contraindications

D.Do not prescribe the COCP as she is under the age of consensual sexual intercourse

E.Prescribe the COCP after discussing with her parents and gaining consent

Answer:Prescribe the COCP, providing there are no contraindications

Explanation:

This question concerns the Fraser guidelines for prescribing contraceptives to children.

3 is correct- if there are no contraindications she can legitimately be prescribed the combined oral contraceptive pill (COCP).

Discussing with her parents is a flagrant breach of confidentiality, which should not be affected due to her age. Though you should try and convince her to tell her parents, this ultimately should not stop you prescribing the COCP if the Fraser guidelines are met. Similarly, being under the age for consensual sexual intercourse does not affect her entitlement to contraception.

A full STI screen and pregnancy test are other important aspects of holistic care, though are not required in order to prescribe the COCP.

GMC: 0-18 years guidance: Contraception, abortion and sexually transmitted infections (STIs)

70. You can provide contraceptive, abortion and STI advice and treatment, without parental knowledge or consent, to young people under 16 provided that:

a. they understand all aspects of the advice and its implications

b. you cannot persuade the young person to tell their parents or to allow you to tell them

c. in relation to contraception and STIs, the young person is very likely to have sex with or without such treatment

d. their physical or mental health is likely to suffer unless they receive such advice or treatment, and

e. it is in the best interests of the young person to receive the advice and treatment without parental knowledge or consent.

Question:

A 45-year-old woman attends a follow-up appointment having been diagnosed with Hashimoto's thyroiditis and started on levothyroxine. She asks about associated conditions, as she has heard that Hashimoto's thyroiditis is linked to certain cancers.

Which of the following should you inform her that she is at increased risk of developing?

A.Acute myeloid leukaemia (AML)

B.Hairy cell leukaemia

C.MALT lymphoma

D.Osteosarcoma

E.Squamous cell lung carcinoma

Answer:MALT lymphoma

Explanation:

Hashimoto's thyroiditis is associated with the development of MALT lymphoma

Important for meLess important

Hashimoto's thyroiditis is associated with the development of MALT lymphoma. MALT lymphoma is a type of marginal zone lymphoma which is a type of low-grade B-cell non-Hodgkin's lymphoma. MALT lymphoma is also associated with H. pylori infection.

Acute myeloid leukaemia (AML) is a type of leukaemia that accounts for 80% of acute leukaemias during adulthood. AML is not associated with Hashimoto's thyroiditis but is associated with Down's syndrome - the risk of AML is 10–20 times higher in patients with Down's syndrome compared to the general population.

Hairy cell leukaemia is one of the rarest types of leukaemia. It is not associated with Hashimoto's thyroiditis. The 'hairy cells' after which it is named are so-called because the cells have irregular cytoplasmic projections that cause the characteristic 'hairy' appearance.

Osteosarcoma is the most common primary malignant bone tumour. It is not associated with Hashimoto's thyroiditis but is associated with retinoblastoma.

Squamous cell lung carcinoma is a type of non-small cell lung cancer. It is not associated with Hashimoto's thyroiditis. It is usually caused by smoking tobacco.

Question:

A 45-year-old woman presents complaining of visual disturbance. Examination reveals a left homonymous hemianopia. Where is the lesion most likely to be?

A.Optic chiasm

B.Left occipital cortex

C.Right optic nerve

D.Right optic radiation or occipital cortex

E.Left optic tract

Answer:Right optic radiation or occipital cortex

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 68-year-old patient is brought to the Emergency Department with a 3-day history of increasing confusion, vomiting and lethargy.

On examination, the chest is clear and the heart sounds are fast and irregularly irregular.

They have a past medical history of poorly controlled hypertension and atrial fibrillation. They take ramipril, amlodipine and digoxin. They have recently been started on a new medication.

What medication has most likely been started?

A.Bendroflumethiazide

B.Dabigatran

C.Flecainide

D.Furosemide

E.Sotalol

Answer:Bendroflumethiazide

Explanation:

Thiazides may cause precipitation of digoxin toxicity

Important for meLess important

Bendroflumethiazide is a thiazide-like diuretic. It is used as a third-line agent in the management of hypertension after a dihydropyridine calcium channel blocker, such as amlodipine and an angiotensin-converting enzyme inhibitor, such as ramipril. It is known to increase the risk of digoxin toxicity when given with digoxin. Digoxin toxicity can present as nausea and vomiting, lethargy, confusion, weakness and palpitations. It is a dangerous complication of digoxin therapy and can lead to hyperkalaemia, arrhythmias and cardiac arrest.

Dabigatran is a direct thrombin inhibitor that can be used as an anticoagulant for stroke prophylaxis in patients with atrial fibrillation. As this patient has atrial fibrillation, they should be anticoagulated to reduce the risk of stroke. They are not currently taking an anticoagulant so this will need to be considered. Dabigatran is not the most likely new medication in this scenario, as it is known not to precipitate digoxin toxicity.

Flecainide is an anti-arrhythmic agent that can be used in the management of atrial fibrillation. Taken with digoxin, it can precipitate bradycardia but it is not likely to precipitate digoxin toxicity, so it would not account for the patient's symptoms.

Furosemide is a loop diuretic most commonly used in fluid-overload secondary to heart failure. Although it can precipitate digoxin toxicity, it is not indicated in the management of hypertension or atrial fibrillation and the patient has no clinical signs of fluid overload such as pulmonary oedema, which would be indicated by crackles on auscultation of the chest, so it is not the most likely cause of this patient's digoxin toxicity.

Sotalol is a beta-blocker and a potassium channel blocker that can be used as rate control for patients with atrial fibrillation. Slowing the heart rate can reduce symptoms of breathlessness due to decreasing the workload on the heart. Sotalol in combination with digoxin can precipitate bradycardia. This patient has symptoms of digoxin toxicity which sotalol is not likely to precipitate.

Question:

A 4-year-old boy is brought to the emergency department by his mother. His temperature is 38.7ºC and his respiratory rate is 33 breaths per minute.

On examination, you notice his right arm is warm and is oedematous with purple discolouration. On the back of his arm, his skin is peeling and a deep, erythematous, diffuse, grey soft wound is seen with white discharge.

Whilst talking to his parents, they mentioned there was an outbreak of chickenpox at his school. They first noticed the wound on his arm 3 days ago.

Hb 110 g/L (110-140)

Platelets 130\* 109/L (150 - 450)

WBC 17 \* 109/L (5-12 \* 109)

What is the most likely complication?

A.Cellulitis

B.Erysipelas

C.Henoch-Schonlein purpura

D.Necrotising fasciitis

E.Reye's syndrome

Answer:Necrotising fasciitis

Explanation:

Chickenpox is a risk factor for invasive group A streptococcal soft tissue infections including necrotizing fasciitis

Important for meLess important

Necrotising fasciitis is a rare complication of the varicella-zoster virus seen with systemic symptoms and open wounds. It generally affects the musculoskeletal system, causing painful lesions of the skin and underlying muscles. It is diagnosed clinically by passing a probe or gloved finger below the affected skin, which causes the skin to separate from the underlying tissue.

Cellulitis can be a complication caused by group A streptococcus. However, the symptoms are localised on the dermis and subcutaneous tissue. It presents with erythema, pain, swelling and warmth, without any systemic symptoms.

Erysipelas is a bacterial infection localised to the superficial layer of the dermis and commonly affects superficial cutaneous lymphatics. It presents similarly to cellulitis but has well-defined borders. It can be a rare complication of chickenpox.

Henoch-Schonlein Purpura, is an IgA-mediated vasculitis of the small vessels of the skin. It can rarely present as a complication of chickenpox with a widespread rash on the buttocks and lower thigh, abdominal pain, and joint pain.

Reyes syndrome commonly presents after a recent viral infection such as chickenpox, it is also thought to be triggered by aspirin use, which is often used to treat the symptoms of chickenpox, such as headaches. It presents with tachypnoea, tiredness, and in severe cases can cause behavioural changes and coma. This patient only presents with tachypnoea, and there is no evidence to suggest the use of aspirin.

Question:

A 29-year-old woman presents to the emergency department with a two-day history of nausea, vomiting, diarrhoea, and pain in the legs and abdomen. On questioning, the patient admits to increased fatigue, dizziness, and weight loss over the last 2 months. There is no significant past medical history, other than an uncomplicated vaginal delivery of a healthy boy 6 months ago.

On examination, the patient has a heart rate of 120 bpm, a respiratory rate of 20 breaths per minute, a blood pressure of 86/44 mmHg and appears dehydrated. A quickly arranged arterial blood gas demonstrates a hyponatraemic, hyperkalaemic, metabolic acidosis.

What is the most likely cause of this patient’s symptoms?

A.Nelson syndrome

B.Sheehan’s syndrome

C.Ruptured ovarian cyst

D.Addisonian crisis

E.Pheochromocytoma

Answer:Addisonian crisis

Explanation:

An Addisonian crisis can occur following immune-regulatory changes during and after pregnancy

Important for meLess important

An Addisonian crisis is characterised by hyperkalaemic metabolic acidosis. Symptoms include abdominal pain, confusion, nausea, and vomiting. In this case, it is likely that the patient had suffered from undiagnosed Addison's disease, as supported by the history of fatigue, dizziness, and weight loss - most likely due to immune-regulatory changes following pregnancy.

Nelson syndrome - no history of adrenal gland removal excludes this diagnosis.

Ruptured ovarian cyst - while the symptoms are somewhat consistent with this, the lack of medical history and results of the ABG are inconsistent with this diagnosis

Pheochromocytoma - are classically associated with malignant hypertension, palpitations, and headaches

Sheehan’s syndrome - unlikely due to normal, uneventful delivery

Reference: Wilkinson & Longmore, Oxford Handbook of Clinical Medicine (10th Ed.), p. 836.

Question:

A 67-year-old woman presents with a 3-week history of widespread pain, stiffness and subjective weakness to her shoulders bilaterally. It is taking longer to get dressed in the morning, sometimes up to 1 hour due to her symptoms. She does not complain of scalp tenderness or jaw claudication.

On examination, you are unable to identify any objective weakness in her upper and lower limbs. There is no erythema or swelling visible of her shoulders. Her pain improves on the passive motion of her shoulders bilaterally.

What is the most likely underlying diagnosis?

A.Bilateral rotator cuff tendinopathy

B.Cervical myelopathy

C.Fibromyalgia

D.Polymyalgia rheumatica

E.Pseudogout

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 the most likely diagnosis here for several reasons. This woman fits the typical demographic for this condition with gradual onset, symmetrical symptoms. Although subjective weakness is present, this is likely due to pain rather than true objective weakness - typical of polymyalgia rheumatica. True weakness or any visible deformity would point away from this diagnosis.

Rotator cuff tendinopathy would not usually have symmetrical features on initial presentation and would not have such marked morning stiffness.

In cervical myelopathy, the examination would have likely revealed objective weakness alongside other potential findings such as clumsiness and numbness/paraesthesia.

Fibromyalgia would not usually present with morning stiffness and is relatively unusual as a first presentation in this age group.

Pseudogout can affect the shoulders (both mono- and poly-articular) but would usually cause erythema/swelling/warmth and the pain would not ease on passive motion, as it is an intra-articular pathology.

Question:

A 42-year-old woman attends the emergency department with large-volume haematemesis. She collapsed at home after suddenly developing projectile vomiting which contained a large amount of blood.

Observations show: heart rate 98bpm, blood pressure 109/63 mmHg, saturations 97% on air, respiratory rate 21/min, temperature 37.6ºC.

She is having ongoing haematemesis. She has a background of alcoholic liver cirrhosis with portal hypertension.

Blood results show:

Hb 73 g/L Male: (135-180)

Female: (115 - 160)

Platelets 56 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

What is the most appropriate next step for this patient?

A.Endoscopic band ligation

B.Endoscopic sclerotherapy

C.Platelet transfusion

D.Red blood cell transfusion

E.Transjugular intrahepatic portosystemic shunt (TIPS)

Answer:Endoscopic band ligation

Explanation:

Variceal band ligation is the technique to stop variceal bleeding if it is oesophageal

Important for meLess important

Endoscopic band ligation is the correct answer. This patient has presented with large haematemesis on a background of alcoholic liver disease and portal hypertension. Portal hypertension causes increased pressure in the portal venous system and can lead to the formation of varices in the oesophagus and stomach. Variceal bleeding often presents with sudden-onset, large-volume haematemesis and is a medical emergency. Once the patient is stabilised, endoscopic variceal band ligation is the preferred technique to stop variceal bleeding. Even though bleeding is ongoing, the observations show this woman has stable blood pressure and a haemoglobin level of more than 70g/L. Therefore, endoscopic band ligation can go ahead.

Endoscopic sclerotherapy is incorrect. This patient has presented with a large variceal bleed secondary to portal hypertension. Endoscopic sclerotherapy involves the injection of a pro-inflammatory substance into the bleeding vein to stem bleeding. However, band ligation has been shown to stop variceal bleeding faster, with fewer complications, and is therefore the preferred method.

Platelet transfusion is incorrect. This patient has thrombocytopenia (platelets <100 \* 109/L) secondary to a large variceal bleed. Typically, platelet transfusions are reserved for patients with a platelet count <30 \* 109/L. While higher thresholds may be used in those who have required endoscopic treatment, this patient's bleeding is ongoing and, therefore, the most important next step is urgent endoscopy to stem the bleeding.

Red blood cell transfusion is incorrect. Red blood cell transfusions are used in patients with major haemorrhage but are typically only given when a patient has a Hb of <70g/L. As this patient's Hb is 73g/L, red blood cells are not indicated at this time.

Transjugular intrahepatic portosystemic shunt (TIPS) is incorrect. TIPS is a surgical procedure in which a shunt is created between the portal vein and hepatic vein in order to reduce blood flow and pressure in the portal venous system. This is reserved for unstable patients in whom first-line therapies have failed. As this patient is now stable and this is her first variceal bleed, endoscopic band ligation should be offered in the first instance.

Question:

A 14-year-old girl presents with a swollen left knee. Her parents state she suffers from haemophilia and has been treated for a right-sided haemarthrosis previously. What other condition is she most likely to have?

A.Turner's syndrome

B.Down's syndrome

C.Ataxia telangiectasia

D.Hunter's syndrome

E.Coeliac disease

Answer:Turner's syndrome

Explanation:

Haemophilia is a X-linked recessive disorder and would hence be expected only to occur in males. As patients with Turner's syndrome only have one X chromosome however, they may develop X-linked recessive conditions

Question:

A 46-year-old man presents to the emergency department with a generalised headache and malaise. On further questioning, over the last few days, he has had difficulty swallowing.

His temperature is 38.5ºC, his heart rate is 98 bpm, and his blood pressure is 127/75 mmHg. On examination, he has hyperhidrosis and spasticity is noticed in his facial muscles, particularly the jaw.

He has a past medical history of a bicuspid aortic valve picked up when he was a child and is known to use intravenous drugs.

What is the most likely diagnosis?

A.Botulism

B.Endocarditis

C.Epiglottitis

D.Hypocalcaemia

E.Tetanus

Answer:Tetanus

Explanation:

Fever, facial spasms, dysphagia in an intravenous drug user → ?tetanus (botulism would cause a flacid paralysis)

Important for meLess important

Tetanus is the correct answer. A common cause of this infection is contaminated soil in wounds, however, it is also spread among intravenous drug users using unclean needles. It presents with a fever and muscle spasms. The commonest muscle spasm is seen in the jaw, causing jaw lock which is also known as trismus. Jaw lock is seen when someone is unable to open their mouth due to the muscles contracting with obvious spasms. It results in problems including difficulty breathing and being unable to eat. Further muscle spasms can occur such as resulting in dysphagia in this man (difficulty swallowing).

Botulism is incorrect. This is is a rare but life-threatening condition caused by toxins produced by Clostridium botulinum bacteria. The toxins attack the nervous system and cause muscle weakness and paralysis. Initially, people experience gastrointestinal upset (diarrhoea and stomach cramps), which later progress to paralysis including symptoms such as difficulty breathing, eyelid drooping, facial muscle weakness and slurred speech. This man is experiencing muscle spasms, as opposed to flaccid paralysis seen in botulism, making this less likely than tetanus.

Endocarditis is incorrect. Whilst this can be a cause of fever in intravenous drug users, it does not explain the difficulty swallowing or jaw lock. A bicuspid aortic valve is a risk factor for endocarditis, however, having this diagnosis does not explain the other symptoms he is experiencing.

Epiglottitis is incorrect. This presents as a fever with shortness of breath and difficulty swallowing. It is an important differential to consider in people presenting with difficulty swallowing and fever, however, it does not explain the jaw lock and facial muscle spasm.

Hypocalcaemia is incorrect. Whilst this can cause facial spasms, it is commonly characterised by a positive Chvostek sign (positive twitching when tapping the cheek), shortness of breath, seizures, and coma. Patients typically complain of pins and needles which is not described in this man. It would be unusual for the presenting complaint to be jaw lock, and along with the history of intravenous drug use, tetanus is a more likely diagnosis.

Question:

A 34-year-old man is admitted to the emergency department following difficulties breathing. He is a known intravenous drug user. He explains that he has felt feverish for the past few days. On examination, it is noted that the patient's temperature is alarmingly high. There is also the presence of a new pansystolic murmur, heard loudest over the left lower sternal border. You suspect this is likely to be infective endocarditis.

What is the most likely causative organism in this scenario?

A.Streptococcus viridans

B.Streptococcus bovis

C.Coxiella burnetii

D.Staphylococcus aureus

E.Staphylococcus epidermis

Answer:Staphylococcus aureus

Explanation:

Staphylococcus aureus is commonly associated with infective endocarditis amongst IVDU

Important for meLess important

Staphylococcus aureus is an organism that is a member of the normal flora of the body, commonly found on the surface of the skin. Intravenous drug users are at a much greater risk of infection, as regular breaks in the skin increase the risk of Staphylococcus aureus entering the bloodstream and causing infective endocarditis.

The reasons as to why the other answers are less likely are as follows:

1 - Streptococcus viridans - classically linked to poor dental hygiene or following a dental procedure

2 - Streptococcus bovis - most commonly linked with colorectal cancer

3 - Coxiella burnetti - causes Q fever, an infection caught most commonly from farm animals. So, consider in any farmer or abattoir worker.

5 - Staphylococcus epidermis - most commonly associated with patients who have undergone previous prosthetic valve surgery

Staphylococcus aureus is the most common cause of infective endocarditis, even more so amongst intravenous drug users. Therefore, this makes it the most likely causative organism in this scenario.

Question:

A 40-year-old man is admitted to the short stay acute medical unit with vomiting and abdominal pain. He had eaten a chicken curry a few hours prior to this. He has no medical conditions and is otherwise fit and well. His blood results are as follows:

Na+ 135 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 7.6 mmol/L (2.0 - 7.0)

Creatinine 130 µmol/L (55 - 120)

He requires fluid replacement and 1L of 0.9% sodium chloride supplemented with 40 mmol of potassium is prescribed.

What is the shortest time period over which this bag of fluid can be administered safely?

A.30 minutes

B.1 hour

C.2 hours

D.4 hours

E.6 hours

Answer:4 hours

Explanation:

The maximum recommended rate of potassium infusion via a peripheral line is 10 mmol/hour, whereas rates above 20 mmol/hour require cardiac monitoring

Important for meLess important

The blood results show that he has an acute kidney injury, likely secondary to vomiting, and hypokalaemia. Therefore, he requires fluid replacement with potassium supplementation.

The maximum rate of potassium infusion via a peripheral line is 10 mmol/hour on a standard ward. 40 mmol of potassium over 4 hours equates to 10 mmol of potassium per hour. Therefore the answer is 4 hours.

30 minutes, 1 hour and 2 hours would correspond to a rate of potassium infusion that is faster than 10 mmol/hour. The danger of giving potassium too quickly is that it can cause cardiac arrhythmias. In the intensive care unit where there is extensive cardiac monitoring, potassium may be given at a faster rate if needed.

Giving this bag of fluid over 6 hours would be safe to prescribe, however the questions asks for the shortest time period over which the bag can be given.

Question:

A 24-year-old attends her routine medical examination prior to starting her job as a professional footballer. She is fit and well with no significant family history.

On examination, her chest is clear and she has normal heart sounds. Her pulse is 62 beats per minute. Her ECG shows sinus rhythm with a prolonged PR interval of 215ms.

How should her ECG findings be managed?

A.No intervention needed

B.No referral is needed however advise the patient to stop playing football

C.Routine referral for Holter monitor

D.Routine referral to cardiology

E.Urgent referral to cardiology

Answer:No intervention needed

Explanation:

First-degree heart block is a normal variant in an athlete. It does not require intervention

Important for meLess important

This patient has presented with unremarkable history and is found to have one abnormal finding on an ECG. She has a prolonged PR interval; the normal range is 120-200 ms. A PR interval > 200ms (five small squares) is first-degree heart block.

No intervention needed is the correct answer. First-degree heart block is a normal variant in an athlete and does not require intervention.

No referral is needed however advise the patient to stop playing football is the wrong answer. First-degree heart block is a normal variant in an athlete and is not associated with any risks. Therefore, the patient can continue to play football.

Routine referral for Holter monitor is the wrong answer. First-degree heart block is a normal variant in an athlete and is not associated with any rate or rhythm abnormalities. Therefore, a Holter monitor is not indicated.

Routine referral to cardiology is the wrong answer. First-degree heart block is a normal variant in an athlete and needs no further investigations or any follow-up.

Urgent referral to cardiology is the wrong answer. First-degree heart block is a normal variant in an athlete and is not associated with any risks. Therefore, an urgent cardiology referral is not needed.

Question:

A 16-year-old receives regular blood transfusions since she was diagnosed with beta-thalassaemia major as a baby.

What medication should she also be taking alongside her infusions?

A.B12 injections

B.Desferrioxamine

C.Ferrous fumarate

D.Ferrous sulfate

E.Folate

Answer:Desferrioxamine

Explanation:

In beta-thalassaemia major, iron chelation therapy (e.g. desferrioxamine) is important to prevent the complications of iron overload due to repeat transfusions

Important for meLess important

Patients with beta thalassaemia-major need regular transfusions from birth. As a result, they are at a high risk of iron overload from transfusions. Iron chelation therapy, such as desferrioxamine is important to reduce the risk of complications.

Both ferrous fumarate and ferrous sulphate are forms of iron supplementation. These are counter-productive in this case as this patient is likely to suffer from complications of iron overload.

Folate and vitamin B12 are important components in the production of red blood cells. However, they would not play a role in limiting the complications of iron overload.

Question:

A 55-year-old woman is found drowsy and confused on the street and brought into the emergency department by the paramedics. On examination, she had thin and brittle hair, periorbital oedema and she has reduced knee and ankle reflexes. Her husband notes that she has been drinking a lot more in the last 6-months since her sister passed away.

Given her presentation, what is the most likely underlying diagnosis?

Temperature 31.6°C

Heart rate 41 bpm

Blood pressure 107/58 mmHg

A.Liver failure

B.Septic shock

C.Acute alcohol withdrawal

D.Hypoglycaemia

E.Myxoedemic coma

Answer:Myxoedemic coma

Explanation:

Hypothermia, hyporeflexia, bradycardia and seizures, think myxoedemic coma

Important for meLess important

This question is asking about an unconscious woman presenting to the emergency department with hypothermia, hypotension, bradycardia, thin and brittle hair, periorbital oedema and reduced reflexes. These all symptoms and signs of severe hypothyroidism or a myxoedemic coma.

Liver failure can be a cause of periorbital oedema due to fluid overload, however, is unlikely to explain the rest of this ladies symptoms. Patients who present acutely unwell in liver failure often have signs of jaundice, and if their blood pressure was low you would expect a high heart rate, not a low one. While her husband notes that she has been drinking more since her sister passed away, this does not mean that she has been drinking dangerous levels, and whilst you would want to investigate this further, it would not account for all of her symptoms.

Septic shock can be a cause of this woman's presentation and most of her observations, including the hypotension and bradycardia, however, this would not cause the reduced reflexes or periorbital oedema. There is also no source of infection noted in the question and she has a low temperature, not a raised one.

Acute alcohol withdrawal can cause delirium tremens, this, however, would present with tachycardia, hyperthermia and hypertension, almost the opposite of this ladies presentation. As stated in the reasoning above, drinking more in the last 6 months does not necessarily mean she is experiencing withdrawal.

Hypoglycaemia can be the cause of many acute presentations including coma, however the thin, brittle hair and periorbital oedema and much more specific to hypothyroidism and thus a myxoedemic coma.

Question:

A 34-year-old female who is 16 weeks pregnant is found to have a raised serum alpha-feto-protein (AFP) and is concerned as to what may be the cause of this.

Which of the following may cause this patient to have a raised AFP?

A.Down's syndrome

B.Omphalocele

C.Maternal diabetes mellitus

D.Edwards syndrome (Trisomy 18)

E.Maternal obesity

Answer:Omphalocele

Explanation:

AFP - raised with fetal abdominal wall defects (e.g. omphalocele)

Important for meLess important

Omphalocele is a fetal abdominal wall defect which is associated with a raised maternal serum AFP. Down's syndrome, maternal diabetes mellitus, Edwards syndrome and maternal obesity are all associated with low levels of maternal AFP.

Question:

A 35-year-old man presents to the ENT clinic with a neck lump that has been increasing in size. There is a small, submandibular mass on the right side of the neck. Fine needle aspiration shows it is a squamous cell carcinoma in a salivary gland. On subsequent excision, the origin of the SCC is traced back to the right tonsil.

After having his diagnosis explained, the patient mentions reading an article once that said this was something he could catch from performing oral sex.

Which of the following is the most likely causative organism?

A.EBV

B.HIV

C.CMV

D.HPV

E.HTLV

Answer:HPV

Explanation:

Tonsilar SCC is associated with HPV infection

Important for meLess important

The tonsil is the most common site for squamous cell carcinoma in the oropharynx and usually present at an advanced stage. Common risk factors include smoking, high levels of alcohol intake and poor oral hygiene.

Human papilloma virus, specifically HPV-16, has been linked to the development of tonsillar SCC. HPV lives as part of the normal oral and vaginal flora in some people, and it's worth remembering that HPV-6 and 11 are the common genital wart-causing subtypes, while 16, 18 and 45 cause up to 95% of cervical cancers. Some studies have shown a trend linking number of sexual partners and oral sex in men, however the level of risk is likely low.

There is an association between EBV infection and head and neck malignancy, however, these tend to be nasopharyngeal in origin or lymphoma.

CMV infection is considered a possible risk factor in the development of some forms of cancer, but there is no evidence for a connection to tonsillar SCC.

HIV positive individuals are at increased risk of developing a number of head and neck malignancies, however, the most common manifestations are Kaposi sarcoma and non-Hodgkin lymphoma.

Human T-cell lymphotropic virus (HTLV) is commonly associated with adult T-cell leukaemia.

Question:

A 27-year-old man presents with a 2 days history of dysuria associated with urinary frequency and urgency. He also complains of pain in the suprapubic region. He denies having fevers or chills. There is no loss of weight or appetite.

There are no known or suspected structural or functional abnormalities of the genitourinary tract or underlying diseases.

On examination, his vital signs are normal. The abdomen is soft and there is no mass palpable. The suprapubic region is tender upon palpation. A diagnosis of acute cystitis is suspected and midstream urine sample is obtained for culture and susceptibility testing.

Which of the following should be done next for this patient?

A.Admit him to the emergency department immediately

B.Allow him to go home on oral antibiotics according to local guidelines for 3 days

C.Allow him to go home on oral antibiotics according to local guidelines for 7 days

D.Allow him to go home and consider a back-up antibiotic prescription (to use if symptoms do not start to improve within 48 hours or worsen at any time)

E.Refer him to be seen by a urologist within 48 hours

Answer:Allow him to go home on oral antibiotics according to local guidelines for 7 days

Explanation:

An immediate antibiotic prescription should be offered to men with lower UTI (unlike in women who are not pregnant where a back-up antibiotic prescription can be considered)

Important for meLess important

UTIs in men are considered “complicated” by definition and warrant at least 7 days of antibiotic therapy\*. Offer an immediate antibiotic prescription to pregnant women and men with lower UTI. Take account of:

previous urine culture and susceptibility results

previous antibiotic use, which may have led to resistant bacteria [NICE 2018]. The choice of antibiotic should be reviewed when microbiological results are available.

The patient does not need to be admitted or referred for the time being as he is clinically well and does not have any underlying condition.

A back-up antibiotic prescription (to use if symptoms do not start to improve within 48 hours or worsen at any time) can be considered only for women with lower UTI who are not pregnant. [NICE 2018]

\*Seminerio JL, Aggarwal G, Sweetser S. 26-year-old man with recurrent urinary tract infections. Mayo Clin Proc. 2011;86(6):557–560. doi:10.4065/mcp.2010.0600.

Question:

A 64-year-old man presents to the respiratory clinic for a scheduled review of his pulmonary hypertension. He was diagnosed with pulmonary hypertension ten years previously. His comorbidities include type 2 diabetes mellitus and heart failure. His medications include bosentan, metformin, sitagliptin, ramipril and bisoprolol.

On examination, he is slightly overweight; he has mild peripheral oedema; his lungs are clear; and there is a high-pitched, pansystolic murmur, heard loudest at the lower left sternal edge, which is loudest on inspiration.

Which underlying pathology is most likely to explain his murmur?

A.Tricuspid regurgitation

B.Tricuspid stenosis

C.Hypertrophic obstructive cardiomyopathy (HOCM)

D.Ventricular septal defect (VSD)

E.Atrial septal defect

Answer:Tricuspid regurgitation

Explanation:

Tricuspid regurgitation becomes louder during inspiration, unlike mitral regurgitation

Important for meLess important

The presence of a murmur at the lower left sternal edge in an adult should make candidates think of tricuspid valve pathology, a VSD or HOCM. Of these possibilities, only the murmur of tricuspid regurgitation fits the description of a high-pitched, pansystolic murmur which is loudest on inspiration. This is because blood flow into the right atrium and right ventricle are increased during inspiration, exacerbating any tricuspid regurgitation and enhancing the murmur. A common cause of tricuspid regurgitation is right ventricular dilation. Therefore, the history of pulmonary hypertension in this patient is an additional feature pointing towards right ventricular enlargement and consequent tricuspid regurgitation.

Tricuspid stenosis would most likely yield a diastolic murmur at the lower left sternal edge.

HOCM may cause heart failure and a murmur at the lower left sternal edge. However, the murmur tends to be ejection systolic, and loudest on expiration.

Ventricular septal defects may also cause a pansystolic murmur at the lower left sternal edge. However, this murmur is harsh, rather than high-pitched, and would not tend to be augmented by inspiration.

Atrial septal defects can present with either an ejection systolic murmur at the second left intercostal space, and/or a diastolic murmur at the lower left sternal edge.

Question:

A 75-year-old woman presents to her general practitioner complaining of generalised pain in her bones and increased difficulty performing everyday activities such as using the stairs due to weakness in her muscles. Her symptoms are worse at night or after a day of putting a lot of strain on her joints. On further questioning, she notes that she has struggled with sleeping difficulties in recent times and is fatigued.

On examination, the GP notes tenderness to percussion over the spine. The muscles that seem to be most affected include the ones in the arms and legs. It is found that the patient has been reluctant to leave the house in recent times due to the pandemic.

Given the presentation, what is the most likely diagnosis?

A.Osteomalacia

B.Osteoporosis

C.Osteosarcoma

D.Paget's disease of the bone

E.Polymyalgia rheumatica

Answer:Osteomalacia

Explanation:

Bone pain, tenderness and proximal myopathy (→ waddling gait) → ?osteomalacia

Important for meLess important

Osteomalacia is a metabolic bone disease characterised by a lack of bone mineralisation. The most common cause of osteomalacia is vitamin D deficiency. It often presents with diffuse bone pain and tenderness, proximal myopathy, and a waddling gait. This patient has all the classical symptoms of the disease, additionally, elderlies and children are more likely to be affected by the disease. The fact that she has become reluctant to leave the house over the pandemic indicates more time spent inside at home, and lack of sun exposure is a risk factor for its development.

Osteoporosis is a skeletal disease characterised by low bone density. It is typically asymptomatic until a fracture occurs and therefore does not fit this clinical picture.

Osteosarcoma is incorrect. Approximately 90% of osteosarcomas occur between 13 and 16 years of age making this diagnosis highly unlikely. Additionally, the patient seems to have many systemic features that indicate osteomalacia rather than a malignancy.

Polymyalgia rheumatic typically presents as pain and stiffness in the shoulder and hip girdle which usually lasts for more than 1 hour in the morning. This is different from the clinical picture of the patient.

While Paget's disease can cause bone pain it is asymptomatic in the majority of patients and tends to be found incidentally on x-ray. Additionally, Paget's disease would not cause proximal myopathy so is unlikely in this patient.

Question:

A 60-year-old man is admitted with severe central chest pain to the resus department. The admission ECG shows ST elevation in leads V1-V4 with reciprocal changes in the inferior leads. Which one of the following is most likely to account for these findings?

A.75% occlusion of the left anterior descending artery

B.75% occlusion of the left circumflex artery

C.75% occlusion of the right coronary artery

D.100% occlusion of the left circumflex artery

E.100% occlusion of the left anterior descending artery

Answer:100% occlusion of the left anterior descending artery

Explanation:

Widepread ST elevation in this territory implies a complete occlusion of the left anterior descending artery.

Question:

A 50-year-old man has a 2-month history of headaches with associated double vision. His headaches are worse upon waking and when coughing or straining, and has also had associated nausea and vomiting. He has a past medical history of atrial fibrillation and takes apixaban.

On examination, there is right-sided defective eye abduction and horizontal diplopia. The other eye is unaffected. Both pupils are equal and reactive to light, his visual fields are intact, and the rest of the examination is unremarkable.

What is the most likely underlying problem?

A.Left CN III palsy

B.Left CN VI palsy

C.Right CN II palsy

D.Right CN III palsy

E.Right CN VI palsy

Answer:Right CN VI palsy

Explanation:

Defective eye abduction and horizontal diplopia - CN VI

Important for meLess important

Right CN VI palsy is correct. Given this man's presentation, there is a high likelihood he is suffering from a raised intracranial pressure given his headache history that is also associated with nausea and vomiting. On examination of this man's eye movements, abduction was defective with horizontal diplopia pointing towards an affected abducens nerve (CN VI). This nerve innervates the ipsilateral lateral rectus muscle responsible for the abduction of the eye, therefore a CN VI palsy leads to ipsilateral symptoms.

Left CN VI palsy is incorrect. Although the patient's signs and symptoms are consistent with a CN VI palsy, the symptoms are ipsilateral, and this patient's right eye is affected, not the left.

Right CN II palsy is incorrect. This is the optic nerve that is responsible for the vision and the pupillary light reflex. When defective, patients will usually have an absent light reflex and monocular blindness of the side it is affected and eye movements are unaffected. Both of this patient's pupils are equal and reactive to light and his visual fields are intact.

Right CN III palsy is incorrect. A defective CN III would present ipsilaterally with the eye in an abducted, laterally rotated and depressed position ('down and out'), with ptosis of the upper eyelid. This is not seen in this man's examination.

Left CN III palsy is incorrect. A defective CN III would present ipsilaterally with the eye in an abducted, laterally rotated and depressed position ('down and out'), with ptosis of the upper eyelid. This is not seen in this man's examination.

Question:

A 62-year-old female is undergoing a routine cholecystectomy for recurrent gallstones. Her only comorbidity is end-stage renal disease, as a result of polycystic kidney disease. For this she is undergoing regular haemodialysis, three times a week. As part of her pre-operative assessment her American Society of Anaesthesiologists (ASA) classification must be calculated.

What is her ASA classification?

A.Type I

B.Type II

C.Type III

D.Type IV

E.Type V

Answer:Type III

Explanation:

Patients with end stage renal disease undergoing regular scheduled dialysis are classified as ASA III

Important for meLess important

It is important to be aware of the ASA score as it is easily examinable during both written and clinical exams as it is a key assessment tool to stratify risk for patients undergoing surgery.

ASA III refers to patients with a severe systemic disease. The ASA classification system specifically lists patients with end-stage renal disease undergoing regular dialysis within ASA III.

Question:

A 49-year-old man is having an elective repair of a right-sided inguinal hernia under general anaesthetic. What is the most appropriate advice to give him about eating and drinking before the operation?

A.He should be nil-by-mouth from midnight before his operation

B.No food or clear fluids for 6 hours before his operation

C.No food for 6 hours and no clear fluids for 4 hours before his operation

D.No food for 6 hours and no clear fluids for 2 hours before his operation

E.No food for 6 hours and no clear fluids for 1 hour before his operation

Answer:No food for 6 hours and no clear fluids for 2 hours before his operation

Explanation:

The Royal College of Anaesthetists recommend that patients should have no food for 6 hours before the induction of general anaesthesia. Patients should be allowed to drink water or other clear fluids until 2 hours before the induction of general anaesthesia. This is to reduce the likelihood of pulmonary aspiration of gastric contents.

Question:

You are the doctor on the ward. Sheila is a 51-year-old woman who is being treated for pneumonia after an operation on her hip, she has just finished a course of co-amoxiclav. She has no previous medical history of note and is not on any regular medications. During the ward round she starts to have a seizure. She continues to seize for 5 minutes before the consultant asks you to prescribe something to stop it.

What should you prescribe?

A.IV lorazepam

B.IV phenytoin

C.Oral lorazepam

D.Oral midazolam

E.Rectal diazepam

Answer:IV lorazepam

Explanation:

IV lorazepam is the first-line treatment in patients with early status epilepticus

Important for meLess important

The patient was seizing for at least 5 minutes, putting her in status epilepticus and requiring immediate treatment.

Although benzodiazepines are a good choice in general, guidelines state that lorazepam should be used first-line if available.

In a hospital setting, emergency oral medication should be avoided as patients are likely to have a cannula in place.

IV phenytoin is used for seizures associated with trauma of neurosurgery.

Question:

Luke is a 24-year-old patient that has had trouble with back pain for the past year. He describes the pain as a dull ache and occurs mostly in his lower back, sometimes waking him up in the early hours of the morning. Luke notes that he generally feels better while he is active throughout the day and is often worse when resting.

What is the most useful investigation in confirming the diagnosis of this patient?

A.Anti-neutrophil cytoplasmic antibodies (ANCAs)

B.Pelvic X-ray

C.Raised inflammatory markers

D.Spirometry

E.Positive HLA-B27

Answer:Pelvic X-ray

Explanation:

Diagnosis of ankylosing spondylitis can be best supported by sacro-ilitis on a pelvic X-ray

Important for meLess important

The correct answer is a pelvic X-ray. This is because the underlying diagnosis is ankylosing spondylitis. A pelvic X-ray allows for visualisation of the sacroiliac joints and can show if there is any inflammation present (sacroiliitis). This radiological evidence of sacroiliitis combined with one of the following from the history is usually enough to confirm a diagnosis of ankylosing spondylitis:

3 months of lower back pain that gets better with exercise and doesn't improve with rest

Limited movement of the lumbar spine

Limited chest expansion compared with what is expected for your age and sex

An MRI scan can also be used to show inflammation of the sacroiliac joints.

Anti-neutrophil cytoplasmic antibodies (ANCAs) can be associated with ankylosing spondylitis, but autoantibodies specific for ankylosing spondylitis have not been identified. Therefore they are not used in the diagnosis.

Raised inflammatory markers are non-specific and normal levels do not exclude a diagnosis.

Spirometry may reveal a restrictive lung defect, but this is not diagnostic.

HLA-B27 can be negative in 10% of patients with ankylosing spondylitis. Do not rule out a diagnosis of spondyloarthritis solely on the basis of a negative HLA‑B27 result.

Question:

A 14-year-old boy presents to the emergency department with a headache. On further questioning, he complains that the lights are hurting his eyes and on examination, the doctor notices a purpuric rash on his chest. He has a respiratory rate of 22/min, a heart rate of 140/min and a blood pressure of 80/60 mmHg

Which of the following tests should not be ordered in this patient?

A.Blood cultures

B.Serum lactate

C.Blood glucose

D.Lumbar puncture

E.Coagulation screen

Answer:Lumbar puncture

Explanation:

Meningococcal septicaemia is a contraindication to a lumbar puncture

Important for meLess important

This patient has presented with clear symptoms and signs of meningitis while his observations show that he is also septic. One of the contraindications of a lumbar puncture is meningococcal septicaemia

A coagulation screen and blood glucose are often used in secondary care in patients with suspected meningitis while blood cultures and serum lactate are performed as part of the sepsis 6.

Question:

A 49-year-old woman presents to rheumatology clinic for review of her recently diagnosed rheumatoid arthritis. The clinician uses a scoring system to guide the patient's management.

What scoring system is most likely used?

A.ABCD2

B.DAS28

C.GAD-7

D.Gleason score

E.MUST

Answer:DAS28

Explanation:

DAS28 is a measure of disease activity in rheumatoid arthritis

Important for meLess important

The DAS28 score is used to measure disease activity in rheumatoid arthritis. The DAS stands for disease activity score and the number 28 refers to the 28 joints assessed by the tool.

Question:

A 50-year-old man presents with symptoms of dysuria, urinary urgency as well as rectal pain.

On digital rectal examination, he has a tender prostate.

You suspect a diagnosis of acute prostatitis and plan on commencing empirical antibiotics pending urine culture results.

He mentions to you that he has glucose-6-phosphate dehydrogenase (G6PD) deficiency. He is not taking any regular medication and has no drug allergies.

Which of the following medications should be avoided?

A.Cefalexin

B.Ciprofloxacin

C.Co-amoxiclav

D.Fosfomycin

E.Trimethoprim

Answer:Ciprofloxacin

Explanation:

Ciprofloxacin is contraindicated in G6PD deficiency

Important for meLess important

Haemolytic reactions have been reported with quinolones (such as ciprofloxacin) in patients with G6PD deficiency and hence this antibiotic should be avoided. Note that nitrofurantoin, chloramphenicol and sulfonamides also have a high risk of precipitating haemolysis.

The other antibiotics are safe to use in G6PD deficiency.

In the context of treating this man's acute prostatitis, trimethoprim would arguably be the empirical antibiotic of choice as per NICE guidelines if a quinolone is contraindicated.

Question:

A 60-year-old man has been admitted to the respiratory ward with a community-acquired pneumonia and is on day 5 of treatment with amoxicillin and clarithromycin. He has developed profuse watery green diarrhoea that is foul-smelling along with crampy abdominal pain. He has been moved to an isolation room with barrier nursing and his clarithromycin has been stopped.

What investigation will confirm the most likely diagnosis?

A.Abdominal X-ray

B.Colonoscopy

C.Stool C. difficile antigen

D.Stool C. difficile toxin

E.Stool culture

Answer:Stool C. difficile toxin

Explanation:

C. difficile antigen positivity only shows exposure to the bacteria, rather than current infection

Important for meLess important

In a patient who develops diarrhoea following starting antibiotics, C. difficile must be considered. The presence of C. difficile toxin in the stool confirms a current C. difficile infection.

C. difficile antigen in the stool shows exposure to the bacteria, however it does not confirm a current infection.

Culture of C. difficile from the stool does not differentiate between toxin-producing bacteria causing infection and non-toxin-producing bacteria that are not causing symptoms.

Abdominal X-ray is a useful investigation as patients with C. difficile infection are at risk of toxic megacolon. However abdominal X-ray itself will not confirm the underlying diagnosis as there are other differentials for toxic megacolon.

Colonoscopy may reveal the presence of pseudomembranes lining the bowel wall in C. difficile colitis. However colonoscopy is not routinely performed unless investigating for other colonic disease such as inflammatory bowel disease.

Question:

You are working in the general medical clinic where a 42-year-old woman comes for review following a recent, short admission to hospital where she was treated for a paracetamol overdose. She has a past history of depression but denies any other previous problems.

During the review, she is found to have a manual blood pressure reading of 165/85 mmHg. Clinical examination of cardiovascular and respiratory systems are normal, as is urine dip and fundoscopy.

What should be your next course of management in relation to her blood pressure?

A.Start ramipril

B.Offer ambulatory blood pressure monitoring

C.Arrange to check blood pressure again following a two week interval

D.Start amlodipine

E.Screen for causes of secondary hypertension

Answer:Offer ambulatory blood pressure monitoring

Explanation:

In 2011 the National Institute for Clinical Excellence updated its 2006 guideline for the management of hypertension (see the link below for the quick reference guide). Within this guideline, the first line use of ambulatory blood pressure monitoring (ABPM) to confirm hypertension in those found to have an elevated clinic reading (> 140/90 mmHg) is emphasised. When using ABPM to confirm a diagnosis of hypertension, two measurements per hour are taken during the persons waking hours. The average value of at least 14 measurements are then used to confirm a diagnosis of hypertension.

Generally speaking, secondary causes of hypertension should be sought in; patients under 40 who lack traditional risk factors for essential hypertension, patients with other sings and/or symptoms of secondary causes, and patients with resistant hypertension. Although in reality the most common cause of secondary hypertension is hyperaldosteroneism, and as such a trial of an aldosterone antagonist such as spironolactone is often employed as both a therapeutic and diagnostic measure.

Drug treatment of essential hypertension can be summarised as follows, but for a more detailed explanation see the link below;

Step 1; Age <55 - ACE inhibitor. Age >55 or of black African or Caribbean origin - calcium channel blocker

Step 2; ACE inhibitor + calcium channel blocker

Step 3; ACE inhibitor + calcium channel blocker + thiazide-like diuretic

Step 4; consider further diuretic or beta-blockade or alpha blocker and seeking expert advice

Question:

A 60-year-old man presents to the emergency department with a sudden central chest pain. He has a past history of diabetes mellitus. On examination, he is alert but appears to be in pain and feeling nauseous. He has a pulse rate of 96 beats per minute and a blood pressure of 85/60 mmHg. ECG shows an ST-depression in the inferior leads.

Which of the following medications is contraindicated in this patient?

A.Aspirin

B.Clopidogrel

C.Fondaparinux

D.Nitrates

E.Metoclopramide

Answer:Nitrates

Explanation:

ACS: Nitrates are contraindicated in patients with hypotension (< 90 mmHg)

Important for meLess important

The patient has a low systolic blood pressure (< 90 mmHg) which is a contraindication in nitrates such as glyceryl trinitrate. Nitrates have vasodilator effects, including peripheral venodilating properties which result in decreased venous return, ultimately causing hypotension. Other contraindications of nitrates are bradycardia (< 50 beats per minute) and history of recent (24-48 hours) phosphodiesterase-5 inhibitor use (sildenafil, tadalafil). The most likely diagnosis in this patient is an acute coronary syndrome (ACS). Aspirin, clopidogrel, fondaparinux and metoclopramide are not contraindicated in this patient and can be considered in an ACS.

Question:

A 52-year-old man presents to the emergency department complaining of shortness of breath. On further questioning, he tells you he has a past history of attempted suicide and drank a significant amount of anti-freeze earlier that day.

His observations show a respiratory rate of 26 breaths/min, pulse of 73 beats/min, temperature of 37.1ºC, blood pressure of 126/84mmHg and oxygen saturations of 98%. You also notice he has sweet-smelling breath on examination.

What is the most appropriate initial management in the treatment of this patient's toxicity?

A.Activated charcoal

B.Fomepizole

C.Haemodialysis

D.Intravenous ethanol

E.Oral ethanol

Answer:Fomepizole

Explanation:

Ethylene glycol toxicity management - fomepizole. Also ethanol / haemodialysis

Important for meLess important

The correct answer is fomepizole.

This patient has presented with ethylene glycol toxicity, a compound commonly found in anti-freeze. This diagnosis is supported by his presentation of tachycardia and sweet-smelling breath. It may also present with altered mental state and seizures in more severe cases. NICE recommends ethylene glycol toxicity be initially managed with fomepizole.

Activated charcoal is incorrect as this should never be used in cases of poisoning with any kind of alcohol (of which ethylene glycol is one).

Haemodialysis is incorrect. NICE recommend this only be used in cases of severe metabolic acidosis or electrolyte disturbance, deteriorating renal failure or in cases otherwise requiring prolonged antidote use.

Both intravenous and oral ethanol are incorrect. Ethanol may be considered in cases of ethylene glycol toxicity, but NICE does not recommend it as initial management as ethanol can cause inebriation and requires regular monitoring, so fomepizole is preferred.

Question:

Which one of the following is least associated with constipation in children?

A.Dehydration

B.Anal fissure

C.Addison's disease

D.Hirschsprung's disease

E.Hypercalcaemia

Answer:Addison's disease

Explanation:

Question:

A 75-year-old lady presents with worsening fatigue, weight loss, and night sweats over the past two months. She has also noticed some lumps in her right groin, which seem to be enlarging and spreading although they do not hurt.

A lymph node biopsy shows large multinucleate cells with prominent eosinophilic nucleoli.

What is the most likely diagnosis?

A.Burkitt lymphoma

B.Sarcoidosis

C.Chronic lymphocytic leukaemia

D.Hodgkin's lymphoma

E.Tuberculosis

Answer:Hodgkin's lymphoma

Explanation:

Hodgkin's Lymphoma may present with asymmetrical spreading lymphadenopathy

Important for meLess important

The systemic symptoms of weight loss, night sweats, and fatigue could indicate a number of infective or malignant causes.

There is no history of infectious exposure or respiratory symptoms given, making TB an unlikely diagnosis.

Sarcoidosis would classically present with symmetrical lymphadenopathy

Chronic lymphocytic leukaemia, Burkitt lymphoma, and Hodgkin's lymphoma are all plausible from the history, however the spreading unilateral lymphadenopathy is a classic presentation of Hodgkin's Lymphoma and this is confirmed by the presence of Reed-Sternberg cells as described in the lymph node biopsy.

Question:

A 24-year-old woman presents to the emergency department concerned that she cannot find the threads for her intra-uterine device and cannot get an appointment at her GP. She denies any pain, pyrexia, or atypical discharge. She has a regular 28-day menstrual cycle, and her last menstrual period was 7 days ago.

She has a transvaginal ultrasound as the threads are not visualised on speculum examination. The device is visualised and threads are found to be drawn back into the cervical canal. The threads are brought back into view. There is also noted to be a 4cm multiloculated cyst with strong blood flow in the right ovary.

What is the most appropriate action?

A.Reassure patient as cyst is asymptomatic

B.Refer for biopsy of cyst

C.Refer for urgent laparotomy and cyst removal

D.Yearly transvaginal ultrasound to assess for cyst growth or changes

E.Reassure patient as cyst is < 5cm

Answer:Refer for biopsy of cyst

Explanation:

Complex (i.e. multi-loculated) ovarian cysts should be biopsied with high suspicion of ovarian malignancy

Important for meLess important

This patient has an incidental finding of a multiloculated cyst on the right ovary. Cysts that are found on ultrasound can be assessed using the IOTA criteria which help to classify cysts as being likely benign ('B rules') or malignant ('M rules'). M rules include:

Irregular, solid tumour.

Ascites.

At least 4 papillary structures.

Irregular multilocular solid tumour with largest diameter ≥100 mm.

Very strong blood flow.

Women with any of the 'M rules' present should be referred to the gynaecology oncology department. As the patient has a multiloculated cyst with a strong blood flow, she should be referred to the gynaecology oncology service for biopsy.

It would be incorrect to reassure the patient as the cyst is asymptomatic as there are concerning features (see the above 'M rules') on the ultrasound. Many ovarian cancers are asymptomatic until a late stage, and waiting for symptoms to occur would be negligent.

It would be incorrect to refer the patient for urgent laparotomy and cyst removal as the cyst may be benign and may not need urgent surgical intervention but removal in a non-urgent fashion. It is also important to note that laparoscopic cyst removal with an umbilical port is the most common operative management for ovarian cysts as it is minimally invasive.

A yearly transvaginal ultrasound can be considered in women who have simple ovarian cysts of 50–70 mm in diameter. As this patient does not have a simple cyst, she requires further investigation.

Patients with simple ovarian cysts that are less than 5 cm in diameter (50mm in diameter) generally do not require follow-up as these cysts are likely to be physiological and almost always resolve within 3 menstrual cycles. This patient does have a cyst that is less than 5cm in diameter, however, there are concerning features (such as it being multiloculated and strong blood flow to the site) that require further investigation.

Question:

A 30-year-old woman attends her GP practice with polydipsia and polyuria. She is currently 25 weeks pregnant and this is her first pregnancy. She has a body mass index (BMI) of 32 kg/m². Her GP decides to perform an oral glucose tolerance test upon suspecting gestational diabetes.

What result supports the above diagnosis?

A.2-hour glucose level 7.6 mmol/L

B.2-hour glucose level 7.2 mmol/L

C.Fasting glucose 4.9 mmol/L

D.Fasting glucose 5.5 mmol/L

E.Fasting glucose 5.9 mmol/L

Answer:Fasting glucose 5.9 mmol/L

Explanation:

Gestational diabetes can be diagnosed by either a:

fasting glucose is >= 5.6 mmol/L, or

2-hour glucose level of >= 7.8 mmol/L

'5678'

Important for meLess important

This patient is exhibiting symptoms of gestational diabetes- polydipsia and polyuria. She has a BMI of >30 kg/m², which is one of the risk factors for developing gestational diabetes, hence she needs an oral glucose tolerance test during 24-28 weeks of her pregnancy. Her fasting glucose of 5.9mmol/L confirms the diagnosis of gestational diabetes as it is >5.6 mmol/L.

An oral glucose tolerance test involves taking a fasting blood sugar test in the morning. The patient is not supposed to have any food or drink intake in the preceding 8-10 hours. A glucose drink will then be provided to the patient, and a blood sample will be taken. Another blood test will be taken 2 hours post-ingestion of the drink. The 2-hour glucose level would have to be >7.8mmol/L to diagnose gestational diabetes.

Question:

A 32-year-old woman presents to hospital with a 1-day history of painful blurred vision. She reports she had a similar episode a couple of years ago, which self-resolved. She is otherwise fit and well, aside from a background of vitamin D deficiency.

On examination, visual acuity in her right eye is 1/60, and she has some loss of colour vision in this eye. When testing eye movements, her right eye fails to adduct and her left eye displays horizontal nystagmus. Visual acuity of her left eye is 20/20.

Based on the most likely diagnosis, which of the following is the most definitive investigation?

A.CT head with contrast

B.CT head without contrast

C.Fundoscopy

D.MRI with contrast

E.Slit lamp examination

Answer:MRI with contrast

Explanation:

MRI with contrast should be used to view demyelinating lesions

Important for meLess important

This patient most likely has multiple sclerosis (MS). The patient is presenting with optic neuritis and internuclear ophthalmoplegia, which can both be caused by MS and are indeed a common first presentation. Female gender, being age 20-40 and vitamin D deficiency are all risk factors for MS. MS is an acquired, chronic, immune-mediated, inflammatory condition of the central nervous system. Optic neuritis is inflammation of the optic nerve causing sudden vision loss, colour blindness (mostly affecting the colour red) and retrobulbar pain. Internuclear ophthalmoplegia is damage to the medial longitudinal fasciculus which causes impaired lateral gaze. MRI with contrast is the correct answer, as this would allow visualisation of the demyelinating lesions.

CT head with or without contrast would not be indicated in investigating MS as it would only show non-specific changes and has a poor positive predictive value. CT head may show no changes but some plaques may cause contrast enhancement, whilst chronic MS may show brain atrophy.

Fundoscopy is an important examination to carry out in anyone presenting with eye symptoms. However, it is not the most appropriate diagnostic investigation for MS. Fundoscopy may show no changes or may show swelling of the optic disc. If the question had asked what the most appropriate 'next' investigation is, this would likely have been the correct answer.

Slit-lamp examination would be useful to investigate ocular causes of these symptoms, however, in this case, the ocular symptoms are most likely caused by the internuclear ophthalmoplegia and optic neuritis secondary to MS.

Question:

A 66-year-old woman presents with a 2-week history of fatigue, pain and stiffness in her hips and shoulders, low mood, and loss of appetite. The pain and stiffness is worst first thing in the morning. Blood tests are shown below:

Hb 126 g/L Male: (135-180)

Female: (115 - 160)

Platelets 288 \* 109/L (150 - 400)

WBC 9.8 \* 109/L (4.0 - 11.0)

ESR 78 mm/hr Men: < (age / 2)

Women: < ((age + 10) / 2)

CRP 56 mg/L (< 5)

A diagnosis of polymyalgia rheumatica is suspected and the patient is started on prednisolone. After 3 weeks, her symptoms have not improved.

What is the most appropriate next step?

A.Consider an alternative diagnosis

B.Continue on the same dose of prednisolone for a further 2 weeks

C.Increase dose of prednisolone

D.Replace oral prednisolone with IV methylprednisolone

E.Replace prednisolone with methotrexate

Answer:Consider an alternative diagnosis

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

The lack of response to steroids here suggests that polymyalgia rheumatica is not the correct diagnosis as patients typically respond dramatically to steroids so you should consider an alternative diagnosis. You should expect symptoms to begin to resolve on steroids within 2 weeks. Therefore, a different diagnosis should be considered. Differential diagnoses of polymyalgia rheumatica include rheumatoid arthritis, hypothyroidism, fibromyalgia, and polymyositis.

Continuing on the same dose of prednisolone for a further 2 weeks is unlikely to have any benefit as 2 weeks is long enough for the steroids to have an effect if this was polymyalgia rheumatica.

Increasing the dose of prednisolone is not correct as there should have been some response to the initial dose of prednisolone if this was polymyalgia rheumatica. Because there was no response, it would not be appropriate to increase the dose as it is unlikely to be polymyalgia rheumatica.

Replacing oral prednisolone with IV methylprednisolone is not correct as there should have been some response to the oral prednisolone if this was polymyalgia rheumatica, so an alternative diagnosis should be considered. IV methylprednisolone is sometimes used under specialists guidance for exacerbations of polymyalgia rheumatica.

Methotrexate is a 2nd line treatment option for polymyalgia rheumatica. However, the lack of response to steroids here suggests that polymyalgia rheumatica is not the correct diagnosis, so this is not the most appropriate next step.

Question:

A 4-year-old boy is admitted after developing a haemarthrosis in his right knee whilst playing in the garden. The following blood results are obtained:

Platelets 220 \* 109/l

PT 12 secs

APTT 78 secs

Factor VIIIc

activity Normal

What is the most likely diagnosis?

A.Antithrombin III deficiency

B.Von Willebrand's disease

C.Antiphospholipid syndrome

D.Haemophilia A

E.Haemophilia B

Answer:Haemophilia B

Explanation:

A grossly elevated APTT may be caused by heparin therapy, haemophilia or antiphospholipid syndrome. A normal factor VIIIc activity points to a diagnosis of haemophilia B (lack of factor IX). Antiphospholipid syndrome is a prothrombotic condition

Question:

A 65-year-old gentleman presents with a chronic cough. He has noticed a productive cough for several months with a few episodes of mild haemoptysis. He has also noticed mild weight loss and night sweats. He has traveled to India several time during the year. A sputum sample is positive for acid-fast bacilli. Before starting treatment, what examination should he be assessed for?

A.Visual acuity

B.Hearing

C.Sense of smell

D.Sense of taste

E.Eye movements

Answer:Visual acuity

Explanation:

The correct answer is visual acuity. This is a patient who is very likely to have tuberculosis and will need treatment with rifampicin, isoniazid, pyrazinamide and ethambutol. As ethambutol can cause optic neuritis it is advised that visual acuity should be assessed before starting treatment. Hearing and sense of smell are unlikely to be affected by the treatment and therefore routine assessment is not needed. The sense of taste should remain normal but the patient should be warned that secretions, including saliva, will change colour and that this is normal. Eye movements are unlikely to be affected as well.

Question:

A 24-year-old man is brought to the emergency department by ambulance with profound haematemesis. He was discharged three months ago following a small episode of haematemesis where he was found to have a posterior gastric ulcer and was treated endoscopically initially along with Helicobacter pylori eradication therapy. He had a follow up gastroscopy four weeks later which showed some active oozing from the ulcer although it appeared to be healing. Further endoscopic treatment was performed at the time. He reports that since then he has had two episodes of dark stools but they resolved on their own.

On examination he has a pulse rate of 143 bpm, a blood pressure of 98/61 mmHg and a capillary refill time of 4 seconds centrally. He has no past medical history and he only takes lansoprazole 30 mg daily regularly.

Given the history, which of the following treatments is most appropriate to manage this man's bleeding ulcer?

A.Laparotomy and surgical exploration

B.Repeat endoscopic treatment

C.Intravenous proton-pump inhibitor therapy

D.Insertion of a Sengstaken-Blakemore tube

E.Intravenous terlipressin

Answer:Laparotomy and surgical exploration

Explanation:

Surgery is indicated in patients with ongoing acute bleeding despite repeated endoscopic therapy

Important for meLess important

A repeat endoscopy given two previous treatments is unlikely to be effective and it would be more appropriate to proceed to surgical exploration and repair of the ulcer at laparotomy. The position of the ulcer suggests involvement of one of the large vessels supplying the foregut, either the right or left gastric arteries or the gastroduodenal artery, and therefore an urgent surgical procedure is more likely to be successful in arresting the bleeding.

While he will likely receive intravenous proton-pump inhibitors anyway, these alone are unlikely to be of any help given the severity of the bleeding.

Terlipressin and use of a Sengstaken-Blakemore tube are both treatments for oesophageal varices and would be of no benefit in treating this man's ulcer.

Question:

Jane is an 85-year-old woman who presents to her GP with ringing in her ears. This has been going on for some months now and is affecting her sleep. There is no associated headache and no focal neurology. On examination, both tympanic membranes appear normal.

Which of the following medications could be contributing to her symptoms?

A.Omeprazole

B.Atorvastatin

C.Naproxen

D.Clopidogrel

E.Senna

Answer:Naproxen

Explanation:

Aspirin and other NSAIDs taken in high doses can cause tinnitus

Important for meLess important

The diagnosis in this patient is that of tinnitus.

NSAIDs in large doses have been found to cause tinnitus.

Other medications which can cause tinnitus include loop diuretics and aminoglycosides.

Statins, omeprazole, clopidogrel and senna have not been found to cause tinnitus.

Question:

A 72-year-old gentleman presents to the respiratory clinic with worsening shortness of breath. On examination, he has obvious thoracic kyphosis. Assuming that this is the only cause of his breathlessness, which pulmonary function test results would you expect to see?

A.FEV1/FVC = 85%, reduced total gas transfer (TLCO) and increased transfer coefficient (KCO)

B.FEV1/FVC = 55%, reduced total gas transfer (TLCO) and increased transfer coefficient (KCO)

C.FEV1/FVC = 55%, reduced total gas transfer (TLCO) and reduced transfer coefficient (KCO)

D.FEV1/FVC = 85%, reduced total gas transfer (TLCO) and reduced transfer coefficient (KCO)

E.FEV1/FVC = 85%, increased total gas transfer (TLCO) and increased transfer coefficient (KCO)

Answer:FEV1/FVC = 85%, reduced total gas transfer (TLCO) and increased transfer coefficient (KCO)

Explanation:

Low total gas transfer with normal/ increased transfer coefficient: Extrapulmonary restrictive defect, or pneumonectomy

Important for meLess important

There are three components involved to get this question correct:

1. FEV1/FVC: FEV1 is the volume of air exhaled at the end of the first second of forced expiration, FVC is the maximum volume of air a person can exhale after a maximum inhalation given as much time as they require. The FEV1/FVC of a normal healthy lung is 70-80%. Thoracic kyphosis is a restrictive chest wall disease, which means that the air can leave the lungs very quickly, giving a high FEV1, however, due to poor lung expansion resulting in small lung volumes, the FVC is low. Hence the FEV1/FVC is higher than usual, making 85% the correct answer.

2. The total gas transfer (TLCO) is an overall measure of gas transfer for the lungs from the alveoli into the capillaries and reflects how much oxygen is taken up into the red cells. In thoracic kyphosis, this is typically normal or reduced. This is reduced because the chest-wall disease can cause incomplete alveolar expansion, which results in less gas being present in the alveoli and available for gas exchange.

3. KCO is TLCO divided by the alveolar volume, which makes it a measure of how efficient gas exchange is in relation to the alveolar-capillary surface to volume ratio. In chest-wall disease, KCO is increased because there is

a small alveolar volume, so in proportion to the alveolar volume, there is increased pulmonary blood flow which increases the relative surface area to volume ratio.

Question:

You are the doctor on the ward and you are treating a 76-year-old male. On the ward round the consultant asks you to re-write their drug chart because some their medications carry too great a risk given the patient's past medical history.

Which of the following is the most appropriate tool to use in this scenario?

A.HAS-BLED

B.MELD

C.PERC

D.START

E.STOPP

Answer:STOPP

Explanation:

The STOPP tool identifies medications where the risk outweighs the therapeutic benefits in certain conditions

Important for meLess important

The Screening Tool of Older Person's Prescriptions (STOPP) aims to improve the appropriateness of prescriptions, reduce the occurrence of adverse events and reduce drug costs. It looks at which drugs are potentially inappropriate in a patient who is 65 years or older.

START is the Screening Tool to Alert doctors to the Right Treatment. It looks at which medications should be used for certain conditions in patients 65 years or older.

MELD is the Model for End-stage Liver Disease and it stratifies the severity of end-stage liver disease when planning for a transplant.

PERC is the Pulmonary Embolism Rule-out Criteria, an initial screening tool to assess if the patients could be having a pulmonary embolism.

HAS-BLED is a score given to assess the risk of major bleeding in patients who are taking anticoagulants.

Question:

An 18-month-old girl is brought to an urgent GP appointment with an acute limp. She is coryzal but apyrexial. There is no history of trauma. She is able to weight bear.

What is the correct management?

A.Routine paediatric referral

B.Urgent X-ray

C.Urgent hip ultrasound scan

D.Urgent specialist assessment

E.Watchful waiting with safety netting advice

Answer:Urgent specialist assessment

Explanation:

Urgent assessment should be arranged for a child < 3 years presenting with an acute limp

Important for meLess important

Urgent specialist assessment is the correct answer. NICE guidance states transient synovitis is rare in this age group and septic arthritis more common - an urgent specialist assessment is therefore indicated for a child < 3 years with an acute limp.

Routine paediatric referral is incorrect. The immediate concern that needs to be ruled out in this scenario is septic arthritis, and a routine referral would be an inappropriate timescale for this urgent problem.

Urgent x-ray is incorrect. A more comprehensive specialist examination is required than a simple X-ray, which would not be sufficient to exclude serious pathology such as septic arthritis.

Urgent hip ultrasound scan is incorrect. This child is too old for an ultrasound to be appropriate. Hip ultrasounds are performed if there are concerns regarding development dysplasia of the hip.

Watchful waiting with safety netting advice may be appropriate if the child was older than 3, with the absence of any other concerning signs, if transient synovitis of the hip was suspected. However, this is not appropriate for a child of this age.

Question:

A 23-year-old lady presents to the GP with her partner, who is concerned about her recent behaviour. She has had several episodes where she becomes suddenly tearful, followed by a period of unresponsiveness during which she wanders the house, apparently unaware of what she is doing. She then sleeps for around 2 hours.

She has no past medical history of note and is otherwise well.

What is the most likely diagnosis?

A.Borderline personality disorder

B.Focal aware seizures

C.Cannabis usage

D.Focal seizures with impaired awareness

E.Absence seizures

Answer:Focal seizures with impaired awareness

Explanation:

Patients may display automatism during a complex focal seizure

Important for meLess important

Emotional disturbance and automatism are features of focal seizures with impaired awareness, which are followed by a post-ictal state during which the patient may be tired. Note that until 2017 these were known as complex focal seizures. Using the recently updated nomenclature, this could be more precisely described as a focal emotional seizure with impaired awareness and automatism.

Borderline personality disorder does involve sudden emotional outbursts and can involve periods of dissociation. However, the very stereotyped nature of these attacks and the fact that they are followed by sleep suggests they are more neurological in origin.

Cannabis usage could also replicate the emotional and dissociative symptoms, and cause drowsiness, but the stereotyped nature of these attacks makes a neurological cause more likely.

Focal aware seizures would not involve conscious impairment, and absence seizures would not involve gross motor movement. Both would be followed by a rapid recovery without sleepiness.

Question:

A female patient has a body mass index (BMI) of 28 kg/m². Which definition correctly describes her BMI value?

A.Normal BMI

B.Overweight

C.Obese class 1

D.Obese class 2

E.Obese class 3

Answer:Overweight

Explanation:

BMI = weight (kg) / height (m) squared

Description BMI range (kg/m²)

Underweight < 18.49

Normal 18.5 - 25

Overweight 25 - 30

Obese class 1 30 - 35

Obese class 2 35 - 40

Obese class 3 > 40

Question:

You are asked to see a 31-year-old woman on the labour ward who has developed a high fever (39.1ºC) 2 days post-partum. She complains of dysuria, and frequency, you suspect a urinary tract infection. She is choosing to breast feed, has severe anaphylactic reactions to penicillins. Which antibiotic would be appropriate?

A.Nitrofurantoin

B.Trimethoprim

C.Cefaclor (a cephalosporin)

D.Ciprofloxacin

E.Fosfomycin

Answer:Trimethoprim

Explanation:

Trimethoprim is present in milk but is not known to be harmful for short term use. This would be an appropriate choice.

Nitrofurantoin should be avoided when breastfeeding - small amounts in milk but can cause haemolysis in G6PD infants.

Cefaclor is safe to use when breastfeeding but should be avoided in this instance due to history of anaphylaxis with penicillins as cephalosporins have cross-sensitivity with beta-lactams (penicillin).

Ciprofloxacin should be avoided when breast feeding.

Fosfomycin may be used for uncomplicated lower urinary tract infections caused by multiple resistant bacteria when other antibacterials cannot be used, but this is an unlicensed use.

Source: BNF

Question:

A 30-year-old woman was diagnosed with gestational diabetes 2 weeks ago. This is her second pregnancy and she is progressing well. Unfortunately, she has been suffering from nausea and vomiting throughout her pregnancy. In her previous pregnancy, she has trialled on metformin which exacerbated her nausea and vomiting and caused frequent loose stools. She refuses to retake metformin.

She trials changes in her diet and lifestyle for 2 weeks.

Her blood results are as follows:

Time Fasting plasma glucose Normal range

On diagnosis 6.7 mmol/L <5.6mmol/L

Two weeks later 6.8 mmol/L <5.3mmol/L

What is the next step in her management?

A.Commence anti-emetic medications

B.Commence insulin

C.Commence metformin

D.Offer a 2 week trial of diet and exercise changes

E.Referral to local gestational diabetes support group

Answer:Commence insulin

Explanation:

In gestational diabetes, if blood glucose targets are not met with diet/metformin then insulin should be added

Important for meLess important

Commence insulin is the correct answer. Current NICE guidance states that if metformin is contraindicated or unacceptable to the patient and plasma glucose targets are not met then insulin should be offered.

Pregnant women with any form of diabetes should aim for their plasma glucose levels to be below the following target levels:

Plasma glucose Target value

Fasting 5.3 mmol/L

One hour after a meal 7.8 mmol/L

Two hours after a meal 6.4 mmol/L

Commence anti-emetic medications is an incorrect answer. Anti-emetic medication may be a reasonable adjunct, however, this will not manage her gestational diabetes, and so, is not the most relevant option here.

Commence metformin is an incorrect answer. Metformin is not acceptable to the patient, so compliance would be low, putting her and her baby at risk of complications of diabetes. If plasma glucose is not controlled within two weeks, it is appropriate to offer medications alongside lifestyle changes. The first-line medication is metformin, but if this is not acceptable to the patient, insulin should then be offered.

Offer a 2 week trial of diet and exercise changes is incorrect as this patient now requires medication. If a patient is found to have a fasting plasma glucose of between 6.0 and 6.9 mmol/L without complications (e.g. macrosomia or hydramnios), they will be offered a trial of diet exercise for 2 weeks. If blood glucose targets are not met, medication will be started.

Referral to local gestational diabetes support group is an incorrect answer. A referral to a local support group should be made, but after you have immediately managed her diabetes.

Question:

A 59-year-old man visits his GP after having an outpatient ultrasound scan to investigate chronic right upper quadrant pain. The ultrasound shows a thin-walled gallbladder with multiple calculi and an incidental 4.6cm diameter abdominal aortic aneurysm.

Which of the following options is the most appropriate management for his abdominal aortic aneurysm?

A.Urgent open aneurysm repair

B.Urgent endovascular aneurysm repair (EVAR)

C.Elective endovascular aneurysm repair (EVAR)

D.Surveillance CT angiogram in 6 months

E.Surveillance ultrasound scan in 3 months

Answer:Surveillance ultrasound scan in 3 months

Explanation:

Asymptomatic aneurysms smaller than 5.5cm = observe

Important for meLess important

This gentleman has an asymptomatic aneurysm which is less than 5.5 cm in diameter. The risk of it spontaneously rupturing is low and therefore it does not need surgery as the risks of the surgery are higher than observing.

The standard follow up scan for unruptured aneurysms is an ultrasound scan to assess the diameter. The scanning interval is dictated by the size of the aneurysm. If it is below 4.4 cm then scans are done yearly, whereas as in this case, when the aneurysm is between 4.4 cm and 5.5 cm in diameter the scans are done every 3 months.

A CT angiogram would be used for post-operative surveillance but the radiation load is too high to be used in unruptured aneurysm surveillance given that scans may be required every 3 months.

Question:

A 3-week-old neonate develops jaundice and feeding difficulties. His vital signs are normal, and an ECG shows no abnormality. On examination, there are no dysmorphic features or rashes.

He was delivered at 39 weeks by caesarean section following an uncomplicated pregnancy. His APGAR score was 7 and 8 at 1 and 5 minutes after delivery. His family history is significant for his father and older brother who both suffer from a condition causing transient, asymptomatic episodes of jaundice.

Blood tests reveal the following:

Conjugated bilirubin 72 µmol/L (3 - 17)

Unconjugated bilirubin 10 µmol/L (3 - 17)

ALP 134 u/L (30 - 100)

ALT 58 u/L (3 - 40)

γGT 197 u/L (8 - 60)

What is the most likely diagnosis?

A.Alagille syndrome

B.Biliary atresia

C.Dubin-Johnson syndrome

D.Gilbert's syndrome

E.Rotor syndrome

Answer:Biliary atresia

Explanation:

Biliary atresia typically presents in the first few weeks of life with jaundice, appetite and growth disturbance

Important for meLess important

Biliary atresia causes fibrous obstruction of the extra-hepatic biliary ducts that can progress to liver failure. The presentation typically includes jaundice with high conjugated bilirubin, growth and feeding disturbance, and hepatomegaly with raised liver transaminases (GGT most raised).

Alagille syndrome is a genetic condition primarily affecting the liver and the heart. Typical facial features include a broad forehead and pointed chin, and ECG demonstrates cardiac abnormalities. Diagnosis with genetic testing for mutations in JAG1 gene.

Dubin-Johnson and Rotor syndromes both case jaundice and elevated conjugated bilirubin. However, liver function derangement is not present. Both of these conditions are autosomal recessive.

Gilbert's syndrome causes jaundice and elevated unconjugated bilirubin. Furthermore, liver function derangement is not found.

Question:

A 66-year-old man reports that he is struggling to walk his dog as he finds that his calves are intensely painful after about 10 mins. A lower limb examination is normal aside from absent posterior tibial and dorsalis pedis pulses. His past medical history includes a myocardial infarction 3 years ago and he also smokes 30/day.

Given the likely diagnosis, which one of the following medications should he be prescribed daily for secondary prevention of cardiovascular disease?

A.Clopidogrel 300mg

B.Atorvastatin 40mg

C.Clopidogrel 75mg

D.Simvastatin 20mg

E.Aspirin 300mg

Answer:Clopidogrel 75mg

Explanation:

All patients with peripheral arterial disease should take clopidogrel and atorvastatin

Important for meLess important

This patient has peripheral vascular disease and therefore should be prescribed medications for the secondary prevention of cardiovascular disease (CVD(. This would include antiplatelet treatment of clopidogrel 75 mg (if clopidogrel 75 mg is contraindicated or not tolerated aspirin 75mg can be used). A high-intensity statin such as atorvastatin 80 mg should also be prescribed as part of secondary prevention of CVD.

Clopidogrel 300mg and aspirin 300mg are loading doses and should not be prescribed daily. The statin that is recommended by NICE for secondary prevention of CVD is atorvastatin 80mg.

Question:

A 50-year-old man presents to the GP clinic with a 2-day history of nausea and dizziness. He says that this is intense but not debilitating. The dizziness is constant but exacerbated by head movement. He states that the dizziness is affecting his balance. Upon further questioning, he revealed he had a cough over a week ago, which was resolved without issue.

On examination, you note horizontal nystagmus. Hearing is normal bilaterally.

What oral medication should the GP prescribe to alleviate this individual’s symptoms?

A.Chlorpromazine

B.Fluphenazine

C.Ganciclovir

D.Prednisolone

E.Prochlorperazine

Answer:Prochlorperazine

Explanation:

Prochlorperazine may be useful in the acute phase of vestibular neuronitis, but should be stopped after a few days as it delays recovery by interfering with central compensatory mechanisms

Important for meLess important

Prochlorperazine is the correct option. This patient, presenting with nausea/vomiting, vertigo with no hearing loss and horizontal nystagmus with a history of upper respiratory tract infection has vestibular neuronitis (also known as vestibular neuritis). According to NICE guidelines, the rapid relief of severe nausea/vomiting associated with vertigo can be achieved through buccal/intramuscular prochlorperazine or intramuscular cyclizine. For less severe cases, an oral course of prochlorperazine or an antihistamine such as cinnarizine, cyclizine or promethazine teoclate is suitable.

Prochlorperazine exerts its anti-emetic effects through the antagonism of dopamine D2 receptors, and therefore also has antipsychotic effects. An oral prochlorperazine course of up to 3 days is recommended to alleviate symptoms of nausea, vomiting and vertigo. It is recommended to minimise time on treatment as the drug can hinder the brain’s ability to compensate for the vestibular injury, which it does by assessing signals from both damaged and undamaged vestibular organs.

The other options are incorrect.

Chlorpromazine is incorrect. Although chlorpromazine is also a typical antipsychotic like prochlorperazine, there is no recommendation for its use by NICE for the symptomatic treatment of vestibular neuritis.

Fluphenazine is also incorrect for the same reason; it is also a typical antipsychotic but there is no recommendation for its use in vestibular neuronitis by NICE.

Ganciclovir is incorrect as there is no NICE recommendation for the use of antivirals, given that there is insufficient evidence to support their effectiveness.

Prednisolone is incorrect as there is no NICE recommendation for the use of corticosteroids, given that there is insufficient evidence to support their effectiveness.

Question:

A 45-year-old patient has been on prednisolone for 4-months to treat their polymyalgia rheumatica. You are worried about the patient developing osteoporosis and so are considering starting them on a bisphosphonate prophylactically.

Which of the following SINGLE findings would prompt you to initiate this drug?

A.Family history of osteoporosis

B.T-score of -1.7

C.Low BMI

D.Alcohol intake of 24 units per week

E.Smoker

Answer:T-score of -1.7

Explanation:

Offer prophylactic bisphosphonates to those with a T-score < -1.5 if they are on steroids / going to be on steroids for 3 or more months (even if <65 years-old)

Important for meLess important

Patients over the age of 65 years or those who've previously had a fragility fracture should be offered bone protection if they are on steroids.

For all patients under the age of 65, they should have their T-score measured and should then be subsequently screened for low bone density. A T-score <-1.5 is an indicator to offer bone protection.

In patients under the age of 65 the remaining features (smoker, high alcohol intake, low BMI, family history) are all indicators to screen for osteoporosis. They would not, alone, be indicators to offer bone protection.

Question:

A 48-year-old man presents to the Emergency Department with right-sided flank pain radiating to the back which had developed over the past 10 days. There is no history of trauma or injury to the area.

He is a known intravenous drug user who has been commenced on a methadone rehabilitation programme around 2 weeks previously. He has no fixed abode and spends his night between various hostels.

He has no significant past medical history. Although has previous admissions following various injuries such as stabbings.

His observations are: heart rate 99/min, respiratory rate 16/min, blood pressure 98/75 mmHg, temperature 37.7º, Sats 99% on air.

On examination, he appears to be in pain and is lying flat on his back with his knees flexed. He is very tender over his back at L1 and L2 levels. He actively resists passive movement from his position of comfort and is unable to weight bear due to pain.

Blood tests show raised inflammatory markers, lumbar spine and pelvic x-ray show no abnormality.

He is requesting analgesia for his pain.

What is the most likely cause of this man's symptoms?

A.Atypical femoral neck fracture

B.Discitis

C.Malingering

D.Vertebral osteomyelitits

E.Psoas abscess

Answer:Psoas abscess

Explanation:

Psoas abscess is a collection within the psoas muscle. It is commonly missed or diagnosed late due to its numerous differential diagnoses and a high index of suspicion is required in those with risk factors. The psoas muscle extends from T12 - L5 caudally, inserting on the lesser trochanter of the femur. It can be of primary origin or a result of spread from local sources such as pyelonephritis or inflammatory bowel disease. Left untreated it can lead to septicaemia and multi-organ failure.

The most common causative organism is staphylococcus or streptococcus and risk factors for developing a primary abscess are related to causes of immunosuppression such as HIV, cancer and diabetes. Being an intravenous drug user, previous surgery and tuberculosis also predispose to the condition.

Pain is usually non-specific initially but increases over several days. It is worth suspecting if there is no history of trauma or injury. Fever may be present but not always. Psoas irritation is evidenced when the position of comfort is the patient lying on their back with slightly flexed knees. Inability to weight bear or pain when moving the hip is usually evident.

Investigations should include bloods to evidence infection and a complete septic screen if systemic inflammatory response syndrome criteria are met. Plain radiographs are not useful for identifying an abscess although are useful for ruling out differentials. CT abdomen may identify the abscess but MRI is the gold standard.

Management is with antibiotic therapy +/- drainage. Alongside managing any predisposing risk factors if appropriate.

Question:

You are an FY2 in General Practice and have reviewed routine blood for a 51-year-old man patient, shown below. The patient is currently well in themselves, with no infective or constitutional symptoms.

Hb 130 g/L Male: (135-180)

Female: (115 - 160)

Platelets 325 \* 109/L (150 - 400)

WBC 12.0 \* 109/L (4.0 - 11.0)

Neutrophils 9.0 \* 109/L (2.0 - 7.5)

Eosin 0.3 \* 109/L (0.0 - 0.4)

Na+ 137 mmol/L (135 - 145)

K+ 3.7 mmol/L (3.5 - 5.0)

Bicarbonate 25 mmol/L (22 - 29)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 95 µmol/L (55 - 120)

Which of the following medications may account for these blood test results?

A.Prednisolone

B.Furosemide

C.Gold

D.Penicillin

E.Ibuprofen

Answer:Prednisolone

Explanation:

Glucocorticoid treatment can induce neutrophilia

Important for meLess important

Glucocorticoids can increase the white cell count upon their initiation, predominantly as neutrophils. This is due to demargination of neutrophils from the endovascular lining, delayed migration of polymorphonuclear leukocytes into the tissue, and release of immature neutrophils (bands) from the bone marrow.

Furosemide is known to cause drug-thrombocytopaenia and can cause electrolyte disturbances due to loss of renal excretion. The platelets and renal function are normal here and so furosemide is unlikely to be the offending agent.

Gold can lead to drug-induced thrombocytopenia, renal impairment, heavy proteinuria and skin rashes. The patient here is asymptomatic and there is no suggestion of renal impairment or thrombocytopaenia.

Penicillin can cause thrombocytopenia but does not typically affect the neutrophil count. There is no suggestion of prednisolone associated impairment here.

Ibuprofen as with other non-steroidal anti-inflammatory medications can cause renal impairment through interstitial nephritis. Interstitial nephritis leads to renal impairment with blood results often showing a raised eosinophils and may show raised neutrophils. In this context, the patient has a normal renal function and there is no rise in eosinophils. Ibuprofen can also cause thrombocytopenia which is not seen in this question.

Question:

A 34-year-old lady presents to the GP with worsening nausea and fatigue over a 2 week period. On examination, there is a yellow tinge to the sclera of her eyes. She lives in a remote fishing village and consumes a diet high in seafood. She does not smoke or consume alcohol. She does not report any weight loss or other constitutional features. Her LFTs are as follows:

Bilirubin 20 µmol/l

ALP 160 u/l

ALT 550 u/l

γGT 30 u/l

Albumin 35 g/l

Other routine blood results are within normal limits.

What is the most likely cause of her symptoms?

A.Gilbert's syndrome

B.Pancreatic adenocarcinoma

C.Hepatitis B

D.Hepatitis C

E.Hepatitis E

Answer:Hepatitis E

Explanation:

Hepatitis E is associated with faecal-oral spread, commonly affecting shellfish and pork products. Blood results show elevated bilirubin and significant transaminitis.

This lady has no constitutional symptoms, making a pancreatic adenocarcinoma less likely. As well, pancreatic cancer rarely occurs before age 40.

Hepatitis B and C are blood-borne viruses and there is no relevant history in this lady's case.

Question:

A 55-year-old man presents with intermittent leg pain which is exacerbated by movement and relieved by rest. He denies recent injury or illness.

His past medical history includes hypertension for which he takes amlodipine 5mg once daily. He is a smoker of 20 cigarettes/day and his BMI is 30 kg/m².

On examination, there is no obvious deformity of his lower limbs. His calves are soft and non-tender bilaterally with no evidence of oedema. The ankle-brachial pressure index is measured to be 0.8.

He is started on atorvastatin 80mg once daily.

What additional treatment should be prescribed for this patient?

A.Aspirin

B.Clopidogrel

C.Low molecular weight heparin

D.Metformin

E.Ramipril

Answer:Clopidogrel

Explanation:

All patients with peripheral arterial disease should take clopidogrel and atorvastatin

Important for meLess important

This patient is experiencing intermittent claudication, characterised by the onset of lower leg pain on exertion and relieved by rest. It is important to differentiate intermittent claudication from critical limb ischaemia that is characterised by pain at rest. Intermittent claudication is a symptom of peripheral vascular disease for which the most common cause is atherosclerosis. An ankle-brachial pressure index of < 0.9 is suggestive of PAD, with an index < 0.5 suggesting critical limb ischaemia. There are several of risk factors in this patient's history including smoking, hypertension and obesity. NICE guidelines currently recommend that all patients with peripheral vascular disease initiate treatment with clopidogrel and atorvastatin.

Aspirin is a common antiplatelet drug used in the treatment of angina and often makes up dual-antiplatelet therapy in patients who cannot take anticoagulants. However, it is not the first-line antiplatelet in the treatment of PAD. Rather, it should be used if clopidogrel is not tolerated.

Low molecular weight heparin would be indicated if the underlying diagnosis was a deep vein thrombosis. Signs of a DVT include unilateral calf pain and swelling associated with tenderness along the course of the deep venous system.

Metformin would be indicated if there this patient had raised blood sugars, suggesting a diagnosis of diabetes mellitus. Patients with vascular risk factors such as smoking, hypertension and obesity should have their glucose regularly checked. Without a HbA1c or blood glucose reading, it would not be appropriate to start metformin.

Ramipril would be indicated if this patient needed tighter blood pressure control. However, his current blood pressure reading is satisfactory. Furthermore, he is currently taking amlodipine 5mg. Before initiating new antihypertensive medication, the current therapy's dose should be optimised.

Question:

A 44-year-old- female presents with a painful ring finger. She reports being bitten by an insect on the same hand a few days previously. On examination, she has swelling of the entire digit that stops at the distal palmar crease and holds the finger in strict flexion. There is pain on palpation and passive extension of the digit. What is the most likely diagnosis?

A.Gout

B.Pseudogout

C.Cellulitis

D.Inflammatory arthritis

E.Infective flexor tenosynovitis

Answer:Infective flexor tenosynovitis

Explanation:

Kanavel’s signs of flexor tendon sheath infection are fixed flexion, fusiform swelling, tenderness and pain on passive extension

Important for meLess important

This patient is showing all four signs of flexor tendon sheath infection (Kanavel's signs). Gout and pseudogout are mono-arthropathies and will only affect one joint rather than the whole digit. Inflammatory arthritis tends to have a more insidious presentation. Cellulitis is high on the differential, but given the examination signs, a flexor tendon sheath infection is more likely.

Infective tenosynovitis is a surgical emergency and requires prompt recognition and treatment. If left untreated there will be irreparable damage to the flexor tendons and loss of function to the digit. If detected early, medical management with antibiotics and elevation may be sufficient, but patients will likely require surgical debridement.

Question:

A 35-year-old woman is bought to see you by her sister. Her sister is concerned as she lacks close friends other than her sister and mother and often displays odd or eccentric behaviour, speech, and beliefs. The patient believes that she is psychic and is fascinated with the paranormal. Her sister says that she has been like this since childhood, and she has only bought her to get help now as she is moving to Australia and is worried about how the patient will manage alone with their mother.

What kind of personality disorder might this patient have?

A.Antisocial personality disorder

B.Avoidant personality disorder

C.Paranoid personality disorder

D.Schizoid personality disorder

E.Schizotypal personality disorder

Answer:Schizotypal personality disorder

Explanation:

Patients diagnosed with schizotypal personality disorder lack close friends other than family and can have odd or eccentric behaviour, speech and beliefs

Important for meLess important

Schizotypal personality disorder is the correct answer. Patients diagnosed with schizotypal personality disorder may lack close friends other than family and can have odd or eccentric behaviour, speech, and beliefs. They may display magical thinking (the false belief that unrelated events are connected despite no evidence of a causal link), ideas of reference (the false belief that innocuous events relate to oneself,) unusual perceptual disturbances, paranoid ideation, inappropriate affect, and odd but coherent speech.

Paranoid personality disorder is incorrect. A person with a paranoid personality disorder may display hypersensitivity, have an unforgiving attitude when insulted, question the loyalty of friends, be reluctant to confide in others, be preoccupied with conspirational beliefs, and have an unwarranted tendency to perceive attacks on their character.

Schizoid personality disorder is incorrect. A person with a schizoid personality disorder may display indifference to praise and criticism, prefer time alone, lack interest in companionship or sexual interactions, and have few interests and few friends other than family.

Antisocial personality disorder is incorrect. A person with an antisocial personality disorder may display impulsiveness, irresponsible behaviour, repeated deception (lying, use of aliases, conning others for personal gain), lack of respect for the law or social norms, irritability and aggressiveness, lack of remorse and reckless disregard for the safety of themselves or others.

Avoidant personality disorder is incorrect. A person with an avoidant personality disorder may avoid work and relationships due to fear of criticism or rejection, avoid taking risks due to fear of embarrassment, be preoccupied with fears of criticism or rejection in social situations, and feel socially isolated whilst craving social contact.

Question:

A 39-year-old patient is recovering on the ward post-renal transplant for Alport's syndrome. The patient had undergone a previous renal transplant 16-years earlier, which had functioned until 3-months prior to this surgery.

At 2-hours post-surgery, the nurse notices that the patient's urine output drops from 100ml per hour (1-hour post-transplant) to 20ml/ hour (2-hours post-transplant), prompting a duplex ultrasound scan of her abdomen.

The results of the scan show a grossly enlarged kidney, with a peripheral perfusion deficit and prominent renal pyramids, suggesting acute renal failure. The transplant team suspect graft failure.

Based on the above information, what is the most appropriate management option?

A.Ciclosporin

B.Fluid resuscitation

C.Graft removal

D.Prednisolone

E.Tacrolimus

Answer:Graft removal

Explanation:

No treatment is possible for hyperacute transplant rejection - the graft must be removed

Important for meLess important

Hyper-acute transplant rejection is a rare complication which occurs within minutes to hours of transplant, due to pre-existing antibodies against ABO or HLA. These antibodies can form in patients who have experienced a previous transplant, transfusion or pregnancy. In today's practice, this situation is very rare as these antibodies are usually excluded by a pre-transplant crossmatch. The only treatment for this situation is graft removal.

Ciclosporin is an immunosuppressant used post-transplants to reduce the risk of graft-versus-host disease and graft rejection. It can be used in acute graft rejection. Immunosuppression is started immediately after transplant, and so may already have been administered in this patient. However, this will not be effective to prevent graft failure.

Fluid resuscitation would not solve the graft rejection in this case.

Steroids, such as prednisolone, can be used to treat acute graft failure. However, they will not be effective to treat this hyper-acute graft failure, as the graft never truly worked.

As with ciclosporin, tacrolimus can be used to reduce the risk of graft failure. However, this situation would not benefit from immunosuppression.

Question:

A mother comes to see you with her 3-year-old son who suffers from eczema. She reports that his eczema has become a lot worse this week. He has developed widespread itchy blisters all over his body: including his face, torso, arms and legs. In addition to this, he is not acting like his usual self- eating and drinking less than usual and not playing with his favourite toys. He also has a temperature of 39ºC.

Which one of the following is the most appropriate?

A.Reassure trial of dermovate and review in 3 days

B.Refer urgently to hospital

C.Advise calamine lotion and review in 3 days

D.Advise that this is a self limiting illness and he should have regular paracetamol

E.Advise a course of flucloxacillin and review in 3 days

Answer:Refer urgently to hospital

Explanation:

Eczema herpeticum is a serious condition that requires IV antivirals

Important for meLess important

This child has eczema herpeticum which is a medical emergency. This child needs urgent admission and treatment with antivirals.

Eczema herpeticum usually begins with a cluster of itchy and painful blisters. It can affect any site but is most often seen on the face and neck. Blisters can occur in normal skin or on skin that is affected by atopic dermatitis or another skin disease. The patient is unwell, swollen lymph nodes and a fever.

All of the other options are incorrect as they would delay an urgent review.

Question:

A 41-year-old female is diagnosed as having Trichomonas vaginalis. What is the most appropriate management?

A.Clotrimazole pessary

B.Oral doxycycline

C.Advice regarding hygiene and cotton underwear

D.Oral itraconazole

E.Oral metronidazole

Answer:Oral metronidazole

Explanation:

Trichomonas vaginalis - treat with oral metronidazole

Important for meLess important

Question:

The junior doctor is called to see Mary, a 55-year-old female on the medical ward with shortness of breath.

Mary was initially admitted for a lower gastrointestinal bleed. She had a blood transfusion this morning, following which she gradually became increasingly short of breath. She denies any fevers, chills or pain. On examination:

Respiratory rate 14/ min

Oxygen saturation 94% (on room air)

Temperature 36.9°C

No angioedema/ rashes

Bilateral crackles at lung bases on auscultation

Investigations show negative Coombs test and a normal full blood count.

What is the appropriate pharmacological management for Mary’s presentation?

A.Intramuscular adrenaline

B.Intravenous immune globulin

C.Intravenous loop diuretic

D.Oral antibiotic

E.Oral antihistamine

Answer:Intravenous loop diuretic

Explanation:

Transfusion-associated circulatory overload should be treated with intravenous loop diuretics

Important for meLess important

Mary had a blood transfusion and is now presenting with shortness of breath. Her history, examination and investigations suggest that her presentation is not likely immune-mediated nor infective. Crackles at bilateral lung bases suggest that Mary likely has transfusion-associated circulatory overload. She should be treated intravenous loop diuretics.

Intramuscular adrenaline is the treatment of choice for an anaphylactic transfusion reaction.

Intravenous immune globulin is used for post-transfusion purpura. Mary does not have any rashes.

Oral antibiotic should only be given in the setting of infection, e.g. bacterial pneumonia. Mary does not demonstrate any signs of infection, therefore antibiotics would be inappropriate here.

Oral histamine (e.g. diphenhydramine) is used for urticarial/ allergic transfusion reactions. This is not the case in Mary as she does not have any rashes.

Question:

You speak with a 28-year-old care assistant who works in the local residential care home. She has a sore throat, fever and rash. She requests antibiotics as she is eager to get back to work for her night shifts in 2 days. Her 3-year-old son recently had a course of antibiotics following a similar presentation.

On examination, she has a fine rough feeling rash on her torso and her tongue appears red and swollen. Her observations are normal.

Given the likely diagnosis, you start her on antibiotics.

What advice from the options below would be most appropriate to give?

A.Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent but agrees to not go into work, confirm that you will not inform the HPA

B.Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent, confirm that you will still need to inform the HPA

C.Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent, respect her wishes, as she has capacity and confirm that you will not inform the HPA

D.Ask her to inform work and discuss with occupational health when to return

E.Ask her to inform work and the Local Health Protection Agency (HPA) and discuss with them when to return

Answer:Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent, confirm that you will still need to inform the HPA

Explanation:

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

Important for meLess important

The correct answer is to Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent, confirm that you will still need to inform the HPA. This is a 2 part question. Given the history, especially the sandpaper rash and strawberry tongue, you can determine the patient has scarlet fever, which fits with her son's presentation too. Scarlet fever is a communicable disease and notifiable disease and therefore even without the patient's consent you can disclose the relevant information to the HPA.

Even if she agrees to not going into work, communicable diseases must be reported to the relevant health department. Therefore an incorrect answer is to Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent but agrees to not go into work, confirm that you will not inform the HPA.

Another incorrect answer is to Advise her that you need to contact the Local Health Protection Agency (HPA) and she should not go into work. If she does not consent, respect her wishes, as she has capacity and confirm that you will not inform the HPA. Although she can refuse consent to sharing information, this is excluded when disclosing communicable diseases to the relevant health department.

Asking her to inform work and discuss with occupational health when to return is incorrect. She could be asked to inform relevant government authorities herself, for example, minor issues with driver's license renewals. However, for communicable diseases, the health professional must inform the relevant health department.

Asking her to inform work and the Local Health Protection Agency (HPA) and discuss with them when to return is incorrect. She could be asked to inform relevant government authorities herself, for example, minor issues with driver's license renewals. However, for communicable diseases, the health professional must inform the relevant health department.

Divulging her medical history to her workplace would be illegal as you are breaching her confidentiality.

Question:

A 79-year-old man is about to undergo a procedure to excise a cancer of the large bowel. He has been experiencing a steady loss of weight and change in bowel habits for the last two months. A recent colonoscopy has shown a mass distal part of the descending colon. He looks well and he is ready to begin the procedure.

Which one of the following procedures is the most likely to undergo?

A.Hartmann's procedure

B.High anterior resection

C.Left hemicolectomy

D.Low anterior resection

E.Right hemicolectomy

Answer:Left hemicolectomy

Explanation:

Distal transverse or descending colon cancer → left hemicolectomy

Important for meLess important

The correct answer is left hemicolectomy. This patient has descending colon cancer, specifically in the distal part. This procedure 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.

Hartmann's procedure is executed in emergencies, such as bowel obstruction or perforation. This involves complete resection of the rectum and sigmoid colon with the formation of an end colostomy and the closure of the rectal stump. This can be revised later, with anastomosis of the two stumps. The patient does not have signs or symptoms of perforation or obstruction, making this choice incorrect.

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's tumour is located in the descending colon, not in the rectum, making this an incorrect choice.

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's tumour is located in the descending colon, not in the rectum, making this an incorrect choice.

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 has a mass in the descending colon making this choice incorrect.

Question:

A 42-year-old Nigerian woman presents with a 3 month history of menorrhagia and pelvic pain. On examination there is a palpable, firm, non-tender abdominal mass arising from the pelvis. Pelvic ultrasound confirms the presence of a large uterine fibroid. A decision is taken to perform a hysterectomy. Which medication would be most appropriate in preparation for her surgery?

A.Combined oral contraceptive pill

B.Progesterone receptor inhibitor e.g. Mifepristone

C.Ibuprofen

D.GnRH agonist e.g. Leuprolide

E.Tranexamic acid

Answer:GnRH agonist e.g. Leuprolide

Explanation:

For patients with uterine fibroids, GnRH agonists may reduce the size of the fibroid but are typically useful for short-term treatment

Important for meLess important

Important points:

GnRH agonists reduce the size of the uterus prior to surgery. The risk of post-operative blood loss is directly related to the size of the uterus.

Progesterone receptor inhibitors have no effect on overall uterine size so are not useful in preparation for surgery, but they can be used to reduce the severity of fibroid-related bleeding.

COCP should not be taken 4-6 weeks prior to major surgery due to increased risk of venous thromboembolism.

Antiplatelet drugs such as Ibuprofen should be avoided before surgery.

Antifibrinolytics such as tranexamic acid can be useful in reducing the severity of uterine bleeding but this wouldn't help preparation for surgery.

Question:

An eight-month-old girl is brought to accident and emergency. Her parents are concerned about her seemingly painful swollen hands and feet. This reportedly had a very sudden onset three hours ago.

On examination there is bilateral swelling of the child's hands and feet and slight erythema of the overlying skin. There seemed to be marked tenderness over all extremities evidenced by her crying.

Bedside observations reveal a slight fever but nothing else remarkable. What is the most likely diagnosis?

A.Septic arthritis

B.Sickle cell crisis

C.Non-accidental injury

D.Growing pains

E.Anaphylaxis

Answer:Sickle cell crisis

Explanation:

A common mode of presentation of sickle-cell disease in late infancy is hand-foot syndrome

Important for meLess important

Hand-foot syndrome is caused by the sickling of red blood cells interfering with circulation to the hands and feet. This results in swelling, pain and erythema with a sudden onset.

The syndrome normally lasts for 1-2 weeks with treatment only being supportive. It is not seen in children older than five as hematopoiesis in the small bones of the hands and feet ceases at this age.

Septic arthritis is usually monoarthritic, rarely oligoarthritic, but would not present as above. Non-accidental injury is an important differential for many presentations but in this case there's a better explanation.

Growing pains are relatively common in children aged 3 to 12 and are typically a night-time muscle pain felt in the legs, typically the calves. This would not be a typical anaphylactoid presentation.

Question:

A 28-year-old man presents to his GP complaining of fever and joint pains that have worsened over the last 3 weeks. The fever occurs each evening and can be as high as 39.5ºC but drops to normal by the morning. He reports pain and swelling in the shoulders, wrists and metacarpophalangeal joints that worsens with the fever. He also says that his girlfriend has noticed a salmon-pink rash on his back however no rash is present on examination. He also complains of a persistent sore throat. He hasn't noticed any weight loss or night sweats. His past medical history is unremarkable.

What is the most likely explanation for this patient's symptoms?

A.Dengue fever

B.Malaria

C.Hodgkin's lymphoma

D.Septic arthritis

E.Still's disease

Answer:Still's disease

Explanation:

Pyrexia in Still's disease has a characteristic pattern. It typically rises in the late afternoon/early evening in a daily pattern and accompanies a worsening of joint symptoms and rash

Important for meLess important

The pattern of joint involvement and fever that occurs in a quotidian pattern are suggestive of adult-onset Still's disease. The characteristic salmon-pink evanescent rash also follows this diurnal pattern and can sometimes only be seen transiently.

Malaria and Hodgkin's lymphoma also present with a swinging fever however it would be unusual for them to cause a skin rash or arthritis. Septic arthritis would be unlikely to affect so many joints at once whilst dengue fever typically only lasts 7-14 days.

Question:

Brenda is an 86-year-old woman with acute myeloid leukaemia (AML). She has been receiving best supportive care for the last 6 months and it is felt that she is now nearing the end of her life. Her current pain relief consists of 30 mg zomorph twice a day and 10 mg oramorph as needed for breakthrough pain. She typically uses 2 breakthrough doses of oramorph per day. In the last week she has become unable to swallow tablets and the decision is made to change her onto a syringe driver.

Which of the following is the correct conversion dose of subcutaneous (SC) morphine required for a 24 hour period for this patient?

A.30 mg

B.40 mg

C.50 mg

D.60 mg

E.80 mg

Answer:40 mg

Explanation:

Divide by two for oral to subcutaneous morphine conversion

Important for meLess important

The correct answer is 40mg.

The first step in this question is to work out how much oral morphine she has been using within a 24 hour period. She takes 30 mg of zomorph twice daily, totalling 60 mg. She has also been using 2 doses of as required oramorph per day, adding on a further 20 mg per day.

This means her daily total is 80 mg per day. Then to convert this to subcutaneous morphine it should be divided by 2, meaning the total dose for a 24 hour period would be 40 mg.

Question:

A 16-year-old boy presents to the emergency room with a history of groin pain for the past three hours. He has associated nausea and has vomited three times. He reports that he recently had unprotected vaginal sex. On examination there is tenderness and swelling of the scrotum and left testicle, with absence of the cremaster reflex on the left side. Elevation of the affected testicle causes increased pain.

What is the most likely diagnosis?

A.Torsion of the hydatid of Morgagni

B.Strangulated inguinal hernia

C.Epididymitis

D.Testicular torsion

E.Hydrocoele

Answer:Testicular torsion

Explanation:

Testicular torsion occurs when the testis turns on the remnant of the processus vaginalis thereby restricting blood flow. It usually presents with acutely severe testicular pain often with associated nausea and vomiting. There may be swelling of the testis with overlying erythema. The cremaster reflex may also be absent on the affected side. Elevation of the testicle often results in worsening of the pain.

Although this patient recently had unprotected sex, the history is less suggestive of epididymitis. With epididymitis we would expect urinary symptoms. In addition, elevation of the testes often relieves the pain (Prehn's sign positive).

Question:

A 32-year-old woman presents to the emergency department with a four-day history of constant diarrhoea. She has eaten and drank very little during this time period.

Bloods including urea and electrolytes and a venous blood gas have been sent.

What is the most likely acid-base disturbance in this patient?

A.Metabolic alkalosis

B.Mixed metabolic and respiratory acidosis

C.Normal anion gap metabolic acidosis

D.Raised anion gap metabolic acidosis

E.Respiratory acidosis

Answer:Normal anion gap metabolic acidosis

Explanation:

Diarrhoea can cause a normal anion gap acidosis whereas vomiting causes alkalosis

Important for meLess important

The correct answer is 'normal ion metabolic gap acidosis'. Diarrhoea causes a gastrointestinal loss of alkaline bicarbonate (HCO3-), resulting in a metabolic acidosis.

The anion gap is calculated as [Na+] - ([HCO3-] + [Cl-]). A normal anion gap is 8-16 mmol/L.

Acidosis with a normal anion gap is caused by increased production of chloride (hyperchloremic acidosis) or increased excretion of bicarbonate (as in diarrhoea).

In contrast, acidosis with a raised anion gap occurs when anions not accounted for in the above formula are present in the body and are causing acidosis. These include ketones (ketoacidosis), lactate (lactic acidosis), uraemia (uric acid in renal failure), aspirin overdose (salicylic acid) and ethylene glycol/methanol ingestion.

Mixed metabolic and respiratory acidosis occurs when there are both respiratory and metabolic causes for acidosis, e.g. in cardiac arrest or organ failure.

Metabolic alkalosis can occur in vomiting or excess nasogastric suction, which results in loss of hydrochloric acid (hydrogen and chloride ions). Vomiting also causes loss of potassium and sodium. The kidneys compensate by retaining sodium at the expense of hydrogen ions. Both processes result in metabolic alkalosis.

Respiratory acidosis occurs when the patient is not ventilating adequately to remove CO2 e.g. in reduced consciousness or opiate overdose.

Question:

A 35-year-old woman has just delivered her first baby and received a dose of intramuscular syntocinon prior to the delivery of the placenta. Whilst waiting for the delivery of the placenta, she loses 400ml of blood. The bleeding does not stop after the delivery of the placenta and she loses a further 500ml of blood.

The doctors initiate the appropriate resuscitation steps and the major haemorrhage protocol. The cause of the bleed is identified as uterine atony and boluses of syntocinon, ergometrine and carboprost are administered. The bleeding does not stop.

What is the most appropriate next step?

A.Hysterectomy

B.Intra-uterine Bakri catheter

C.Lie the patient on her left side

D.Ligation of the internal iliac artery

E.Ligation of the uterine artery

Answer:Intra-uterine Bakri catheter

Explanation:

Postpartum haemorrhage: intrauterine balloon tamponade is the first-line 'surgical' intervention if other measures fail

Important for meLess important

Intra-uterine Bakri catheter is correct. This woman is having a post-partum haemorrhage, seen by a blood loss of more than 500mls. Uterine atony is a failure of the uterine myometrium cells to contract in response to oxytocin (endogenous or exogenous) resulting in spiral arteries bleeding. An intra-uterine Bakri catheter is a balloon catheter that acts to tamponade the bleeding. This is the first-line surgical intervention should medical management of postpartum haemorrhage fail.

Hysterectomy is incorrect. This is the last resort for a patient with postpartum haemorrhage. Whilst it is a definitive way of stopping the bleeding, it will render the patient infertile.

Lie the patient on her left lateral side is incorrect. This would be one of the first steps in the management of haemodynamic compromise in a pregnant woman. This positioning will relieve the pressure of the uterus on the inferior vena cava, increase venous return and improve circulation. This would be an irrelevant step for a woman who has already delivered her baby as the uterus is no longer compressing the inferior vena cava. Often in a post-partum haemorrhage, the initial resuscitation step involves lying the woman flat on her back.

Ligation of the internal iliac artery is incorrect. Whilst this may be used in the management of postpartum haemorrhage, it would not be the next most appropriate step as ligation of the internal iliac artery may lead to subsequent ischaemic complications. Intra-uterine balloon tamponade would be the first-line surgical intervention.

Ligation of the uterine artery is incorrect. Whilst this may be used in the management of postpartum haemorrhage, it would not be the next most appropriate step as ligation of the uterine artery may lead to subsequent ischaemic complications. Intra-uterine balloon tamponade would be the first-line surgical intervention.

Question:

A 40-year-old woman presents to the GP with 'unusual pupils'. On examination, she has an anisocoria more pronounced in bright light with her left pupil appearing smaller than her right.

Which anatomical location is most likely damaged?

A.Left ciliary ganglion

B.Left superior cervical ganglion

C.Left occipital lobe

D.Right ciliary ganglion

E.Right superior cervical ganglion

Answer:Right ciliary ganglion

Explanation:

Anisocoria worse in bright light implies a problem with the dilated pupil

Important for meLess important

The most likely answer is the right ciliary ganglion as her clinical presentation is suggestive of decreased parasympathetic innervation to her right eye.

As her anisocoria is worse in the light, her right pupil which is more dilated than her left, is most likely to be the abnormal pupil. This is because an anisocoria worse in the light suggests an inability of the eye to constrict in response to light, hence the pupillary asymmetry becoming more apparent as the normal eye constricts.

The sympathetic nervous system causes pupil dilation and the parasympathetic system causes pupil constriction, hence damage to the parasympathetic nervous system will cause unopposed sympathetic innervation to that eye, resulting in pupillary dilation.

The ciliary ganglion is the parasympathetic ganglion of the eye, hence damage to the right ciliary ganglion will result in a mydriatic right eye.

This woman most likely has an Adie's-tonic pupil affecting her right eye.

Question:

A 72-year-old female presents to her general practitioner with a one-month history of bilateral shoulder and hip girdle pain. A diagnosis of polymyalgia rheumatica is made and a daily dose of 15mg oral prednisolone is prescribed.

As the patient will most likely be taking prednisolone for over 3 months, what is the most appropriate action regarding her increased risk of developing osteoporosis?

A.Give smoking cessation advice

B.Immediate co-prescription of alendronate

C.Immediate co-prescription of denosumab

D.Offer DEXA scan and prescribe alendronate if patient's t-score is less than -1

E.Prescription of alendronate if prednisolone continues to be used after 3 months

Answer:Immediate co-prescription of alendronate

Explanation:

Bone protection for patients who are going to take long-term steroids should start immediately

Important for meLess important

The Royal College of Physicians of London guidance on glucocorticoid-induced osteoporosis recommends a prophylactic bisphosphonate be immediately prescribed to any patient taking corticosteroids that will likely be continued for at least 3 months. Therefore making an immediate co-prescription of alendronate the correct answer.

While giving smoking cessation advice is a useful part of both osteoporosis prophylaxis and management, prescribing alendronate in this situation is more important.

Immediate co-prescription of denosumab would be incorrect as the patient has no contra-indications to bisphosphonates which are first line for osteoporosis prophylaxis.

A DEXA scan is not appropriate as all patients requiring systemic steroids for over three months require immediate bone protection, regardless of bone mineral density. Ordering a DEXA scan and waiting for results would result in delayed prescription of alendronate, making it a less appropriate next step in management over immediate prescription of bone protection. It should also be noted that a t score of -1.5 is the standard cutoff for starting bone protection treatment, not -1 as is stated in the question.

Delayed prescription of alendronate would be incorrect as bone protection is indicated immediately.

Question:

You are bleeped by a nurse in the evening who you asks you to urgently review a 68-year-old lady who is two days post-op because her afternoon blood results have just been reported as being abnormal. You have never met the patient before and are not aware of their clinical course. She tells you the results are as follows:

Hb 146 g/l Na+ 139 mmol/l

Platelets 159 \* 109/l K+ 6.1 mmol/l

WBC 13 \* 109/l Urea 3.4 mmol/l

CRP 21 mg/l Creatinine 73 µmol/l

You are unable to come to the ward for 10 minutes. What should you ask the nurse to do before you get there?

A.12 lead ECG

B.Give calcium gluconate 10% 15 ml by slow IV injection

C.Blood culture

D.Administer 10 U Actrapid in 50 ml of 50% glucose over 10 minutes

E.Bleep the surgical registrar on call for a review

Answer:12 lead ECG

Explanation:

The British National Formulary (BNF) management of hyperkalaemia is as follows:

If K+ > 6.5 mmol/l or if there are ECG changes:

Administer calcium gluconate 10% 10-20ml by slow IV injection titrated to ECG response

Give 10 U Actrapid in 50 ml of 50% glucose over 10-15 minutes

Consider use of nebulised salbutamol

Consider correcting acidosis with sodium bicarbonate infusion

Management of hyperkalaemia, BNF, June 2016

Given that the patient's K+ is only 6.1 at the moment, an ECG would be the first thing to do. It would also be sensible to repeat the K+ reading, probably with a venous blood gas but an ECG would reveal whether there was an immediate danger which needs treatment. After arriving on the ward it would be important to conduct a full clinical assessment of the patient including reading their notes and noting recent observations. Following this a blood culture or discussion with the surgical registrar may well be sensible options but you should do the basics of an ECG and rechecking the potassium first.

Question:

A 63-year-old woman attended the Emergency Department complaining of a painful hand. On further investigation, she was found to have sustained a Colles' fracture. A dual-energy x-ray absorptiometry (DEXA) scan revealed a T-score of -2.7 from L2-L4 and -2.8 in the right hip. She takes omeprazole for gastro-oesophageal reflux disease.

Na+ 140 mmol/L (135 - 145)

K+ 3.5 mmol/L (3.5 - 5.0)

Urea 4.5 mmol/L (2.0 - 7.0)

Creatinine 85 µmol/L (55 - 120)

Calcium 1.95 mmol/L (2.1 - 2.6)

Phosphate 1.2 mmol/L (0.8 - 1.4)

Magnesium 0.55 mmol/L (0.7 - 1.0)

Vitamin D 115 nmol/L (50 - 250)

Parathyroid hormone (PTH) 2.1 pmol/L (1.6 – 8.5)

What is the most appropriate next step?

A.Commence alendronate

B.Commence oral calcium tablets

C.Commence raloxifene

D.Correct calcium level then commence alendronate

E.Offer dietary advice to increase calcium intake

Answer:Correct calcium level then commence alendronate

Explanation:

Hypocalcemia/vitamin D deficiency should be corrected before giving bisphosphonates

Important for meLess important

Correct calcium level then commence alendronate: the T-score of < -2.5 confirms a diagnosis of osteoporosis. Treatment with alendronate is first-line, however, it is important to check and correct (if required) calcium and vitamin D levels prior to commencing treatment. Bisphosphonates work by inhibiting osteoclastic activity to reduce bone loss. However, in normality, when our calcium levels fall, we rely on this mechanism (via PTH and calcitriol) to increase our calcium levels. Therefore, when on bisphosphate therapy, we don't have the same capacity to carry this out. This is why it is important to correct hypocalcaemia/vitamin D deficiency prior to administering a bisphosphonate. Serum calcium is monitored during treatment.

Commence alendronate: this patient has osteoporosis and whilst alendronate is first-line, the hypocalcemia must be corrected prior to commencing it.

Commence oral calcium tablets: this alone is not appropriate in this case. This patient has osteoporosis and should be offered treatment with alendronate. However, as mentioned above, her hypocalcaemia should be corrected first. Calcium should only be prescribed if dietary intake is insufficient, which is rare. Therefore, it is important to consider the cause to guide treatment. By simply scanning the blood results, it should be noted that the magnesium level is low. Magnesium is required for PTH secretion (hence the lower end PTH level) and sensitivity. Correcting its level is crucial in treating the hypocalcemia. This woman is taking a proton pump inhibitor. Known adverse effects include hypomagnesaemia and increased risk of osteoporosis.

Commence raloxifene: whilst a drug used in the treatment of osteoporosis, it is not first-line. Should be considered if the patient cannot tolerate bisphosphonates.

Offer dietary advice to increase calcium intake: this alone is not appropriate in this case. This patient has osteoporosis and should be offered treatment with alendronate. Whilst treatment of hypocalcaemia is the first step, calcium deficiency is rare and other cause (low magnesium) has been identified.

Question:

Whilst on your medical school elective in India, you review a 32-year-old man presenting with full-thickness burns to his hands after unknowingly handling hot coals. In addition to the full thickness burns, you notice large separate areas of thickened red skin over his arms and face intermixed with hypo-pigmented patches, which he says have been there for a few weeks. Upon further questioning, the patient has been struggling with muscle weakness over the same period.

According to the World Health Organisation this area of India has a high prevalence of leprosy (Mycobacterium leprae).

Which of the following tests is most likely to return positive?

A.Acid-fast bacilli (AFB) smear

B.Congo red staining

C.Mantoux test

D.Monospot test

E.Gram stain

Answer:Acid-fast bacilli (AFB) smear

Explanation:

AFB smear is not specific for TB - all mycobacteria will stain positive

Important for meLess important

Mycobacterium leprae, the causative organism for leprosy, is endemic in certain areas of India, which accounts for 60% of the world's cases. It is an important diagnosis to consider in endemic regions of the world. Symptoms of leprosy include hypo-pigmented patches, loss of sensation in fingers and toes, thickening of peripheral nerves, and thickening of the skin on the hands and face. Muscle weakness is also a relevant symptom. Acid-fast bacillus (AFB) smears are non-specific for mycobacterium, detecting all species.

Congo red staining is the diagnostic test for amyloidosis from rectal biopsies, where apple-green birefringence is seen.

The Mantoux test is a test for latent tuberculosis, another of the mycobacterium species.

The monospot test is a test for infectious mononucleosis, glandular fever, detecting the Epstein Barr virus.

Mycobacteria have a waxy cell wall and thus a gram stain cannot penetrate the waxy cell wall.

Ziehl–Neelsen staining would however result in a positive (red) stain for Mycobacterium leprae. The process includes using carbol fuchsin to stain every cell, which is then washed away. Following this, a counterstain is applied. Acid-fast bacteria with waxy cell walls retain the carbol fuchsin resulting in a positive red stain. Those without a waxy cell wall have the carbol fuchsin washed away and are stained blue by the counterstain.

A basic understanding of the commonly used tests for more specific conditions is commonly tested in exams from medical school to speciality exams. This is because it forms a core part of ordering appropriate investigations to exclude differentials.

Question:

A 45-year-old woman presents to the emergency department with a severe headache that she localises behind her eyes. Additionally, she developed a maculopapular rash on her thorax. She denies any signs of meningism. Her past medical history is unremarkable and she recently came back from a trip to India. On examination, her heart rate is 77/min, her respiratory rate 14/min, her blood pressure 137/72 mmHg and her temperature 39.7 ºC. The doctor performs some blood tests that show the following:

Hb 120 g/L Male: (135-180) Female: (115 - 160)

Platelets 124 \* 109/L (150 - 400)

WBC 3.3 \* 109/L (4.0 - 11.0)

Which one of the following is the most likely diagnosis?

A.Dengue fever

B.Ebola

C.Enteric fever

D.Lyme disease

E.Malaria

Answer:Dengue fever

Explanation:

Retro-orbital headache, fever, facial flushing, rash, thrombocytopenia in returning traveller → ?dengue

Important for meLess important

The correct answer is dengue fever. This patient presents with some classical features of this condition: retro-orbital headache, elevated fever, rash (usually maculopapular) and thrombocytopenia after returning from a trip abroad. This condition is caused by the Aedes aegypti mosquito. It has seven days of incubation and it is endemic in India. Early recognition is of fundamental importance as a form of disseminated intravascular coagulation known as dengue haemorrhagic fever may develop. Treatment is solely supportive.

Ebola virus causes a form of haemorrhagic fever. The first symptoms are the sudden onset of fever fatigue, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, symptoms of impaired kidney and liver function, and in some cases, both internal and external bleeding. This patient has a characteristic headache, usually associated with dengue fever and lacks some of the cardinal symptoms of ebola such as sore throat, diarrhoea and vomit. Additionally, this condition is not diffused in India, making the diagnosis unlikely.

Enteric fever is usually caused by Salmonella typhi or Salmonella paratyphi. It usually presents as fever accompanied by headache, fever, arthralgia. Later on, it is accompanied by relative bradycardia, abdominal pain, distension and constipation. This patient lacks abdominal symptoms. Additionally, the rash typically developed in enteric fever (called rose spots) is easily recognisable and is not maculopapular, making the diagnosis unlikely.

Lyme disease has an early phase, characterised by erythema migrans and systemic features such as malaise, fever, arthralgia. But the rash that his patient developed is different from erythema migrans since it does not have the classical bull-eye shape. Additionally, this condition is not common in India, making the diagnosis unlikely.

Malaria should always be kept in mind as a differential diagnosis for an unwell returning traveller. It usually presents with fever, tiredness, vomiting, and headaches. The diagnosis is unlikely here as in malaria the fever is usually cyclical and there is no rash. Additionally, it usually causes anaemia, this patient has normal haemoglobin.

Question:

A 55-year-old lady presents to the Emergency Department with a 4-hour history of cramp-like abdominal pain, nausea and vomiting. She describes the pain as coming and going in waves and states that she has had similar pain before but never as bad as this time.

She has chronic obstructive pulmonary disease well controlled on inhalers and is a smoker of 30 pack years.

Her observations are: heart rate 110/min, respiratory rate 20/min, blood pressure 130/84 mmHg, Temp 38.6º, Sats 99% on air.

On examination, she looks very unwell and diaphoretic. You also note a degree of scleral icterus. On palpation of the abdomen, she is tender in the right upper quadrant.

What is the most likely cause of this lady's symptoms?

A.Ascending cholangitis

B.Cholecystitis

C.Mirizzi's sydrome

D.Biliary colic

E.Pancreatitis

Answer:Ascending cholangitis

Explanation:

Charcot's cholangitis triad: fever, jaundice and right upper quadrant pain

Important for meLess important

Cholangitis is an infection of the biliary tree that commonly presents with fever, RUQ pain and jaundice. (Charcot's triad). Patients are usually over the age of 50 years. The most common cause is gallstones and that is presumably the case in this lady with the past episodes of biliary colic. It can lead to sepsis and multi-organ failure if not recognised and treated promptly. antibiotics and drainage of the biliary tree are essential parts of the management of these patients.

Laboratory tests looking at inflammatory markers, LFT, FBC and U&E are essential and an ultrasound scan of the abdomen should be performed. Dilatation of the common bile duct is a feature in over 90% of patients with cholangitis although stones are not always seen. Drainage of the biliary tree can be done via ERCP although laparotomy with surgical exploration of the common bile duct may be required in some cases.

Question:

A 68-year-old lady is due to have a cholecystectomy for gallstone disease. She is on warfarin and her last INR two weeks ago was 2.7.

When should you advise her to stop taking her warfarin?

A.3 days before surgery

B.1 day before surgery

C.5 days before surgery

D.10 days before surgery

E.14 days before surgery

Answer:5 days before surgery

Explanation:

In general, warfarin is usually stopped 5 days before planned surgery, and once the person's international normalized ration (INR) is less than 1.5 surgery can go ahead. Warfarin is usually resumed at the normal dose on the evening of surgery or the next day if haemostasis is adequate.

References

BNF 71 (2016) British National Formulary. 71st edn. London: British Medical Association and Royal Pharmaceutical Society of Great Britain. Information found under 'Anticoagulation - oral'.

Question:

A 4-year-old boy is brought to the GP by his mother who states that she has noted a 'barking' cough a few times every day for the last two days. There has been no change to his appetite and his behaviour has not changed. The GP does not find any abnormalities on examination. Given the likely diagnosis of mild croup, what would be the first-line treatment?

A.Nebulised adrenaline

B.Oral benzylpenicillin

C.Oral dexamethasone

D.Oral prednisolone

E.Oral ibuprofen

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

The barking cough and absence of stridor or systemic symptoms points to a diagnosis of mild croup.

Question:

A 39-year-old woman presents with sudden onset right-sided facial weakness. The weakness is consistent with a lower motor neuron palsy. She has no other neurological features on examination. Examination of her ears is also unremarkable. You make a presumptive diagnosis of Bell's palsy and prescribe a course of prednisolone. What is the most important next step in management?

A.Prescribe artifical tears and advise eye taping at night

B.Refer for neuroimaging

C.Prescribe aciclovir

D.Refer to plastic surgery to be seen within 2 weeks

E.Do a HIV test

Answer:Prescribe artifical tears and advise eye taping at night

Explanation:

Question:

A 14-year-old boy is brought in for review. His father describes him suffering from 'watering eyes' every summer for the past 3 years. His symptoms are particularly bad this year. The boy describes bilateral itchy eyes. He does not wear contact lens or use glasses. There has been no change in vision although he says it difficult to do school work when his eyes are streaming. There is no history of nasal symptoms, asthma or eczema. On examination there is conjunctival redness, bulging tarsal conjunctivae and mild eyelid oedema. What is the most appropriate first-line in management?

A.Topical antihistamines

B.Topical vasoconstrictor

C.Instructions on 'eye care' including warm compresses and eyelid cleaning

D.Topical corticosteroid

E.Topical mast cell stabiliser

Answer:Topical antihistamines

Explanation:

This patient has symptoms typical of allergic conjunctivitis.

Topical antihistamines are the first-line treatment in this condition. Oral antihistamines may be used if there are other symptoms such as rhinosinusitis. Topical mast cell stabilisers (e.g. sodium cromoglycate) may be used but NICE Clinical Knowledge Summaries advise:

Mast cell stabilizers

Mast cell stabilizers prevent degranulation of mast cells and release of pre-formed inflammatory mediators - they require a long loading period and need to be applied routinely for several weeks to attain optimal prophylactic benefit [Butrus, 2005].

This potentially long lead time for therapuetic benefit is likely to decrease patient compliance and expert opinion in a review article suggests that for this reason they are rarely used in isolation as treatment for acute allergic conjunctivitis

Question:

This man presents with unilateral visual loss. On examination he has a relative afferent pupillary defect. Fundoscopy shows the following:

What is the most likely diagnosis?

A.Central retinal vein occlusion

B.Subhyaloid haemorrhage

C.Solar retinopathy

D.Central retinal artery occlusion

E.Optic neuritis

Answer:Central retinal artery occlusion

Explanation:

The pale retina is the most obvious sign in this slide.

Question:

A 91-year-old man with no past medical history and no regular medications has a fall at home and cannot get himself up. He ends up lying on the floor for 3 days before his son next comes to visit and finds him there. He is taken to the emergency department and a blood test is performed which shows the following:

Na+ 144 mmol/l

K+ 5.7 mmol/l

Urea 31.2 mmol/l

Creatinine 596 µmol/l

Creatine kinase 16,780 U/l (55-170 U/l)

What is the cellular pathology behind this gentleman's renal failure?

A.Glomerular hypoxia

B.Glomerular sclerosis

C.Collecting duct obstruction

D.Tubular cell necrosis

E.Tubular cell apoptosis

Answer:Tubular cell necrosis

Explanation:

Myoglobinuria causes renal failure by tubular cell necrosis

Important for meLess important

The history and a very high serum creatine kinase give a diagnosis of rhabdomyolysis, which is a well known cause of renal impairment. Although we do not know what this gentleman's baseline creatinine was, a creatinine over 400 µmol/l indicated end stage renal failure and we can be confident that with no past medical history this is acute and most likely caused by his rhabdomyolysis. The way this causes renal failure is related to the toxicity of myoglobin on the tubular cells, which directly causes damage and necrosis of the cells, rather than controlled apoptosis.

Question:

A 54-year-old homeless man is found unconscious on the street. He is brought into the emergency department and a set of bloods is taken. The following abnormality is found. He is sent for an ultrasound which shows no dilation of the biliary tree.

Amylase 1100 U/l

What is the most likely cause of this mans presentation?

A.Hypernatraemia

B.Gallstones

C.Hypocalcaemia

D.Hyperthermia

E.Hypothermia

Answer:Hypothermia

Explanation:

Hypothermia is a cause of pancreatitis

Important for meLess important

This question is asking about an unconscious homeless man who is brought into the emergency department. Given his blood test results it is fair to assume this man is suffering from acute pancreatitis and thus the question is asking about the cause in this man's case.

Of the above options, only hypothermia and gallstones are commonly recognised causes of acute pancreatitis and thus we need to differentiate those two causes. Given that this man was found unconscious in the street we have an indication that this may be caused by hypothermia. The fact that an ultrasound also shows a non dilated biliary tree is a good indicator that there is no stone blocking the pancreatic duct and thus is less likely to be a cause of his symptoms.

All of the other options are the opposite of the causes of pancreatitis apart from hypernatraemia which is not a cause of pancreatitis.

Question:

A 45-year-old woman complains of painful tingling in her fingers. The pain is relieved by hanging the arm over the side of the bed. She has a positive Tinel's sign. Which of the following is most likely to contribute to her diagnosis?

A.Methotrexate use

B.Crohn's disease

C.Hyperthyroidism

D.Tuberculosis

E.Rheumatoid arthritis

Answer:Rheumatoid arthritis

Explanation:

This woman has a diagnosis of carpal tunnel syndrome. Rheumatological disorders are a common cause. Clinical examination should focus on identifying stigmata of rheumatoid arthritis, such as rheumatoid nodules, vasculitic lesions and metacarpophalangeal joint arthritis.

Question:

A 15-year-old boy is admitted with colicky abdominal pain of 6 hours duration. On examination he has a soft abdomen, on systemic examination he has brownish spots around his mouth, feet and hands. His mother underwent surgery for intussusception, aged 12, and has similar lesions. What is the most likely underlying diagnosis?

A.Li Fraumeni syndrome

B.Peutz-Jeghers syndrome

C.Addisons disease

D.McCune -Albright syndrome

E.Appendicitis

Answer:Peutz-Jeghers syndrome

Explanation:

This is most likely to be Peutz-Jeghers syndrome. Addisons and McCune Albright syndrome may produce similar skin changes but the intussusception resulting from polyps combined with the autosomal inheritance pattern makes this the most likely diagnosis.

Question:

A 35-years-old-woman presents to the GP clinic for chronic diarrhoea. She complains of having occasional loose stool for four months. She also mentions a medium-intensity abdominal pain relieving upon defecation without evidence of bloody or mucoid stool. She is not on any dietary restrictions and denies any unintentional weight loss. There is no family history of colon cancer.

On examination, the patient's vitals are normal. Her abdomen is soft without tenderness.

Her lab findings are as follows:

Hb 140 g/L Female: (115 - 160)

Platelets 250 \* 109/L (150 - 400)

WBC 7 \* 109/L (4.0 - 11.0)

CRP 4 mg/L (< 5)

What is the next step?

A.Barium follow through

B.Colonoscopy

C.Laparoscopy

D.Measure serum tissue transglutaminase

E.Stool culture

Answer:Measure serum tissue transglutaminase

Explanation:

Full blood count, ESR, CRP, antibody testing for coeliac disease – endomysial antibodies or tissue transglutaminase are first-line investigations which are expected to be normal in patients with suspected irritable bowel syndrome.

Important for meLess important

Measure serum tissue transglutaminase is the correct answer. This is because we look for coeliac antibodies in all suspected irritable bowel syndrome (IBS) patients to rule it out. The patient appears to have the diarrheal subtype of IBS that relieves with defecation. Moreover, her normal physical examination and lab findings further support the diagnosis of IBS. Finally, the patient does not have red flags like blood per rectum and a family history of colon cancer. Yet, the presence of red flags requires the doctor to have a different approach.

Barium follow through is an incorrect answer. It is used to diagnose diseases in the small intestines. However, there is consensus that radiological imaging has no role in diagnosing IBS as long as there are no red flags (rectal bleeding, unexplained/unintentional weight loss, family history of bowel or ovarian cancer, and onset after 60 years of age). But if there is a family history of cancers, radiological studies would be useful.

Colonoscopy is an incorrect answer. This is because colonoscopy is an invasive procedure that is not considered a first-line diagnostic modality in IBS. In the workup for IBS, doctors should ideally start with less invasive methods like measuring the FBC, ESR/CRP, and serum tissue transglutaminase. When all these tests are inconclusive, we can undergo colonoscopy to exclude other conditions like coeliac, colon cancer, and inflammatory bowel disease.

Laparoscopy is an incorrect answer. This is because laparoscopy is not usually done as a first-line procedure to diagnose abdominal or pelvic conditions. Explorative laparoscopy is done to take a biopsy from a suspicious area or collect peritoneal fluid for cytology. Although laparoscopy could be used to evaluate acute abdominal conditions, this patient had normal vitals and abdominal exam, which suggest otherwise.

Stool culture is an incorrect answer. This is because cultures are done to exclude bacterial gastroenteritis. However, the patient did not show signs of gastroenteritis such as nausea, vomiting, and fever. In addition, the patient's white blood cell count is normal.

Question:

A 76-year-old woman suffers a fall at home and sustains a facial injury. She is brought to the emergency department where she receives a head CT due to a suspected fracture. The CT confirms the presence of a zygomatic arch fracture, however, the report also contains the following observation:

'multiple well-defined lucencies in the calvaria consistent with a pepper pot skull appearance'

Before the injury, the patient mentions that she had been suffering from tiredness, abdominal pain and excessive urination.

Which of the following explains this patient's CT findings?

A.Chronic myeloid leukaemia

B.Primary hyperparathyroidism

C.Bony metastasis

D.Hypothyroidism

E.Long term steroid usage

Answer:Primary hyperparathyroidism

Explanation:

Pepperpot skull is a characteristic X-ray finding of hyperparathyroidism

Important for meLess important

High circulating levels of parathyroid hormone stimulate increased osteoclast activity. Increased uptake of trabecular bone leads to the formation of multiple small radiolucent lesions of the skull which gives the appearance of a pepperpot (the finding is sometimes called the salt and pepper sign). A similar appearance can also be seen in multiple myeloma (although in myeloma, it is more accurately called raindrop skull).

None of the other possible answers would give rise to this characteristic appearance.

Question:

A 43-year-old woman presents with a 4 month history of malaise, diarrhoea, stomach cramps and bloating. There has been no weight loss and the diarrhoea is not bloody, but looks pale. She has not noticed any other symptoms and there has been no recent travel. She has Grave's disease but this has been treated with radioiodine ablation and thyroxine replacement therapy. Some blood tests are performed:

Hb 94 g/L Female: (115 - 160)

MCV 92 fL (80 - 100)

WBC 7 \* 109/L (4.0 - 11.0)

IgA tissue transglutaminase (TTG) 3.7 U/ml (<4)

Total IgA 47 mg/dL (82-453)

What is the most likely cause of her symptoms?

A.Overtreatment with thyroxine

B.Chronic pancreatitis

C.Ovarian cancer

D.Inflammatory bowel disease

E.Coeliac disease

Answer:Coeliac disease

Explanation:

You cannot interpret TTG level in coeliac disease without looking at the IgA level

Important for meLess important

The most likely diagnosis is coeliac disease. Her symptoms and age are consistent and coeliac disease is often associated with other autoimmune conditions (such as Grave's disease). She has IgA deficiency so interpretation of a normal IgA tTG is impossible. To further investigate if this is the true cause, IgG tTG could me measured, but the definitive investigation would be a duodenal biopsy.

Thyroxine over treatment could cause diarrhoea, however, there are no other symptoms of hyperthyroidism.

Chronic pancreatitis would cause pale, loose stools and stomach cramps but is less likely.

It is important to always consider ovarian cancer in women presenting with diarrhoea and bloating. However, this woman is probably on the younger side for ovarian cancer and this is less likely.

Inflammatory bowel disease would likely cause more severe symptoms and systemic symptoms. She is also the wrong age range.

Question:

You diagnose a right-sided sudden sensorineural hearing loss (SSNHL) in a normally fit and well 38-year-old woman who has come to see you in your GP clinic. She developed her symptoms over a few hours yesterday and now can not hear at all through her right ear. Her examination shows no obvious external or middle ear causes.

What is your next step?

A.Refer her to ENT or audiovestibular medicine for a routine appointment

B.Refer her to be seen within 2 weeks by a ENT specialist

C.Refer her to be seen within 2 weeks by a neurologist

D.Refer her for assessment within 24 hours by a neurologist

E.Refer her for assessment within 24 hours by an ENT specialist

Answer:Refer her for assessment within 24 hours by an ENT specialist

Explanation:

Acute sensorineural hearing loss is an emergency and requires urgent referral to ENT for audiology assessment and brain MRI

Important for meLess important

NICE CKS advise referring to ENT or an emergency department immediately (within 24 hours) anyone with:

Sudden onset (over 3 days or less) unilateral or bilateral hearing loss which has occurred within the past 30 days and cannot be explained by external or middle ear causes.

Unilateral hearing loss associated with focal neurology (such as altered sensation or facial droop).

Hearing loss associated with head or neck injury.

Hearing loss associated with severe infection such as necrotising otitis externa or Ramsay Hunt syndrome.

Any option that suggests a non-urgent referral is incorrect.

Any option that suggests referral to a specialist other than ENT is incorrect.

Question:

A recently relocated mother brings her 10-year-old child to her new local GP for the first time for a thyroid check. The GP notices the child to be of short stature, have a short neck, and a flattened nose. Upon further examination the GP sees prominent epicanthic folds as well as a single palmar crease.

Given this child’s likely long-term condition, which is this child at higher risk for?

A.Alzheimer's disease

B.Asthma

C.Hyperthyroidism

D.Lymphoma

E.Schizophrenia

Answer:Alzheimer's disease

Explanation:

Down syndrome - Alzheimer's disease

Important for meLess important

This question is testing for knowledge of the complications associated with Down syndrome. This boy's short stature, short neck, flattened nose, prominent epicanthic folds as well as their single palmar crease are all features seen in Down syndrome.

Alzheimer's disease is the correct answer, there is a higher risk for patients with Down syndrome to acquire Alzheimer's disease. The National Down Syndrome Society states that 30% of Down syndrome patients have Alzheimer's in their 50s and 50% of Down syndrome patients in their 60s. This is a stark contrast to the average population where symptoms usually begin appearing only after the age of 60. Almost 50% of the general population is thought to suffer from Alzheimer's after the age of 85.

Asthma is wrong as there is no evidence that patients with Down syndrome are at higher risk for the condition.

This patient was brought in for a thyroid check as there is an association between Down syndrome and hypothyroidism. There is however no association between hyperthyroidism and Down syndrome, making this option incorrect.

Acute lymphocytic leukaemia (ALL) is associated with Down syndrome however lymphoma is not, making this the wrong option.

Schizophrenia is an incorrect option as there is no evidence of being at a higher risk for patients with Down syndrome.

Question:

A 76-year-old woman is being managed in a hospice for metastatic lung cancer. Her main symptoms have been pain and agitation.

She has been started on a syringe driver containing morphine sulphate and midazolam. She is receiving the morphine at a rate of 60 mg in 24 hours.

Despite this dose, she remains in pain and you decide to increase her dose of morphine.

Which of the following options is the most appropriate dose to give over the next 24 hours?

A.65 mg

B.78 mg

C.100 mg

D.120 mg

E.240 mg

Answer:78 mg

Explanation:

In palliative patients increase morphine doses by 30-50% if pain not controlled

Important for meLess important

In palliative care, you would increase the dose of morphine by 30-50% each time until pain is controlled.

In this case, this patient has received 60 mg in 24 hours. A 30% increase of 60 mg is 78 mg. A 50% increase of 60 mg would be 90 mg. Therefore, an appropriate increase in morphine dosing would be anywhere between 78 and 90 mg.

In reality, this patient should also have as-required (PRN) subcutaneous morphine prescribed for breakthrough pain. You'd then increase the 24-hour dose by the total requirement of PRN doses in the previous 24 hours.

The other options are either too little of an increase, or too much of an increase.

Question:

Robert is 60-year-old man with a history of hypertension, ischaemic heart disease and diabetes. He smokes 12 cigarettes a day and drinks five to six pints of beer every weekend. His body mass index is 32kg/m² and he leads a sedentary lifestyle. Robert presents to his GP to ask about his risk of aortic dissection. Unfortunately, his brother died of this condition six months ago.

Which of the risk factors that Robert has is most commonly associated with aortic dissection?

A.Diabetes

B.Smoking

C.High body mass index (kg/m²)

D.Hypertension

E.Ischaemia heart disease

Answer:Hypertension

Explanation:

Hypertension is the commonest association for aortic dissection

Important for meLess important

Aortic dissection is when a tear in the intimal layer of the aorta forms and leads to the propagation of a sub-intimal haematoma. It typically causes a tearing chest pain that radiates to between the scapulae. Whilst it has many associations, hypertension co-presents in the vast majority of cases. The prevailing theory at the moment is that this high pressure stretches and weakens the aortic wall to the point of tearing.

Question:

A 21-year-old female presents for review. She is 14 weeks pregnant and has been seen by the midwives for her booking visit. There have been no pregnancy related problems to date. Tests taken revealed the following:

Blood group: A Rhesus negative

What is the most appropriate management regarding her rhesus status?

A.Give first dose of anti-D at 28 weeks

B.No action required unless antenatal vaginal blood loss

C.Give first dose of anti-D as soon as possible

D.Give anti-D just prior to delivery

E.No action required

Answer:Give first dose of anti-D at 28 weeks

Explanation:

Rhesus negative woman - anti-D at 28 + 34 weeks

Important for meLess important

NICE recommend giving rhesus negative woman anti-D at 28 weeks followed by a second dose at 34 weeks

Question:

A 30-year-old female presents to the emergency department complaining of a pain in her wrist. She reports that whilst playing cricket that morning she was struck on the back of her right wrist by the ball. She heard a crack at the time of impact and her wrist immediately became swollen.

On examination:

Heart rate: 72/minute; Respiratory rate: 12/minute; Blood pressure: 128/78 mmHg; Oxygen saturations: 98%; Temperature: 37.3 ºC. Capillary refill time: 2 seconds.

Right wrist: swollen, erythematous and disaffirmed. Skin intact. Extremely tender upon palpation of the distal radius. Difficulty pronating and supinating wrist. Unable to make the ‘OK’ sign. Sensation intact. Pulses present.

Examination of the right elbow and left upper limb is unremarkable.

X-rays of the right wrist and forearm are carried out which demonstrate a fractured distal radius and associated dislocation of the distal radioulnar joint.

What term is used to describe this pattern of injury?

A.Monteggia fracture

B.Colles’ fracture

C.Smith's fracture

D.Galeazzi fracture

E.Boxer’s fracture

Answer:Galeazzi fracture

Explanation:

A Galeazzi fracture is a dislocation of the distal radioulnar joint with an associated fracture of the radius

Important for meLess important

This patient has a Galeazzi fracture: a distal radial fracture with an associated dislocation of the distal radioulnar joint.

A Monteggia fracture (1) is a fracture of the proximal ulna, with an associated dislocation of the proximal radioulnar joint.

A method to remember the difference between the two of these is by combining the name of the fracture with the bone that is broken:

Monteggia ulna (Manchester United), Galeazzi radius (Galaxy rangers)

A Colles' fracture (2) is a distal radius fracture with dorsal displacement. A Smith’s fracture (3) is a distal radius fracture with volar displacement. A Boxer's fracture (5) is a fracture of the neck of the fourth or fifth metacarpal with volar displacement of the metacarpal head.

Question:

A 46-year-old man presents to his GP with a 6-week history of leg and back pain. The pain is often made worse by sitting. On examination, there is weakness of left hip abduction and left foot drop. Power in the right limb is normal. Lower limb reflexes are normal in both legs. The GP suspects a prolapsed disc.

Which of the following nerve roots is most likely to have been affected?

A.S1

B.L2

C.L3

D.L4

E.L5

Answer:L5

Explanation:

L5 radiculopathy: Weakness of hip abduction and foot drop, no specific reflex lost

Important for meLess important

The correct answer is 'L5'.

Compression of the L5 nerve root typically presents with weakness of hip abduction and foot drop. There may also be sensory loss over the dorsum of the foot. Lower limb reflexes remain intact. Based on the history and examination findings this is the most likely nerve root affected in this patient.

S1 nerve root compression typically presents with sensory loss of the posterolateral aspect of the leg and lateral aspect of the foot. There may be weakness of foot plantar flexion and a reduced ankle reflex.

L2 nerve root compression would present with back, groin, and anterior thigh pain. There may be weakness of hip flexion but lower limb reflexes tend to be normal.

L3 nerve root compression would present with sensory loss over the anterior thigh, weakened quadriceps, and a reduced knee reflex.

L4 nerve root compression would present with sensory loss over the anterior aspect of the knee, weakened quadriceps, and a reduced knee reflex.

Question:

What is the mechanism of action of goserelin in prostate cancer?

A.Androgen receptor antagonist

B.Oestrogen agonist

C.GnRH agonist

D.Luteinising hormone receptor antagonist

E.GnRH antagonist

Answer:GnRH agonist

Explanation:

Goserelin (Zoladex) is a synthetic GnRH agonist which provides negative feedback to the anterior pituitary

Question:

A 3-year-old girl is brought in by her mother. Her mother reports that she has been eating less and refusing food for the past few weeks. Despite this her mother has noticed that her abdomen is distended and she has developed a 'beer belly'. For the past year she has opened her bowels around once every other day, passing a stool of 'normal' consistency. There are no urinary symptoms. On examination she is on the 50th centile for height and weight. Her abdomen is soft but slightly distended and a non-tender ballotable mass can be felt on the left side. Her mother has tried lactulose but there has no significant improvement. What is the most appropriate next step in management?

A.Switch to polyethylene glycol 3350 + electrolytes (Movicol Paediatric Plain) and review in two weeks

B.Speak to a local paediatrician

C.Reassure normal findings and advise Health Visitor review to improve oral intake

D.Prescribe a Microlax enema

E.Continue lactulose and add ispaghula husk sachets

Answer:Speak to a local paediatrician

Explanation:

The history of constipation is not particularly convincing. A child passing a stool of normal consistency every other day is within the boundaries of normal. The key point to this question is recognising the abnormal examination finding - a ballotable mass associated with abdominal distension. Whilst an adult with such a 'red flag' symptom/sign would be fast-tracked it is more appropriate to speak to a paediatrician to determine the best referral pathway, which would probably be clinic review the same week.

Question:

A 53-year-old man with type 1 diabetes visits the clinic. His blood test was done one week ago and shows an HbA1c of 72 mmol/mol. He has stage 1 chronic kidney disease and takes omeprazole for reflux. He lives with his wife and children, works in an industrial meat factory, and is a non-smoker.

The doctor notes a 1-centimetre ulcer on the medial side of his left great toe which has erythematous edges with some slough. This appeared 2 weeks ago after a long day’s work and has not improved. Otherwise, foot inspection is normal.

What are the most likely contributing factor(s) to this patient's foot ulcer?

A.Chronic infection only

B.Loss of sensation and peripheral arterial disease

C.Loss of sensation only

D.Peripheral arterial disease and chronic infection

E.Peripheral arterial disease only

Answer:Loss of sensation and peripheral arterial disease

Explanation:

Loss of sensation and peripheral arterial disease are the two main factors contributing to diabetic foot disease

Important for meLess important

The correct answer is loss of sensation and peripheral arterial disease. Prolonged hyperglycaemia in diabetes mellitus results in a glove-and-stocking distribution of sensory axonal loss, known as diabetic neuropathy. Where a person with intact sensory function would feel repeated irritation and pain, a person with diabetic neuropathy may not feel this tissue damage and would carry on irritating it without knowing, sometimes causing deep ulcers. This patient’s work boots may not be adequately fitted, causing the blister on his toe which then developed into a deeper wound. The other factor that is important in the aetiology of diabetic foot ulcers is arterial insufficiency, where chronic atherosclerotic changes in peripheral arteries prevent adequate blood flow to extremities. This lack of plentiful oxygen prevents good healing of the wound, so it persists longer and does not form healthy granulation tissue.

Chronic infection only is incorrect. While infection is often a consequence of diabetic foot disease and does delay healing and cause significant morbidity and mortality, it is not one of the main factors contributing to diabetic foot disease itself.

Loss of sensation only is incorrect. Arterial insufficiency is an important factor that contributes to diabetic foot disease as it delays healing, so only having a loss of sensation in the area is not enough to maintain a chronic ulcer such as is seen in diabetic foot disease.

Peripheral arterial disease and chronic infection is incorrect. Diabetic neuropathy, or glove-and-stocking distribution of sensory loss is one of the main factors contributing to diabetic foot disease because it means that a person can irritate their skin and break down the physical barrier without realising it, creating the wound which then fails to heal. Chronic infection can be a consequence of this but is not usually the cause.

Peripheral arterial disease only is incorrect. A loss of sensation is required for the person to break down the skin barrier at points of irritation, which then fail to heal due to poor arterial supply.

Question:

A 30 year old woman presents to her GP surgery with new paresthesia in her right leg. She was diagnosed with multiple sclerosis 3 months ago by the neurology department. This paresthesia has persisted for 2 days and is accompanied by worsening fatigue and urinary frequency/urgency symptoms.

A urine dip is unremarkable.

What would be the most appropriate treatment to start in these circumstances?

A.Fingolimod

B.Beta-interferon

C.Amantadine

D.Natalizumab

E.Methylprednisolone

Answer:Methylprednisolone

Explanation:

MS: high dose steroids can be used in the management of acute relapse

Important for meLess important

This is likely an acute relapse of her known multiple sclerosis. A urine dip has ruled out urinary tract infection which could also cause a flare in her symptoms (Uhthoff's phenomenon). As her symptoms are both new, and lasted longer than 24hrs these are most likely to be an acute relapse and therefore treated with methylprednisolone (IV or oral).

Fingolimod is a once-daily oral disease modifying drug which may reduce the percentage of relapses but is not a treatment for acute relapses. Natalizumab is a once-monthly infusion used as disease modifying therapy. Beta-interferon can also be used to reduced the number of relapses - none of these medications would be appropriate and should be started in secondary care with adequate drug counselling.

Amantadine could be used to help with fatigue, NICE recommends trialling this for fatigue once other causes have been ruled out but it would be unlikely to help with her other symptoms.

Question:

A 55-year-old man is undergoing a routine health assessment. He admits to consuming at least 6 standard alcoholic drinks each weekday evening and even more on the weekend. The risks of this intake are discussed with him and a plan is made to reduce his intake.

Which of the following actions is the most appropriate?

A.Arrange hospital admission for intravenous thiamine and detoxification

B.Prescribe an intramuscular multivitamin supplement

C.Prescribe an oral multivitamin

D.Prescribe oral thiamine

E.Prescribe oral vitamin B co-strong

Answer:Prescribe oral thiamine

Explanation:

Thiamine should be prescribed to patients who regularly drink alcohol excessively, but vitamin B co-strong is no longer recommended

Important for meLess important

The most appropriate option in this situation while the patient is reducing his alcohol intake is to commence thiamine (vitamin B1). This is important because it prevents the precipitation of Wernicke's syndrome which would present with confusion, ataxia and ocular abnormalities. Untreated, this could progress into an irreversible Korsakoff psychosis.

Admission does not need to be arranged in this case. Admission for detoxification may be appropriate for patients who have stopped drinking and are having significant withdrawal symptoms such as delirium tremens.

An intramuscular multivitamin is not appropriate in this case. The main vitamin required is thiamine to prevent the Wernicke-Korsakoff syndrome. Oral thiamine is less invasive and effective in this scenario.

An oral multivitamin is not appropriate to recommend in this situation. It probably would not contain a sufficient enough dose of thiamine to prevent Wernicke-Korsakoff syndrome.

Vitamin B co-strong is no longer recommended for patients who drink alcohol as the main issue is thiamine deficiency and the risk of Wernicke's syndrome. The tablets do not contain enough thiamine to prevent this.

Question:

A 54-year-old man is diagnosed with type 2 diabetes mellitus. A decision is made to start simvastatin 40mg. What is the ideal time to advise patients to take this medication?

A.After breakfast

B.Last thing in the evening

C.After evening meal

D.Just before evening meal

E.First thing in the morning

Answer:Last thing in the evening

Explanation:

Taking simvastatin at night improves efficacy

Question:

A 45-year-old female presents three days after returning from Thailand complaining of severe muscle ache, fever and headache. On examination she has a widespread maculopapular rash.

Blood results show the following:

Hb 162 g/l

Plt 96 \*109/l

WBC 2.4 \*109/l

ALT 146 iu/l

Malaria film: negative

What is the most likely diagnosis?

A.Hepatitis A

B.Japanese encephalitis

C.Rheumatic fever

D.Malaria

E.Dengue fever

Answer:Dengue fever

Explanation:

Retro-orbital headache, fever, facial flushing, rash, thrombocytopenia in returning traveller → ?dengue

Important for meLess important

The low platelet count and raised transaminase level is typical of dengue fever.

Question:

A woman brings her daughter to general practice concerned that she hasn't started her periods yet. Her daughter is 15 years old.

On general examination, she is in the 9th percentile of height for her age, has short ring fingers, poor breast development, and a high arched palate.

On auscultation of her heart, you note a crescendo-decrescendo murmur on the upper right sternal border which radiates to the carotids.

What is the most likely cause of this murmur?

A.Aortic valve calcification

B.Bicuspid valve

C.Rheumatic heart disease

D.Tetralogy of Fallot

E.William's syndrome

Answer:Bicuspid valve

Explanation:

Turner's syndrome is associated with an ejection systolic murmur due to bicuspid aortic valve

Important for meLess important

Bicuspid valve. The stem indicates this girl has Turner's syndrome, which is where an X chromosome is missing (genotype 45, X). Short stature (being in the 9th percentile of height), short fourth metacarpals, primary amenorrhoea, poorly developed secondary sexual characteristics (poor breast growth), and a high arched palate all point towards Turner's. A complication of Turner's syndrome is a bicuspid aorta, which is present in 15% of cases. This gives an ejection systolic murmur in the aortic region (right sternal border at the 2nd intercostal space), which can be described as a crescendo-decrescendo murmur due to the steady rise and fall in sound corresponding to the force of ventricular contraction against the stenosed valve.

Aortic valve calcification. This is the most common cause of aortic stenosis in patients over 65 and is usually age-related. It would be highly unusual in such a young patient.

Rheumatic heart disease. Streptococcal rheumatic heart disease can cause aortic stenosis (as well as a host of other cardiac pathology). However, there is no indication that this girl has suffered from rheumatic fever, which would give a history of polyarthritis and fever, possibly with acute cardiac involvement.

Tetralogy of Fallot. This is a serious congenital cardiac malformation characterised by pulmonary stenosis, an overriding aorta, a ventricular septal defect, and right ventricular hypertrophy. It is cyanotic and usually diagnosed much earlier, which there is no indication of in this case.

William's syndrome. This is a genetic condition caused by a deletion on chromosome seven. It is associated with aortic stenosis, but patients typically present with intellectual disability, underdeveloped cheeks, short noses, broad foreheads, and a happy affect. While this patient's presentation hints at a genetic condition, it points towards Turner's syndrome rather than William's syndrome.

Question:

A teenage boy is brought in to the emergency department having suffered a stab wound to the right side of his chest. He looks distressed. You make the following assessment:

Airway - patent, answering questions, stating he is in pain, unable to complete full sentences

Breathing - RR 26, sats 98% on 15L non-rebreathe. Trachea deviated to the left, hyper-resonant to percussion and absent breath sounds on the right side of the chest

Circulation - HR 112, BP 97/58, temperature 36.7º. CRT = 3 seconds. Heart sounds 1+2+0.

Disability - increasingly drowsy and responsive to voice. BM 7.9mmol/L.

Exposure - stab wound to right side of the chest with minimal haemorrhage, abdomen soft and non-tender.

Based on the above findings, what is the most likely clinical diagnosis?

A.Right-sided haemothorax

B.Right-sided pleural effusion

C.Right-sided pneumothorax

D.Right-sided pulmonary embolism

E.Right-sided tension pneumothorax

Answer:Right-sided tension pneumothorax

Explanation:

Tracheal deviation, resonant to percussion and absent breath sounds in the context of respiratory distress and shock - think a tension pneumothorax

Important for meLess important

This gentleman has sustained a right-sided traumatic tension pneumothorax secondary to his stab wounds. Stab wounds in the chest can sometimes lead to skin or chest wall flaps acting as valves to let air into the pleural space leading to pneumothorax formation and tensioning. The clinical signs of him having a pneumothorax are present - hyper-resonance to percussion and absent breath sounds on the affected side. He has signs of tensioning whereby his trachea is deviated to the left (away from the pneumothorax), as well as developing life-threatening respiratory distress and shock. This is a clinical diagnosis and should be treated by inserting a wide bore cannula into the second intercostal space, mid-clavicular line to decompress the tension pneumothorax, leading to the formation of a 'regular' pneumothorax.

Question:

A 31-year-old woman presents to the Emergency Department complaining of a headache. She has had 'flu' like symptoms for the past three days with the headache developing gradually yesterday. The headache is described as being 'all over' and is worse on looking at bright light or when bending her neck. On examination her temperature is 38.2º, pulse 96 / min and blood pressure 116/78 mmHg. There is neck stiffness present but no focal neurological signs. On close inspection you notice a number of petechiae on her torso. She has been cannulated and bloods (including cultures) have been taken. What is the most appropriate next step?

A.IV cefotaxime

B.Arrange a CT head

C.Perform a lumbar puncture

D.IV dexamethasone

E.Intramuscular benzypenicillin

Answer:IV cefotaxime

Explanation:

This patient has meningococcal meningitis. They need appropriate intravenous antibiotics immediately. With the advent of modern PCR diagnostic techniques there is no justification for delaying potentially lifesaving treatment by performing a lumbar puncture in patients with suspected meningococcal meningitis.

Question:

A 37-year-old woman presents to the GP surgery with nausea and vomiting. She is 8 weeks pregnant. This is her first pregnancy. She requests an antiemetic to take throughout the first trimester as she wants to be able to stay at work. She is not dehydrated, has no ketonuria, and can keep down fluids. She has no past medical history.

What is the most appropriate management?

A.Advise a trial of ginger and acupressure bands

B.Advise to take time off work

C.Prescribe metoclopramide

D.Prescribe promethazine

E.Refer to the midwife

Answer:Prescribe promethazine

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

Prescribe promethazine is correct. Promethazine and cyclizine are first-line antiemetics in pregnancy. This patient is requesting an antiemetic, so one should be prescribed, and there are no indications that hospital treatment such as intravenous fluids for dehydration is required.

Advise a trial of ginger and acupressure bands is incorrect. If the patient did not want to take medications it may be appropriate to discuss these methods, but as the patient has requested medication and there is little evidence these methods are effective it would not be appropriate to advise this.

Advise to take time off work is incorrect. The patient has stated she would like to stay at work. It may be beneficial to explore this to ensure this is the patient's own choice rather than from external pressure, but if she wishes to stay at work she should be supported to do so.

Prescribe metoclopramide is incorrect. This is an effective antiemetic but should not be used for more than 5 days due to the risk of extrapyramidal effects. This patient is requesting a medication she can take throughout the first trimester.

Refer to the midwife is not the correct management for this presentation. She will need to be referred to the midwifery team, but her symptoms should be treated by her GP.

Question:

A 45-year-old woman presents with a history of progressive unilateral hearing loss for the past few months. She also experienced reduced facial sensation and balance problems.

Which of the following investigations will be most useful in providing the definitive diagnosis?

A.Audiogram and CT head

B.Audiogram and gadolinium-enhanced MRI head

C.CT head and gadolinium-enhanced MRI head

D.Lumbar puncture and CT head

E.Gadolinium-enhanced MRI head and brain biopsy

Answer:Audiogram and gadolinium-enhanced MRI head

Explanation:

The first line investigations for patients with a suspected diagnosis of vestibular schwannoma are audiogram and gadolinium-enhanced MRI head scan

Important for meLess important

In any patient with unilateral hearing loss who presents with reduced facial sensation and balance problems, acoustic neuroma (vestibular schwannoma) should be suspected. An audiogram will identify and quantify the hearing deficit and a gadolinium-enhanced MRI head scan will show a contrast-enhanced mass growing into the internal acoustic meatus. MRI scan has also superceded CT scan as the first line investigation for a suspected acoustic neuroma. In this case, a lumbar puncture and brain biopsy are invasive investigations and will not provide any useful information for diagnosing an acoustic neuroma.

Question:

A 32-year-old man presents to his GP with an erythematous, swollen right calf. His GP refers him to the hospital for an ultrasound and he is found to have a deep vein thrombosis. He has no past medical history, medications or recent travel. His heart rate is 84 bpm, temperature is 37.2ºC and blood pressure is 147/88 mmHg. The doctor does a urine dip and a blood test.

Urine dip: +++ protein, + blood, - leucocytes, - nitrites.

The only abnormality on blood test is an albumin of 27 g/L (normal 35-48 g/L).

He goes on to have a renal biopsy after appropriate treatment of his deep vein thrombosis. The report is as follows:

Light microscopy shows a thickened glomerular basement membrane in all glomeruli, with subepithelial spikes visible on silver staining. Immunostaining is positive for PLA2R antibodies.

What is the most likely underlying diagnosis?

A.Minimal change disease

B.Goodpasture's disease

C.Membranous glomerulonephritis

D.Focal segmental glomerulosclerosis

E.IgA nephropathy

Answer:Membranous glomerulonephritis

Explanation:

Membranous glomerulonephritis histology:

basement membrane thickening on light microscopy

subepithelial spikes on sliver stain

positive immunohistochemistry for PLA2

Important for meLess important

This man has nephrotic syndrome based on his hypoalbuminaemia and proteinuria. He also is hypertensive and has a mild degree of haematuria. It is important to remember that nephrotic syndrome and nephritic syndrome are on a continuous spectrum. The histology findings are consistent with membranous glomerulonephritis which classically causes nephrotic syndrome but is further towards the nephritic end of the spectrum than minimal change. Membranous glomerulonephritis also causes a hypercoagulable state, which has caused the DVT in this man. Membranous glomerulonephritis and focal segmental glomerulosclerosis are the commonest primary causes of glomerulonephritis in adults.

Minimal change disease would typically affect children, who would be normotensive, with no haematuria and no findings on light microscopy.

Goodpasture's disease would cause nephritic syndrome (never nephrotic), lung symptoms and more systemic upset. It also would not cause these histology findings.

Focal segmental glomerulosclerosis would cause similar symptoms, urine dip and blood test findings but would not cause these histology findings.

IgA nephropathy is the commonest cause of glomerulonephritis in adults worldwide, particularly affecting young males. It can cause nephrotic or nephritic syndrome or isolated haematuria. It would not cause these histology findings.

Question:

A 25-year-old female presents with a 2 days history of shortness of breath. She also has pain in both knees as well as alopecia and oral ulcers.

On examination, a rash on the cheeks and nose is observed. Dull percussion notes and diminished breath sounds are noted in both lower lung fields. A chest radiograph demonstrates bilateral pleural effusion.

Which of the following should be done to confirm the most likely diagnosis of this patient?

A.Sputum culture and gram staining

B.Antinuclear antibody (ANA) titre test

C.Lung biopsy

D.Rapid diagnostic nucleic acid amplification tests

E.Bone marrow biopsy

Answer:Antinuclear antibody (ANA) titre test

Explanation:

Connective tissue disorders e.g. systemic lupus erythematosus can cause exudative pleural effusion

Important for meLess important

Several diagnostic possibilities exist in this case as the patient could have had an infection including pulmonary tuberculosis, pulmonary embolism, congestive heart failure or any collagen vascular disorders. Hence all of the answers above except for lung and bone marrow biopsy are reasonable but not the best answer as the presence of lupus erythematosus cells (LE cells) in the pleural fluid is highly specific for systemic lupus erythematosus (SLE).

The diagnosis of SLE can be further confirmed by pleural fluid and serum antinuclear antibody (ANA) titre test.

It is worth noting that pulmonary involvement in SLE is very common with pleuritis being the most frequent manifestation. Pleural effusion due to lupus pleuritis is typically an exudate and can be either unilateral or bilateral.

Question:

Which one of the following is not classically seen in coning resulting from raised intra cranial pressure?

A.Coma

B.Hypotension

C.Unreactive mid sized pupils

D.Cheyne Stokes style respiratory efforts

E.Bradycardia

Answer:Hypotension

Explanation:

Cushings triad

Widening of the pulse pressure

Respiratory changes

Bradycardia

Important for meLess important

Due to raised ICP systemic hypertension is usually seen. Compression of the respiratory centre will typically result in Cheyne Stokes style respiration.

Question:

An 82-year-old female presents to the emergency department having suffered from diarrhoea and abdominal pain for the past week. She has a past medical history of type 2 diabetes mellitus and recently required treatment with co-amoxiclav and clarithromycin for severe community-acquired pneumonia. Her observations show:

Respiratory rate: 25/min

Heart rate: 131 bpm

Temperature: 38.7ºC

Blood pressure: 86/68mmHg

Oxygen saturation: 96% on room air

Key investigation findings include an abdominal radiograph which shows large bowel distension (diameter >6cm) and later, a stool sample which is positive for Clostridium difficile toxin (CDT).

Which of the following is the most appropriate prescribing strategy for this patient?

A.IV metronidazole

B.IV vancomycin and IV metronidazole

C.Oral metronidazole

D.Oral vancomycin and IV metronidazole

E.Oral vancomycin and oral metronidazole

Answer:Oral vancomycin and IV metronidazole

Explanation:

In life-threatening C. difficile infection treatment is with ORAL vancomycin and IV metronidazole

Important for meLess important

The correct answer is to commence oral vancomycin and IV metronidazole. This patient is suffering from a C. difficile infection, as indicated by her positive toxin stool sample. The co-amoxiclav and clarithromycin that she was recently given, as a treatment for her pneumonia, are highly associated with C. difficile infection. As this patient is profoundly hypotensive and has radiographic evidence of toxic megacolon, this is classed as a life-threatening infection according to Public Health England (PHE) guidelines. The guidelines state that for life-threatening infection, oral vancomycin plus IV metronidazole should be prescribed for 10–14 days. Such patients would be very closely monitored, with specialist surgical input.

'IV metronidazole' is incorrect as this single prescription would be inadequate for this patient; as stated above, oral vancomycin is also required.

'IV vancomycin and IV metronidazole' is incorrect as the vancomycin should be in oral form, rather than IV.

'Oral metronidazole' is indicated for mild/moderate C. difficile infection. It is typically prescribed for 10-14 days.

'Oral vancomycin and oral metronidazole' is incorrect as the metronidazole is recommended to be in IV form for life-threatening C. difficile infection.

Question:

A 44-year-old man attends with severe abdominal pain. This is the third admission in the last 3 months with similar presentations. Previous endoscopies and cross-sectional imaging demonstrated severe constipation but no other abnormalities. His wife advises you that he has also been suffering from insomnia, irritability and aggressive behaviour.

The consultant requests further specialist tests:

Blood film Microcytic anaemia with basophilic stippling

Serum delta aminolaevulinic acid Normal

Urine delta aminolaevulinic acid Normal

What is the most likely diagnosis?

A.Acute intermittent porphyria

B.Lead poisoning

C.Myelodysplastic syndrome

D.Porphyria cutanea tarda

E.Thalassemia

Answer:Lead poisoning

Explanation:

Abdominal pain, constipation, neuropsychiatric features, basophilic stippling → lead poisoning

Important for meLess important

The clinical and laboratory features are suggestive of lead poisoning. This condition classically presents with abdominal pain, constipation, peripheral neuropathy (mainly motor) and neuropsychiatric features. Haematological abnormalities include a microcytic anaemia and basophilic stippling as demonstrated in this case.

Along with lead poisoning, acute intermittent porphyria should be considered in patients presenting with a combination of abdominal pain and neurological signs. In lead poisoning, raised serum and urine levels of delta aminolaevulinic acid may be seen making it sometimes difficult to differentiate from acute intermittent porphyria. However, in this case, the normal delta aminolaevulinic acid levels favour the diagnosis of lead poisoning.

Porphyria cutanea tarda is a rare disorder characterised by painful, blistering skin lesions that develop on sun-exposed skin (photosensitivity). It does not present with visceral involvement as seen in this case, making it an unlikely diagnosis.

Whilst both myelodysplastic syndrome and thalassemia can cause microcytic anaemia with basophilic stippling, the neurological and gastrointestinal features present in this case is not typical of these conditions.

Question:

Mary, a 34-year-old woman presents to the emergency department after an accident. She was clearing out her allotment when she accidentally stood on an old nail which penetrated through her boots and into the sole of her right foot. She removed the nail herself before seeking help due to excess bleeding.

Mary tells you that she has kept up to date with all her vaccinations from childhood, including at least 5 separate tetanus vaccinations, the last of which being 6 years ago. You decide to initially manage Mary by cleaning her wound thoroughly and prescribing some prophylactic antibiotics.

In addition to cleaning the wound and prescribing appropriate antibiotics, how should Mary be managed in regard to her tetanus risk?

A.Anti-tetanus immunoglobulin

B.Booster vaccine

C.Booster vaccine + anti-tetanus immunoglobulin

D.Booster vaccine + anti-tetanus immunoglobulin + contact tracing

E.No vaccination required

Answer:No vaccination required

Explanation:

If a patient has had 5 doses of tetanus vaccine, with the last dose < 10 years ago, they don't require a booster vaccine nor immunoglobulins, regardless of how severe the wound is

Important for meLess important

The correct management is to not provide any further tetanus boosters. Mary has had a five doses of the tetanus vaccination with the last dose within the last ten years, therefore she is likely to have long term protection from tetanus and does not require the treatment.

Anti-tetanus immunoglobulin is not an appropriate answer and is rarely given alone. However, if Mary were only partially vaccinated or her boosters were not up to date, she would require an individual booster dose to be adequately protected.

Mary does not require the booster and anti-tetanus immunoglobulin in this case. This is the management for patients with no prior immunisation or an uncertain immunisation history. Contact tracing is not required in tetanus infection.

Question:

Which one of the following vaccines uses an inactivated preparation of the organism or virus?

A.Influenza (intramuscular)

B.Yellow fever

C.Oral polio

D.Measles

E.Diphtheria

Answer:Influenza (intramuscular)

Explanation:

Question:

A 46-year-old man presents to his general practitioner with a 2-day history of frank jaundice. His past medical history is significant for Crohn's disease and type 2 diabetes mellitus.

His regular medications include metformin, sitagliptin, infliximab, and bisoprolol. He recently finished a course of clindamycin for a lower limb cellulitis, as well as starting glipizide for poor glycaemic control. He is found to have unconjugated hyperbilirubinaemia.

The patient describes a similar episode of jaundice as a child after eating fava beans.

What drug is most likely to have caused the patient's jaundice?

A.Bisoprolol

B.Clindamycin

C.Glipizide

D.Infliximab

E.Sitagliptin

Answer:Glipizide

Explanation:

G6PD deficiency: sulph- drugs: sulphonamides, sulphasalazine and sulfonylureas can trigger haemolysis

Important for meLess important

The correct answer is glipizide. The patient's history is indicative of G6PD deficiency, classically caused by ingestion of fava beans/broad beans and leading to haemolysis. Multiple drug classes are also associated with haemolysis in G6PD deficiency, including sulphonamides, sulphasalazine, and sulphonylureas among others. Glipizide is a sulphonylurea and is, therefore, the correct answer. Other examples of sulphonylureas include gliclazide and glimepiride.

Bisoprolol is incorrect, as it is not associated with haemolysis in G6PD deficiency. Jaundice is not a known side-effect of bisoprolol.

Clindamycin is incorrect as macrolides are not associated with haemolysis in G6PD deficiency. Antibiotics associated with haemolysis in patients with G6PD deficiency include nitrofurantoin, sulfamethoxazole, and ciprofloxacin.

Infliximab is incorrect, as it is not associated with haemolysis in G6PD deficiency. Infliximab may rarely cause cholestasis, though this would cause conjugated hyperbilirubinemia and is not associated with G6PD deficiency.

Sitagliptin is incorrect, as DPP-4 inhibitors are not associated with haemolysis in G6PD deficiency. Sulphonylureas are the class of diabetic drugs most associated with G6PD deficiency.

Question:

A 19-year-old with type 1 diabetes presents to the Emergency Department feeling unwell. She states she has had vomiting and diarrhoea for 2 days and has not been taking her full insulin doses as she has been off her food. Her capillary glucose is 37 mmol/l and there are 4+ ketones on urinalysis.

An arterial blood gas is performed and the results are as follows:

pH 7.12

pO2 13 kPa

pCO2 3.5 kPa

HCO3 13

Na 129 mmol/l

K 6.1 mmol/l

Which of the following is the most appropriate initial management?

A.IV 0.9% NaCl bolus

B.IV 10 units actrapid + 50ml 50% dextrose

C.IV 8.4% sodium bicarbonate

D.Empirical IV antibiotics

E.Insulin sliding scale

Answer:IV 0.9% NaCl bolus

Explanation:

This is a classical presentation of diabetic ketoacidosis. While precise protocols vary according to the particular hospital, the key principals are initial fluid resuscitation with normal saline prior to starting an IV insulin infusion, and careful potassium replacement.

Low sodium is often seen and is a pseudohyponatraemia secondary to the high serum glucose.

Serum potassium derangements are common and need careful management. Potassium is driven into cells by insulin. Serum potassium levels are therefore often high on presentation while blood insulin levels are depleted. Despite this, total body potassium is low due to fluid losses and requires careful monitoring and replacement during treatment.

Source: http://www.diabetes.org.uk/Documents/About%20Us/What%20we%20say/Management-of-DKA-241013.pdf

Question:

You are reviewing a female patient who is currently 28 weeks pregnant with her second child. Her first child, who is now 2 years old had neonatal sepsis caused by Group B Streptococcus (GBS).

Given this history, the patient is asking what will happen to her and/or the baby to prevent this from happening again in this pregnancy.

What treatment will the patient and/or baby require?

A.Maternal intravenous (IV) antibiotics during labour

B.Maternal IV antibiotics if the mother is pyrexial in labour

C.Monitor the baby for signs of sepsis following birth for 72 hours

D.Newborn IV antibiotics at birth

E.Maternal IV antibiotics in labour and newborn infant IV antibiotics

Answer:Maternal intravenous (IV) antibiotics during labour

Explanation:

Maternal intravenous antibiotic prophylaxis should be offered to women with a previous baby with early- or late-onset GBS disease

Important for meLess important

Bacterial sepsis is a major problem in the newborn unit. The incidence of sepsis is higher in preterm infants, especially the very low birthweight infant (<1500g).

The most common cause is Group B Streptococcus (GBS). GBS is a commensal of the female genital tract. In the mother, it may be associated with urinary tract infection during pregnancy, septic abortion, and postpartum endometritis.

In the neonate, it can cause early or late infection (although there is overlap).

Maternal intravenous antibiotics in labour are recommended for all women who have had a previous baby with early or late-onset GBS disease. Therefore, option 1 is the only correct answer. Newborn antibiotics are recommended if there are signs of sepsis when the infant is born.

Question:

A 27-year-old male comes into your GP practice seeming very frightened. He has had a bad cough over the past few weeks. Although this was not concerning initially, he has since developed haemoptysis three days ago, which was quickly followed by haematuria. He has never had anything like this happen in the past. His past medical history includes asthma in childhood that has since resolved. He is not prescribed any medication but is a regular smoker of 20 cigarettes a day, starting when he was 15.

What is the most likely diagnosis?

A.Small cell lung cancer

B.Non-small cell lung cancer

C.IgA nephropathy

D.Goodpasture's syndrome

E.Henoch-Schonlein Purpura

Answer:Goodpasture's syndrome

Explanation:

Anti-GBM disease typically presents with haemoptysis + AKI/proteinuria/haematuria

Important for meLess important

Glomerulonephritis in Goodpasture's syndrome is very commonly preceded by chest symptoms (coughing/chest pain/haemoptysis). It is a disease that affects type IV collagen that is found in both the lungs and the kidneys.

At such a young age, it would be incredibly unlikely for him to have lung cancer (although it is still a possibility). It would be hard to explain the development of both the chest and the urinary symptoms with this diagnosis, however, especially due to their appearance in close succession.

IgA nephropathy usually presents with a recurrent history of haematuria and does not involve the lungs.

Henoch-Schonlein pupura most commonly affects children and causes systemic effects that usually result in abdominal pain, a palpable rash, and arthritis. The patient in the clinical scenario above has none of these symptoms.

Question:

A 26-year-old woman presents to the emergency department. Her mother is present who she lives with. Following an argument, the patient had taken a packet of her mother's tablets which she takes for depression. She had preceded to lock herself in her room. She refused to open the door and when it was forced open she was found on the floor and appeared very drowsy.

In the department an electrocardiogram was done as part of her work up. This showed sinus rhythm of rate 98 beats per minute, with PR interval 100ms, QRS 150ms, and QTc interval 420ms.

What is the most appropriate management step regarding these findings?

A.DC cardioversion

B.IV dextrose

C.IV lorazepam

D.IV sodium bicarbonate

E.Oral flecainide

Answer:IV sodium bicarbonate

Explanation:

Widened QRS or arrhythmia in tricyclic overdose - give IV bicarbonate

Important for meLess important

This patient has presented following what is likely an overdose on a tricyclic antidepressant (e.g. amitriptyline). These act as potent sodium channel blockers. This blockade leads to a widening of the QRS complex which is seen here, which if not managed can degenerate into ventricular tachycardia. To prevent this, cardiac stability can be achieved by alkalinisation of the serum which is done by giving IV sodium bicarbonate.

Additionally, in critically unwell patients the patient may be intubated and electively hyperventilated. This in effect blows off their carbon dioxide, generating a alkalosis through respiratory means.

Selective serotonin reuptake inhibitors (SSRIs) are commonly used antidepressants. However, the ECG in overdose of this type of medication doesn't typically widen the QRS. Instead, they cause a prolongation of the QT, which is normal in this case.

DC cardioversion is done for patients who are in tachyarrhythmias if it is not appropriate to manage them pharmacologically. Principally this is if there is evidence of shock, syncope, myocardial ischaemia or heart failure. In this case the patient is not tachycardic, and the ECG changes alone are not sufficient to warrant cardioversion.

IV dextrose doesn't have a role in the reversal of the toxicity caused by an tricyclic overdose. However, it is always important to check a blood sugar in patients with reduced levels of consciousness, as hypoglycaemia is a potential cause.

IV lorazepam is used primarily in the management of seizures - this is the other main consequence of the tricyclic's effect of sodium blockade. However, as the patient is not seizing there is no role for it currently.

Flecainide is an antiarrhythmic. This should not be chosen as class 1a antiarrhythmics (e.g. Quinidine) and class Ic antiarrhythmics (e.g. Flecainide) are contraindicated in tricyclic overdose as they prolong depolarisation.

Question:

A 65-year-old man with a long history of diabetes presents to the emergency department. He says he has an unbearable pain around his 'rear end', has been unable to defecate due to the pain, and has been having spiking temperatures. You attempt to examine the anus, but he is in too much pain, but you do notice the anus looks red and inflamed.

Which of the following is the most like cause of this man's symptoms?

A.Anal fissure

B.Anal fistula

C.Anal skin tag

D.Haemorrhoids

E.Perianal abscess

Answer:Perianal abscess

Explanation:

Perianal abscess will present with severe pain in the perianal region, and may have spiking temperatures

Important for meLess important

This is a stereotypical history of a perianal abscess- diabetic with severe pain, unable to defecate, and spiking temperatures. The majority of people actually don't have spiking temperatures, but this is still often a symptom used in exams. None of the other options will present with spiking temperatures, so this is the key discriminating factor. Management will either be broad spectrum antibiotics, or surgical drainage.

Question:

A 22-year-old man presents to the outpatient clinic with complaints of low back pain and stiffness for more than 3 months. There is no history of obvious injury. His symptoms are worse in the morning and are improved with exercise. Routine blood tests were unremarkable except:

ESR 30 mm/hour (0 - 15)

CRP 15 mg/L (<10)

A plain x-ray of the sacroiliac joints shows erosions, sclerosis, and joint space widening. The diagnosis of ankylosing spondylitis is made.

Which is the next step in the treatment of this patient?

A.Anti-TNF therapy and exercise

B.Exercise and NSAIDs

C.Exercise and glucocorticoids

D.Methotrexate and NSAIDs

E.Surgical consultation

Answer:Exercise and NSAIDs

Explanation:

Exercise regimes and NSAIDs are the 1st line management for ankylosing spondylitis

Important for meLess important

Exercise regimen and NSAIDs are the first-line management for ankylosing spondylitis. NSAIDs provide relief of symptoms and prevent functional limitations. Regular exercises (postural training, range of motion exercises, stretching, recreational activities) like swimming are also encouraged to reduce and prevent functional limitations.

The Ankylosing Spondylitis Disease Activity Score (ASDAS) is an instrument to measure disease activity. An ASDAS calculator can be accessed at the ASDAS website. The ASDAS categorises the disease activity as inactive, low, high, or very high.

Anti-tumor necrosis factor (TNF) therapy should be given to patients with persistently high disease activity despite conventional treatments with NSAIDs. The disease activity should be at least high (≥2.1) on ASDAS to warrant consideration of biologic therapy.

Glucocorticoids are are not indicated for patients with ankylosing spondylitis.

Methotrexate is prescribed when conventional treatment with NSAIDs do not control the symptoms (specifically for persistent peripheral arthritis).

Surgery may be done if the disease has progressed causing severe impairment. Hip and spine surgery may be beneficial in select patients with: persistent pain or severe limitation in mobility, neurologic impairment, or severe flexion deformities.

Question:

Please look at this skin lesion below a patient's eye:

© Image used on license from DermNet NZ and with the kind permission of Prof Raimo Suhonen

Which one of the following medications is most associated with the development of these lesions?

A.Statins

B.Prednisolone

C.Aspirin

D.Amiodarone

E.Combined oral contraceptive pill

Answer:Combined oral contraceptive pill

Explanation:

Question:

A 28-year-old man is brought into the emergency department by ambulance. He was driving and involved with a high-speed head-on collision with another car. Fortunately he was wearing his seatbelt during the accident, and did not exit the vehicle as a result of the collision. On clinical examination, he appears confused, has bruising and pulsatile swelling over the right side of his neck and eventually becomes unresponsive. He also appears to have a fractured nose and has multiple lacerations across his face including his lips.

What is the most likely explanation for his symptoms?

A.Cervical spine fracture

B.Clavicle fracture

C.Carotid artery laceration

D.Carotid embolism rupture

E.Metastatic lymph node

Answer:Carotid artery laceration

Explanation:

RTAs involving passengers wearing seatbelts incorrectly can result in lacerations to the carotid artery

Important for meLess important

Road traffic accidents at high-speed often result in poly-trauma, with the speed and type of vehicle influencing the pattern of injuries sustained. Incorrect positioning of seat belts can result in injuries to the neck and therefore the carotid artery. In this scenario, the pulsatile mass and swelling would suggest a carotid artery laceration and overlying expanding haematoma. While a cervical spine fracture may co-exist with the carotid artery laceration and could result in a loss of consciousness if severe, it would not explain the pulsatile expanding mass overlying the neck. Similarly, a clavicle fracture would not explain the clinical features described in the neck, and would likely be more obviously detected on clinical examination.

Although it is possible for an embolism to rupture as a result of trauma - it is highly unlikely, and therefore not the most appropriate option. Metastatic lymph nodes are unlikely to lead to such a rapid decline in the patient's status as seen in this case. The quick decline in consciousness and the haematoma are expanding nature of the haematoma much more likely point towards an arterial laceration as opposed to node pathology.

Question:

A 3-year-old girl is brought to the GP by a worried mother as her child has had a temperature for 72 hours and has now started to develop a rash on her torso and face. She describes the rash as forming in clusters.

The girl is not eating much but is drinking well and has no changes to her urinary or bowel movements. She has no significant medical history and her immunisations are up to date. No-one else in the family has been unwell recently but the mum does inform you that her daughter has recently started attending nursery and a few of the other children have had a similar rash.

On examination: temperature 38.8ºC, scabbed lesions on the left cheek, erythematous vesicles on the trunk.

Which of the following is the most appropriate management of this child?

A.Acyclovir

B.Ibuprofen

C.Flucloxacillin

D.Permethrin

E.Topical calamine lotion

Answer:Topical calamine lotion

Explanation:

Chickenpox has a prodrome of raised temperature before the rash begins on the torso and face

Important for meLess important

Chicken pox is a very infectious disease caused by varicella zoster virus and usually presents in childhood. There is a classic description of increased temperature for 2 days before developing clusters of erythematous vesicles predominantly affecting the torso and face. Children are infectious until all spots have scabbed over and should be kept home from nursery/school until this point. Management is through supportive measures, including calamine lotion to soothe the itch and paracetamol to control the fever.

Acyclovir is considered in immunodeficiency children who are at particular risk of developing complications such as pneumonia and meningitis.

Permethrin is the treatment for scabies which predominantly affects the web spaces of the fingers .

Flucloxacillin is advised for bacterial super infections on top of the chicken pox.

Ibuprofen should be avoided in chicken pox as there is an associated risk between use of NSAIDs and the development of necrotising fasciitis.

Question:

A 45-year-old man presents for GP review after being discharged from the hospital. He suffered a tibial plateau fracture which was repaired operatively. The recovery was complicated by a deep vein thrombosis and small pulmonary emboli for which he was treated with apixaban. He has had no past history of thrombosis and no other medical issues.

How long should this patient remain on anticoagulation?

A.Indefinitely

B.Until haematology review

C.3 months

D.6 months

E.12 months

Answer:3 months

Explanation:

'Provoked' pulmonary embolisms are typically treated for 3 months

Important for meLess important

This case demonstrates a provoked pulmonary embolism after surgery and immobilisation in a middle-aged man. In this situation, the patient requires treatment for 3 months at least and this may require extension or specialist referral depending on leg symptoms and respiratory symptoms.

Indefinite anticoagulation is not indicated at this stage. If this problem was recurrent or the patient had evidence of thrombophilia, this could be considered.

Referral to a haematologist is also not indicated at this stage. This issue was provoked by several factors and if treatment is not successful or the patient has further thrombosis issues, then this could be considered.

Anticoagulating for 6 months may be considered in cases of unprovoked pulmonary embolism. In this situation, the patient's issue was provoked by immobilisation and surgery.

Anticoagulating for 12 months is not a typically suggested duration but may be recommended after specialist assessment in certain situations. This patient should be treated for 3 months as recommended and reviewed for the potential requirement of extended treatment.

Question:

Mr Waering is a 67-year-old patient who presents with his ankles 'going into spasm' when using the pedals of his car over the past couple of days. He also reports a slight tingling in his hands and feet. Apart from this, he has been well recently, with no other new symptoms. His past medical history includes type 2 diabetes and dyspepsia. His regular medications include metformin, sitagliptin, omeprazole, atorvastatin, and he uses sodium alginate with potassium bicarbonate after meals and before bed as required. You arrange some urgent blood tests, suspecting an electrolyte disturbance. These come back showing hypomagnesaemia.

Which of his medications should you stop?

A.Metformin

B.Sitagliptin

C.Omeprazole

D.Atorvastatin

E.Sodium alginate with potassium bicarbonate

Answer:Omeprazole

Explanation:

Proton pump inhibitors are a common cause of hypomagnesaemia

Important for meLess important

Omeprazole: correct answer. Proton pump inhibitors are known to cause hypomagnesaemia; the MHRA advises consider testing magnesium levels prior to treatment and periodically throughout long term treatment. In practice this is probably rarely done.

Metformin: incorrect answer. Metformin can decrease vitamin B12 absorption. Sitagliptin, atorvastatin and sodium alginate with potassium bicarbonate do not cause hypomagnesaemia.

Question:

A renal nurse received a needlestick injury when setting up haemodialysis for a 40-year-old patient. The dialysis patient has been on dialysis for the last 1 year. The most recent serology results for the dialysis patient were taken routinely 1 month ago and are as follows. Baseline results are not yet back for the renal nurse.

HBsAg equivocal

anti-HBs positive (150 IU/ml)

anti-HBc negative

anti-HBe negative

What is the most likely explanation for these findings?

A.Chronic hepatitis B

B.False positive anti-HBs

C.Previously treated hepatitis B

D.Recent hepatitis B vaccination

E.Spontaneously cleared hepatitis B infection

Answer:Recent hepatitis B vaccination

Explanation:

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

Important for meLess important

The most likely answer is recent hepatitis B vaccination. The patient has a positive anti-HBs, equivocal HBsAg and all other markers negative. An equivocal (or low-level positive) HBV surface antigen may occasionally occur if the patient has received a recent HBV vaccination. This is because the HBV surface antigen is present in the HBV vaccine. This effect may produce a low-level positive HBsAg but would not generally explain a strongly positive HBsAg. No other antigens are present in the vaccine so antibodies are produced against HBsAg only and not against any other HBV antigens. The absence of other markers is therefore reassuring that the equivocal HBsAg is less likely to reflect true infection.

Chronic hepatitis B is incorrect. The HBsAg must always be positive if there is an ongoing active infection as the presence of the antigen indicates the presence of the hepatitis B virus. You would also expect the patient to have positive anti-HBc.

False positive anti-HBs is incorrect. This is not generally seen. The patient also has a level of anti-HBs of 150 IU/ml indicating a good response to the vaccine (target > 100 IU/ml) which also goes against it being a false positive.

Previously treated hepatitis B is incorrect. In this situation, you would expect the anti-HbC IgG to be positive indicating previous exposure to the virus itself rather than just the vaccine.

Spontaneously cleared hepatitis B infection is incorrect. In this scenario, the patient would have positive anti-HBc and anti-HBe as well as anti-HBs. The fact that they have anti-HBs only tells you that they have only been exposed to the vaccine, not the virus itself.

Question:

You are a medical student on a ward round with the colorectal surgical team. You see a 58-year-old male patient who is day 1 post-op after having had a Hartmann's procedure. The F1 is writing in the notes and you are reading her the observations chart, you find some of his parameters appear to be abnormal. The consultant examines the patient who appears to be septic and asks for his drug chart. When he returns the drug chart to you, you notice he has written a prescription for Tazocin but on the front of the chart an allergy to penicillin is documented. The busy ward round is about to move on. What is the best course of action?

A.Cross off the Tazocin and sign that you have stopped it

B.Do nothing as the consultant probably had good reason to prescribe Tazocin

C.Politely point out to the consultant the patient's penicillin allergy

D.Make a note of the patient's details and ask the F1 at the end of the ward round

E.Find the nurse of that bay and ask them not to dispense the Tazocin

Answer:Politely point out to the consultant the patient's penicillin allergy

Explanation:

Option 3 is the correct answer. The consultant may not be aware of the patient's penicillin allergy and so should be informed so he can decide on a suitable alternative. Option 1 does not resolve the issue of the patient's unawareness of the patient's allergy status. Option 2 does not act in the best interests of the patient, which comes first in line with Good Medical Practice. Option 4 and 5 leaves a window of opportunity for the nurse who may come and dispense the medications before the end of the ward round and before you have had a chance the inform the nurse or the F1 and so is not safe.

Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 30-year-old man with a history of chronic alcohol abuse attends the Emergency Department. He appears unkempt, confused and keeps falling over. On examination, you note that he has issues with balance and coordination and that he has nystagmus with bilateral lateral rectus palsy. His sensory examination identifies a polyneuropathy and his pulse is 90bpm. He is not agitated and does not have any tremor on examination.

Which of the following treatments should be given to this patient most urgently?

A.Vitamin B12

B.Chlordiazepoxide

C.Folate

D.Benzodiazepines

E.Pabrinex

Answer:Pabrinex

Explanation:

Confusion, ataxia, nystagmus/ophthalmoplegia→ give Pabrinex (IV B/C vitamins)

Important for meLess important

This gentleman has presented with the typical triad of Wernicke's encephalopathy (confusion, ataxia, ophthalmoplegia). This is thought to be due to a deficiency in thiamine and often seen in alcoholics. Patients should be urgently treated with Pabrinex (IV B/C vitamins) to prevent them from developing a non-reversible condition called Korsakoff syndrome. The patient is not eliciting symptoms of withdrawal and whilst he will need an alcohol withdrawal prevention medication, this is not the most urgent treatment to be given. He also does have peripheral neuropathy which will possibly improve with vitamin B12, but this is included in Pabrinex treatment and would not be the most urgent treatment to be given alone.

Folate should never be given to a patient with likely B12 deficiency as it can worsen subacute combined degeneration of the spinal cord.

Question:

A 25-year-old female presents to general practice with a positive urine pregnancy test.

She had a termination of pregnancy three weeks ago, which was managed medically with mifepristone and misoprostol. At the time of termination, she was at eight weeks gestation.

Since the procedure, she has had no continuing symptoms of pregnancy and minimal vaginal bleeding.

What action should you advise?

A.Reassure the patient, it is normal for pregnancy tests to remain positive after termination

B.Reassure and repeat urine pregnancy test at 4 weeks post termination

C.Refer to early pregnancy assessment unit (EPAU)

D.Refer for routine gynaecology outpatient appointment

E.Refer for direct access transvaginal ultrasound

Answer:Reassure and repeat urine pregnancy test at 4 weeks post termination

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

Following termination of pregnancy, HCG decreases by about 50% every two days. It is therefore normal for HCG to remain positive for a number of weeks.

The trend in HCG levels shows an initial steep decrease in the first two weeks and then a gradual decline over a further two weeks. In most women, without continuing pregnancy, the HCG levels will have returned to normal within four weeks.

The correct answer is, therefore, to repeat the urine pregnancy test in another week as she is currently only three weeks post-termination. If however, the test remains positive beyond four weeks, this may indicate a continuing pregnancy and warrants further investigation.

Further actions, such as making referrals or imaging would be inappropriate for this patient as a positive test in this time frame is unlikely to represent a continuing pregnancy and she shows no signs warranting urgent hospital review (i.e. signs of infection or haemorrhage).

Question:

A 43-year-old man is being reviewed after being admitted with severe bilateral pneumonia.

He has an ongoing oxygen requirement and is not responding to first-line antibiotics.

The respiratory consultant suggests doing an atypical pneumonia screen, including testing for Legionnaire's disease.

What is the most appropriate investigation to test for this?

A.Blood serology

B.Sputum PCR

C.Sputum culture

D.Sputum for acid fast bacilli (AFB)

E.Urinary antigen

Answer:Urinary antigen

Explanation:

Legionella pneumophilia is best diagnosed by the urinary antigen test

Important for meLess important

Legionella pneumonia is most likely caused by the Legionella pneumophila bacterium. It is an atypical cause of pneumonia, that should be suspected in severe bilateral cases of pneumonia, in pneumonia of a younger person, or pneumonia in someone immunosuppressed. It is best diagnosed by a urinary antigen test.

Blood serology is incorrect. This may detect immunoglobulins which are suggestive of Legionnaire's disease, however, it is nowhere near as sensitive as the urinary antigen test, and is therefore not recommended as the first line.

Sputum PCR is incorrect. This may be useful in looking for other causes of legionella pneumonia by other Legionella spp., but would normally only be done on the advice of a microbiologist as they are significantly rarer causes.

Sputum culture is incorrect. This may show gram-negative rods which are indicative of Legionella spp., but it does not fully confirm the diagnosis.

Sputum for acid fast bacilli (AFB) is incorrect. This would also be indicated in an atypical screen but is used for mycobacterium detection, not Legionella spp..

Question:

A 21-year-old university student presents to the emergency department complaining of a worsening headache with photophobia and a widespread non-blanching rash. He is admitted and, following a lumbar puncture, is treated with intravenous antibiotics.

Upon questioning, the patient mentions he had been at home for the holidays and had returned 4 days prior to the onset of his symptoms.

What is the most appropriate action regarding the patient’s recent contacts?

A.No contact treatment is required

B.Offer 1 dose of oral ciprofloxacin to all close contacts within the past 7 days

C.Treat close contacts only if they develop a fever in the next 5 days

D.Inform all close contacts within the past 7 days that they must self isolate for 7 days

E.Offer a 7 day course of oral amoxicillin to close contacts within the last 14 days

Answer:Offer 1 dose of oral ciprofloxacin to all close contacts within the past 7 days

Explanation:

People who have been exposed to a patient with confirmed bacterial meningitis should be given prophylactic antibiotics if they have close contact within the seven days before onset

Important for meLess important

This patient has bacterial meningitis, highlighted by the history of photophobia, non-blanching rash and headache. Bacterial meningitis is the inflammation of the meninges of the brain and spinal cord. In this age group, bacterial meningitis is most commonly caused by Neisseria meningitidis and Streptococcus pneumoniae. Offering 1 dose of oral ciprofloxacin to everyone the patient has been in close contact with in the last 7 days is the correct answer.

Only giving medication to contacts who develop symptoms is incorrect as we should offer post-exposure prophylaxis to everyone the patient has had close contact with. The risk of developing the disease decreases 7 days after exposure.

Self-isolation is not a suitable management plan as it will not prevent his contacts from developing meningitis.

A 7-day course of oral amoxicillin is incorrect as oral amoxicillin is not used for post-exposure prophylaxis of meningococcal meningitis. The time frame is also wrong, post-exposure prophylaxis should be given to people who have had close contact with the patient in the last 7 days rather than 14 days.

Question:

A 14-year-old boy presents to the Emergency Department as he is unable to control his facial muscles and arm movements. For the last 5 weeks, following a throat infection, he has been experiencing ongoing fever, worsening shortness of breath and joint pains, mainly in his legs which have not been effectively managed. What is the most likely cause of the patient’s recent symptoms?

A.Huntington's chorea

B.Chorea gravidarum

C.Wilson's disease

D.Drug-induced chorea

E.Sydenham's chorea

Answer:Sydenham's chorea

Explanation:

Sydenham’s chorea is a late complication of rheumatic fever

Important for meLess important

This patient is suffering from Sydenham's chorea, a complication of rheumatic fever. Following the untreated throat infection, most probably caused by Group A beta-haemolytic streptococcus, this boy contracted rheumatic fever which is an inflammatory disease involving the heart, skin, joints and brain. Initial management of the chorea is to eliminate the causative agent which in this case is the bacterial infection that hasn't been effectively treated.

Question:

A 63-year-old gentleman presents to his general practitioner. He has recently been diagnosed with melanoma after being referred to the dermatologist with a suspicious red lump on his face. He is awaiting further imaging to see if the melanoma has metastasised. After being told his subtype of melanoma, he researched further online. He is now very concerned as he has read that his subtype is the most aggressive subtype and that it metastasises early. Which subtype of melanoma is he likely to have?

A.Actinic keratosis

B.Lentigo maligna

C.Acral lentiginous

D.Nodular

E.Superficial spreading

Answer:Nodular

Explanation:

Nodular melanoma: Invade aggressively and metastasise early

Important for meLess important

The presentation of this lesion is most consistent with nodular melanoma. Nodular melanoma is the most aggressive form of melanoma. This is because it tends to grow rapidly, downwards into the deeper layers of skin, increasing in thickness faster than in diameter.

The other forms of melanoma typically take longer to grow and metastasise. These are described in further detail in the notes below. Actinic keratosis is not a form of melanoma, but rather a pre-cancerous lesion.

(DermNet NZ)

Question:

Which of the following drugs is the most appropriate to prescribe in the first trimester of pregnancy for the indication stated?

A.Emesis: cyclizine

B.Epilepsy: sodium valproate

C.Hypertension: ramipril

D.Hyperthyroidism: carbimazole

E.Urinary tract infection: trimethoprim

Answer:Emesis: cyclizine

Explanation:

Nausea and vomiting are very common in pregnancy, with 70-85% of pregnant women affected. Most cases are mild and do not require treatment, however anti-emetics may be considered if symptoms are persistent, severe and preventing daily activities. Suitable anti-emetics include cyclizine, metoclopramide, prochlorperazine, promethazine, chlorpromazine, domperidone and ondansetron. There is no evidence to suggest that any one of these drugs works better than another.

Epilepsy affects 0.5% of pregnant women. It is a significant cause of maternal death, and so antiepileptic treatment is continued during pregnancy. However, antiepileptic drugs increase the risk of congenital abnormalities, particularly neural tube defects. Carbamazepine and lamotrigine are the safest drugs to prescribe, whereas sodium valproate should be avoided. This is because it is associated with a higher rate of congenital abnormalities and lower intelligence in children.

Hyperthyroidism affects 0.2% of pregnant women. Poorly controlled disease increases perinatal mortality and can cause a 'thyroid storm' in the mother. Propylthiouracil is the preferred antithyroid drug as it is less likely to cross the placenta than carbimazole.

Hypertension during pregnancy is either pre-existing or pregnancy-induced. Pre-existing hypertension occurs when the blood pressure is greater than 140/90mmHg before pregnancy or 20 weeks' gestation, or the woman is already on antihypertensive medication. Primary hypertension is the most common cause. Complications include worsening hypertension and a sixfold increased risk of pre-eclampsia. Pregnancy-induced hypertension occurs when the blood pressure is greater than 140/90mmHg after 20 weeks' gestation. It may be due to transient hypertension or pre-eclampsia. Maternal complications of pre-eclampsia include pulmonary oedema, renal failure, liver failure, DIC, HELLP syndrome, CVA and eclampsia. Fetal complications include IUGR, hypoxia, preterm birth and placental abruption. ACE inhibitors should not be used to treat hypertension during pregnancy as they are teratogenic and affect fetal urine production. Labetalol is the drug of choice but methyldopa and nifedipine are suitable alternatives.

Asymptomatic bacteriuria affects up to 7% of pregnant women but 25% will go on to develop pyelonephritis, as the calyces and ureters dilate in pregnancy. Acute pyelonephritis can cause intrauterine growth restriction, premature labour and fetal death. Prompt and effective antibiotic treatment for all urinary tract infections is thus important during pregnancy. The 2015 NICE guidelines on 'Lower Urinary Tract Infections' state that local prescribing guidelines should be followed where possible. Generally nitrofurantoin is the preferred antibiotic, followed by trimethoprim and then cefalexin. However, the BNF states that ideally nitrofurantoin should be avoided at term due to a risk of neonatal haemolysis and trimethoprim should be avoided in the first trimester due to its actions as a folic acid antagonist.

Question:

A 28-year-old man is investigated for cervical lymphadenopathy. A biopsy shows nodular sclerosing Hodgkin's lymphoma. Which one of the following factors is associated with a poor prognosis?

A.History of Epstein Barr virus infection

B.Mediastinal involvement

C.Female sex

D.Night sweats

E.Lymphocytes 20% of total white blood cells

Answer:Night sweats

Explanation:

Night sweats are a 'B' symptom and imply a poor prognosis

Question:

A 61-year-old woman with a history of metastatic breast cancer complains of nausea following a chemotherapy infusion. You elect to prescribe ondansetron. What is the most important site of action of this drug?

A.Efferent branch of the vagal nerve

B.Substantia nigra

C.Gastric mucosa

D.Hypothalamus

E.Medulla oblongata

Answer:Medulla oblongata

Explanation:

Question:

A 41-year-old man is recovering on the ward following a road traffic accident where he sustained a complete spinal cord injury at C6. You are asked to see him as his blood pressure is high.

On examination he has a heart rate of 58 bpm and a blood pressure of 198/141 mmHg. His face looks flushed and is sweating but there is a marked transition to being pale at his shoulders. He reports feeling panicked and has a headache.

What is the most likely cause of this man’s hypertension?

A.Phaeochromocytoma

B.Paraganglioma

C.Autonomic dysreflexia

D.Hyperthyroidism

E.Superior vena cava obstruction

Answer:Autonomic dysreflexia

Explanation:

Symptoms of autonomic dysreflexia are severe hypertension and flushing and sweating above the level of injury

Important for meLess important

This man has a spinal cord injury above the level of T6 and so is at risk of developing autonomic dysreflexia in response to noxious stimuli affecting insensate areas. Most commonly catheter blockage or faecal loading are the culprits. The features are due to excessive sympathetic response below the level of injury without a coordinated parasympathetic counter-response resulting in excessive hypertension with flushing and sweating above the level of injury. He has a reflex bradycardia due to an increase in vagal tone in response to the hypertension detected by carotid baroreceptors.

With the three endocrine causes listed here, many of the same symptoms would be present although the key distinguishing feature is the lack of a tachycardia and this is what indicates a dysreflexia. In superior vena cava obstruction you would not expect to see hypertension.

Question:

You are on a home visit to see Beryl, an 87-year-old woman with metastatic lung cancer who has had trouble with nausea and vomiting over the past week. She describes regular nausea, oesophageal reflux and infrequent large volumes of vomitus, after which her symptoms are relieved.

After a full assessment, you believe her symptoms are due to gastric stasis and decide to start an anti-emetic.

Which of the following is the most appropriate medication to commence?

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

NICE guidelines state that:

For managing nausea and vomiting due to gastric stasis: give metoclopramide. If extrapyramidal effects are a problem with metoclopramide, use domperidone.

Therefore a dopamine receptor antagonist is the choice of anti-emetic for nausea and vomiting due to gastric stasis, and also for gastric dysmotility.

Cyclizine is an antihistaminic, anticholinergic anti-emetic therefore would not be appropriate.

Hyoscine butylbromide is an anticholinergic anti-emetic.

Levomepromazine is a broad-spectrum anti-emetic useful for mechanical obstruction, and for persistent nausea and vomiting uncontrolled by other anti-emetics.

Ondansetron is a serotonin antagonist anti-emetic which is used for nausea and vomiting related to chemotherapy and radiotherapy as well as for post-operative nausea and vomiting.

Question:

A 57-year-old man attends his GP surgery complaining of a 2-day history of pain in his right lower leg. On examination, the right lower leg is painful and tender when squeezed, erythematous, and swollen up to the knee. He has a temperature of 38.1°C. All other vital signs are normal.

The patient’s past medical history includes hypertension and type 2 diabetes mellitus.

Given the likely diagnosis, what is the most appropriate management?

A.Intravenous cefuroxime

B.Low molecular weight heparin

C.Oral clarithromycin

D.Oral flucloxacillin

E.TED stockings

Answer:Oral flucloxacillin

Explanation:

Flucloxacillin is the first line therapy for cellulitis

Important for meLess important

Oral flucloxacillin is the correct answer. This man has cellulitis as seen by the history of a red, painful, swollen lower leg and associated fever. Flucloxacillin is the first-line therapy for cellulitis in patients with no penicillin allergy. The absence of septic signs makes intravenous antibiotic therapy unnecessary making oral flucloxacillin the treatment of choice.

Intravenous cefuroxime is incorrect. This treatment is recommended as an intravenous antibiotic in patients with severe cellulitis. The patient has no signs of severe cellulitis. These include acute confusion, hypotension, tachycardia, tachypnoea, sepsis or necrotising fasciitis.

Low molecular weight heparin is incorrect. This is the treatment of choice for deep vein thrombosis (DVT). Given the patient has a fever, cellulitis is more likely than a DVT so antibiotics are required for treatment.

Oral clarithromycin is incorrect. This is the treatment of choice for patients with cellulitis and a penicillin allergy. There is no mention of such an allergy in the stem so the first-line antibiotic choice is flucloxacillin.

TED stockings are incorrect. These are used for prophylaxis of a DVT. Both cellulitis and current DVT are contraindications for TED stockings so these would not be used in this case.

Question:

A 68-year-old woman presents to the emergency department with palpitations for the past 1 month. She denies any dizziness or loss of consciousness. She has no past medical history. Observations show heart rate 153/min, BP 115/86mmHg, temperature 36.9ºC, and 99% saturations in room air. Her ECG is reported as showing no visible P waves and an irregularly irregular narrow QRS complex.

What is the most appropriate initial management?

A.Perform carotid sinus massage

B.Perform synchronised direct current cardioversion

C.Prescribe adenosine

D.Prescribe amlodipine

E.Prescribe metoprolol

Answer:Prescribe metoprolol

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

This patient is presenting with atrial fibrillation (AF) that has likely been present for 1 month with stable observations and no adverse features. The most important initial step in this situation is rate-control using either a beta blocker or a rate-limiting calcium channel blocker such as verapamil. The most appropriate option out of those listed is, therefore, metoprolol which will reduce the patient's heart rate. This can be given intravenously in the emergency department before being started on an oral beta-blocker (such as bisoprolol).

Carotid sinus massage is used in the management of terminating supraventricular tachycardias (SVT) (including AV node reentry tachycardias). It is not used in the management of AF. It attempts to stimulate the baroreceptors located in the carotid sinus in order to terminate the episode of SVT.

Synchronised direct current cardioversion is an appropriate option if the onset of AF is less than 48 hours or there are adverse features. This patient has had symptoms for one month and there is no indication that she has had a left atrial appendage thrombus excluded, therefore this is an incorrect answer.

Adenosine is used in the management of paroxysmal supraventricular tachycardias (including those associated with accessory conducting pathways like Wolff-Parkinson-White syndrome). It is not typically used in the management of AF and can actually trigger the onset of atrial fibrillation.

Amlodipine is a non-rate limiting calcium channel blocker used in the management of hypertension and angina prophylaxis. As it is non-rate limiting, it will not reduce the patient's heart rate and is an inappropriate answer.

Question:

A 72-year-old woman attends the clinic with a 6-month history of excessive thirst. She has a history of biventricular heart failure for which set takes ramipril, bisoprolol and furosemide.

Blood results are as follows:

Hb 124 g/L Male: (135-180)

Female: (115 - 160)

Platelets 158 \* 109/L (150 - 400)

WBC 8.4 \* 109/L (4.0 - 11.0)

Na+ 135 mmol/L (135 - 145)

K+ 3.6 mmol/L (3.5 - 5.0)

Urea 9.6 mmol/L (2.0 - 7.0)

Creatinine 146 µmol/L (55 - 120)

CRP 2 mg/L (< 5)

Calcium 2.85 mmol/L (2.1-2.6)

Phosphate 0.62 mmol/L (0.8-1.4)

PTH 4.8 pmol/L (1.6 - 6.9)

What is the most likely cause?

A.Furosemide

B.Osteopenia

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

Primary hyperparathyroidism is correct. This condition is characterised by hypercalcaemia with a raised or inappropriately normal PTH. The PTH levels are generally elevated in primary hyperparathyroidism, although approximately 10% to 20% of individuals will have 'inappropriately normal' levels. Renal impairment is commonly seen in patients with hypercalcemia primarily as a consequence of dehydration.

Furosemide is incorrect. Furosemide is a loop diuretic agent that can be used to treat hypercalcemia because it increases renal calcium excretion.

Osteopenia is incorrect. This is a quantitative, not qualitative, disorder of bone mineralisation. Laboratory bone profile results are usually normal, and the diagnosis relies on a DEXA scan.

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. The key biochemical features are hypocalcemia and a raised PTH. A raised ALP also occurs due to excessive bone resorption. Phosphate levels will vary with aetiology e.g. raised in kidney failure and decreased in vitamin D deficiency.

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 biochemically presents the same as primary hyperparathyroidism with raised calcium and elevated PTH. Although this remains a possibility, the patient only has mild renal impairment making this a less likely diagnosis. Furthermore, the phosphate level would generally be high in tertiary hyperparathyroidism (due to reduced renal clearance).

Question:

A 66-year-old woman with a history of chronic kidney disease stage 4 and metastatic breast cancer is admitted with a swollen right calf. Investigations confirm a deep vein thrombosis and she is started on treatment dose dalteparin. As she has a significant degree of renal impairment it is decided to monitor her response to dalteparin. What is the most appropriate blood test to perform?

A.Anti-Factor Xa levels

B.Antithrombin III levels

C.Anti-Factor VIIIa levels

D.Protrombin time (PT)

E.Activated Partial Thromboplastin Time (APTT)

Answer:Anti-Factor Xa levels

Explanation:

Question:

Which one of the following statements regarding the stopping of anti-epileptic drugs (AED) is most correct?

A.Can be considered if seizure free for > 5 years, with AEDs being stopped over 2-3 months

B.Can be considered if seizure free for > 2 years, with AEDs being stopped over 2-3 months

C.Can be considered if seizure free for > 1 year, with AEDs being stopped over 2-3 months

D.Can be considered if seizure free for > 5 years, with AEDs being stopped over 8-12 months

E.Can be considered if seizure free for > 1 year, with AEDs being stopped over 8-12 months

Answer:Can be considered if seizure free for > 2 years, with AEDs being stopped over 2-3 months

Explanation:

The above reflects 2004 NICE guidelines and should be done under the guidance of a specialist. Benzodiazepines should be withdrawn over a longer period.

Question:

An 80-year-old woman is started on oral alendronate following a fractured neck of femur. How would you explain how to take the tablet?

A.Take it on a full stomach to minimise gastric irritation and avoid lying down for 30 minutes afterwards

B.Dissolve tablet in water and take just before breakfast + sit-upright for 30 minutes following

C.Take during main evening meal + sit-upright for 2 hours following

D.Take at least 30 minutes before breakfast with plenty of water + sit-upright for 30 minutes following

E.Take at least 30 minutes after a main meal + sit-upright for 30 minutes following

Answer:Take at least 30 minutes before breakfast with plenty of water + sit-upright for 30 minutes following

Explanation:

Bisphosphonates can cause a variety of oesophageal problems

Important for meLess important

Question:

A 41-year-old man presents with a two week history of headaches around the left side of his face associated with watery eyes. He describes having about two episodes a day each lasting around 30 minutes. What is the likely diagnosis?

A.Migraine

B.Cluster headache

C.Trigeminal neuralgia

D.Acute angle closure glaucoma

E.Meningioma

Answer:Cluster headache

Explanation:

Episodic eye pain, lacrimation, nasal stuffiness occurring daily - cluster headache

Important for meLess important

Question:

A 7-year-old girl is brought to the hospital after waking up 1 day ago with facial oedema. This has now progressed to involve her lower limbs, and pitting oedema is present bilaterally to the knees. The patient has no past medical history, although she did have a short coryzal illness 4 days ago. Her blood pressure has been checked in triage and this is 105/70mmHg (normal for her age).

The child's urine dip and renal function are shown below:

Blood -

Glucose -

Leucocytes -

Nitrites -

Protein +++

Urea 4 mmol/L (2.5 - 6.5 age-adjusted)

Creatinine 35 µmol/L (30-47 age-adjusted)

Given the likely diagnosis, what is the mainstay of treatment?

A.ACE inhibitor

B.Albumin and furosemide infusions

C.Cyclophosphamide

D.Fluid restriction and low salt diet

E.Prednisolone

Answer:Prednisolone

Explanation:

Minimal change glomerulonephritis - prednisolone

Important for meLess important

Prednisolone is correct as this is the initial management for children with minimal change disease (MCD). MCD is the most common cause of nephrotic syndrome in children, and this child presents with typical nephrotic syndrome (new oedema and heavy proteinuria with no haematuria and normal renal function). Her normotension and preceding history of viral illness are also typical features of MCD. 80% of cases will be steroid responsive.

ACE inhibitor is incorrect. There is a role for ACE inhibitors in some forms of nephrotic syndrome as they reduce proteinuria (although without treating the underlying cause of nephrotic syndrome), particularly if the patient is hypertensive. They are not typically used in children with MCD, particularly if they are normotensive and steroid responsive. ACE inhibitors are used in focal segmental glomerulosclerosis, which is the most common cause of nephrotic syndrome in adults and, unlike MCD, typically causes hypertension.

Albumin and furosemide is incorrect as, whilst this may be used to manage oedema caused by nephrotic syndrome, they do not treat the underlying cause of MCD. Albumin reduces oedema by increasing oncotic pressure (as it replaces the protein lost in proteinuria) and furosemide provides extra diuresis. This treatment may be used as an adjunct in children with significant general oedema or pulmonary oedema. However, the effect is transient as further protein will be lost in the urine until the MCD is treated.

Cyclophosphamide is incorrect as this is an immune suppressant which is used in the management of MCD that is not responsive to steroids. It would be an option if this child did not improve with prednisolone.

Fluid restriction and low salt diet are incorrect as, although this is required in all patients to reduce oedema, it does not treat the underlying renal disease. Steroids are required for this. Any treatment aimed at managing oedema only without modifying underlying renal disease will produce transient improvement in symptoms only.

Question:

A 66-year-old gentleman with hypertension, gout, type 2 diabetes, and atrial fibrillation presents to the emergency department with a 12-hour history of bloody diarrhoea and abdominal pain, which he describes as “the worst pain he's ever had” and rates as 10/10. He has no recent travel history, and his contacts are well.

On examination, he is apyrexial and has a blood pressure of 126/82 mmHg. His abdomen is soft, non-tender, and there are normal bowel sounds. Digital rectal examination reveals blood mixed with the diarrhoea but is otherwise normal.

Which investigation will most likely point towards the diagnosis?

A.Abdominal ultrasound

B.Abdominal x ray

C.Routine laparotomy

D.Stool sample

E.Serum lactate

Answer:Serum lactate

Explanation:

Acute mesenteric ischaemia causes a raised lactate and is the first-line investigation

Important for meLess important

This patient has various risk factors (hypertension, T2DM, AF), and a very acute history (12 hours) of intense abdominal pain and bloody diarrhoea. Taken together with the examination findings (i.e. pain out of proportion to signs), this strongly suggests acute mesenteric ischaemia.

Given all this, a serum lactate would be the next investigation because it would be the best to rule this diagnosis in or out. If it is raised, acute mesenteric ischaemia is very likely in the context of the history and examination. Lactate is raised due to the lack of blood supply causing anaerobic metabolism and lactic acid production from the ischaemic bowel.

Whilst an abdominal X ray might also be requested, it cannot be done as quickly in an emergency department as an arterial or venous blood gas to check the patient's lactate; importantly, it would also not show ischaemic bowel. Abdominal ultrasound would likewise not show this.

A stool sample might be performed for completeness to exclude an infective cause, but it would not help immediately since it usually takes several days for the result to come through.

Question:

A 76-year-old woman attends clinic complaining of ongoing urinary incontinence. It is worse when she laughs or coughs. On initial examination, she had a normal pelvic examination, urine dipstick and urine microscopy culture and sensitivities. Four months ago she started supervised pelvic floor exercises and although she noted a slight improvement in incontinence, she still feels her symptoms are affecting her quality of life. Referral for consideration of surgery was discussed but she would prefer medical management.

Which medication is most appropriate to manage her symptoms?

A.Desmopressin

B.Duloxetine

C.Immediate release oxybutynin

D.Mirabegron

E.Modified release oxybutynin

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 has symptoms in keeping with stress incontinence.

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention.

Antimuscarinics are used to manage patients with urge incontinence who do not respond to, or alongside, bladder training. NICE recommend oxybutynin (immediate-release), tolterodine (immediate-release), or darifenacin (once daily preparation) first-line.

Mirabegron (a beta-3 agonist) is used to manage urge incontinence when antimuscarinics are contraindicated or when there are concerns regarding side effects of antimuscarinics, for example in frail elderly women.

Desmopressin is not a treatment for stress incontinence, however, if a patient has troublesome nocturia, NICE guidelines state you can consider prescribing desmopressin (off-label). This should be avoided in women aged 65 years or over with cardiovascular disease or hypertension.

Question:

An 8-year-old boy presents to his general practitioner, accompanied by his mother. She tells you he developed a rash on his hands and subsequently his abdomen two days ago. The rash is intensely itchy, especially at night. He has no past history of any dermatological problems and is otherwise well.

On examination, you note widespread excoriation of his left hand with some silver lines present in the inter-digital folds and an erythematous papular rash on his trunk.

Which of the following is most appropriate in the management of this patient?

A.Advise that all of his close contacts will require treatment

B.Advise the rash is self-limiting and no further management is required

C.Prescribe a single dose of permethrin cream

D.Prescribe oral aciclovir

E.Refer to a paediatric dermatologist

Answer:Advise that all of his close contacts will require treatment

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

The correct answer is to advise all of his close contacts will require treatment.

The most likely diagnosis is scabies, evidenced by the silver burrows present in the inter-digital folds and intensely pruritic rash which is worse at night. The scabies mite is spread via skin-to-skin contact. The management of scabies is with permethrin cream and it is important for all household and close physical contacts to be treated at the same time, even if asymptomatic.

A single treatment with permethrin cream is incorrect as patients require treating twice, with applications one week apart.

'Advise the rash is self-limiting and no further management is required' is incorrect as scabies will not improve without treatment.

Prescription of oral aciclovir is incorrect. This would be indicated in cases of chickenpox in immunosuppressed individuals.

Referral to a paediatric dermatologist is incorrect. NICE only recommends this be done in cases of scabies in children under 2 months old or cases of crusted scabies.

Question:

A 14-month-old girl is diagnosed as having roseola infantum. What is the most common complication of this disease?

A.Febrile convulsions

B.Transient synovitis

C.Otitis media with effusion

D.Pneumonia

E.Orchitis

Answer:Febrile convulsions

Explanation:

Roseola infantum - febrile convulsions occur in around 10-15%

Important for meLess important

Question:

A 65-year-old male presents to the emergency department with severe pain behind his right eye for the last 40 minutes. He states that his right eye has also been ‘tearing excessively’ for the last three hours. The man has had similar episodes like this over the last few weeks, but this time the pain is significantly worse. His past medical history is significant for coronary artery disease for which he had a coronary artery bypass graft (CABG) last year and he also suffers from asthma. He is not compliant with his medication regimen. He has normal vital signs. Ophthalmic examination demonstrates conjunctival injection and miosis of the right pupil. Neurological examination is normal. A computed tomography (CT) scan of the brain and erythrocyte sedimentation rate (ESR) are unremarkable. Which of the following is the most appropriate treatment for this patient?

A.High flow oxygen

B.Sumatriptan

C.Propranolol

D.Baclofen

E.Verapamil

Answer:High flow oxygen

Explanation:

Treatment of cluster headaches can involve both high flow oxygen and triptans, however, triptans are contraindicated in patients with CAD as they have the potential to cause coronary vasospasm

Important for meLess important

This patient’s presentation of sudden onset retro-orbital pain with excessive lacrimation and redness is consistent with a cluster headache. Cluster headaches are typically characterized by unilateral and severe headaches often associated with autonomic symptoms such as ptosis, miosis, conjunctival injection and excessive lacrimation. Although first line treatment for an acute attack involves sumatriptan and high flow oxygen, sumatriptan is contraindicated in this patient as he has a history of coronary artery disease. High flow oxygen has been shown to reduce the intensity and duration of an acute attack.

Sumatriptan is a hydroxytryptamine (HT) receptor agonist often used in the acute management of cluster headaches and migraines. It should be avoided in patients with a history of coronary artery disease (CAD) as it has the potential to cause coronary vasospasm.

Propranolol is a non-specific beta blocker which should be avoided in patients with a history of asthma as they have the potential to cause bronchoconstriction.

Baclofen is a muscle relaxing medication used for the treatment of hypertonicity. It is also used as a second line agent for trigeminal neuralgia.

Verapamil can be used in the prophylaxis of cluster headaches but is not indicated in the acute management of cluster headaches.

Question:

A 45-year-old female presents to her GP with difficulty swallowing. She has a past medical history of rheumatoid arthritis, hypertension and anxiety. On examination she has a smooth, glossy tongue and conjunctival pallor. Cheilitis is also noted on the corners of her mouth.

What is the most likely underlying cause of this presentation?

A.Iron deficiency

B.B12 deficiency

C.Oesophageal cancer

D.Functional dysphagia

E.Motor neurone disease

Answer:Iron deficiency

Explanation:

Severe iron deficiency anaemia can cause dysphagia due to post-cricoid webs (part of Plummer-Vinson syndrome)

Important for meLess important

This question describes a patient with Plummer-Vinson syndrome. This is a triad of dysphagia, glossitis and iron-deficiency anaemia (some definitions additionally include cheilitis in the syndrome). B12 deficiency also causes glossitis but is unlikely to cause the other symptoms. There is no reason to diagnose oesophageal cancer, functional dysphagia or motor neurone disease; although they can cause dysphagia, the signs of iron deficiency are very clear.

Question:

You are reviewing the blood results for a 79-year-old man who was admitted to the geriatric ward from his care home yesterday evening having fallen. Urine dip showed no abnormalities on admission.

Hb 137 g/L Male: (135-180)

Platelets 320 \* 109/L (150 - 400)

WBC 12 \* 109/L (4.0 - 11.0)

Na+ 144 mmol/L (135 - 145)

K+ 5.4 mmol/L (3.5 - 5.0)

Urea 16 mmol/L (2.0 - 7.0)

Creatinine 140 µmol/L (55 - 120)

His baseline creatinine is 100 µmol/L.

What is the most likely cause of his acute kidney injury?

A.Rhabdomyolysis

B.Dehydration

C.Bendroflumethiazide

D.Urinary tract infection

E.Myeloma

Answer:Dehydration

Explanation:

Prerenal disease - raised serum urea:creatinine ratio

Important for meLess important

This man's raised urea:creatinine ratio indicates a pre-renal cause of his acute kidney injury. Dehydration is the only pre-renal cause given. These cut-offs for urea:creatinine ratio are very textbook and it is rarely so clear cut in real life as there is a lot of overlap between renal and pre-renal acute kidney injury. However, the answer would still be the same without knowing the urea:creatinine ratio.

Dehydration can cause hyper or hyponatraemia. Typically in a pre-renal cause of AKI (eg dehydration), the kidneys will try to hold onto sodium and therefore there will be a low fractional sodium excretion, whereas in an intrinsic renal cause, there will be a high fractional sodium excretion. Therefore, in dehydration, the patient is often hypernatraemic, particularly in cases where the patient has a reduced fluid intake. However, this isn't always the case, particularly in causes of dehydration where there will be salt loss (eg diarrhoea, vomiting, sweating).

Rhabdomyolysis, myeloma and a urinary tract infection would cause changes to the urine dip.

Thiazide diuretics can cause acute tubulointerstitial nephritis (a form of renal acute kidney injury) but this is less likely than an elderly man in a care home being dehydrated.

Question:

A 58-year-old woman presents with a 3-month history of recurrent vertigo. Episodes typically last less than a minute and are associated with nausea and triggered by sudden head movements. There is complete resolution of symptoms between episodes. She believes her symptoms may have started after a cold. She has found her symptoms highly debilitating and is now avoids leaving the house. Examination of her ears and cranial nerves are unremarkable.

What is the most likely diagnosis?

A.Benign paroxysmal positional vertigo

B.Labyrinthitis

C.Ménière's disease

D.Vestibular neuritis

E.Vestibular schwannoma

Answer:Benign paroxysmal positional vertigo

Explanation:

Typical BPPV history:

vertigo triggered by change in head position (e.g. rolling over in bed or gazing upwards)

may be associated with nausea

each episode typically lasts 10-20 seconds

Important for meLess important

Benign paroxysmal positional vertigo (BPPV) is correct. BPPV is thought to be caused by loose calcium carbonate debris in the semi-circular canals of the inner ear. When the head moves, otoconia move in the semi-circular canals, causing motion of the fluid of the inner ear which induces the symptom of vertigo. BPPV is the most common cause of recurrent vertigo in patients between 50-80 years old (but can occur at any age). A typical history of BPPV includes vertigo triggered by a change in head position, associated with nausea and lasting seconds-minutes. Resolution of vertigo between episodes BPPV can be precipitated by a head injury, prolonged lying position, ear surgery, or following an episode of any inner ear pathology (in this case possibly related to the cold she described) - or no clear precipitating factor may be found.

Labyrinthitis is incorrect. It involves inflammation of the labyrinth, which can be idiopathic or triggered by a recent viral infection. Labyrinthitis is characterised by an acute, isolated, spontaneous, and prolonged episode of vertigo with gradual recovery over 2-6 weeks, as well as tinnitus and hearing loss. This is opposed to intermittent vertigo lasting seconds with resolution between episodes triggered by head movement - characteristic of BPPV.

Meniere's disease is incorrect. The recurrent episodes of vertigo would instead be spontaneous (i.e. no clear trigger for the onset of symptoms) and last minutes-hours. Additional symptoms are also likely (but not always) to be present, including unilateral tinnitus, hearing loss or sensation of aural fullness.

Vestibular neuronitis is incorrect. The characteristics of vertigo are similar to labyrinthitis and hence the diagnosis is less likely in this case. Vestibular neuronitis results from inflammation of the vestibular nerve alone, and therefore tinnitus/hearing loss would not be expected features.

Vestibular schwannoma is incorrect. This is a slow-growing, benign tumour (usually arising from Schwann cells in the vestibulocochlear nerve sheath) which causes hearing loss due to compression of the vestibulocochlear nerve. This diagnosis is less likely in the context of recurrent discrete episodes of vertigo, as it typically presents with gradual onset progressive symptoms of unilateral sensorineural hearing loss which may be associated with tinnitus and/or vertigo.

Question:

A 36-year-old woman is due to undergo an operation to treat an inguinal hernia. She is currently only taking the combined oral contraceptive pill and no other medications. What should the patient be advised to do regarding this medication prior to her operation?

A.Continue taking the pill until the day before operation

B.Stop taking the pill eight weeks before the operation

C.Continue taking the pill until one week before the operation

D.Continue taking the pill until four weeks before her operation

E.Stop taking the pill two weeks before the operation

Answer:Continue taking the pill until four weeks before her operation

Explanation:

Use of the contraceptive pill should be ceased before an operation to prevent a pulmonary embolism

Important for meLess important

NICE guidelines recommends that patients on the pill who are undergoing operations should cease intake of the pill four weeks before their operation to reduce the risk of a pulmonary embolism. Oral contraceptives are known risk factors of thrombosis.

Question:

A 26-year-old primiparous woman gives birth to her first child at 39 weeks. The child is delivered via caesarean section. The baby and mother are well post-delivery. Observations are normal and there are no postoperative complications noted. During routine post-birth checks, a sample of umbilical cord blood is taken and analysed. Glucose is recorded as 2.4 mmol/L.

What should the management be?

A.Encourage early feeding and admit to neonatal unit for further monitoring

B.Encourage early feeding and monitor blood glucose

C.Monitor blood glucose only

D.No action necessary

E.Give IV 10% dextrose

Answer:Encourage early feeding and monitor blood glucose

Explanation:

Neonatal hypoglycaemia: if asymptomatic then encourage normal feeds and monitor glucose

Important for meLess important

Encourage early feeding and monitor blood glucose is the correct answer. Transient hypoglycaemia is common in newborns, and if asymptomatic is not a cause for concern. In these cases, as in the situation above, encouraging early feeding (either bottle or breast) and monitoring blood glucose until normalised is all that is required.

Encourage early feeding and admit to the neonatal unit for further monitoring is an incorrect answer. It is correct that early feeding should be encouraged but it is not necessary at this point to admit the baby to the neonatal unit. This is because it is noted that observations are normal and the baby is doing well, asymptomatically hypoglycaemic.

Monitor blood glucose only is an incorrect answer. While it is good to monitor blood glucose to ensure it normalises, the best way for this to happen is for the baby to be fed as soon as possible.

No action necessary is an incorrect answer. Although the baby is only mildly hypoglycaemic and no adverse features are recorded, it is still necessary to take some action to ensure the hypoglycaemic episode is resolved.

Give IV 10% dextrose is an incorrect answer. This would be the treatment if the baby was severely or symptomatically hypoglycaemic (e.g. jitters, lethargy, hypotonia, weak cry). These features are not mentioned in the case above, and so the best course of action would be encouraging early feeding and monitoring glucose.

Question:

A 69-year-old woman has repeat blood tests arranged by her general practitioner after commencing ramipril for the treatment of hypertension. She weighs 70kg.

Blood tests prior to antihypertensive treatment:

Na+ 136 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.8 mmol/L (2.0 - 7.0)

Creatinine 70 µmol/L (55 - 120)

eGFR 74 mL/min/1.73m2 (>90)

Blood tests two weeks post anti-hypertensive introduction:

Na+ 137 mmol/L (135 - 145)

K+ 4.3 mmol/L (3.5 - 5.0)

Urea 6.2 mmol/L (2.0 - 7.0)

Creatinine 77 µmol/L (55 - 120)

eGFR 67 mL/min/1.73m2 (>90)

Urinalysis:

Protein negative

Blood negative

How should this patient's renal function be classified?

A.CKD stage 1

B.CKD stage 2

C.CKD stage 3a

D.CKD stage 4

E.No kidney disease present

Answer:No kidney disease present

Explanation:

CKD: only diagnose stages 1 & 2 if supporting evidence to accompany eGFR

Important for meLess important

No kidney disease present is the correct answer. This patient has an eGFR between 60-90 ml/minute. This would be classified as CKD stage II if there were accompanying evidence of kidney damage e.g. abnormal U&Es or proteinuria. These are absent here and therefore we do not classify this as having chronic kidney disease.

CKD stage 1 is incorrect. This would be the case if there was supporting evidence of kidney damage but an eGFR > 90ml/minute.

CKD stage 2 is incorrect. This would be the case if there was supporting evidence of kidney damage and an eGFR between 60 and 90ml/minute.

CKD stage 3a is incorrect. This would be the case if eGFR was 45-59 ml/min, irrespective of other evidence of kidney damage.

CKD stage 4 is incorrect. This would be the case if the eGFR was 15-29 ml/min, irrespective of other evidence of kidney damage.

Question:

A 61-year-old man presents as he developed enlargement of his breast tissue. He has become very self-conscious and is worried about going on holiday in the summer. Which one of the following drugs is most likely to be responsible?

A.Amitriptyline

B.Isoniazid

C.Verapamil

D.Methyldopa

E.Spironolactone

Answer:Spironolactone

Explanation:

All the above drugs may cause gynaecomastia but spironolactone is the most common cause.

Question:

A 46-year-old female presents with a burning sensation over the antero-lateral aspect of her right thigh. A diagnosis of meralgia paraesthetica is suspected. Which nerve is most likely to be affected?

A.Common peroneal nerve

B.Anterior cutaneous nerve of thigh

C.Posterior cutaneous nerve of thigh

D.Lateral cutaneous nerve of thigh

E.Sciatic nerve

Answer:Lateral cutaneous nerve of thigh

Explanation:

Burning thigh pain - ? meralgia paraesthetica - lateral cutaneous nerve of thigh compression

Important for meLess important

Question:

A 6-year-old girl is brought to the GP with a 4-week history of flaky and itchy skin on the scalp with associated hair loss. There are no other skin regions affected. She has a past medical history of allergic asthma. The only family history of note is her mother's allergic asthma.

An examination of the scalp shows:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Alopecia areata

B.Atopic eczema

C.Psoriasis

D.Seborrhoeic dermatitis

E.Tinea capitis

Answer:Tinea capitis

Explanation:

Tinea capitis is correct. This patient has presented with flaky skin, itch, and hair loss which alongside the image, suggests a diagnosis of tinea capitis, a fungal infection of the scalp also known as scalp ringworm, which is a key cause of scarring hair loss in children. The image shows well-demarcated hair loss on the scalp, which occurs where the fungus roots itself in the skin, and signs of a kerion developing, which are raised, pustular, boggy masses which appear as numerous bright yellow areas with the skin surface surrounded by regions of hair loss and flakiness.

Alopecia areata is incorrect. Although this can present with patchy hair loss, this occurs more acutely and there is usually no scaling. This patient has scaling and her features have occurred over the last 4 weeks, making this diagnosis less likely.

Atopic eczema is incorrect. Although this patient's history of allergic asthma can predispose them to atopic dermatitis, this typically presents in the flexural folds of the neck, arms, and legs, which is not the case here. As well as this, atopic eczema is not typically associated with hair loss.

Psoriasis is incorrect. This would typically present with silvery, dry plaques on the extensor surfaces of the elbows and knees. Although it may affect the scalp, hair loss is not as strongly associated and it would be unlikely for the scalp to be the only site affected. As well as this, there is no family history of psoriasis, which further makes this diagnosis less likely. If psoriasis were to affect the scalp, the region affected tends to be the hair margins and less commonly in the centre of the scalp.

Seborrhoeic dermatitis is incorrect. This presents as greasy and scaly areas in the scalp without significant hair loss. The nasolabial folds, eyebrows, and chest are also affected. Given that the only affected site is the scalp, and there is discrete, patchy hair loss, this diagnosis is less likely.

Question:

A 45-year-old known homeless female IV drug user (IVDU), presents to the emergency department drowsy and with a respiratory rate of 10/min. Her blood pressure is 80/55mmHg and her heart rate is 130bpm. Upon clinical examination, the doctor notices pinpoint pupils as well as needle track marks on both arms.

Given the likely cause of her overdose, she is given immediate emergency treatment to which she responds well. It is decided that she will continue as an inpatient for detoxification.

What medication would be appropriate to use for this patient's detoxification?

A.Flumazenil

B.Methadone

C.Naloxone

D.Pralidoxime

E.Sodium bicarbonate

Answer:Methadone

Explanation:

Methadone or buprenorphine should be used as the first-line treatment in opioid detoxification

Important for meLess important

This patient has most likely overdosed on an opioid. Pinpoint pupils are a common sign seen in opioid overdose as is the combination of hypotension and tachycardia as well as the presentation of drowsiness and low respiratory rate.

The correct answer is methadone which is recommended by NICE guidelines as first-line treatment for detoxification. Methadone is an opiate (man-made opioid) and is used for detoxification for those dependent on stronger opioids, most commonly heroin. It aids in reducing opioid withdrawal symptoms. Inpatient detoxification usually takes up to 4 weeks whilst outpatient (community-based) takes up to 12 weeks. According to NICE patients should routinely be offered outpatient detoxification unless they have not benefited from outpatient detoxification in the past, need support due to physical comorbidities or mental health needs, have social issues, such as this patient, which would impact detoxification, or require polydrug detoxification (e.g. are dependent on more than one drug or have an alcohol dependency, complicating their detoxification regime).

Flumazenil is an incorrect choice and may be used in benzodiazepine poisoning.

Naloxone is incorrect as it is the emergency management for opioid overdose and is not used during detoxification.

For organophosphate poisoning, a cholinesterase reactivator such as pralidoxime is used however not in opioid overdoses.

Sodium bicarbonate is wrong as it is not used in opioid poisoning but may be used in aspirin poisoning or to treat arrhythmias in tricyclic antidepressant (TCA) overdoses.

Question:

You are an F2 doctor working in the Emergency Department. You see a 28-year-old patient who has presented following a sports injury. You diagnose a sprain, provide the patient with advice and tell them they are free to go. Upon leaving the consultation room the patient mentions that they are going to recently opened bar that evening and asks if you would like to join them. What should you do?

A.Politely decline the invitation, explaining that you would love to come but already have plans

B.Politely decline the invitation, informing the patient that it would be unprofessional of you to accept

C.Explain that at present you cannot accept their invitation, but give them your contact number

D.Tell the patient you cannot accept their invitation whilst at work and that they should ask you again when you have finished your shift

E.Tell the patient that you were thinking of heading to the bar anyway with friends, and look forward to seeing them there

Answer:Politely decline the invitation, informing the patient that it would be unprofessional of you to accept

Explanation:

Good Medical Practice (2013) states that you must not use your professional position to pursue a sexual or improper emotional relationship with a patient or someone close to them. Whilst this may not strictly be considered as pursuing a relationship, in your role as a doctor it is still inappropriate to accept such an offer.

Politely declining with a brief explanation is the best response, and is unlikely to disrupt the doctor-patient relationship. Options 3, 4 and 5 although not a direct acceptance, are still inappropriate, whilst option 1 is untrue and so should be avoided.

References:

General Medical Council. Good Medical Practice. London: General Medical Council, 2013. p.18.

Question:

A 13-year-old girl is seen in the paediatric ward after being admitted after a staggered paracetamol overdose the previous day. She was treated with N-acetylcysteine.

On examination, she appears mildly jaundiced but is alert. Her heart rate is 94 bpm, and her BP is 106/82 mmHg. There is right upper quadrant abdominal tenderness.

Blood test results show:

pH 7.34 (7.35-7.45)

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

Activated partial thromboplastin time (APTT) 30 secs (25-35 secs)

Bilirubin 24 µmol/L (3 - 17)

ALP 68 u/L (30 - 100)

ALT 45 u/L (3 - 40)

Paracetamol plasma concentration is 153 µmol/L.

What is the next step in management?

A.IV N-acetylcysteine over 1 hour

B.IV N-acetylcysteine over 15 minutes

C.IV fluids and monitor

D.IV sodium bicarbonate

E.Keep nil-by-mouth and refer for liver transplant

Answer:IV N-acetylcysteine over 1 hour

Explanation:

Paracetamol overdose: if presentation > 24 hours: acetylcysteine should be continued if the paracetamol concentration or ALT remains elevated whilst seeking specialist advice

Important for meLess important

IV N-acetylcysteine over 1 hour is correct. Guidelines recommend continuing acetylcysteine treatment if there is jaundice, hepatic tenderness or ALT level above the normal limit (all of which the patient has above).

IV N-acetylcysteine over 15 minutes is incorrect. This used to be standard practice, but the treatment is now infused over 1 hour to reduce risks of adverse events. Acetylcysteine is a common cause of anaphylactic reactions, generally managed with slower infusions.

IV fluids and monitor is incorrect. There is no indication for fluids as it is not mentioned that she is fluid-depleted on examination, and her heart rate and BP are within normal limits for her age.

IV sodium bicarbonate is incorrect. This is the treatment of choice for salicylate acid overdose, i.e. ibuprofen or aspirin overdose. The history does not mention any of these medications.

Keep nil-by-mouth and refer for liver transplant is incorrect. The criteria for this would be that after 24 hours, pH is <7.3 or all of the following: prothrombin >100 seconds, creatinine >300 µmol/L or grade III/IV encephalopathy. Given she does not meet the criteria, this option is incorrect. However, it would be important to repeat the blood tests to ensure she does not get worse throughout the day.

Question:

You review a middle-aged man with shoulder pain. He has limited movement of the right shoulder in all directions. Which of the following clinical findings is most consistent with a diagnosis of frozen shoulder (adhesive capsulitis)?

A.Only active movement limited + internal rotation most affected

B.Active and passive movement limited + abduction most affected

C.Active and passive movement limited + external rotation most affected

D.Active and passive movement limited + internal rotation most affected

E.Only active movement limited + external rotation most affected

Answer:Active and passive movement limited + external rotation most affected

Explanation:

Question:

You review a 34-year-old woman who is 13 weeks pregnant. During her previous pregnancy she developed pre-eclampsia and had to have a caesarean section at 36 weeks gestation. Her blood pressure both following the last pregnancy and today is normal. Which one of the following interventions should be offered to reduce the risk of developing pre-eclampsia again?

A.Prophylactic nifedipine therapy

B.Prophylactic labatelol therapy

C.Vitamin B6 supplementation

D.Extended folic acid supplementation

E.Low-dose aspirin

Answer:Low-dose aspirin

Explanation:

Question:

You are seeing a 61-year-old man undergoing chemotherapy for acute myeloid leukaemia (AML) on the ward round. He is clinically stable at the moment and has not experienced any bleeding. His most recent full blood count (FBC) is shown below:

Haemoglobin 67 g/L

Mean cell volume 83 fl

Platelets 43 \* 109/L

White blood cells 2.0 \* 109/L

Neutrophils 0.71 \* 109/L

Based on this he is prescribed 2 units of packed red blood cells (RBCs).

How quickly should each unit be transfused in this patient?

A.15 minutes

B.30 minutes

C.60 minutes

D.90 minutes

E.240 minutes

Answer:90 minutes

Explanation:

In a non-urgent scenario, a unit of RBC is usually transfused over 90-120 minutes

Important for meLess important

This patient requires a blood transfusion as his haemoglobin is below 70g/L. The fact that he is clinically well and has not experienced any bleeding means that this is a non-urgent scenario and each unit should be given over 90-120 minutes, meaning option 4 is the correct answer here.

15 minutes would be too fast to administer a unit of RBCs in a non-urgent scenario like this. This is also the case for options 2 and 3.

240 minutes would be too slow. A unit of RBCs must be given within 4 hours of being removed from the fridge, this means that if there was any delay in setting up the transfusion or if it had to be stopped due to a reaction this time would pass and the unit would have to be thrown away.

Question:

A 70-year-old woman presents with gradual onset proximal shoulder and pelvic girdle muscular pains and stiffness.

She is finding it increasingly difficult to get dressed in the morning and is unable to raise her arms above the horizontal.

Looking at the notes, you realise she is on atorvastatin 20mg for primary prevention and recently completed a course of clarithromycin for a lower respiratory tract infection (penicillin-allergic).

You subsequently arrange for her to undergo some blood tests, the results of which are below:

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

Female: (115 - 160)

WBC 12.8 \* 109/L (4.0 - 11.0)

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

Na+ 142 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Urea 6.1 mmol/L (2.0 - 7.0)

Creatinine 66 µmol/L (55 - 120)

Bilirubin 10 µmol/L (3 - 17)

ALP 64 u/L (30 - 100)

ALT 32 u/L (3 - 40)

γGT 55 u/L (8 - 60)

Albumin 37 g/L (35 - 50)

CRP 72 mg/L (< 5)

ESR 68 mg/L (< 30)

Creatine kinase 58 U/L (35 - 250)

What is the most likely underlying diagnosis?

A.Dermatomyositis

B.Fibromyalgia

C.Polymyalgia rheumatica

D.Polymyositis

E.Statin-induced myopathy

Answer:Polymyalgia rheumatica

Explanation:

Creatine kinase is normal in polymyalgia rheumatica

Important for meLess important

The blood tests show evidence of inflammation with a raised WCC/CRP/ESR in the absence of a creatine kinase (CK) rise. These results, alongside the history and demographics of this patient is entirely in keeping with polymyalgia rheumatica.

In both polymyositis and dermatomyositis, you would expect a significant CK rise on blood tests. Alongside, polymyositis would tend to affect a younger demographic. Dermatomyositis would include a distinctive rash of which there is no mention.

Fibromyalgia would show no biochemical evidence of inflammation.

In statin-induced myopathy, although a possibility given the history, it would be unusual to have such raised inflammatory markers. The low CK rules out a myositis.

Question:

A 71-year-old patient with a background of hypertensive retinopathy presents for an eye check. Fundoscopy demonstrates retinal arteriole tortuosity with nil other abnormalities noted. According to the Keith-Wagener classification, which grade of hypertensive retinopathy is this most likely to represent?

A.Grade 0

B.Grade 1

C.Grade 2

D.Grade 3

E.Grade 4

Answer:Grade 1

Explanation:

Tortuosity and silver wiring are features of Grade 1 hypertensive retinopathy

Important for meLess important

These findings on fundoscopy best represent Grade 1 hypertensive retinopathy. Grade 0 would be found in a patient with a diagnosis of hypertension but with no abnormal findings on fundoscopy.

Question:

You are called to a cardiac arrest for a hospital in-patient. The patient had been admitted with pneumonia and was being managed on a normal ward.

The nurse reports having found the patient unresponsive - she did not witness them go into cardiac arrest.

On arrival, the defibrillator shows ventricular fibrillation.

What is the most appropriate management?

A.3 shocks followed by 1 minute of CPR

B.1 shock followed by 2 minutes of CPR

C.2 shocks followed by 1 minute of CPR

D.2 shocks followed by 2 minutes of CPR

E.3 shocks followed by 2 minutes of CPR

Answer:1 shock followed by 2 minutes of CPR

Explanation:

As this was not witnessed on a monitor 1 shock should be given as per normal. There are some situations where 3 initial shocks are given. The ALS guidelines state the following regarding when 3 shocks may be considered:

If a patient has a monitored and witnessed cardiac arrest in the catheter laboratory, coronary care unit, a critical care area or whilst monitored after cardiac surgery, and a manual defibrillator is rapidly available:

Confirm cardiac arrest and shout for help.

If the initial rhythm is VF/pVT, give up to three quick successive (stacked) shocks.

Rapidly check for a rhythm change and, if appropriate, ROSC after each defibrillation attempt.

Start chest compressions and continue CPR for 2 min if the third shock is unsuccessful.

This three-shock strategy may also be considered for an initial, witnessed VF/pVT cardiac arrest if the patient is already connected to a manual defibrillator – these circumstances are rare. Although there are no data supporting a three-shock strategy in any of these circumstances, it is unlikely that chest compressions will improve the already very high chance of ROSC when defibrillation occurs early in the electrical phase, immediately after onset of VF/pVT.

Question:

What is the mechanism of action of venlafaxine?

A.Tricyclic antidepressant

B.Monoamine oxidase inhibitor

C.Neuroleptic

D.Selective serotonin reuptake inhibitor

E.Serotonin and noradrenaline reuptake inhibitor

Answer:Serotonin and noradrenaline reuptake inhibitor

Explanation:

Venlafaxine mechanism of action = serotonin and noradrenaline reuptake inhibitor

Important for meLess important

Venlafaxine is of the serotonin and noradrenaline reuptake inhibitor class of antidepressants.

NICE: although all antidepressants have roughly equal efficacy, choice of antidepressant depends on patient preference, previous sensitisation, risk in overdose and cost. Selective serotonin reuptake inhibitors (SSRIs) are usually used first-line, as they have a good risk-to-benefit ratio.

Question:

A 59-year-old man sees his GP for a routine blood test. His past medical history includes gastroesophageal reflux disease, hypertension, bipolar disorder, psoriasis and osteoarthritis. His regular medications include amlodipine, lithium, ibuprofen, omeprazole and prednisolone.

The results show:

Na+ 129 mmol/L (135 - 145)

K+ 4.5 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 5 mmol/L (2.0 - 7.0)

Creatinine 57 µmol/L (55 - 120)

Which medication is most likely to be responsible for the electrolyte disturbance?

A.Amlodipine

B.Lithium

C.Ibuprofen

D.Omeprazole

E.Prednisolone

Answer:Omeprazole

Explanation:

PPIs can cause hyponatraemia

Important for meLess important

Omeprazole is a proton pump inhibitor, which is the most likely cause of the hyponatraemia. The mechanism behind this is unclear but may be due to syndrome of inappropriate antidiuretic hormone (SIADH).

Lithium is known to cause hypernatraemia, not hyponatraemia.

Amlodipine, a calcium channel blocker, is not associated with hyponatremia. More common side effects include headache, flushing and ankle swelling.

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

Prednisolone has a wide range of side effects but is unlikely to cause this disturbance.

Question:

A 29-year-old woman who has a history of recurrent pulmonary emboli is identified as having factor V Leiden. How does this particular inherited thrombophilia increase her risk of venous thromboembolic events?

A.Decreased levels of factor V

B.Increased levels of factor V

C.Activated factor V is inactivated much more slowly by activated protein C

D.Activated factor V is inactivated much more quickly by activated protein C

E.Decreased antithrombin III levels

Answer:Activated factor V is inactivated much more slowly by activated protein C

Explanation:

In patients with factor V Leiden, activated factor V is inactivated 10 times more slowly by activated protein C than normal

Important for meLess important

Question:

A 62-year-old woman presents to her GP with a headache for 2 weeks now. The pain is more severe on the right side and is exacerbated by her combing her hair. She also reports pain in her jaw when chewing her food. Her neurological and fundoscopy examinations are normal and she is sent to the emergency department.

At the hospital, she is started on high-dose oral prednisolone and undergoes a temporal artery biopsy. The results of which come back normal.

What is the next most appropriate step in her management?

A.Continue high-dose prednisolone and repeat biopsy

B.Perform an emergency computed tomography (CT) of her brain

C.Stop high-dose prednisolone and refer to neurology clinic

D.Switch her to a lower dose of oral prednisolone

E.Switch to methylprednisolone

Answer:Continue high-dose prednisolone and repeat biopsy

Explanation:

Skip lesions occur in giant cell arteritis and may show a normal biopsy

Important for meLess important

Continue high-dose prednisolone and repeat biopsy on contralateral side is the correct answer. The patient is a classical presentation of giant cell arteritis (GCA). She is above 60 years old, with a temporal headache worsened by touch alongside tongue claudication. She does not, however, have a history of polymyalgia rheumatica (50% of patients will not). Treatment involves high-dose oral prednisolone for a few weeks and a temporal artery biopsy to look for granulomatous inflammation of the vessel layers. It is common for the biopsy to come back positive due to skip lesions. In this case, there is a high suspicion of GCA, so the steroids should be continued and the biopsy should ideally be repeated, ideally recommended on the contralateral side.

Perform an emergency computed tomography (CT) of her brain is incorrect. This patient does not have any indications for an emergency CT head. This is usually performed after a head injury with features of reduced GCS, more than once vomiting, skull base fracture signs ('panda' eyes, battle sign over mastoid bone, CSF rhinorrhea), post-traumatic seizures or focal neurological deficits (weakness, sensation deficits, hearing or vision deficits). Elderly patients may warrant a CT scan when they have had a fall associated with head injury or confusion.

Stop high-dose prednisolone and refer to neurology clinic is incorrect. With a high clinical suspicion of GCA, it is not recommended to stop corticosteroid treatment. The danger is that the inflammation spreads to the eye, and any vision changes are usually irreversible. This is an acute problem that cannot wait until the referral to the neurology clinic is made.

Switch her to a lower dose of oral prednisolone is incorrect. There is no guidance suggesting reducing the dose of prednisolone for GCA if the biopsy is negative. Remember that the biopsy is negative because of classically seen skip lesions and not because the diagnosis is less likely.

Switch to methylprednisolone is incorrect. This is not an unsafe option, however, methylprednisolone is reserved for patients who present with eye symptoms (including amaurosis fugax, decreased visual acuity and diplopia). This patient did not have any indications for this treatment pathway and the normal biopsy does not change the diagnosis, the treatment should be continued as such.

Question:

A 72-year-old man presents to the GP with trouble swallowing. On further questioning, he explains that some of the food is coming back up and his breath smells much worse than normal.

Given the most likely diagnosis, what is the most appropriate management?

A.Chemotherapy

B.Proton pump inhibitor

C.Calcium channel blockers

D.Surgical repair

E.Acetylcholinesterase inhibitors

Answer:Surgical repair

Explanation:

Pharyngeal pouch requires surgical treatment

Important for meLess important

This question is asking about a man presenting with dysphagia, regurgitation and halitosis. These are all typical features of a pharyngeal pouch. Pharyngeal pouch's also typically occur in those above the age of 70. The treatment of a pharyngeal pouch is typically surgical, to close the defect.

Chemotherapy may have been the treatment for oesophageal cancer.

A proton pump inhibitor would have been the treatment for Gastro-oesophageal reflux disease (GORD).

Calcium channel blockers may have been used for oesophageal spasm.

Acetylcholinesterase inhibitors would have been the treatment for myasthenia gravis.

Question:

An 18-year-old presents to her GP to discuss contraception. After counselling her on the various options, the patient decides to start a progesterone-only pill. She is currently on day 16 of her normal 29 day cycle.

If the patient were to start the pill today, for how many additional days would she need to use additional contraceptive methods to prevent pregnancy?

A.None, the pill will work instantly

B.1 day

C.2 days

D.7 days

E.Until the start of her next cycle

Answer:2 days

Explanation:

Contraceptives - time until effective (if not first day period):

instant: IUD

2 days: POP

7 days: COC, injection, implant, IUS

Important for meLess important

The progesterone only pill works by thickening the cervical mucus. Side effects include menstrual irregularities, breast tenderness, weight gain and acne.

None, the pill will work instantly is incorrect as she is on day 16 of her cycle. The progesterone only pill (POP) will be immediately effective if started prior to day 5 of the cycle. The only contraceptive method to be instantly effective at any time during the cycle is the intrauterine device, which decreases sperm motility and survival.

1 day is incorrect as the POP will take at least 2 days to work if started after day 5 of the cycle.

7 days is incorrect. This is the length of time it would take for the combined oral contraceptive pill, the injection, the implant and the intrauterine system to be effective.

The combined oral contraceptive pill, the injection and the implant work by inhibiting ovulation. The injection and the implant also work by thickening the cervical mucus.

The intrauterine system works by preventing endometrial proliferation and thickening the cervical mucus.

Until the start of her next cycle is incorrect as the POP will be effective after 2 days if started on day 16.

Question:

A 32-year-old male with severe epilepsy presents to the emergency department. He has been suffering with a high temperature and severe headache for the past day. Whilst in the emergency department he starts to have a seizure. After 5 minutes the seizure has not stopped.

He is in status epilepticus and has been given lorazepam. However, he has not responded to this treatment after 2 attempts using this drug. His blood pressure is now 90/70mmHg and you are worried he is in septic shock.

The doctor initiates the sepsis six protocol. However, he is still having a seizure.

What is the next step in the management of this patient's epilepsy?

A.General anaesthesia with propofol

B.Haloperidol infusion

C.Phenytoin infusion

D.Rectal diazepam

E.Subcutaneous midazolam

Answer:Phenytoin infusion

Explanation:

In status epilepticus, a phenytoin infusion should be given if not responding to benzodiazepines

Important for meLess important

In status epilepticus the first treatment would be a benzodiazepine. However, if the patient fails to respond to the benzodiazepine after two attempts a phenytoin infusion should be started if available. The patient is also going into septic shock as indicated by the hypotension and history of infection so there is a need to act fast and also ensure he gets fluids and sepsis six is initiated.

General anaesthesia with propofol is a second line treatment for severe status epilepticus when intubation is being considered. However, it can be unsafe due to the risk of hypotension and would probably put this patient into shock.

Haloperidol is an antipsychotic medication, it is not used for epilepsy.

Rectal diazepam is a benzodiazepine that can be used in emergencies to stop clusters of seizures in those already on epilepsy medications. However, benzodiazepine therapy has been ineffective already in this man so a second line treatment must be used.

Midazolam is a benzodiazepine that might have been used first line, however this man has not responded and needs a different treatment.

Question:

A 61-year-old woman is admitted to the emergency department after being brought in by her husband. For the past hour she has experienced severe central chest pain. On arrival, she is haemodynamically stable with no signs of heart failure. Her oxygen saturations are 98% on room air, blood pressure 146/90 mmHg. Her past medical history includes hypothyroidism and having a duodenal ulcer 20 years ago. Her only current medication is thyroxine 75mcg od. The ECG is shown below:

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

What is the most appropriate management for you to initiate within the first few minutes prior to senior review?

A.Oxygen + clopidogrel + IV morphine/glyceryl trinitrate as required + calculate GRACE score

B.Aspirin + IV morphine/glyceryl trinitrate as required + calculate GRACE score

C.Oxygen + aspirin + clopidogrel + IV morphine/glyceryl trinitrate as required

D.Clopidogrel + IV morphine/glyceryl trinitrate as required

E.Aspirin + clopidogrel + IV morphine/glyceryl trinitrate as required + calculate GRACE score

Answer:Aspirin + IV morphine/glyceryl trinitrate as required + calculate GRACE score

Explanation:

On the ECG there is deep ST depression in I-III, aVF, and V3-V6. aVR also has ST elevation. Deep and widespread ST depression is associated with very high mortality because it signifies severe ischemia usually of LAD or left main origin. Therefore this patient has an NSTEMI.

As the oxygen saturations are 98% no supplementary oxygen is indicated as per the British Thoracic Society guidelines.

Aspirin has been shown to significantly improve the changes of survival in acute coronary syndrome - you must have a pretty good reason not to give patients this drug. A history of having a duodenal ulcer 20 years ago would not be sufficient.

IV morphine/glyceryl trinitrate may be given for severe ongoing. Calculating the GRACE score will help determine the next course of action.

Question:

A woman comes to see you because she wants to discuss contraception. Nine weeks ago she delivered a healthy baby girl by vaginal delivery and is recovering well. To feed the baby she uses a combination of breast milk and formula as she gets painful nipples. Before this pregnancy, she was on the combined oral contraceptive pill (COCP) and would like to start this again if possible. When asked about periods, she discloses that she had a period 3 weeks ago and that she has had unprotected sexual intercourse a few times since.

What should you advise her?

A.The combined pill is contraindicated as she is breastfeeding

B.The combined pill is contraindicated due to VTE risk postpartum

C.The combined pill is not contraindicated as it is UKMEC 1 for her

D.The combined pill is not contraindicated, and she does not need a pregnancy test first

E.The combined pill is not contraindicated, but she needs a pregnancy test first

Answer:The combined pill is not contraindicated, but she needs a pregnancy test first

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

The combined pill is not contraindicated, but she needs a pregnancy test first is correct. Between 6 weeks and 6 months postpartum, all combined hormonal contraception is UK medical eligibility criteria (UKMEC) 2 which means the benefits generally outweigh the risks. She is 9 weeks postpartum so can therefore be prescribed it. However, she can get pregnant after day 21 so a pregnancy test should be done first considering the unprotected sexual intercourse. It would also be advisable that she repeats the pregnancy test in 3 weeks as a very early pregnancy may not be detected yet, but starting the COCP would not be harmful to a developing fetus. She must also use additional precautions for the first 7 days after starting the COCP. If there is a concern about milk supply the progesterone pill may be more suitable, but this is not the case here.

The combined pill is contraindicated as she is breastfeeding is incorrect as she is more than 6 weeks postpartum (UKMEC 2). If she were less than 6 weeks postpartum breastfeeding status would have a bigger impact on eligibility. In breastfeeding, women combined hormonal contraception is UKMEC 4 for the first 6 weeks postpartum meaning it represents an unacceptable health risk as it increases VTE risk and reduces breast milk production. If she were not breastfeeding she may have been eligible from 3 weeks postpartum, dependent on whether she has other risk factors for VTE.

The combined pill is contraindicated due to VTE risk postpartum is incorrect as she is more than 6 weeks postpartum (UKMEC 2). Combined hormonal contraception is always contraindicated (UKMEC 3-4) in the first 3 weeks postpartum. Between 3-6 weeks is only acceptable if the woman is not breastfeeding and there are no other risk factors for VTE. In this scenario, she is >6 weeks postpartum and can therefore be prescribed the COCP.

The combined pill is not contraindicated as it is UKMEC 1 for her is incorrect. As she is breastfeeding and 9 weeks postpartum it would be UKMEC 2. From 6 months it would be UKMEC 1 in a breastfeeding mother.

The combined pill is not contraindicated, and she does not need a pregnancy test first is incorrect as she had unprotected sexual intercourse after day 21 post-partum and is not amenorrhoeic. It would therefore be recommended she has a negative pregnancy test before starting contraception and then uses additional precautions such as barrier protection for the first 7 days after starting the combined pill.

Question:

You are the FY1 on the Acute Medical Unit. A 32-year-old male who has come in for recurrent seizure-like episodes falls to the ground and his whole body begins to convulse. Once the patient is stabilised, you want to conduct a blood test to help determine if this could, in fact, be a pseudo seizure.

Which blood test would you do?

A.Prolactin

B.ADH

C.Magnesium

D.FSH

E.LH

Answer:Prolactin

Explanation:

Prolactin can be used to differentiate between a true seizure and a pseudoseizure

Important for meLess important

Elevated serum prolactin 10 to 20 minutes after an episode can be used to differentiate a general tonic-clonic/partial seizure from a non-epileptic pseudo seizure.

Question:

A 64-year-old in-patient is being seen by a urology registrar due to concerns about reduced urine output over the past 2 days. The patient had been admitted for the surgical removal of kidney stones. The patient's catheter was removed and, by accident, not replaced so there is no record of urine output. They have only been kept in hospital as they developed a chest infection and have been treated with IV antibiotics.

The patient does not report being in any pain and does not appear confused. The patient's basic observations are:

Respiratory rate: 14 breaths/min

Heart rate: 82 bpm

Blood pressure: 109/62 mmHg

The patient's blood results are as follows:

Sodium 146 mmol/L

Potassium 4.1 mmol/L

Urea 16 mmol/L

Creatinine 110 µmol/L

What is the most likely underlying diagnosis?

A.Acute kidney injury

B.Severe worsening of chest infection

C.Dehydration

D.Recurrent kidney stones

E.Bladder outlet obstruction

Answer:Dehydration

Explanation:

A differential for AKI is dehydration - the latter is characterised by a urea that is proportionally higher than the rise in creatinine

Important for meLess important

The most likely underlying diagnosis is dehydration. Although the patient has a raised creatinine and urea, the rise in urea is proportionally bigger than the rise in creatinine. This biochemical pattern is characteristic of dehydration. The mild hypernatraemia can also be explained by the patient being dehydrated. The reduced urine output is simply a consequence of having a negative fluid balance overall.

AKI would present with a proportionally greater rise in creatinine than urea. Additionally, the rise in creatinine would be much higher.

The patient has a CURB-65 score of 1. Therefore it would not be reasonable to say the patient is having a severe chest infection.

Bladder outlet obstruction is an important differential but the biochemical pattern points towards dehydration.

Recurrent kidney stones would likely present with pain. This patient is not in any pain.

Question:

You are reviewing a 22-year-old man who was recently admitted with a new diagnosis of type 1 diabetes, which presented as diabetic ketoacidosis.

He was discharged on a basal-bolus insulin regime and has had educational sessions with the diabetes specialist nurse.

Before his diagnosis, his health was good but is overweight with a BMI of 29.9kg/m².

At your clinic, you discuss his insulin regime, diet and lifestyle factors, and sick day rules.

The patient wonders if there is any other medication that would benefit him at this stage.

What drug may offer him benefit for his glycaemic control?

A.Alogliptin

B.Empagliflozin

C.Gliclazide

D.Metformin

E.Semaglutide

Answer:Metformin

Explanation:

Patients with type I diabetes and a BMI > 25 should be considered for metformin in addition to insulin

Important for meLess important

This patient is a newly diagnosed type 1 diabetic and the mainstay of his management will be insulin. That said, NICE recommend the use of metformin for patients with type 1 diabetes who are overweight with a BMI of 25kg/m² or over, so this is the correct answer in this case.

Metformin increases insulin sensitivity and has benefits for overall cardiovascular health and can allow lower doses of insulin to be administered.

The other drugs mentioned are not used in type 1 diabetes so are not correct.

Alogliptin and gliclazide work by increasing the endogenous production of insulin, so this will not work in type 1 diabetes as there is very little endogenous insulin produced., therefore they are both incorrect.

Empagliflozin is incorrect. This is an SGLT-2 inhibitor and is not used in the treatment of type 1 diabetes as there is a significant risk of developing diabetic ketoacidosis which is a particular concern in this case given the recent episode of this.

Semaglutide is not currently licensed for type 1 diabetes so is incorrect. There has been some recent research indicating it may be a potential treatment option in the future.

Question:

A 52-year-old woman who was diagnosed as having primary atrophic hypothyroidism 12 months ago is reviewed following recent thyroid function tests (TFTs):

TSH 12.5 mU/l

Free T4 14 pmol/l

She is currently taking 75mcg of levothyroxine once a day. How should these results be interpreted?

A.Poor compliance with medication

B.Her thyroxine dose needs to be increased

C.Evidence of recent systemic steroid therapy

D.She is on the correct dose

E.T4 to T3 conversion disorder

Answer:Poor compliance with medication

Explanation:

The TSH level is high. This implies that over recent days/weeks her body is thyroxine deficient. However, her free T4 is within normal range. The most likely explanation is that she started taking the thyroxine properly just before the blood test. This would correct the thyroxine level but the TSH takes longer to normalise.

Question:

A 73-year-old woman is seen in the 2-week wait breast clinic as her GP has felt a lump in her left breast. Following triple assessment, she is diagnosed with oestrogen receptor-positive breast cancer. The oncologist recommends starting a medication which can specifically target this type of breast cancer in post-menopausal women only.

What medication might they be describing?

A.Anastrozole

B.Bleomycin

C.Cisplatin

D.Tamoxifen

E.Trastuzumab

Answer:Anastrozole

Explanation:

Anastrozole and letrozole are aromatase inhibitors that reduces peripheral oestrogen synthesis

Important for meLess important

Anastrozole is a medication called an aromatase inhibitor, which works by inhibiting the enzyme aromatase and hence reducing the conversion of androgens into oestrogens in peripheral tissues. This is the main source of oestrogen production in postmenopausal women, compared to pre-menopausal women, where the main source of oestrogen is the ovaries. Aromatase inhibitors are therefore particularly useful in post-menopausal women who have breast cancer which requires oestrogen to grow.

By contrast tamoxifen is a selective oestrogen receptor modulator, meaning it antagonises oestrogen receptors on the breast cancer cells and blocks the anabolic effects of oestrogen. It can be used in both pre and post-menopausal women with oestrogen receptor-positive tumours.

Trastuzumab, also known as Herceptin, is a monoclonal antibody used to treat cancer which is HER-2 receptor-positive. The HER-2 receptor is not an oestrogen receptor, therefore trastuzumab is not the correct answer here.

Bleomycin is a form of chemotherapy which is not specific to oestrogen receptor-positive cancers, therefore is not the correct answer here.

Cisplatin is also a form of chemotherapy which is not specific to oestrogen receptor-positive cancers, therefore is not the correct answer here.

Question:

A 3-year-old girl presents to the emergency department with lethargy, cough and breathlessness for the last 2 weeks. The mother tells you that the cough has been getting worse, but it is not productive of sputum. Her observations show fever, tachycardia and tachypnoea. Based on her age and the worsening of the cough, you suspect that the infecting organism is Mycoplasma pneumonia. Chest x-ray shows right lower zone consolidation.

What is the most appropriate oral therapy?

A.Amoxicillin

B.Co-amoxiclav

C.Benzylpenicillin

D.Erythromycin

E.Aciclovir

Answer:Erythromycin

Explanation:

A macrolide e.g. erythromicin should be used for children with pneumonia if mycoplasma is suspected

Important for meLess important

Erythromycin is first line in children suspected of Mycoplasma pneumonia. Otherwise, amoxicillin is first line, with co-amoxiclav indicated if the child presents with pneumonia associated with influenza.

Benzylpenicillin is used for suspected meningitis, and aciclovir is an antiviral.

Question:

A 55-year-old man presents with a history of hoarseness of voice lasting >2 months. He has also noted feeling more tired than usual as of late. You originally referred him to an ENT consultant who reviewed the patient extensively and discharged him, having found no cause for his hoarse voice.

He has a 20-pack-year history of smoking and a recent chest x-ray was clear.

Which investigation is likely to be diagnostic in this case?

A.Nasolaryngoscopy

B.CT chest

C.Chest x-ray

D.MRI head and neck

E.Ultrasound neck

Answer:CT chest

Explanation:

Pancoast tumours can suppress the recurrent laryngeal nerve causing hoarseness of voice

Important for meLess important

This patient is likely to be suffering with lung cancer in the form of a pancoast tumour given his extensive smoking history, history of malaise and persistent hoarse voice.

Pancoast tumours can compress the recurrent laryngeal nerve causing a hoarseness of voice and this would be diagnosed with a CT scan of the chest.

Although pancoast tumours can be suspected from chest x-rays if there were shadowing in the apices, a recent chest x-ray was clear and this scan would not be diagnostic.

A full work up from ENT would have (should have!) have included a complete examination including nasolaryngoscopy to rule out any ENT tumours, including cancer of the vocal chords themselves.

MRI head and neck and ultrasound neck would not diagnose a pancoast lung tumour.

Question:

A 68-year-old man with a history of type 2 diabetes mellitus presents with worsening eye sight. Mydriatic drops are applied and fundoscopy reveals pre-proliferative diabetic retinopathy. A referral to ophthalmology is made. Later in the evening whilst driving home he develops pain in his left eye associated with decreased visual acuity. What is the most likely diagnosis?

A.Keratitis secondary to mydriatic drops

B.Proliferative diabetic retinopathy

C.Acute angle closure glaucoma

D.Central retinal artery occlusion

E.Vitreous haemorrhage

Answer:Acute angle closure glaucoma

Explanation:

Mydriatic drops are a known precipitant of acute angle closure glaucoma. This scenario is more common in exams than clinical practice.

Question:

A 61-year-old man with haemochromatosis attends his GP for the results of a screening ultrasound scan. The rest of his past medical history includes hypertension and gout and he takes regular amlodipine. The results are shown below:

Ultrasound abdomen The liver is enlarged with a heterogeneous echotexture in keeping with fatty infiltration. Normal calibre common bile duct. The gallbladder, kidneys, pancreas and aorta are of normal appearances.

The GP arranges a further ultrasound scan in 6 months as he remains asymptomatic.

Which condition is the ultrasound scan screening for?

A.Gallstone disease

B.Hepatocellular carcinoma

C.Liver cirrhosis

D.Pancreatic cancer

E.Renal stone disease

Answer:Hepatocellular carcinoma

Explanation:

Patients with haemochromatosis are at an increased risk of hepatocellular carcinoma

Important for meLess important

Haemochromatosis is an iron storage disorder that leads to iron deposits in various organs in the body, including within the liver. The inflammation resulting from this can cause cellular damage and cirrhosis. This gives patients a significantly higher risk of developing hepatocellular carcinoma which is screened for with regular abdominal ultrasound scans.

Gallstone disease is not associated with haemochromatosis and screening is not undertaken to look for gallstones.

Although liver cirrhosis will be detected with an ultrasound scan, this is not the aim of screening and blood markers of synthetic liver function are far more useful in monitoring cirrhosis than ultrasound.

Pancreatic cancer is not associated with haemochromatosis and there is no screening programme for pancreatic cancer. Additionally, the best imaging modality for either pancreatic or biliary disease is MRI.

Renal stone disease is not associated with haemochromatosis and screening is not undertaken. Additionally, the best imaging modality for renal tract disease is non-contrast CT.

Question:

A 55-year-old man presents to the GP as he has noticed his wedding ring no longer fits and his shoe size has increased. When compared to old photographs his forehead shows frontal bossing with thickening of the nose and jaw. The GP suspects the underlying diagnosis and sends him off for some tests including an echocardiogram.

Given the most likely underlying diagnosis, what would the GP be looking for on the echocardiogram?

A.Infective endocarditis

B.Aortic regurgitation

C.Aortic stenosis

D.Cardiomyopathy

E.Constrictive pericarditis

Answer:Cardiomyopathy

Explanation:

Acromegaly is associated with cardiomyopathy

Important for meLess important

This question is asking about a man presenting with an increase in the size of his hands, feet and face. All classical signs of acromegaly. Given this presumed diagnosis the GP has sent for an echocardiogram to look for cardiac complications and so this question is asking about which cardiac complications are associated with acromegaly. Therefore the correct answer is cardiomyopathy. Acromegaly is associated with cardiomyopathy, hypertension, arrhythmias and left ventricular hypertrophy.

Question:

A 56-year-old man recently presented with itchy skin 'especially after bathing' and headaches and has subsequently received a new diagnosis. He has been informed he will benefit from regular venesection, and that he will require medical therapy to reduce his 'risk of clots'.

What medical management is appropriate, assuming he has received lifestyle advice?

A.Apixaban

B.Aspirin

C.Clopidogrel

D.Hydroxyurea

E.Low molecular weight heparin

Answer:Aspirin

Explanation:

Aspirin is given to patients with polycythaemia vera to reduce the risk of thrombotic events

Important for meLess important

Aspirin is correct, as it is first-line in polycythaemia vera to reduce the risk of thrombotic events secondary to hyperviscosity. This patient presents with symptoms of hyperviscosity, which occurs due to a high proportion of red blood cells in their serum. Aspirin irreversibly inhibits cyclooxygenase (COX) to reduce the production of thromboxane from arachidonic acid, reducing platelet aggregation and reducing the risk of thrombotic events.

Apixaban is incorrect as it is not first-line prophylaxis in polycythaemia vera. This patient displays no evidence of provoked an unprovoked deep vein thrombosis, which is one of the routine uses of apixaban. It directly inhibits activated factor X (Xa), preventing the conversion of prothrombin to thrombin.

Clopidogrel is an anti-platelet drug used most commonly in acute coronary syndrome management and is not recognised in national guidelines as a treatment in polycythaemia vera, so is incorrect.

Hydroxyurea is a chemotherapy drug, which is a recognised treatment for polycythaemia vera. However, it is inappropriate as a first-line option in thrombotic event prophylaxis and so this patient should be started on aspirin.

Low molecular weight heparin is used for primary prevention of deep vein thrombosis and pulmonary embolism, both forms of venous thromboembolism (VTE) in hospital inpatients. It is also an option for initial treatment of VTE, until oral anticoagulation is established.

Question:

During a ward round consultation, the Psychiatrist was assessing a patient's current mental state. The patient's reply to most of the questions consisted of sentences which did not make any sense such as - 'painting pizza prince bus brush'. This is a good example of which of the following thought disorder?

A.Echolalia

B.Word salad

C.Perseveration

D.Neologism

E.Expressive dysphasia

Answer:Word salad

Explanation:

Disorganised speech in the form of 'word salad' is associated with psychosis and mania

Important for meLess important

Perseveration - repeating the same words/answers.

Echolalia - repeating exactly what someone has said.

Neologism - making up new words.

Word salad - disorganised speech, sentences that do not make sense.

Expressive dysphasia - difficulty putting together words. Often develops following a stroke.

Question:

A 21-year-old man attends the emergency department after noticing blood in his urine. He has been feeling fatigued and generally unwell for the last two days and has been finding himself getting out of breath easily. His housemates had commented yesterday that he was 'turning yellow', but he had assumed they were teasing him for being unwell and had ignored them.

He is normally fit and well and is not on any regular medications. He has however recently started taking primaquine in preparation for a volunteering trip to Tanzania next week.

On examination, he is clearly jaundiced and tachypnoeic. His urine sample is a dark brown and is positive for blood and bilirubin. He is afebrile and normotensive, though is requiring some supplemental oxygen.

You are awaiting the rest of his test results but have received the following from the lab so far:

Hb 115 g/l

MCV 90 fL

Haematocrit 0.3 L/L

Platelets 250 \* 109/l

WBC 10.2 \* 109/l

Reticulocyte count 2.1%

Peripheral blood film Presence of schistocytes, spherocytes and bite cells noted

What is the most likely reason for this presentation?

A.Sickle cell crisis

B.Post-infectious haemolytic anaemia

C.G6PD deficiency

D.Hereditary spherocytosis

E.Pyruvate kinase deficiency

Answer:G6PD deficiency

Explanation:

Malaria prophylaxis (e.g. primaquine) can trigger haemolytic anaemia in those with G6PD deficiency

Important for meLess important

This man is presenting with signs and symptoms of a haemolytic anaemia, the most likely cause of which is G6PD deficiency. A number of foods and medications can trigger haemolysis in individuals with G6PD deficiency, an important class of which are quinine-based anti-malarial medications. The temporal link between starting malaria prophylaxis and developing signs of haemolysis makes this the most likely cause.

While a sickle cell crisis can trigger haemolysis, there is nothing to suggest this patient has sickle cell disease, and no sickle cells are present on the blood film.

Post-infectious haemolysis can occur with atypical pneumonias such as Mycoplasma (cold-agglutinin disease) and infections that induce hypersplenism such as mononucleosis. There is nothing to suggest an infectious cause in this scenario, however.

Congenital haemoglobin defects such as spherocytosis can also cause haemolysis. While there are spherocytes on this man's blood film, these are present to different degrees in haemolytic anaemias of any cause and as such are not specific.

Pyruvate kinase deficiency is the next most common inherited metabolic disorder after G6PD deficiency. Haemolysis in these patients tends to be triggered in times of significant physiological stress.

Question:

A 29-year-old woman presents to the emergency department with a 4-week history of a dull, throbbing headache associated with blurred vision and vomiting. Her headache is worsened by straining, coughing and lying flat. She has a body mass index (BMI) of 46 kg/m².

Ophthalmoscopy shows bilateral papilloedema. Lumbar puncture identifies an elevated opening pressure and normal composition of the cerebrospinal fluid (CSF). An MRI of her brain is normal.

Which of the following should be considered first-line in the management of this patient's presentation?

A.Craniotomy

B.High flow oxygen

C.Lumboperitoneal shunt insertion

D.Thrombolysis

E.Weight loss

Answer:Weight loss

Explanation:

Weight loss is an important first step in all obese patients with idiopathic intracranial hypertension

Important for meLess important

This patient is presenting with a 4-week history of a headache associated with symptoms suggestive of raised intracranial pressure (headache made worse by straining or lying flat, vomiting and a visual field defect). This, combined with her gender, BMI, examination findings of papilloedema and an elevated opening pressure on lumbar puncture and normal MRI suggests a likely diagnosis of idiopathic intracranial hypertension (IIH). Initial management of IIH is with weight loss, diuretics (e.g. acetazolamide), topiramate and repeated lumbar puncture.

Craniotomy is incorrect as this is unnecessary in cases of IIH. This is more likely to be used in the management of subdural or epidural haematomas.

High flow oxygen is incorrect as this is the acute management of cluster headaches, which would likely present with severe, episodic headaches characterised by an intense, sharp pain around one eye associated with red-eye and lacrimation.

Lumboperitoneal shunt insertion is incorrect as this would be considered if first-line management of IIH was unsuccessful.

Thrombolysis is incorrect as IIH is not caused by a thrombus. This management strategy may however be used in cases of venous sinus thrombosis.

Question:

A 46-year-old woman presents to her GP with symptoms of tiredness and breathlessness which have been ongoing for the past 3 months. She has no other symptoms.

Her GP performs blood tests which reveal the following:

Hb 98 g/L Male: (135-180)

Female: (115 - 160)

Mean cell volume 112fl 82-100

Platelets 157 \* 109/L (150 - 400)

WBC 4.9 \* 109/L (4.0 - 11.0)

ALP 88 u/L (30 - 100)

ALT 38 u/L (3 - 40)

γGT 82 u/L (8 - 60)

Albumin 34 g/L (35 - 50)

The patient has a history of chronic kidney disease, poorly controlled T2DM, and peptic ulcer disease. She has a 36-pack-year history and drinks around 20 units per week.

What is the most likely cause of this patient's symptoms?

A.Alcohol excess

B.Chronic kidney disease

C.Iron deficiency

D.Liver cirrhosis

E.Peptic ulcer disease

Answer:Alcohol excess

Explanation:

Isolated rise in GGT in the context of a macrocytic anaemia suggests alcohol excess as the cause

Important for meLess important

Alcohol excess is correct. This patient has presented with symptoms in keeping with anaemia. Her blood results show a macrocytic anaemia, characterised by reduced haemoglobin and increased MCV. Further, she has an isolated raised GGT on a background of alcohol excess. These findings point towards alcohol as the cause of her anaemia.

Chronic kidney disease is incorrect. Though this can cause anaemia as a result of reduced EPO production leading to decreased production of red blood cells, this would cause a normocytic anaemia, not macrocytic as is seen in this patient. Further, the isolated rise in GGT points towards alcohol excess as the cause.

Iron deficiency is incorrect. While this is a common cause of anaemia, especially in women, this would cause microcytic anaemia. Iron deficiency can be effectively ruled out as this patient has a raised MCV. Further, the increased GGT and background of alcohol excess make alcohol much more likely.

Liver cirrhosis is incorrect. The only derangement on this patient's LFTs is increased GGT, making alcohol excess more likely than chronic liver disease in which you would expect to also see raised ALT and ALP. Further, chronic liver disease would likely present with other symptoms such as oedema, jaundice, and weight loss.

Peptic ulcer disease is incorrect. Though this can cause anaemia as a result of chronic bleeding, this is most likely to be iron-deficient anaemia characterised by a decreased MCV. As this patient has a raised MCV with raised GGT, alcohol excess is far more likely.

Question:

A 39-year-old female with a history of chronic pelvic pain is diagnosed with endometriosis. Which one of the following is not a recognised treatment for this condition?

A.Dilation and curettage

B.Gonadotrophin-releasing hormone analogues

C.Combined oral contraceptive pill

D.Medroxyprogesterone acetate

E.Intrauterine system (Mirena)

Answer:Dilation and curettage

Explanation:

Dilation and curettage has no role in the management of endometriosis

Question:

A 78-year-old man asks you to look at a lesion on the right side of nose which has been getting slowly bigger over the past 2-3 months. On examination you observe a round, raised, flesh coloured lesion which is 3mm in diameter and has a central depression. The edges of the lesion appear rolled and contain some telangiectasia.

What is the single most likely diagnosis?

A.Molluscum contagiosum

B.Actinic keratosis

C.Squamous cell carcinoma

D.Malignant melanoma

E.Basal cell carcinoma

Answer:Basal cell carcinoma

Explanation:

This is a classic description of a basal cell carcinoma.

Question:

A 32-year-old woman visited her GP two weeks ago complaining of thick green nasal secretions, a fever and facial pain. There is tenderness on palpation of the maxillary and frontal sinuses. The patient was reassured that she as suffering from acute sinusitis which should resolve itself in 2-3 weeks without antibiotic therapy.

She now has a frontal headache with nausea. She is also having increasing difficulty lifting her right arm and leg. She presents herself to the emergency department with these new symptoms, whilst in the department, she has a seizure.

Which complication of acute sinusitis has she developed?

A.Cerebral stroke

B.Meningitis

C.Cerebral abscess

D.Cavernous sinus thrombosis

E.Intracranial bleed

Answer:Cerebral abscess

Explanation:

Headache, fever and focal neurology and suggestive of a brain abscess

Important for meLess important

A common cause of a brain abscess is ascending infection from middle ear of from facial sinuses. Appropriate safety netting is necessary in primary care to ensure prompt treatment of complications in sinusitis. Cavernous sinus thrombosis is another important complication in sinusitis but usually presents with unilateral facial oedema, photophobia, proptosis and palsies of the cranial nerves which pass through it (III, IV, V, VI).

Question:

A 30 year old lady presents to the Emergency Department with a 4 hour history of cramp like abdominal pain, nausea and vomiting. She has not passed stool for the past 3 days and doesn't recall passing wind. She admits to heavy drinking although has never required any treatment or intervention.

She has no medical history of note aside from a laparotomy 7 years ago for appendicitis.

Her observations are: heart rate 110/min, respiratory rate 20/min, temperature 37.6º, Sats 99% on air.

On examination you note a scar in the right iliac fossa. palpation of the abdomen demonstrates tenderness maximal in the umbilical area with involuntary guarding. Bowel sounds are high pitched.

What is the most likely cause of this lady's symptoms?

A.Ectopic pregancy

B.Hernia

C.Pyelonephritis

D.Duodenal ulcer

E.Adhesions

Answer:Adhesions

Explanation:

This case is a classic presentation of small bowel obstruction. Common causes in adults include incarceration of hernias, Crohn's disease, internal malignancy and in this case previous surgery resulting in adhesions. The incidence varies from 0.1% - 5% in patients who have not had previous surgery but may rise to over 60% in those that have. It is important to recognise symptoms and signs of bowel obstruction as it can lead to intestinal necrosis, sepsis and multi organ failure.

Signs and symptoms of include: abdominal pain, failure to pass stool, vomiting, constipation,distention and peritonits. Risk factors should be sought from the history and include those above.

Question:

A 38-year-old Vietnamese man presents to the emergency department with a 3-week history of left-sided flank pain. He denies urinary symptoms. He had a course of nitrofurantoin prescribed by his GP which has not helped. On examination, he is febrile at 38.4 °C, and extension of his left hip worsens his pain.

What is the most likely diagnosis?

A.Pott's disease of the spine

B.Iliopsoas abscess

C.Mechanical back pain

D.Pyelonephritis

E.Renal calculus

Answer:Iliopsoas abscess

Explanation:

Fever/back pain with pain on extension of the hip → iliopsoas abscess

Important for meLess important

The persistent flank pain, fever and examination findings point towards an iliopsoas abscess. You can also expect to see a limp when the patient walks. These can be divided into primary and secondary causes.

Pott's disease is a form of tuberculosis that occurs outside the lungs whereby disease is seen in the vertebrae. It would fit with back pain and fever, but the distinctive examination findings point towards an iliopsoas abscess.

You would not expect to see constitutional symptoms such as fever in mechanical back pain.

Pyelonephritis is an important differential to bear in mind, but the examination findings are more suggestive of an iliopsoas abscess. It would be useful to exclude this by getting a urine dip and an ultrasound.

Kidney stones are incredibly painful and may produce fever if they become infected. Given the duration of his symptoms, this option is less likely.

Question:

A 34-year-old man presents to the emergency department with bright red rectal bleeding. The bleeding started several hours ago after he has been to the toilet to defecate and he states that if he had to guess he has lost around 'a mug's worth' of blood. He is normally fit and well and has no significant past medical history. His observations are BP 115/84mmHg, heart rate 74/min, temperature 37.3ºC, respiration rate 12/min, and oxygen saturation 98% on room air.

What is the correct management of this patient?

A.Supportive management

B.IV fluids

C.Blood transfusion

D.Endoscopy

E.Subtotal colectomy

Answer:Supportive management

Explanation:

Supportive management is the mainstay for acute PR bleeds if patient is haemodynamically stable

Important for meLess important

The patient in the scenario is haemodynamically stable and not in a state of shock so the mainstay of treatment is supportive management. Based on the onset of the bleed this patient is likely to have haemorrhoids. Supportive management will include analgesia if the patient is in pain, regular observations and fluids/oxygen supplementation as required.

IV fluids and/or blood transfusion may be required in patients presenting with acute lower GI bleeds if they show signs of haemodynamic compromise.

Endoscopy can be used to identify causative pathology, with colonoscopy being used in the elective setting and flexible sigmoidoscopy useful in identifying haemorrhoids that may be the cause of the bleed.

Subtotal colectomy is the standard approach for patients with ulcerative colitis that present with significant haemorrhage and haemodynamic compromise.

Question:

A 76-year-old man is admitted with a right hemiparesis. On examination his blood pressure is 120/78 mmHg, pulse 84 bpm and oxygen saturations 96% on room air. A CT scan excludes intracerebral haemorrhage and he is given aspirin 300mg. What is the most appropriate management with regards to oxygen therapy in the first 12 hours following admission?

A.35% via Venturi mask

B.24% via Venturi mask

C.No oxygen therapy

D.28% via Venturi mask

E.2 litres/minute via nasal cannulae

Answer:No oxygen therapy

Explanation:

Both the NICE stroke guidelines and British Thoracic Society oxygen guidelines do not support giving oxygen in this scenario.

Question:

A 25-year-old man is brought to the emergency department with shortness of breath. He mentions that he has had a persistent dry cough every night for many weeks, although adds that he has been intermittently wheezy on exertion for the past few months.

On respiratory examination, he is alert and orientated but is unable to complete sentences while speaking. There is no cyanosis. Vital measurements indicate a regular pulse rate of 102 beats per minute, a blood pressure of 110/70mmHg, a respiratory rate of 26 breaths per minute and oxygen saturation of 94%. There is audible expiratory wheeze on lung auscultation.

Which of the following is the most likely diagnosis?

A.Acute severe asthma

B.Anaphylaxis

C.Bronchiolitis

D.Life-threatening asthma

E.Moderate acute asthma

Answer:Acute severe asthma

Explanation:

Severe asthma RR > 25/min

Important for meLess important

The sign and symptoms in this patient are suggestive of asthma. Patients with acute asthma exacerbations are stratified into moderate, severe, or life-threatening. This patient has acute severe asthma, as demonstrated by the respiratory rate is > 25/min, and being unable to complete sentences. Although his pulse rate does not fall into the severe category (as it is < 110 beats per minute), only one criterion needs to be met in order to be defined as acute severe asthma.

Anaphylaxis is the incorrect answer because it is an acute hypersensitivity reaction that usually results from some inciting source such as exposure to certain medications, foods, or insect stings and the patients usually have severe symptoms which range from hoarseness, wheezing, stridor, difficulty breathing, and cutaneous flushing with pruritus and urticaria.

Bronchiolitis is an infection of the lower respiratory tract that commonly affects babies and young children less than 2 years of age. Common symptoms include a runny nose, a slightly high temperature, a dry and persistent cough, difficulty feeding, and wheezing.

Life-threatening asthma is characterised by any one of: peak expiratory flow rate (PEFR) of < 33% best or predicted, oxygen saturation < 92%, silent chest, cyanosis or feeble respiratory effort, bradycardia, dysrhythmia or hypotension, and exhaustion, confusion, or coma. This patient is able to give his history appropriately (he is not confused) and his vital measurements do not fall in the life-threatening category.

Moderate acute asthma is defined by increasing symptoms with PEFR 50-75% best or predicted, with no features of acute severe or life-threatening asthma.

Question:

A 15-year-old female presents to the GP requesting the contraceptive pill, on questioning, she demonstrated Gillick competency, however she discloses that her boyfriend is 25 and the Maths teacher at a local, but not her, state school. She is not pregnant and her last period was 3 weeks ago. She asks you not to tell anyone, especially her father who is also one of your patients. What do you do?

A.Inform her that you need to tell social services and child protection due to the age and position of trust of her boyfriend. Try to get her consent but explain you will still need to tell them if she doesn't consent

B.Inform her that you need to tell social services and child protection due to the age and position of trust of her boyfriend. Try to get her consent. If she refuses then accept you cant tell anyone as she has demonstrated Gillick competency

C.Phone up the boyfriend and check he is ok with this decision.

D.Prescribe The contraceptive pill, but document in her notes your discussion and concerns about her boyfriend to be brought up at the next appointment

E.Inform her boyfriends school about their relationship, and the fact they are seeking contraception.

Answer:Inform her that you need to tell social services and child protection due to the age and position of trust of her boyfriend. Try to get her consent but explain you will still need to tell them if she doesn't consent

Explanation:

The GMC guidelines in good medical practice, 0-18 years; sexual activity states 'You should usually share information about abusive or seriously harmful sexual activity involving any child or young person, including that which involves:

young person too immature to understand or consent

big differences in age, maturity or power between sexual partners

a young persons sexual partner having a position of trust

force or the threat of force, emotional or psychological pressure, bribery or payment, either to engage in sexual activity or to keep it secret

drugs or alcohol used to influence a young person to engage in sexual activity when they otherwise would not

a person known to the police or child protection agencies as having had abusive relationships with children or young people.'

Not telling anyone or prescribing the pill and awaiting a review places both your patient and pupils at the boyfriends school at risk of harm due to his relationship and position of trust. Informing the boyfriend or his school is a breech of confidentiality and also doesn't deal with the issue of his job and relationship.

Question:

A 76-year-old man is seen by his GP. He recently had an ambulatory blood pressure monitor which showed frequent readings above 160/95 mmHg. The man has a background of well controlled heart failure (New York Heart Association stage 2) and chronic kidney disease. He takes ramipril, bisoprolol 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 indapamide

B.Add nifedipine

C.Continue to monitor and review in one month

D.Stop ramipril and trial amlodipine instead

E.Stop ramipril and trial amlodipine with indapamide instead

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

The correct answer is to commence indapamide in addition to ramipril. This patient has stage 2 hypertension on ambulatory monitoring, established on an ACE inhibitor. As per the NICE treatment algorithm, the next step would be to add a calcium channel blocker or a thiazide-like diuretic.

Adding nifedipine is incorrect. Nifedipine should be avoided in heart failure due to risk of symptom exacerbation; amlodipine is the only calcium channel blocker licensed for use in heart failure.

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 ramipril and trialling amlodipine instead is incorrect. Amlodipine could be added in addition to ramipril but not in replacement of it. Combination therapy is the recommendation as per the treatment algorithm.

Stopping ramipril and trialling amlodipine with indapamide instead is incorrect. A calcium channel blocker or a thiazide-like diuretic can be added in addition to an ACE inhibitor, but the combination should not be commenced in replacement of an ACE inhibitor.

Question:

A 65-year-old woman presents to the Emergency Department with abdominal pain, bloating and constipation. The pain is described as being in the centre of her abdomen. She last opened her bowels around three days ago.

Her past medical history includes constipation and Parkinson's disease.

On examination she is diffusely tender in the left lower quadrant of the abdomen but there is no guarding or rigidity. Her blood pressure is 130/82 mmHg and heart rate is 90/min.

The abdominal film is shown below:

© Image used on license from Radiopaedia

What is the cause of this patient's symptoms?

A.Ulcerative colitis with toxic megacolon

B.Diverticulitis

C.Faecal loading

D.Sigmoid volvulus

E.Colorectal cancer

Answer:Sigmoid volvulus

Explanation:

The abdominal film is consistent with sigmoid volvulus. Note the signs of large bowel obstruction alongside the coffee bean sign.

Question:

You are the FY1 on a paediatric ward, one of your patients is a 14-year-old female with anorexia. She is currently refusing to be tube fed. You assess her capacity and deem that she has the capacity to refuse. However, neither of her parents agree with her decision. What do you do?

A.As she has capacity she can refuse treatment

B.Section her under section 2 of the Mental Health Act

C.Discharge her for non-compliance

D.As the patient and her parents cannot agree, seek advice from the courts

E.Inform her that as she is under 16 she cannot refuse treatment

Answer:Inform her that as she is under 16 she cannot refuse treatment

Explanation:

The family law reform act of 1969 states that 'those over 16 can consent to treatment, but cannot refuse treatment under 18 unless there is one consenting parent, even if the other disagrees'.

Seeking advice from the courts would be inappropriate at this stage.

Question:

A 25-year-old man presents to the GP with a 3-day history of rhinorrhoea, cough, nasal congestion, malaise, and left ear pain. He denies any trauma.

His temperature is 38.5ºC, his heart rate is 97 bpm, his respiratory rate is 18 /min, and his blood pressure is 120/83 mmHg. The left tympanic membrane is opaque and inflamed, along with left ear proptosis and post-auricular inflammation. The right ear is unaffected.

He has no past medical history but is allergic to penicillin.

What is the most appropriate initial step in his management?

A.Arrange same-day hospital admission

B.Prescribe oral amoxicillin

C.Prescribe oral clarithromycin

D.Prescribe phenoxymethylpenicillin

E.Urgent 2-week wait referral to ENT

Answer:Arrange same-day hospital admission

Explanation:

Otalgia, fever, protruding ear and post-auricular tenderness → ?mastoiditis

Important for meLess important

Arrange same-day hospital admission is the correct answer. The patient in the vignette has acute otitis media (fever, malaise, coryza, and left ear pain associated with an inflamed tympanic membrane). The presence of left ear proptosis and post-auricular inflammation should raise suspicion of mastoiditis (spread of bacterial infection into the mastoid air cells). Mastoiditis can lead to meningitis, facial nerve palsies, and hearing loss and requires immediate medical treatment with broad-spectrum IV antibiotics.

Prescribe oral amoxicillin is incorrect. If the patient in the vignette did not have features of mastoiditis and were not penicillin-allergic, this option would be appropriate. Oral antibiotics should be given if symptoms last >4 days or are not improving, the patient is systemically unwell without requiring admission, the patient is immunocompromised, or if there is otitis media with perforation. Since there is evidence of mastoiditis in the vignette, the patient should immediately be admitted to the hospital for emergency treatment.

Prescribe oral clarithromycin is incorrect. If the patient in the vignette did not have features of mastoiditis, this option would be correct as they are penicillin-allergic and are systemically unwell but not severe enough to warrant hospital admission. Since there is evidence of mastoiditis in the vignette, the patient should immediately be admitted to the hospital for emergency treatment.

Prescribe phenoxymethylpenicillin is incorrect. This antibiotic is not used in the management of otitis media but in bacterial tonsillitis (of which there is no evidence). The patient in the vignette is penicillin-allergic and has features of mastoiditis; therefore, this antibiotic would be inappropriate, and the patient should immediately be admitted to the hospital for emergency treatment.

Urgent 2-week wait referral to ENT is incorrect. The patient in the vignette requires immediate hospital admission due to features of mastoiditis. It would be inappropriate to delay diagnosis and treatment by offering a 2-week wait appointment as this can lead to complications of untreated mastoiditis.

Question:

A 44-year-old man presents to his general practitioner with a 6-week history of joint pain and stiffness, affecting his fingers and wrists. His symptoms are worst upon waking. He is a pianist in a regional orchestra and finds his symptoms are affecting his ability to perform as well as before. His past medical history consists of mild asthma as a child, but he has otherwise been well with no recent illnesses.

On examination, there are visible deformities to his metacarpophalangeal joints associated with palpable tenderness. His wrists are mildly swollen. There are no skin or nail changes.

Given the likely diagnosis, which of the following is associated with the worst prognosis?

A.Acute-onset of symptoms

B.Anti-CCP antibodies

C.Male sex

D.Rheumatoid factor negative

E.HLA B27 positive

Answer:Anti-CCP antibodies

Explanation:

Anti-CCP antibodies are a marker of poor prognosis in rheumatoid arthritis

Important for meLess important

This patient has a diagnosis of rheumatoid arthritis a symmetrical, polyarthritis characterised by early morning joint pain and stiffness. Clinical features associated with a poor prognosis include positive anti-CCP antibodies and positive rheumatoid factor. Anti-CCP antibodies are usually seen in association with positive rheumatoid factor and the two together are strong predictors of early transformation from transient to persistent synovitis.

An insidious onset of symptoms is associated with a poor prognosis for rheumatoid arthritis rather than an acute onset of symptoms.

Female sex is associated with a poor prognosis of rheumatoid arthritis rather than male sex.

HLA-B27 is not associated with rheumatoid arthritis. It is associated with seronegative spondyloarthropathies such as psoriatic and reactive arthritis.

Question:

Kathryn is a 29-year-old woman who attended for cervical cancer screening 12 months ago and the result was positive for high-risk human papillomavirus (hrHPV) with a negative cytology report.

She has just attended for a repeat smear and the result is positive again for hrHPV with a negative cytology report.

What is the most appropriate next step?

A.Refer for colposcopy

B.Repeat sample in 3 months

C.Return to routine recall in 3 years

D.Return to routine recall in 5 years

E.Repeat sample in 12 months

Answer:Repeat sample 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

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. Individuals who remain hrHPV positive, cytology negative at 12 months should have a repeat HPV test in a further 12 months.'

Therefore the correct answer is to repeat the sample in 12 months (i.e. at 24 months after the initial sample).

Those patients 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.

Question:

A 72-year-old male presents to the emergency department with a 1-week history of worsening dyspnoea associated with a productive cough. He is currently recovering from a recent influenza infection. Observations show:

Respiratory rate 20 breaths/min

Heart rate 99 beats/min

Blood pressure 114/90mmHg

Temperature 37.9ºC

Oxygen saturations 97% on room air

A chest X-ray shows consolidation over the right lower zone.

What is the most likely causative organism of this patient's current presentation?

A.Haemophilus influenzae

B.Pneumocystis jiroveci

C.Mycoplasma pneumoniae

D.Staphylococcus aureus

E.Streptococcus pneumoniae

Answer:Staphylococcus aureus

Explanation:

Preceding influenza predisposes to Staphylococcus aureus pneumonia

Important for meLess important

This patient is presenting with symptoms, observations and investigation findings which all suggest pneumonia. In patients with a recent preceding history of influenza (flu), the most common causative organism is Staphylococcus aureus.

Haemophilus influenzae is incorrect. This is a common cause of pneumonia in patients with chronic obstructive pulmonary disorder (COPD) and classically produces green sputum.

Pneumocystis jiroveci is incorrect. This is a fungal infection which classically affects patients with HIV. It classically presents with a dry cough, exercise-induced desaturations and the absence of chest signs.

Mycoplasma pneumoniae is incorrect. This often presents as a dry cough with atypical investigation findings. This condition is associated with erythema multiforme and autoimmune haemolytic anaemia.

Streptococcus pneumoniae is the most common cause of pneumonia and often produces rust-coloured sputum. It is however less likely in this patient due to their recent history of influenza.

Question:

A 21-year-old presents to their general practitioner with what they suspect is a recurrence of tonsillitis. They currently have a fever and a cough and have had tonsillitis 3 times within the past 8 months. On examination, there is tender cervical lymphadenopathy and their tonsils were exudative. They were started on a course of phenoxymethylpenicillin.

Blood tests taken on day 5 of treatment show the following:

Hb 150 g/L Male: (135-180)

Female: (115 - 160)

Platelets 390 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Neuts 0.8 \* 109/L (2.0 - 7.0)

Lymphs 9.2 \* 109/L (1.0 - 3.5)

Mono 0.2 \* 109/L (0.2 - 0.8)

Eosin 0.0 \* 109/L (0.0 - 0.4)

Which of the following may explain the abnormalities in these blood results?

A.Peritonsillar abscess

B.Tonsillitis unresponsive to treatment

C.Treatment with phenoxymethylpenicillin

D.Underlying diagnosis of glandular fever

E.Underlying diagnosis of lymphoma

Answer:Underlying diagnosis of glandular fever

Explanation:

Epstein-Barr virus may result in neutropaenia

Important for meLess important

This person presents with lymphocytosis and neutropenia following treatment for suspected recurrent tonsillitis. Recurrent tonsillitis in a young person should raise suspicions of an underlying reason for this. The most common reason is glandular fever (also known as infectious mononucleosis) caused by the Ebstein-Barr virus. An increase in the number of circulating activated T and B lymphocytes seen in the virus causes lymphocytosis. Neutropenia can also be caused by the virus, however, the aetiology is not fully understood.

A peritonsillar abscess can be a complication of tonsillitis, where there is an abscess forming. This would likely lead to increasing neutrophils, which is not seen here.

Tonsillitis unresponsive to treatment would likely lead to high white cell counts, and wouldn't explain the neutropenia which is seen here. Therefore, this is not the correct answer.

Treatment with phenoxymethylpenicillin is unlikely to lead to any major abnormalities in the full blood count, and therefore this is not the correct answer.

Whilst an underlying diagnosis of lymphoma may explain the lymphocytosis, it would not explain the neutropenia. Equally, in comparison to an underlying glandular fever infection, it is not as likely and is not the correct answer.

Question:

Which one of the following is most associated with raised levels of CA 19-9?

A.Breast cancer

B.Hepatocellular carcinoma

C.Ovarian cancer

D.Pancreatic cancer

E.Colorectal cancer

Answer:Pancreatic cancer

Explanation:

Pancreatic cancer - CA 19-9

Important for meLess important

Question:

A patient presents due to a 'brown coating' on his tongue. He is 34-years-old and has no significant medical history. The coating has been present for the past few weeks. He is asymptomatic other than a slight 'tickling' sensation on his tongue.

What is the most likely diagnosis?

A.Lichen Planus

B.Oral Candida

C.Iron-deficiency anaemia

D.Hairy leukoplakia

E.Black hairy tongue

Answer:Black hairy tongue

Explanation:

Question:

Which of the following drugs is most likely to cause gingival hyperplasia?

A.Phenytoin

B.Carbamazepine

C.Sodium valproate

D.Gabapentin

E.Lamotrigine

Answer:Phenytoin

Explanation:

Gingival hyperplasia: phenytoin, ciclosporin, calcium channel blockers and AML

Important for meLess important

Other common chronic side-effects of phenytoin include hirsutism and coarsening of facial features. There are case reports of valproate causing gingival hyperplasia but it is not listed as a side-effect in the BNF

Question:

A 42-year-old man presents to his general practitioner 6 weeks after developing a cold. Whilst all of his other symptoms have now resolved, the patient is experiencing persistent blockage of his left nostril associated with rhinorrhoea and sneezing. He is otherwise well.

On examination, a large polyp is seen in the left nostril. Examination of the right nostril is unremarkable.

What is the most appropriate next step in management?

A.Reassure that this will resolve over time

B.Routine referral to ENT

C.Saline nasal douche

D.Topical corticosteroids

E.Urgent referral to ENT

Answer:Urgent referral to ENT

Explanation:

Unilateral polyps are a red flag symptom

Important for meLess important

Whilst bilateral polyps are not uncommon, unilateral nasal polyps are a red-flag sign for nasopharyngeal cancer and therefore warrant an urgent referral to ENT.

When bilateral, nasal polyps should be referred to ENT non-urgently for assessment. Topical corticosteroid therapy is first-line management, which shrinks polyps in 80% of cases.

Question:

A 25-year-old female presents to surgery with a 2 week history of painless rectal bleeding. Inspection of perineum and rectal examination is unremarkable. Proctoscopy reveals haemorrhoidal cushions at the left lateral and right anterior position. What is the most important component of management?

A.Sitz baths

B.Topical nitrate

C.Fibre supplementation

D.Improving anal hygiene

E.Application of lubricant prior to defecation

Answer:Fibre supplementation

Explanation:

Fibre supplementation has been shown to be as effective as injection sclerotherapy in some studies

Question:

You examine the eyes of a 67-year-old man:

What is found on fundoscopy?

A.Central retinal artery occlusion

B.Optic disc cupping secondary to glaucoma

C.Laser scars from treated diabetic retinopathy

D.Macular degeneration

E.Papilloedema

Answer:Macular degeneration

Explanation:

This slide shows dry macular degeneration. Drusen can be seen around the macula.

Question:

A 24-year-old woman who has just returned from holiday presents to your clinic 6 days after unprotected sexual intercourse. She reports having a regular 28-day cycle with ovulation around day 14. She is currently on day 16 of her cycle.

What would be the most appropriate method of emergency contraception for this patient?

A.Intrauterine system

B.Copper intrauterine device

C.Ulipristal (EllaOne)

D.Levonorgestrel

E.No suitable method of emergency contraception due to delayed presentation

Answer:Copper intrauterine device

Explanation:

The copper intrauterine device can be inserted for emergency contraception within 5 days after the first unprotected sexual intercourse in a cycle, or within 5 days of the earliest estimated date of ovulation, whichever is later

Important for meLess important

The copper intrauterine device can be inserted up to 120 hours after unprotected sexual intercourse. In patients presenting after this time period, the intrauterine device can be inserted up to 5 days after the earliest ovulation date.

Predicted ovulation date is 14 days before the start of the next cycle. In a patient with a regular 28-day cycle, this would be day 14.

Answer 1 is wrong because the intrauterine system cannot be used for emergency contraception

Answer 3 and 4 are wrong as these can not be used after this time frame.

Question:

A 34-year-old man presents with a two day history of chest pain. The pain is worse on coughing and taking a deep breath in. Since this morning it has been constant and is present when you review him. He feels slightly short-of-breath. His oxygen saturations are 99% on room air, pulse is 72/min, blood pressure is 130/84 mmHg and ausculatation of the cardiorespiratory system is unremarkable. You obtain an ECG:

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

What is the most likely diagnosis?

A.Pulmonary embolism

B.Normal ECG with 'high take-off' ST segments

C.Aortic dissection

D.Aortic stenosis

E.Myocardial infarction

Answer:Myocardial infarction

Explanation:

The ECG shows Q-waves, ST elevation, and hyperacute T-waves in V2 and V3, diagnostic of myocardial infarction. This patient was later shown to have a left anterior descending (LAD) occlusion.

The history is clearly not typical. He is young and has a short history of pleuritic pain. Unfortunately, as experience tells us, patients don't read textbooks and atypical presentations are very common. As the ECG findings are suggestive of a ST elevation myocardial infarction he requires immediate cardiology review.

Question:

A man with glucose-6-phosphate dehydrogenase deficiency asks for advice regarding his son. Given the x-linked recessive inheritance of the condition, what is the chance his son will also develop the disease?

A.2 in 3

B.No increased risk

C.Will definitely be affected

D.1 in 2

E.1 in 4

Answer:No increased risk

Explanation:

X-linked recessive conditions - no male-to-male transmission

Important for meLess important

Question:

A 24-year-old woman presents to her GP. She is troubled by difficult relationships in and out of work. She reports this as being a problem since her teenage years. She struggles to work with other people and describes herself as a perfectionist. She reports other people have described her as inflexible.

What personality disorder do these symptoms suggest?

A.Avoidant personality disorder

B.Borderline personality disorder

C.Obsessive-compulsive personality disorder

D.Paranoid personality disorder

E.Schizoid 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

Obsessive-compulsive personality disorder is the correct answer. Patients with obsessive-compulsive personality disorder are often described as perfectionists with meticulous and rigid etiquettes around work, morality, and values. They struggle to work with others and to adapt their way of doing things.

Avoidant personality disorder is incorrect. This may present with low self-esteem and avoidance of social contact for fear of criticism or rejection.

Borderline personality disorder is incorrect. This presents with unstable interpersonal relationships and self-image, impulsivity, recurrent suicidal behaviour, and difficulty controlling temper.

Paranoid personality disorder is incorrect. This disorder would present with hypersensitivity, reluctance to confide, and preoccupation with conspiratorial beliefs and hidden meaning.

Schizotypal personality disorder is incorrect. This would present with ideas of reference, unusual beliefs, and perceptions, eccentric behaviour, lack of close friends, and paranoia.

Question:

A 56-year-old woman presents to her GP with fatigue. She has difficulty falling and staying asleep. She struggles to keep up with household tasks as her limbs feel 'worn out' easily. Her past medical history includes bipolar disorder which has been well-controlled with lithium carbonate for many years.

Blood tests are taken:

Hb 113 g/L (115 - 160)

Platelets 201 \* 109/L (150 - 400)

WBC 10.2 \* 109/L (4.0 - 11.0)

Calcium 2.81 mmol/L (2.1-2.6)

Phosphate 0.55 mmol/L (0.8-1.4)

Parathyroid hormone 17.1 pmol/L (2.0-8.5)

ALP 207 u/L (30 - 100)

Serum lithium 0.67 mmol/L (0.4 - 1.0)

Given the likely diagnosis, what is the best definitive management for this patient?

A.Alendronic acid

B.Cinacalcet

C.Iron sulphate tablets

D.Lithium cessation

E.Parathyroidectomy

Answer:Parathyroidectomy

Explanation:

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

Important for meLess important

This patient's presentation and biochemical findings suggest a diagnosis of primary hyperparathyroidism, with elevated calcium, ALP and PTH alongside low serum phosphate. Parathyroidectomy is the correct answer, as it is indicated for symptomatic hyperparathyroidism according to NICE.

Bisphosphonates may be considered if the patient is osteoporotic. However, this will not address the cause of this patient's biochemical abnormalities, so this option is incorrect.

Cinacalcet is a calcimimetic which may be used to lower serum calcium and PTH levels. However, this is generally used in refractory secondary hyperparathyroidism, or in patients with primary hyperthyroidism who are not suitable for surgery. This patient is likely to be a candidate for surgery as she is not particularly elderly or frail, so parathyroidectomy is a more suitable option and will act as a definitive treatment.

This patient's haemoglobin is slightly low, but her symptoms are more likely to be caused by hypercalcaemia associated with hyperparathyroidism. Iron sulphate tablets may help if she is experiencing iron-deficiency anaemia, but this is unlikely to resolve her symptoms given her calcium levels.

This patient has normal serum lithium levels. Lithium cessation is incorrect, as this will not help her symptoms, and may disrupt the current management of her bipolar disorder.

Question:

Steve is a 74-year-old man who presents to his general practitioner after experiencing a number of episodes of light headedness. These episodes tend to come on when Steve stands up from a sitting or lying position. Steve's past medical history includes Parkinson's disease for which he takes levodopa, and is slowly deconditioning over time due to his progressive motor symptoms. He takes no other medications.

On examination, observations are blood pressure 130/80mmHg (lying), heart rate 60/min, respiratory rate 14/min and he is afebrile. After 3 minutes standing, observations are blood pressure 100/70mmHg (standing), respiratory rate 14/min, and heart rate 62/min with no compensatory tachycardia. On auscultation of the chest, heart sounds are dual with no murmur, and the lungs are clear.

Which of the following is the most likely cause of Steve's postural hypotension?

A.Aortic stenosis

B.Deconditioning

C.Dehydration

D.Levodopa medication

E.Parkinson's disease

Answer:Parkinson's disease

Explanation:

Parkinson's disease can lead to postural hypotension due to to autonomic failure

Important for meLess important

Parkinson's disease is the most likely cause of Steve's postural hypotension. Parkinson's can lead to postural hypotension due to autonomic failure, which is why there was no compensatory tachycardia on standing.

Of all the other options, one would expect a compensatory tachycardia on standing. The '4Ds' can be useful in remembering causes of postural hypotension with compensatory tachycardia.

Deconditioning.

Dysfunctional heart: aortic stenosis.

Dehydration: disease (acute illness, adrenal insufficiency), dialysis, drugs (diuretics, narcotics).

Drugs: anti-anginals, anti-parkinsonian medications (levodopa), antidepressants, antipsychotics, anti–benign prostatic hyperplasia drugs (tamsulosin).

Aortic stenosis is incorrect due to lack of compensatory tachycardia, and also one would expect to hear a murmur on auscultation of the heart. Remember, the classical murmur for aortic stenosis is an ejection systolic murmur.

Dehydration is incorrect due to lack of compensatory tachycardia, and there is nothing to suggest why Steve would be dehydrated.

Drugs such as levodopa can cause postural hypotension, but as stated before, a compensatory tachycardia would be likely present.

Deconditioning would also result in a compensatory tachycardia. Deconditioning is common in older patients with Parkinson's disease, as the progressive motor symptoms result in further inactivity and sedentary behaviour.

Question:

Mary is a 50-year-old woman who was referred to the gastrointestinal clinic with jaundice. Her partner has noticed that her eyes were yellow over the past 2 weeks. She has also been experiencing fatigue and general itch over the past 3 months before her clinic appointment today. Various emollients have been trialled with no success. The examination did not show any abdominal tenderness. Excoriation was noted across her hands and feet.

Blood tests were performed and this showed:

Bilirubin 50 µmol/L (3 - 17)

ALP 280 u/L (30 - 100)

ALT 50 u/L (3 - 40)

AST 60u/L (5-40)

γGT 150 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 she had positive titres for anti-mitochondrial subtype M2.

Given her likely diagnosis, what is the 1st line therapy that will slow disease progression?

A.Liver transplantation

B.Cholestyramine

C.Rifampicin

D.Obeticholic acid

E.Ursodeoxycholic acid

Answer:Ursodeoxycholic acid

Explanation:

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

Important for meLess important

The combination of cholestatic jaundice raised IgM and positive anti-mitochondrial antibodies should hint towards the diagnosis of primary biliary cirrhosis. Clinical symptoms of this are indolent with most patients being asymptomatic initially. Patients will later develop itching and fatigue as their main symptoms. An examination is mostly unremarkable initially but signs of liver failure can be seen towards the end of the disease course.

The 1st line treatment for primary biliary cirrhosis is ursodeoxycholic acid. This is a secondary bile acid and its precise mechanism of action is not well understood but it may protect the liver by increasing bile flow through the liver. Several studies have shown that ursodeoxycholic acid reduces disease progression but its impact on mortality is not clearly understood.

Obeticholic acid is a semi-synthetic bile acid analogue with action as a farnesoid X receptor agonist. It is used as a second-line treatment for primary biliary cirrhosis if the patient does not tolerate or displays disease progression while on ursodeoxycholic acid.

Cholestyramine is a bile salt sequestrant and is useful in the management of pruritis. However, it has not been proven to show any benefit towards disease progression. Its use is for symptomatic control.

Rifampicin is typically used as an antibiotic but also helps remove bile salts from the circulation. It is typically only used if cholestyramine is not tolerated. It also does not have any benefit against disease progression against primary biliary cirrhosis.

Question:

A 35-year-old male is brought into the emergency department by paramedics. He was a pedestrian hit by a car 20 minutes prior and lost consciousness immediately upon impact. His Glasgow coma scale (GCS) score was 5 on arrival.

An initial assessment found no significant traumatic injury. He was intubated and attached to vital signs monitoring including an ECG. A subsequent x-ray of his chest and abdomen demonstrated no apparent injury.

Thirty minutes later, the patient was noticed to have sinus tachycardia and hypotension with profuse sweating. An examination revealed asymmetrical chest expansion and tracheal deviation. Moments later, a nurse notices he has no pulse.

Which arrest rhythm is likely to be seen in this patient?

A.Asystole

B.Pulseless electrical activity

C.Pulseless ventricular tachycardia

D.Torsades de pointes

E.Ventricular fibrillation

Answer:Pulseless electrical activity

Explanation:

Tension pneumothorax is a reversible cause of PEA in cardiac arrest resulting from trauma

Important for meLess important

Trauma from the road traffic accident may have created a one-way valve, meaning that air is trapped in the pleural space with no method of exit. Mechanical ventilation contributes to this process. With an increase of air in the pleural space, there is impairment of venous return which results in reduced cardiac output; this eventually leads to pulseless electrical activity as the heart is no longer able to pump properly, but the conducting system of the heart is intact. Therefore the problem arises from a mechanical process, instead of a conducting system problem.

This patient here showed signs of acute respiratory distress (i.e. tachycardia, hypotension and sweating) before going into cardiac arrest. Tension pneumothorax should be considered when a sudden decline occurs in mechanically ventilated patients, as it may eventually lead to pulseless electrical activity.

Pulseless electrical activity is defined as a rhythm that should produce a pulse but doesn't. This patient had sinus tachycardia, and then went onto have no pulse. Coupled with the tension pneumothorax, pulseless electrical activity is the correct answer.

Asystole is an arrest rhythm where there is a total cessation of the electrical activity of the heart, meaning an ECG will show no electrical activity. It is primarily a conducting system problem, not a problem with the heart as a pump.

Pulseless ventricular tachycardia is an arrest rhythm where there is a high rate of electrical activity, leading to the heart being an ineffective pump, and not being able to support circulation. An ECG will show a wide-complex tachycardia, not a sinus tachycardia. This is again a problem arising in the conducting system, and so will not likely be found in a tension pneumothorax.

Torsades de pointes is a polymorphic ventricular tachycardia that can be found in severe QT prolongation. It is a peri-arrest rhythm, which can lead to ventricular fibrillation, but is not an arrest rhythm itself. Therefore this cannot be the correct answer.

Ventricular fibrillation is an arrest rhythm where there is a disorganised electrical activity, leading to ineffective pumping. An ECG will show irregular electrical activity, with no discernible pattern. It is primarily a problem in the conducting system, and so is not found within tension pneumothorax.

Question:

A 38-year-old man who has recently emigrated from eastern Europe presents to the Emergency Department one hour after sustaining a 4 cm deep laceration to the dorsum of his left hand. He works as a builder and sustained the laceration after cutting into a cardboard box using a Stanley knife.

On examining the wound there is no sign of a foreign body or neurovascular deficit. He is referred to Plastics for apposition of the wound.

You ask him about his tetanus vaccination status. He has 'no idea' but can remember getting some vaccinations as a child.

What is the most appropriate action with respect to tetanus?

A.Requires human tetanus immunoglobulin + tetanus vaccine

B.Requires tetanus vaccine

C.Requires human tetanus immunoglobulin

D.No action required

E.Requires tetanus vaccine + oral penicillin V prophylaxis for one week

Answer:Requires human tetanus immunoglobulin + tetanus vaccine

Explanation:

Patients with an uncertain tetanus vaccination history should be given a booster vaccine + immunoglobulin, unless the wound is very minor and < 6 hours old

Important for meLess important

Question:

A 26-year-old woman who is at 38 weeks gestation has prolonged labour. Her only complication of pregnancy is the development of gestational diabetes which is well-controlled with insulin.

An artificial rupture of membranes was performed in an attempt to expedite labour. Shortly after this, foetal bradycardia and variable decelerations were noted on the cardiotocograph. An examination reveals that the umbilical cord is palpable vaginally. Help has been called for.

What is the most appropriate step in her management?

A.Administer an IV oxytocin infusion

B.Apply external suprapubic pressure

C.Attempt to place the cord back into the uterus

D.Avoid handling the cord and keep it warm and moist

E.Perform McRoberts' manoeuvre

Answer:Avoid handling the cord and keep it warm and moist

Explanation:

Following umbilical cord prolapse, if the cord is past the level of the introitus, there should be minimal handling and it should be kept warm and moist to avoid vasospasm

Important for meLess important

Avoid handling the cord and keep it warm and moist is correct. This patient has an umbilical cord prolapse which is likely due to the artificial rupture of membranes, which is a risk factor. The presence of foetal bradycardia and late decelerations indicates foetal distress, making this scenario an obstetric emergency. Of the listed options, the most appropriate step would be to avoid handling the cord and keep it warm and moist. The reason for this is because exposure to relatively cold air can cause irritation and cooling and this alongside handling the cord can cause vasospasm of the umbilical cord, reducing the blood supply to the foetus, and risking complications such as death or permanent disability.

Attempt to place the cord back into the uterus is incorrect. This is not recommended due to the risk of vasospasm which can reduce the blood supply to the foetus, risking complications such as death or permanent disability.

Administer an IV oxytocin infusion is incorrect. This would increase the force and rate of uterine contractions which would cause or worsen cord compression leading to a reduced blood supply to the foetus.

Apply external suprapubic pressure is incorrect. This does not play a role in the management of umbilical cord prolapse and is instead used in shoulder dystocia, where the foetus is stuck mid-delivery after the head has been delivered.

Perform McRoberts' manoeuvre is incorrect. This does not play a role in the management of umbilical cord prolapse and is instead used in shoulder dystocia, where the foetus is stuck mid-delivery after the head has been delivered.

Question:

A 69-year-old woman undergoes a radical mastectomy for a T3 triple-negative carcinoma in her left breast. The pathology report shows cancerous cells at the margins of the resected specimen.

What, if any, further non-surgical management should the patient receive?

A.Bilateral chest wall and regional lymph node radiotherapy

B.Ipsilateral chest wall and regional lymph node radiotherapy

C.Ipsilateral chest wall and regional lymph node radiotherapy + course of letrozole

D.Ipsilateral chest wall and regional lymph node radiotherapy + course of trastuzumab

E.No further management indicated

Answer:Ipsilateral chest wall and regional lymph node radiotherapy

Explanation:

The presence of positive axillary lymph nodes and residual tumour at resection margins post-mastectomy are both indications for adjuvant ipsilateral chest wall and regional lymph node radiotherapy. This is based on studies showing beneficial effect on overall survival and locoregional recurrence1.

Adding in a course of letrozole is not appropriate in this patient who has a triple-negative carcinoma. Letrozole is an aromatase inhibitor used in the treatment of ER+ cancers.

Adding in a course of trastuzumab is not appropriate, as this monoclonal antibody is used in the treatment of HER2+ cancers.

Radiotherapy treatment of unilateral breast cancers is of the unilateral site, there is no indication to irradiate both breasts/axillae.

No adjuvant treatment is not appropriate as the positive axillary nodes and positive resection margins indicate there is residual disease which needs to be managed.

References:

1. Nice guideline NG101 (2018).

Question:

A 33-year-old woman reports that both her mother and grandmother died of ovarian cancer in their 40s. She is worried that she too may develop the condition and would like to know more about screening for ovarian cancer in the UK

Which one of the following is true?

A.There is currently no screening programme for ovarian cancer

B.Screening is offered to all women after 50 with 3 yearly transvaginal ultrasounds

C.Screening is offered to all women after 50 with 3 yearly measuring of Ca125 levels

D.Screening is only offered to women who have a family history of ovarian cancer

E.Screening is only offered to women who have the BRCA1 or BRCA2 gene

Answer:There is currently no screening programme for ovarian cancer

Explanation:

At the moment, there is no screening test that reliably detects ovarian cancer at an early stage.

Ovarian cancer should be suspected and further tests should be carried out in any woman (particularly those over 50 years of age), who persistently have any of the following symptoms:

Abdominal distension/bloating

Feeling full (early satiety) or loss of appetite

Pelvic or abdominal pain.

Increased urinary urgency or frequency

Question:

A 46-year-old woman presents to the emergency department with sudden onset abdominal pain and vomiting for the past 5 days. She feels nauseated and cannot tolerate any food and only minimal liquid. She denies diarrhoea and has not had a bowel movement for 4 days.

Her past medical history includes chronic lower back pain for which she takes regular co-codamol. The last time she was in hospital was for her cesarean section 10 years ago.

On examination, she appears clammy and dehydrated. Her abdomen is distended and tender throughout. Bowel sounds are inaudible.

What is the most likely underlying cause of this patient’s presentation?

A.Adhesions

B.Colorectal cancer

C.Gallstone ileus

D.Inguinal hernia

E.Opioid prescription

Answer:Adhesions

Explanation:

Adhesions are the most common cause of small bowel obstruction

Important for meLess important

This patient has a small bowel obstruction. Symptoms of small bowel obstruction are similar to those of large bowel obstruction with abdominal pain, distention and constipation. One differentiating feature between small and large bowel obstruction is the onset of nausea and vomiting. Nausea and vomiting are early signs of small bowel obstruction as this suggests a proximal lesion. Adhesions are the most common cause of small bowel obstruction, particularly if there is a previous history of abdominal surgery. Adhesions are scar tissue usually from inflammation or manipulation of the abdominal contents during surgery. They may be present in patients who are asymptomatic for years before the initial onset of symptoms. This patient has a history of a previous cesarean section, making adhesional small bowel obstruction a likely diagnosis.

Colorectal cancer is the most common cause of large bowel obstruction. Features of large bowel obstruction include abdominal pain, distention and constipation. However, in contrast to small bowel obstruction, nausea and vomiting are later signs.

Gallstone ileus is a less common cause of small bowel obstruction. It is a rare complication of cholecystitis where a gallstone passes through a fistula between the gallstone and small bowel before becoming impacted.

An inguinal hernia is a protrusion of abdominal contents through a defect in the abdominal wall through the internal inguinal ring. They may contain abdominal viscera, commonly small bowel, giving rise to a small bowel obstruction. However, the history of previous abdominal surgery makes the diagnosis of small bowel obstruction secondary to adhesions more likely.

Regular opioid use can lead to constipation. However, constipation is not a cause, rather it is a consequence of an underlying problem - in this case, obstruction secondary to adhesions. The bilious vomiting and the positive findings of abdominal tenderness and distension are worrying signs and point to intestinal obstruction, rather than simple constipation.

Question:

A 30-year-old woman is brought to her GP by her mother who is concerned she has developed bipolar disorder over the last year.

The woman has periods of 'highs', where she often spends significant amounts of money and doesn't need much sleep. She denies ever having grandiosity. These episodes tend to last for a few days, and she never puts herself or others in danger.

The woman also has 'lows' where she experiences severe depression; she feels suicidal, loses interest in her hobbies and sleeps for excessive periods of time. She is referred to a psychiatrist for further assessment.

What is the most likely diagnosis?

A.Anxiety disorder

B.Cyclothymia

C.Major depressive disorder

D.Type 1 bipolar disorder

E.Type 2 bipolar disorder

Answer:Type 2 bipolar disorder

Explanation:

Type I bipolar is associated with mania and type 2 is associated with hypomania

Important for meLess important

The woman has episodes of hypomania that fluctuate with episodes of severe depression. This is classically associated with type 2 bipolar disorder.

There are no features in the question that would point to anxiety disorder.

Cyclothymia is usually diagnosed in people who have mild symptoms of hypomania and depression for at least two years. The severity of this woman's symptoms points to a picture more consistent with type 2 bipolar disorder, regardless of the symptomatology being present for one year only.

Major depressive disorder is not the correct answer, as there is evidence here of 'highs' consistent with hypomania.

Type 1 bipolar disorder is not the correct answer. The symptoms of the 'high' periods are more consistent with hypomania. Episodes of mania may include feelings of euphoria, hallucinations and/or delusions, and a predisposition to risky or reckless behaviour.

Question:

An obese 22-year-old female presents to her GP with a 2-week history of daily headaches. Her headaches are bilateral across her forehead, constant throughout the day and worse on bending over. They are not associated with an aura. On fundoscopy, blurring of the optic disc is observed.

What is the most likely diagnosis?

A.Cluster headache

B.Idiopathic intracranial hypertension

C.Migraine headache

D.Sinus headache

E.Tension headache

Answer:Idiopathic intracranial hypertension

Explanation:

Young woman, high BMI, headache and visual symptoms. Think idiopathic intracranial hypertension

Important for meLess important

Cluster headaches are typically clustered unilateral attacks of severe pain localised to the temporal areas lasting 15 minutes to 3 hours. They might be associated with lacrimation and redness of the ipsilateral eye. They would also not account for papilloedema.

Idiopathic intracranial hypertension typically occurs in young women with a high BMI. It is associated with headaches, visual symptoms, and papilloedema.

Migraines are typically unilateral headaches lasting 4 to 72 hours. They may be worse on activity and associated with photophobia and phonophobia. They commonly are associated with an aura. Furthermore, migraine headaches would not cause papilloedema.

Sinus headaches often feel like pressure around the forehead, eyes and cheeks. They are commonly confused with migraines. They do not cause reduced visual fields and papilloedema.

Tension headaches are wrong because they typically present as a band like headache and would not account for the reduced visual fields or papilloedema.

Question:

A 58-year-old man is seen in a cardiology clinic. His general practitioner referred him for a three-month history of exertional chest pain that relieves upon rest. He has a history of type 2 diabetes and hypertension, both of which he is receiving treatment for. A previous ECG with the general practitioner was normal but he has had no further investigation for his pain.

What is the most appropriate imaging for this man?

A.CT coronary angiogram with contrast

B.Cardiac MRI

C.Cardiac catheterisation and coronary angiography

D.Transoesophageal echocardiography

E.Transthoracic stress echocardiography

Answer:CT coronary angiogram with contrast

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 man has presented with typical stable angina and has several risk factors for coronary artery disease. The most appropriate first-line imaging for stable angina is CT coronary angiography. This non-invasive method can identify areas or arteriolar narrowing and is now preferred to invasive coronary angiography as the first-line investigation.

Cardiac MRI can identify coronary heart disease as well as a range of other heart conditions however due to its expense, is not recommended as the first-line imaging modality.

Due to the development of non-invasive imaging modalities such as CT coronary angiography, invasive techniques such as cardiac catheterisation are no longer first-line.

Transoesophageal echocardiography is very effective at viewing the architecture of the heart but is poor for visualising the coronary vessels. It is therefore of limited use in the diagnosis of stable angina and is therefore not the most appropriate imaging modality.

Stress echocardiography via a transthoracic approach was previously recommended for use in diagnosing coronary artery disease in patients with an intermediate pre-test probability however updated National Institute for Health and Care Excellence (NICE) guidance in 2016 now states that contrast-enhanced CT coronary angiogram is first-line.

Question:

A 79-year-old man presents with a history of lower back pain and right hip pain. Blood tests reveal the following:

Calcium 2.20 mmol/l

Phosphate 0.8 mmol/l

ALP 890 u/L

What is the most likely diagnosis?

A.Primary hyperparathyroidism

B.Chronic kidney disease

C.Osteomalacia

D.Osteoporosis

E.Paget's disease

Answer:Paget's disease

Explanation:

Paget's disease - old man, bone pain, raised ALP

Important for meLess important

The normal calcium and phosphate combined with a raised alkaline phosphate points to a diagnosis of Paget's

Question:

A 48-year-old man with a history of alcohol excess and liver cirrhosis comes to see you with worsening abdominal distension and ankle oedema.

On examination, there is mild suprapubic tenderness, but his abdomen is soft with no masses and no rebound tenderness. His abdomen does seem slightly distended and there is shifting dullness. There is pitting oedema to mid-shin level. He is haemodynamically stable with no sign of jaundice or encephalopathy.

Which medication will be of most benefit for this patient?

A.Bendroflumethiazide

B.Codeine

C.Furosemide

D.Ramipril

E.Spironolactone

Answer:Spironolactone

Explanation:

Ascites - use spironolactone

Important for meLess important

The history of cirrhosis and gradually worsening abdominal distension points towards ascites, especially in the presence of shifting dullness on examination. According to the BNF, the only diuretics that are indicated for ascites are spironolactone, amiloride, and chlortalidone.

Bendroflumethiazide can be used as a diuretic in hypertension and oedema but is not licensed for ascites.

Codeine could cause harm to this patient as it can lead to constipation. If he were to become constipated, it would increase the risk of encephalopathy.

Furosemide is used as a diuretic in heart failure and can be used for resistant hypertension, though is not licensed for ascites.

Ramipril is most often used for hypertension but is also used in heart failure, chronic kidney disease, and for secondary prevention post-myocardial infarction. Ramipril does not feature in ascites management.

Question:

A 36-year-old female who is 30 weeks pregnant presents to the emergency department with severe lower abdominal pain. She is tachycardic but is otherwise stable. On examination, her uterus is tender and hard, but fetal lie is normal. Cardiotocography shows no signs of fetal distress.

Here are her vital signs:

Heart rate = 110bpm

Respiratory rate = 20/minute

Blood pressure = 118/84mmHg

Oxygen saturation = 95% on air

Temperature = 37.5ºC

What is the best next step in management?

A.Admit her and administer steroids

B.Admit her and administer tocolytics

C.Discharge with safety netting

D.Emergency caesarean section

E.Call 2222 and activate the major haemorrhage protocol

Answer:Admit her and administer steroids

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 correct answer is to admit her and administer steroids. She needs to be admitted as she is symptomatic and requires monitoring. Steroids are given to help fetal lungs mature. There is an increased risk of stillbirth so it's recommended to deliver at 37-38 weeks.

Tocolytics are controversial and may increase the risk of maternal cardiovascular side effects so are not given routinely.

Discharging with safety netting is inappropriate as the patient is symptomatic.

Calling 2222, activating the major haemorrhage protocol and emergency caesarean section are not the most appropriate options as the patient is not hypotensive and there were signs of fetal distress.

Question:

A 62-year-old woman presents to her GP with several months of pain and stiffness in both knees and the hands. She also describes some swelling of the left index finger. She is otherwise well, with no significant past medical history except for hypertension, for which she takes amlodipine, and a cough which is currently under investigation.

On examination, she has dactylitis of the left index finger, as well as generalised pain and poor mobility of the fingers. X-rays of the hands are taken:

Hand X-rays Distal interphalangeal (DIP) joint erosions bilaterally.

Which diagnosis would be most typical of the findings?

A.Gout

B.Osteoarthritis

C.Psoriatic arthritis

D.Rheumatoid arthritis

E.Sarcoid dactylitis

Answer:Psoriatic arthritis

Explanation:

Inflammatory arthritis involving DIP swelling and dactylitis points to a diagnosis of psoriatic arthritis

Important for meLess important

The diagnosis here is that of psoriatic arthritis. The correlation between this and cutaneous psoriasis is actually quite poor and arthritic symptoms often precede skin lesions. There is significant overlap with rheumatoid arthritis in terms of presentation, but the features of DIP joint disease and dactylitis point much more towards psoriatic arthritis rather than rheumatoid.

Gout is incorrect - this would be more acute and monoarticular or oligoarticular. It would not present with the other symptoms seen here.

Osteoarthritis is incorrect. This would more commonly present asymmetrically, of a larger joint, and not have features such as dactylitis present, nor the findings on X-ray.

Rheumatoid arthritis is incorrect. Whilst some degree of overlap, as described above, DIP joint disease would be less likely, as well as dactylitis. A blood test should be undertaken to look for anti-cyclic citrullinated peptide antibodies (anti-CCP) as these have a very high degree of specificity for rheumatoid arthritis, and are usually absent in psoriatic arthritis.

Sarcoid dactylitis is incorrect. Dactylitis is found in some patients with chronic sarcoid, but would not present with this patient's X-ray findings, and the patient would have other features of sarcoidosis. A cough is mentioned in the history as a red herring but this would not explain the other symptoms and X-ray findings in this scenario, and so psoriatic arthritis is still far more likely.

Question:

You review a 67-year-old man who has recently started a beta-blocker for heart failure. Which one of the following side-effects is most likely to be caused by his new medication?

A.Sleep disturbances

B.Exacerbation of glaucoma

C.Urinary retention

D.Exacerbation of eczema

E.Palpitations

Answer:Sleep disturbances

Explanation:

Beta-blockers may cause insomnia

Important for meLess important

Question:

A 42-year-old woman presents as she has noticed a 'droop' in the right side of her face since she woke up this morning. There is no associated limb weakness, dysphagia or visual disturbance. On examination you notice right-sided upper and lower facial paralysis. Which one of the following features would be most consistent with a diagnosis of Bell's palsy?

A.Vesicular rash around the ear

B.Hyperacusis

C.Sensory loss over the distribution of the facial nerve

D.Pins and needles in the right arm

E.Rhinorrhoea

Answer:Hyperacusis

Explanation:

A vesicular rash around the ear would suggest a diagnosis of Ramsey Hunt syndrome. Hyperacusis is seen in around a third of patients.

Question:

A 76-year-old man is reviewed on the cardiology ward after being admitted with shortness of breath, exertional angina and a syncopal episode. He was found to have an ejection systolic murmur and has been diagnosed with aortic stenosis. He also has a past medical history of chronic obstructive pulmonary disease (COPD), bronchiectasis, hypothyroidism and osteoarthritis. He was considered a high operative risk patient when assessed for recent surgery for a fractured neck of femur.

What is the most appropriate management option for this patient?

A.Balloon angioplasty

B.Monitor the patient with annual echocardiogram

C.No further management is indicated

D.Surgical aortic valve replacement

E.Transcatheter aortic valve replacement

Answer:Transcatheter aortic valve replacement

Explanation:

Symptomatic aortic stenosis:

surgical AVR for low/medium operative risk patients

transcatheter AVR for high operative risk patients

Important for meLess important

Transcatheter aortic valve replacement is the most appropriate option for the management of high operative risk patients with symptomatic aortic stenosis. Due to his past medical history, the patient would be considered at high-risk for surgical valve replacement. Therefore, a transcatheter approach would be more appropriate.

Balloon angioplasty is incorrect. This is a management option used in patients with coronary vessel atherosclerosis rather than aortic stenosis.

Monitor the patient with annual echocardiogram is incorrect. This patient is currently symptomatic - he has presented with breathlessness, angina and syncope which suggests a significant degree of stenosis. Any patient with symptoms of aortic stenosis should be managed with valve replacement promptly. Patients with asymptomatic aortic stenosis may be monitored regularly until they become symptomatic, at which point a replacement would then be indicated.

No further management is indicated is incorrect, as all symptomatic aortic stenosis patients should be offered surgical management.

Surgical aortic valve replacement may be considered in low/medium operative risk patients, however, for this patient, it would not be appropriate.

Question:

A 35-year-old woman attends your GP practice, she is known to you as she is having trouble conceiving and has been trying for a baby for the past 8 months. She comes today as she has noticed her periods have been getting heavier over the past year or so. She hasn't mentioned this previously as she thought it was due to her getting older, but now her periods have become unmanageable and she has had episodes of flooding. After taking a full history you examine her abdomen, which is soft, non-tender, but you can palpate a supra-pubic mass.

What is the most likely diagnosis?

A.Endometriosis

B.Endometrial cancer

C.Ectopic pregnancy

D.Fibroids

E.Ovarian cancer

Answer:Fibroids

Explanation:

The combination of menorrhagia, subfertility and an abdominal mass in this patient points towards fibroids above everything else. It's important to rule out ectopic pregnancy, but the patient would be more unstable and complaining of pain. Endometriosis and endometrial cancer are unlikely to present with an abdominal mass. You would also want to rule out ovarian cancer in this patient, due to the unspecific presentation of this, but it is not the most likely diagnosis.

Fibroids are benign tumours of the myometrium and are very common.

Symptoms of fibroids include:

Menorrhagia

Pain (with torsion)

Subfertility

As fibroids get larger they cause symptoms due to their size such as: dysuria, hydronephrosis, constipation and sciatica.

First line treatment is often tranexamic acid, NSAIDs or progesterones as they are used in menorrhagia, but surgery is usually required for troublesome fibroids.

Question:

A 31-year-old man with bipolar disorder is seen in the psychiatric outpatients clinic. He has been stable on lamotrigine for the past five months but now comes describing symptoms of elevated mood.

Which of the following symptoms would point towards a diagnosis of mania over a diagnosis of hypomania?

A.Symptoms lasting 4 days

B.Delusional beliefs of being the leader of their own kingdom

C.Increased daytime energy levels despite reduced sleep

D.Feelings of happiness despite upsetting events occurring

E.Rapid speech related to faster thought processing

Answer:Delusional beliefs of being the leader of their own kingdom

Explanation:

Mania is a persistently elevated mood state with psychotic symptoms

Important for meLess important

The highs in bipolar disorder fall broadly into the two categories of mania and hypomania depending on the severity with mania being the more severe form. Generally the two accepted criteria for diagnosis of mania is a prolonged time course (hypomania being less than 7-10 days) and the presence of psychotic symptoms. These psychotic symptoms can be mood congruent hallucinations or they can be delusional beliefs related to the patients elevated mood and feelings of superiority. Delusions such as the belief of owning a kingdom are called delusions of grandeur.

Increased energy, reduced sleep, rapid or pressured speech, pressured thought and an non-reactive affect or mood are symptoms of elevated mood and are seen in both hypomania and mania.

Question:

Mrs Fraser, a 40-year-old woman is referred to the emergency department by her GP who tells you that she has developed new-onset balance issues. Her GP says that 1 week ago Mrs Fraser developed coryzal-type symptoms and 3 days ago she had developed a lower respiratory tract infection (LRTI) at which point she was started on oral co-amoxiclav.

Mrs Fraser tells you that yesterday morning she woke up and noticed paraesthesia in her hands and feet. She then noticed bilateral weakness in her legs which has since become worse. She now also has severe shooting pains in the anterior aspect of her lower limbs.

On examination, Mrs Fraser has normal tone, 5/5 power, normal coordination and sensation in all 4 limbs. She is unable to stand without support however and is unable to walk. She tells you this is due to weakness in her legs which makes her feel as though she will fall. You are unable to elicit any reflexes on examination. You also note that she has bilateral crackles on chest auscultation.

Her chest X-ray shows bilateral peribronchial and lower-zone patchy opacification.

Which of the following tests would you be most likely to identify the causative organism of this presentation?

A.Mycoplasma serology

B.Legionella antibody serology

C.Urine specimen tested for Strep. pneumoniae

D.Urinary Legionella antigen

E.Nasopharyngeal aspirate for viral screen

Answer:Mycoplasma serology

Explanation:

Mycoplasma can cause immune-mediated neurological diseases

Important for meLess important

This patient has presented with signs of a peripheral demyelinating condition similar to Guillain-Barre which we must consider could be secondary to her concurrent illness. The worrying signs above are her loss of reflexes.

Her chest X-ray shows an atypical sounding pneumonia and her symptoms fit with this given her dry cough and flu-type symptoms during the early stage of the illness.

Mycoplasma is an atypical organism which is known to cause immune-mediated neurological diseases, some of which can present as an ascending weakness. It can also cause other, less usual sensory signs such as paraesthesia or neuropathic pain as above. There would be a reasonable chance of mycoplasma serology coming back positive in this case. You would need to consider adding treatment to cover atypical LRTI.

Legionella is also atypical but is not associated with immune-mediated neurological diseases and so would be less likely to be the cause. Strep. pneumonia also is not associated with immune-mediated neurological diseases. Whilst it might be reasonable to expect a viral screen to come back positive, viruses again are not particularly associated with immune-mediated neurological diseases.

Question:

A 35-year-old man comes to his GP with questions about his family history of colorectal cancer. He says his father, paternal grandmother, and two of his aunties on his father's side have been diagnosed with colorectal cancer before the age of 50, and he is worried that this man be an inherited condition.

Which of the following is the most common cause of inherited colorectal cancer?

A.BRCA1

B.Familial adenomatous polyposis (FAP)

C.Gardner syndrome

D.Hereditary nonpolyposis colorectal cancer (HNPCC)

E.Von Hippel–Lindau disease

Answer:Hereditary nonpolyposis colorectal cancer (HNPCC)

Explanation:

HNPCC (Lynch syndrome) is the most common inheritable form of colorectal cancer

Important for meLess important

HNPCC is the most common form of inherited colorectal cancer. It accounts for around 5% of all colorectal cancer cases, and is also strongly associated with endometrial cancer.

BRCA1 gene mutation is mainly associated with breast cancer, and ovarian cancer to a lesser degree.

FAP is the second most common cause of inherited colorectal cancer. Gardner syndrome is a variant of FAP, often with cutaneous signs.

Von Hippel–Lindau disease is a rare autosomal dominant disease that is associated with central nervous system cancers and retinal cancer.

Question:

You are a new Foundation Year 1 (FY1) doctor working on a colorectal surgery ward and notice many patients are having post-operative analgesia given via an epidural.

What is the main benefit of this form of analgesia compared to alternative forms?

A.Reduced incidence of nausea and vomiting

B.Reduced incidence of over-sedation

C.Faster return of normal bowel function

D.Lower risk of dependence

E.Cheaper to prescribe

Answer:Faster return of normal bowel function

Explanation:

High quality evidence suggests that epidural analgesia helps to accelerate the return of normal bowel function after abdominal surgery

Important for meLess important

Evidence suggests that epidural analgesia decreased the time before return of normal gastrointestinal transit (measured by first flatus post abdominal surgery) and therefore normal bowel function for the patient. As a result, epidural analgesia is commonly seen on gastrointestinal surgery wards and is often preferred to alternative forms of analgesia.

Question:

A 32-year-old woman comes to the out-of-hours general practitioner asking for emergency contraception. She normally takes the combined oral contraceptive pill (COCP) and reports to have been taking each pill regularly for the first 7 days of her cycle. However, over the weekend she forgot to pack her contraception whilst on holiday and has missed 2 doses. During this weekend away she has had unprotected sexual intercourse.

Since returning home, she has restarted her COCP on day 10 of her cycle.

What is the most appropriate management plan for this patient?

A.Intrauterine system

B.Levonorgestrel and barrier contraception for next 2 days

C.Levonorgestrel and barrier contraception for next 7 days

D.No emergency contraception required and barrier contraception for next 7 days

E.Ulipristal acetate and barrier contraception for next 7 days

Answer:No emergency contraception required and barrier contraception for next 7 days

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

This woman has missed 2 doses of the COCP. Provided the first 7 doses of the COCP are taken at the correct date and time, if 2 consecutive doses are missed between days 8-14 of the menstrual cycle, emergency contraception is not required. This woman has missed doses on days 8 and 9 of her menstrual cycle and has since restarted her medication on day 10. Therefore emergency contraception is not needed. However, until 7 consecutive days of the COCP are taken, women are at risk of becoming pregnant, and therefore barrier contraception or abstaining from sex is advised.

The intrauterine system is not a method of emergency contraception, in contrast to the intrauterine device. As this patient has already restarted taking the COCP, there is no need to introduce the intrauterine system as well.

Levonorgestrel is a form of emergency contraception that must be taken within 72 hours of unprotected sexual intercourse. If barrier contraception was indicated, then barrier contraception for 2 days would be inappropriate as this is only the case if she were taking the progesterone-only pill rather than the COCP.

Levonorgestrel and barrier contraception for 7 days would be correct if the patient had missed more than 2 doses of her COCP. However, as this patient has missed 2 doses of the COCP after 7 regular doses, emergency contraception is not yet required.

Ulipristal acetate (also known as EllaOne) is a form of emergency contraception that must be taken within 5 days of unprotected sexual intercourse. If indicated, barrier contraception would need to be taken for the next 7 days until the COCP takes effect. However, this patient does not require emergency contraception, making this answer incorrect.

Question:

A 35-year-old man is on the acute medical unit with a new diagnosis of hypertrophic obstructive cardiomyopathy. He is on cardiac monitoring, and the emergency buzzer is pulled after he is noted to become very tachycardic. An ECG shows a regular, broad complex tachycardia. The patient has a GCS of 15, blood pressure is 123/81mmHg and he reports feeling well.

What is the most appropriate management?

A.Defibrillation

B.IV adenosine

C.IV amiodarone

D.IV atropine

E.Synchronised cardioversion

Answer:IV amiodarone

Explanation:

IV amiodarone is the first-line treatment for regular broad complex tachycardias without adverse features

Important for meLess important

The patient is likely having a ventricular tachycardia, denoted by the regular and brought complexed tachycardia, and high risk given his cardiomyopathy. He is showing no adverse features (shock, syncope, myocardial ischaemia or heart failure) and therefore should be managed with IV amiodarone, as per the adult advanced life support algorithm.

Defibrillation is indicated in cardiac arrest for ventricular tachycardia or ventricular fibrillation. This patient is very much alive and therefore defibrillation not indicated..

IV adenosine is used in the treatment of supraventricular tachycardia (SVT). SVT would be a regular, narrow complexed tachycardia.

IV atropine is used in the management of bradycardia, not tachycardia. Use in this context would increase the tachycardia.

Synchronised cardioversion is used in the management of ventricular tachycardia if any adverse feature are present, it will also be considered if IV amiodarone is ineffective.

Question:

A 27-year-old man presented with a severe, sudden-onset headache.

A subsequent CT head scan showed increased attenuation of the tentorium, basal cisterns, and sylvian fissures.

The patient underwent surgery and was then admitted to hospital. They have been receiving regular intravenous (IV) fluids since their admission. Their routine morning blood tests on day 3 of the admission are shown below :

Hb 137 g/L Male: (135-180)

Female: (115 - 160)

Platelets 264 \* 109/L (150 - 400)

WBC 7.1 \* 109/L (4.0 - 11.0)

Na+ 122 mmol/L (135 - 145)

K+ 3.8 mmol/L (3.5 - 5.0)

Urea 6.7 mmol/L (2.0 - 7.0)

Creatinine 92 µmol/L (55 - 120)

Serum Osmolality 268 mOsmol/kg (280-290)

CRP <5 mg/L (< 5)

Given the likely diagnosis, what is the likely cause of their hyponatraemia?

A.Addison's disease

B.Diabetes insipidus

C.Excess administration of IV fluids

D.Renal failure

E.Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

Answer:Syndrome of inappropriate antidiuretic hormone secretion (SIADH)

Explanation:

SIADH is a common consequence of subarachnoid haemorrhage

Important for meLess important

The correct answer is 'syndrome of inappropriate antidiuretic hormone secretion (SIADH)'.

This patient was likely admitted with a subarachnoid haemorrhage (SAH) due to their symptoms of a sudden-onset severe headache and CT head scan report. SIADH is a common complication following SAH that causes hyponatraemia. SIADH leads to hyponatraemia due to the dilutional effects of excessive water retention.

Addison's disease can cause non-specific symptoms such as nausea and vomiting and would result in hyponatraemia. However, there would generally be other electrolyte abnormalities present in Addison's disease, such as hyperkalaemia.

Diabetes insipidus would not cause these blood results. It leads to hypernatraemia rather than hyponatraemia, and the serum osmolality would generally be raised rather than reduced. Additionally, the patient would have symptoms such as polyuria and polydipsia.

Excess administration of IV fluids can easily occur in hospital, but it would generally cause hypernatraemia rather than hyponatraemia.

Renal failure is a potential cause of hyponatraemia, but there are no other results on the blood tests that indicate renal failure. A raised urea or creatinine would normally be expected if this was the case.

Question:

A 40-year-old male known diabetic presents with increasing headaches and visual issues.

On examination, he has enlargement of the hands and feet, coarse facial features and splaying of the teeth.

What is the most appropriate first-line investigation?

A.Oral glucose tolerance test (OGTT) with serial GH measurements

B.Pituitary MRI

C.Random serum growth hormone (GH) level

D.Serum growth hormone-releasing hormone (GHRH) level

E.Serum insulin-like growth factor 1 (IGF-1)

Answer:Serum insulin-like growth factor 1 (IGF-1)

Explanation:

Serum IGF-1 levels are now the first-line test for acromegaly

Important for meLess important

Serum IGF-1 is the correct answer as The Endocrine Society guidelines now suggested IGF-1 measurement as the first-line test in patients presenting with typical clinical manifestations of acromegaly.

OGTT with serial GH measurements is incorrect as this is no longer the suggested first-line test for acromegaly. The Endocrine Society recommends in patients with clinically suspected acromegaly, and an elevated or equivocal serum IGF-1 level, the diagnosis should then be confirmed by finding a lack of GH suppression with an OGTT.

Pituitary MRI is incorrect as although this may demonstrate a pituitary tumour this is not the recommended first-line investigation to diagnose acromegaly.

A random serum GH level is incorrect as GH levels vary throughout the day and therefore cannot be used to confirm acromegaly.

Serum GHRH level is not the first-line test as the vast majority of acromegaly cases are due to pituitary adenomas. Acromegaly secondary to GHRH secreting tumours are rare and should only be investigated for cases where a pituitary defect cannot be confirmed.

Question:

A 19-year-old netball player presents to the emergency department after he felt a sharp pop in his left heel. On clinical examination, a dip is palpable on the posterior aspect of his ankle. Upon history taking, he states that whilst on tour in Spain he was recently prescribed ciprofloxacin for a suspected chest infection.

What is the single most appropriate investigation to confirm the suspected diagnosis?

A.Magnetic resonance imaging (MRI) ankle

B.Ultrasound ankle

C.CT ankle

D.Single view plain film radiograph (X Ray) ankle

E.Multiple views plain film radiographs (X Ray) ankle

Answer:Ultrasound ankle

Explanation:

Ultrasound is the initial imaging modality of choice for suspected Achilles tendon rupture

Important for meLess important

It is highly likely that this gentleman has sustained an Achilles tendon rupture. The best imaging to request initially is ultrasound. In combination with the examination findings, ultrasound is highly sensitive at detecting Achilles tendon ruptures.

An MRI or CT at this point would be unwarranted. X Rays are more useful in detecting bony abnormalities, and therefore unless a concurrent fracture is suspected, are not indicated for suspected Achilles tendon rupture.

Question:

A 4-day-old girl who was diagnosed prenatally with Down's syndrome and born at 38 weeks gestation presents with bilious vomiting and abdominal distension. She is yet to pass meconium.

What is the most likely diagnosis?

A.Duodenal atresia

B.Hirschprung's disease

C.Intussusception

D.Necrotising enterocolitis

E.Pyloric stenosis

Answer:Hirschprung's disease

Explanation:

Failure or delay to pass meconium is common presentation of Hirschprung's disease

Important for meLess important

Hirschprung's disease usually presents soon after birth with delayed passage of meconium, distended abdomen, bilious vomiting, lethargy and dehydration. It is associated with Down's syndrome and is more common in males.

Pyloric stenosis will typically present with bilious projectile vomiting with palpable epigastric mass on feeding.

Necrotising enterocolitis presents with vomiting, abdominal distention and blood in stools. Pre-maturity is a risk factor.

Intussusception typically presents between 3-12 months with colicky abdominal pain and drawing up of the infant's legs. Blood in the stool is a late sign.

Duodenal atresia often shows up on antenatal screening. It present with bilious vomiting hours after birth.

Question:

A 38-year-old female presents to the GP as she has been feeling generally unwell for the past 2 weeks. She explains that she is often hot and sweaty and is struggling to sleep at night. Her husband has also noticed that she is unusually agitated and on edge a lot of the time. She has no past medical history of note but states that she was unwell with flu-like symptoms around 6 weeks ago which has since resolved. On inspection, there is a goitre that is tender on palpation.

Thyroid function tests are ordered and return as follows:

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

Free thyroxine (T4) 21 pmol/L (9.0 - 18)

Given the most likely diagnosis, what would be the first-line management?

A.Carbimazole

B.Conservative management with ibuprofen

C.Propylthiouracil

D.Radioactive iodine therapy

E.Thyroxine

Answer:Conservative management with ibuprofen

Explanation:

Thyrotoxicosis with tender goitre = subacute (De Quervain's) thyroiditis

Important for meLess important

This patient is presenting with symptoms of hyperthyroidism such as heat intolerance, insomnia, and agitation. Moreover, the thyroid function test shows a normal TSH and a high T4 level, which support the diagnosis of primary hyperthyroidism (meaning the pathology lies within the thyroid gland itself, rather than the hypothalamus/pituitary gland). Here, the most likely cause of primary hyperthyroidism is subacute (De Quervain's) thyroiditis because of the recent viral illness and the presence of a painful goitre.

Conservative management is the most appropriate answer as the majority of subacute (De Quervain's) thyroiditis is self-limiting. Conservative management involves watching and waiting to allow time for the issue to resolve spontaneously. In addition, NSAIDs, such as ibuprofen, can be used to treat the pain associated with the goitre. In more serious cases, corticosteroids, such as prednisolone, are prescribed to reduce thyroid swelling.

Carbimazole is an antithyroid drug that is used to treat chronic hyperthyroidism, such as Grave's disease, not subacute thyroiditis. This is because subacute thyroiditis commonly resolves spontaneously, therefore there is no need to reduce thyroid hormone production long-term.

Similarly, propylthiouracil is an alternative antithyroid drug that is also used to treat chronic hyperthyroidism, as seen in Grave's disease. Therefore, this would be inappropriate for subacute thyroiditis, which is not a chronic cause of hyperthyroidism.

Radioactive iodine therapy is a treatment option for both Grave's disease and thyroid cancer but is not appropriate in subacute thyroiditis, which is often self-limiting.

Thyroxine is the drug used to treat hypothyroidism as it replaces the thyroid hormone that is not naturally produced. Therefore, in this scenario, which involves hyperthyroidism, this would not be an appropriate treatment.

Question:

A 28-year-old male attends your travel clinic seeking anti-malarial medication, as he is planning a holiday to the rural Philippines. Upon consultation, you decide to prescribe him doxycycline.

Which can you inform him is a classical side effect of this medication?

A.Yellow-brown discolouration of teeth

B.Drug-induced psychosis

C.Drowsiness

D.Vivid dreams

E.Sensitivity to light

Answer:Sensitivity to light

Explanation:

Tetracycline - associated with sensitivity to light

Important for meLess important

Doxycycline is a tetracycline antibiotic, indicated in malarial prophylaxis, acne and many sexually transmitted infections. Notable contraindications include pregnancy and children under the age of 12, as doxycycline can deposit in growing bones and teeth, causing discolouration (but this would not apply, as the patient is an adult).

Sensitivity to light is the side effect that is needed to be counselled on, so additional precautions can be taken.

It is the mefloquine antimalarial rather than doxycycline which is associated with neuropsychiatric disturbances, such as drug-induced psychosis and vivid dreams.

Doxycycline is not classically associated with drowsiness.

Question:

A 45-year-old woman presents to the emergency department with sudden onset right-sided chest pain and associated dyspnoea. She has no history of malignancy, recent surgery/trauma requiring hospitalisation or previous thromboembolic event, and she has not had any haemoptysis.

On examination, her heart rate is 95bpm, blood pressure 130/80mmHg, O2 saturation 93% and respiratory rate 30/min. Both calves are soft, non-tender and symmetrical in size.

What is the most appropriate immediate action?

A.Arrange ultrasound of the patient's legs

B.Start IV alteplase (thrombolysis)

C.Start IV low molecular weight heparin infusion

D.Test for serum D-dimer

E.Urgent CT pulmonary angiogram

Answer:Test for serum D-dimer

Explanation:

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

Important for meLess important

This patient has presented with a history consistent with pulmonary embolism (PE). The two-level Wells PE score should be calculated: if the score is >4 then PE is 'likely' and CTPA should be arranged; if it is ≤4 then PE is 'unlikely' so a D-dimer should be taken.

D-dimer is a very sensitive, but non-specific marker for PE, meaning it is more useful when it is negative than when it is positive and it is therefore used in ruling out PE in patients where there is little clinical likelihood. If the D-dimer comes back positive in this patient, she should then receive a CTPA to look for PE.

If the patient was haemodynamically unstable, thrombolysis should be considered, using a tissue plasminogen activator such as Alteplase.

Source: NICE guideline on venous thromboembolism, http://www.nice.org.uk/guidance/cg144/chapter/Recommendations#diagnosis-2.

Question:

A 23-year-old male is brought to the emergency department due to an ongoing seizure. He was at the pub when the seizure started, and witnesses report that the patient had an episode of stiffness before falling to the floor and starting to seize. The seizure has now been going on for 20 minutes. A dose of intravenous lorazepam has been given but not terminated the seizure.

What is the next appropriate step in management?

A.A second dose of IV lorazepam

B.Call anaesthetics for airway management

C.Chlordiazepoxide

D.IV phenytoin

E.Rectal diazepam

Answer:A second dose of IV lorazepam

Explanation:

A maximum of two doses of IV benzodiazepines can be administered during convulsive status epilepticus

Important for meLess important

Status epilepticus is defined as a seizure that lasts longer than 5 minutes, or several seizures consecutively. The management of status epilepticus initially is a thorough A to E assessment, aiming to secure the airway and identify reversible causes (i.e. hypoglycaemia). Medical management starts with benzodiazepines - either rectal or intravenous. Examples of benzodiazepines include lorazepam and diazepam. These drugs work by binding to GABA receptors, potentiating the effect of the GABA neurotransmitter. A maximum of two doses of benzodiazepines can be given in status epilepticus. After this, a phenytoin or phenobarbital infusion is used. At this point, it is important to consider ringing the anaesthetic team, as the next step in management is sedation and intubation.

Chlordiazepoxide is a medication used in the treatment of alcohol withdrawal. It is not a reversal agent, therefore has no use in the acute management of alcohol intoxication. It is a type of benzodiazepine, however, it is rarely used in the management of status epilepticus.

Phenytoin is an antipsychotic medication that is used in the management of status epilepticus once two doses of benzodiazepine have been given. The mechanism of action of phenytoin is sodium channel blockage.

Rectal diazepam is often given by the ambulance crew for the treatment of status epilepticus. However, once in a hospital setting, IV lorazepam is the preferred option.

Question:

A 34-year-old man who suffers from muscle weakness and cramps has undergone extensive investigation. He is found to have a rare type of myopathy.

This was clear from his family history. His brother also has the disease. The same condition was found in his mother and his maternal grandmother. His maternal auntie is affected, and her 2 sons are affected. His maternal uncle is affected, but none of his children are affected. There is no evidence of the disease anywhere on the paternal side.

The patient's wife has no family history of the disease. It is not known whether the patient's children are affected.

Given the likely inheritance pattern, what are the chances of his biological children inheriting the disorder from him?

A.0%

B.25%

C.50%

D.100%

E.Not possible to determine

Answer:0%

Explanation:

For a man with mitochondrial disease, none of his children will inherit the condition

Important for meLess important

The description of the inheritance matches that of mitochondrial disease. Females in the family all have the disease, and there is an abrupt stop when it is passed through male lineage (i.e. with his maternal uncle having unaffected kids).

Mitochondrial diseases are passed through maternal lineage, as the mitochondria are present in the ovum and not the sperm. This means it is only the maternal zygote that contributes the mitochondria to the fertilised egg.

Mitochondrial diseases are inherited following 3 principles:

Affected males cannot pass it onto their children

Affected females will pass it onto all of their children

All individuals who inherit the affected mitochondria, will have the disease

Since the patient here is male, and he will have contributed sperm to the pregnancy, he cannot pass on the disease. Therefore, the chance of his children being affected is 0%.

Question:

An 11-year-old girl presents with a 6-month history of shortness of breath on exertion and at night. In the last six months, she has had 12 episodes of tightness in her chest during football matches and struggles to breathe. These episodes only last a few minutes and are relieved by rest.

She has a past medical history of eczema and hay fever.

On examination, her chest sounds normal and you arrange spirometry testing.

The patient's spirometry result is normal.

What is the most appropriate next step?

A.Diagnose asthma based on history

B.Monitor peak flow variability for 2 to 4 weeks

C.Organise exercise stress test

D.Organise fractional exhaled nitrous oxide (FeNO) testing

E.Reassure the patient that this will likely get better with time

Answer:Organise fractional exhaled nitrous 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

Based on the age of the patient the history of chest tightness, diurnal variation, and her risk factors of hay fever and eczema the most likely diagnosis is asthma. A normal spirometry result does not exclude asthma and NICE recommends further testing at this instant.

Organise fractional exhaled nitrous oxide testing is the correct answer. FeNO is the next step to diagnose asthma. It can be used to detect small amounts of NO released during inflammatory processes in the lungs and is highly sensitive and specific for asthmatic patients who have negative spirometry results.

Diagnose asthma based on history is incorrect. The patient does have a high pretest probability of having asthma. However, history alone, in this case, is not enough to diagnose asthma. The next step is FeNO then if that is negative monitor peak flow variability for 2 to 4 weeks in children and only then could a diagnosis based on history be considered.

Reassure the patient that this will likely get better with time is incorrect. The patient has multiple risk factors for asthma and even if it is not asthma you have no reason to think the child will get better over time.

Monitor peak flow variability for 2 to 4 weeks is incorrect. Nice recommends monitoring the peak flow of patients who are suspected of having asthma but only after the FeNO test is negative.

Organise exercise stress test is incorrect. Nice explicitly states that you should not perform exercise stress testing on patients you suspect of having asthma.

Question:

A 42-year-old man is admitted to the emergency department with fever, deep pain behind his eyes, and itching hands. He has recently returned from a 2-week business trip to India. During the trip, he ate in the hotel, but he was bitten by mosquitos at night.

On examination, he has a flushed face and a widespread maculopapular rash. His temperature is 38.4ºC.

What is the single most likely underlying cause for his symptoms?

A.Chagas

B.Cholera

C.Dengue

D.Malaria

E.Typhoid

Answer:Dengue

Explanation:

Retro-orbital headache, fever, facial flushing, rash, thrombocytopenia in returning traveller → ?dengue

Important for meLess important

Chagas disease as that infection is found predominately in Latin America. The infection is from the parasite Trypanosoma cruzi and, although it can cause fever in a returned traveler, a classic feature is swelling of eyelids.

Cholera infection occurs via the faecal-oral route primarily via drinking water or shellfish. It causes perfuse diarrhoea but not all of the other symptoms.

Dengue fever is transmitted by mosquitos and typical symptoms, as described in this case, are headache (often retro-orbital), fever, muscle aches, facial flushing (dengue), and a maculopapular rash.

Malaria is transmitted by mosquitos and it can cause a similar prodrome illness of non-specific headache, muscular ache, and diarrhoea. However, malaria doesn't tend to cause facial flushing and it then tends to progress to periods of sudden coldness (cold stage) then a hot stage with fever, vomiting, and flushing, and finally a sweating stage before returning to normal.

Typhoid is caused by ingesting food and water that is contaminated with Salmonella typhi it can cause similar symptoms of mild fever, diarrhoea, myalgia, and headache, but it doesn't tend to cause the facial flushing seen in dengue fever.

Question:

A 42-year-old woman presents to her general practitioner complaining of weight gain. She has gained 10 kilograms in the last month, despite exercising and a balanced diet. Additionally, she noticed an increase in her body hair and new-onset acne on her face.

On examination, centrally localised adiposity is noticed. She has recently been prescribed regular oral corticosteroids for her adhesive capsulitis of the shoulder.

Given the most likely diagnosis, what acid-base imbalance would you expect?

A.Hyperchloremic metabolic acidosis

B.Hyperkalaemic metabolic acidosis

C.Hyperkalaemic metabolic alkalosis

D.Hypochloremic metabolic alkalosis

E.Hypokalaemic metabolic alkalosis

Answer:Hypokalaemic metabolic alkalosis

Explanation:

Cushing's syndrome - hypokalaemic metabolic alkalosis

Important for meLess important

The correct answer is hypokalaemic metabolic alkalosis. This patient is presenting with the classical features of Cushing's syndrome: central adiposity, stretch marks, bruising, hirsutism and acne. The condition is caused by an excess of corticosteroids and has been probably exacerbated by the corticosteroid therapy for her adhesive capsulitis.

Cushing's syndrome causes hypokalaemic metabolic alkalosis because when the levels of cortisol are high, the cortisol that is not inactivated by 11β-hydroxysteroid dehydrogenase is free to bind to mineralocorticoid receptors. This causes an increase in water and sodium retention, increased potassium excretion, and increased hydrogen ions excretion. Lower levels of hydrogen ions cause alkalosis and less potassium causes hypokalemia.

Hyperchloremic metabolic acidosis results from bicarbonate loss, rather than acid production or retention. Most commonly it is caused by diarrhoea. This patient does not complain of gastrointestinal symptoms.

Hyperkalaemic metabolic acidosis is caused by type 4 renal tubular acidosis, usually associated with hypoaldosteronism. A reduction in aldosterone leads in turn to a reduction in proximal tubular potassium and hydrogen ions excretion, leading to an excess of both.

Hyperkalaemic metabolic alkalosis is not a viable option, as a decrease in the concentration of hydrogen ions leads to a decrease in potassium ions. Hence, the potassium should be low if the patient was experiencing alkalosis.

Hypochloremic metabolic alkalosis is most commonly caused by vomiting. The patient loses hydrogen and chloride ions by vomiting hydrochloric acid with stomach contents. This patient did not complain about vomit.

Question:

A 24-year-old primigravida attends her booking visit at 12 weeks. She is concerned because her mother had a condition in pregnancy that resulted in a seizure. She has no past medical history and her BP is 125/85 mmHg at this appointment. No abnormalities are detected on her urine dipstick. Her BMI is 38 kg/m².

What is the most appropriate management?

A.Aspirin

B.Hydralazine

C.Labetalol

D.Magnesium

E.No treatment required

Answer:Aspirin

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 three moderate risk factors for pre-eclampsia (first pregnancy, BMI >35 kg/m² and family history of eclampsia) so she should be advised to take low-dose aspirin daily for the duration of her pregnancy.

Hydralazine is an antihypertensive that can be used as an alternative to labetalol in pregnancy. This patient is not hypertensive so this is not necessary at this stage.

Labetalol is the first line antihypertensive in pregnancy.

Magnesium is indicated in severe pre-eclampsia to prevent seizures or to treat seizures in patients with eclampsia. This patient does not have signs of eclampsia, which is the development of seizures in a patient with pre-eclampsia.

No treatment required is incorrect as this patient has ≥ 2 moderate risk factors for pre-eclampsia.

Question:

A 30-year-old woman presents to the emergency department with a 2-day history of severe diarrhoea after eating undercooked meat at her friend's BBQ over the weekend.

On examination, she has dry mucous membranes, loss of skin turgor and a prolonged capillary refill. The doctor on call orders a set of investigations including an arterial blood gas.

What would the arterial blood gas most likely show in this patient?

A.Metabolic alkalosis

B.Mixed respiratory and metabolic acidosis

C.Normal anion gap metabolic acidosis

D.Raised anion gap metabolic acidosis

E.Reduced anion gap metabolic acidosis

Answer:Normal anion gap metabolic acidosis

Explanation:

Diarrhoea - normal anion gap metabolic acidosis

Important for meLess important

The correct answer is normal anion gap metabolic acidosis. This patient is suffering from prolonged diarrhoea causing excessive bicarbonate loss via the GI tract. This will lead to metabolic acidosis. The anion gap is normal as the acidosis is due to bicarbonate loss instead of increased organic acid production.

Metabolic alkalosis is incorrect. Prolonged diarrhoea typically causes metabolic acidosis due to loss of bicarbonate combined with a relative retention of organic acid. Metabolic alkalosis can occur in prolonged vomiting due to the loss of H+ ions via the stomach acid.

Mixed respiratory and metabolic acidosis is incorrect. The patient in question has no signs of respiratory compromise and is currently not in shock. Therefore, the arterial blood gas would show signs of the body trying to compensate for the metabolic acidosis by blowing off CO2 instead of increased CO2 seen in a mixed acidotic picture.

Raised anion gap metabolic acidosis is incorrect. The metabolic acidosis in this patient is being driven by bicarbonate loss from the GI tract due to diarrhoea. A raised anion gap metabolic acidosis would require the presence of increased organic acid, such as in cases of diabetic ketoacidosis or lactic acidosis.

Reduced anion gap metabolic acidosis is incorrect. In this patient, the acidosis is being driven by bicarbonate loss via the GI tract leading to a normal anion gap. A reduced anion gap is typically caused by albumin loss or due to increased cations such as hypercalcaemia.

Question:

A 31-year-old woman presents as she has noted an offensive, fishy vaginal discharge. She describes a grey, watery discharge. What is the most likely diagnosis?

A.Trichomonas vaginalis

B.Candida

C.Chlamydia

D.Bacterial vaginosis

E.Physiological discharge

Answer:Bacterial vaginosis

Explanation:

Question:

Which one of the following unwanted effects is most likely to occur in patients taking gliclazide?

A.Peripheral neuropathy

B.Cholestasis

C.Photosensitivity

D.Syndrome of inappropriate ADH secretion

E.Weight gain

Answer:Weight gain

Explanation:

All of the above side-effects may be seen in patients taking sulfonylureas but weight gain is the most common.

Question:

A 73-year-old woman presents with lethargy for the past two weeks. Clinical examination is unremarkable. Her past medical history includes polymyalgia rheumatica and ischaemic heart disease. Screening blood tests are ordered and the full blood count is reported as follows:

Hb 129 g/l

Plt 158 \* 109/l

WBC 19.0 \* 109/l

Neuts 4.2 \* 109/l

Lymphs 14.1 \* 109/l

What is the most likely diagnosis?

A.Lymphoma

B.Nicorandil-related lymphocytosis

C.Transient viral illness

D.Chronic lymphocytic leukaemia

E.Secondary to steroid use

Answer:Chronic lymphocytic leukaemia

Explanation:

Such a lymphocytosis in an elderly patient is very likely to be caused by chronic lymphocytic leukaemia. Steroids tend to cause a neutrophilia. It would be unusual for a viral illness to cause such a marked lymphocytosis in an elderly person.

Question:

A 7-year-old boy is brought to the GP with his parents. He is known to have nocturnal enuresis and has recently been improving with the introduction of an enuresis alarm. He shares that he's scared to go to a sleepover over the weekend because he doesn't want his friends to see he uses an enuresis alarm. However, his father is keen on taking his enuresis alarm due to its proven effectiveness. On examination, he appears well and there are no abnormal findings, and a urine dipstick test does not show any abnormality.

What is the best step in this scenario?

A.Commence long term desmopressin

B.Encourage his parents to pack the enuresis alarm

C.Offer a short course of desmopressin

D.Recommend a short-term rewards system

E.Suggest no fluid intake over the weekend

Answer:Offer a short course of desmopressin

Explanation:

Desmopressin can be used for short term control of enuresis

Important for meLess important

Offer a short course of desmopressin is correct. Desmopressin may be used in the short term if improving bed wetting is a priority.

Commence long term desmopressin is incorrect. Although desmopressin would help, starting this long term is not the best option. The patient has been responding well to an enuresis alarm and requires a short-term solution.

Encourage his parents to pack the enuresis alarm is incorrect. Carrying out this option could cause the patient further distress which in turn could worsen his nocturnal enuresis.

Recommend a short-term rewards system is incorrect. Reward systems are designed to be carried out over longer periods and do not help with the short-term concern.

Suggest no fluid intake over the weekend is incorrect. This is a dangerous suggestion.

Question:

A 40-year-old man attends the GP surgery requesting sildenafil (Viagra) as he is in a new relationship and feels anxious every time they become intimate. He still gets morning erections and is able to achieve his own erections. He is normotensive and his recent NHS health screen bloods were all normal. His GP reviews his medication list and proceeds to advise him against the use of sildenafil. Which of the following medication(s) in the list below is contraindicated in the use of sildenafil?

A.Rivaroxaban

B.Atorvastatin

C.Isosorbide mononitrate (ISMN)

D.Bisoprolol

E.All of the above

Answer:Isosorbide mononitrate (ISMN)

Explanation:

PDE 5 inhibitors (e.g. sildenafil) - contraindicated by nitrates and nicorandil

Important for meLess important

Nitrates can cause profound hypotension when used in combination with sildenafil so alternative options should be discussed with this patient.

Question:

A 64-year-old woman is brought into the emergency department via ambulance after a road traffic collision. She has been given morphine and paracetamol to manage her pain and is currently comfortable. On examination, her right leg is internally rotated and appears shorter than the left. She is noted to have significant bruising over the right buttock and thigh. Neurovascular examination shows altered sensation over the right posterior leg and foot and there is a weakness of dorsiflexion of the foot.

What injury has this patient likely sustained?

A.Anterior hip dislocation causing sciatic nerve injury

B.Anterior hip dislocation causing tibial nerve injury

C.Fractured neck of femur causing tibial nerve injury

D.Posterior hip dislocation causing sciatic nerve injury

E.Posterior hip dislocation causing tibial nerve injury

Answer:Posterior hip dislocation causing sciatic nerve injury

Explanation:

Sciatic nerve injury is a common complication of posterior hip dislocation

Important for meLess important

This patient is presenting with an internally rotated and shortened limb which is consistent with a posterior hip dislocation (anterior hip dislocations are rarer and are associated with external rotation of the limb). Her examination findings of reduced sensation in the posterior leg and foot with the impaired ability to dorsiflex the foot are consistent with a sciatic nerve injury. This nerve injury occurs as the sciatic nerve can be stretched by the dislocated hip on its route as it emerges through the greater sciatic foramen inferior to the piriformis and travels to the posterior surface of the ischium.

An anterior hip dislocation would present with an externally rotated and shortened limb (unlike this vignette). The predominant nerve injury seen in anterior hip dislocation is damage to the femoral nerve, not the sciatic nerve. Injury to the femoral nerve may present with impaired knee extensor function and sensory loss over the femoral area.

An anterior hip dislocation presents with an externally rotated limb (not internally rotated). The examination in the vignette is in keeping with a sciatic nerve injury, not a tibial nerve injury. While the tibial nerve is a branch of the sciatic nerve, there appears to be involvement of the sciatic nerve before it branches into the tibial and peroneal branches. Tibial nerve injury is seen in injury to the back of the lower leg or knee.

A fractured neck of femur would not present with an internally rotated and shortened limb. Fractured neck of femur injuries are not typically associated with tibial nerve injury and are more commonly associated with avascular necrosis of the femoral head.

A posterior hip dislocation is more likely to cause a generalised sciatic nerve injury rather than merely affecting the tibial nerve only. This is due to the sciatic nerve splitting into its respective branches further down the leg than at the hip.

Question:

A 28-year-old female with a history of sickle cell anaemia presents with shortness of breath and chest pain. Chest x-ray shows bilateral infiltrates in the bases. Arterial blood gases on room air are as follows:

pH 7.39

pCO2 4.6 kPa

pO2 8.2 kPa

What is the most likely diagnosis?

A.Myocardial infarction

B.Haemolytic crisis

C.Thrombotic crisis

D.Acute sickle chest syndrome

E.Pulmonary embolism

Answer:Acute sickle chest syndrome

Explanation:

This presentation is typical of acute sickle chest syndrome

Question:

A 34-year-old female with a history of alcoholic liver disease is admitted with frank haematemesis. She was discharged three months ago following treatment for bleeding oesophageal varices. Following resuscitation, what is the most appropriate treatment whilst awaiting endoscopy?

A.Octreotide

B.Omeprazole

C.Propranolol

D.Tranexamic acid

E.Terlipressin

Answer:Terlipressin

Explanation:

Terlipressin is the only licensed vasoactive agent for variceal haemorrhage in the UK

Question:

A 6-year-old boy is brought to the emergency department by his mother due to pain in his left hip. He has been complaining of pain and is reluctant to weight bear on his left leg. He has a normal range of movement in both legs. His mother says that he has been generally unwell with coryzal symptoms for the last few days and he currently has a temperature of 37.8 ºC.

What is the most likely diagnosis?

A.Juvenile idiopathic arthritis (JIA)

B.Perthes disease

C.Septic arthritis

D.Slipped upper femoral epiphysis (SUFE)

E.Transient synovitis

Answer:Transient synovitis

Explanation:

Transient synovitis is most commonly seen in children aged 3-8 years

Important for meLess important

This patient is most likely to have transient synovitis of the hip (the most common cause of hip pain in children). He has the typical presentation of acute onset hip pain associated with a viral infection and a low-grade fever. Additionally, he still has a normal range of movement in the affected leg, despite the pain.

JIA is an important cause of joint pain in children, however, it tends to affect medium-sized joints such as the knees or ankles rather than the hip. The pain also needs to have lasted for more than 3 months for a diagnosis to be made, whereas this patient has had an acute onset of symptoms.

Perthes disease is an important cause of hip pain to rule out in children as it is due to avascular necrosis of the femoral head. While it is common in boys aged 4-8 years it tends to have a progressive symptom onset over a few weeks and would also have a reduced range of movement associated with it. This patient has had an acute symptom onset and has a normal range of movement in both hips.

Septic arthritis is the most important differential to rule out in this case. It would tend to present with a generally unwell child with a high temperature (as opposed to the mild pyrexia present in this case). The child would also have severely restricted joint movements and likely unable to weight bear on the affected joint.

SUFE is not likely to be the cause of this patient's symptoms. It tends to present in older children (aged 10-15 years) who are overweight. It can present with acute symptoms but is more typically associated with chronic symptoms and tends to have reduced internal rotation of the hip while it is flexed. This patient has had acute symptoms and has a normal range of movement in both hips.

Question:

A 68-year-old woman was recently diagnosed with gynaecological cancer. She has symptoms of bloatedness and early satiety with high CA-125. A family history of breast cancer and ovarian cancer is noted. She comes into the hospital today for CT scan staging for further management of the cancer. Staging CT scan confirms lymph node metastasis.

What is the most likely lymph node involved in this case?

A.Deep inguinal lymph nodes

B.Internal iliac lymph nodes

C.Para-aortic lymph nodes

D.Superficial inguinal lymph nodes

E.Supraclavicular lymph nodes

Answer:Para-aortic lymph nodes

Explanation:

The ovaries drain to the para-aortic lymphatics - metastatic ovarian cancer may be detected here

Important for meLess important

Para-aortic lymph nodes are the correct answer. The patient is most likely diagnosed with ovarian cancer: positive symptoms, family history and raised tumour marker. These are the lymph nodes that the ovaries drain to. These lymphatics follow arterial supply to the ovaries. Although the abdominal location of the arterial supply and lymphatic drainage seems strange, it makes sense when you consider that the ovaries start their development in the abdomen and descend inferiorly. As they descend, they take this supply with them.

Deep inguinal lymph nodes are incorrect. These are the deep lymphatics draining the distal lower extremity and perineum (e.g. clitoris). Deep inguinal lymphadenopathy may indicate an infection or spread as a metastasis from cancers, such as anal cancer and vulval cancer. Deep inguinal lymph node swelling is more typically associated with sexually transmitted infection, rather than ovarian cancer.

Superficial inguinal lymph nodes are incorrect. They drain the anal canal (below the pectinate line); the skin below the umbilicus; lower extremity; scrotum and vulva. The spread and associated disease follow a similar pattern of the deep inguinal lymph node.

Internal iliac lymph nodes are incorrect. They receive the lymphatics from all the pelvic viscera and from the deeper parts of the perineum, including the membranous and cavernous portions of the urethra, and from the buttocks and back of the thigh. They are amongst the first nodes that malignancies within the pelvis spread to along with external iliac nodes eg cervical cancer.

Supraclavicular lymph nodes are incorrect. They take their supply from lymph vessels in the abdominal cavity and are therefore sentinel lymph nodes of cancer in the abdomen; particularly gastric cancer, kidney cancer and Hodgkin's lymphoma. It would be atypical for ovarian cancer to present with supraclavicular lymphadenopathy.

Question:

A 23-year-old patient who is 22 weeks pregnant attends your GP clinic concerned about a high reading on a blood pressure machine at home. She is asymptomatic and has no past medical conditions. You take her blood pressure at the clinic which is 162/114 mmHg. There is no evidence of proteinuria on urine dipstick testing.

What is the most appropriate management?

A.Arrange obstetric assessment immediately with likely admission to hospital

B.Repeat the blood pressure reading in clinic the following day

C.Give lifestyle advice and assess again in 7 days time

D.Start home blood pressure monitoring for 7 days and discuss results with obstetrics

E.Start labetalol and aspirin and assess again in 7 days time

Answer:Arrange obstetric assessment immediately with likely admission to hospital

Explanation:

Pregnant women with blood pressure ≥ 160/110 mmHg are likely to be admitted and observed

Important for meLess important

Arrange secondary care assessment by a healthcare professional trained in the management of hypertensive disorders of pregnancy for all women with new onset of hypertension (over 140 mmHg systolic or over 90 mmHg diastolic) after 20 weeks of pregnancy.

It would not be appropriate to delay this assessment by taking further readings over a number of days or giving lifestyle advice alone.

The patient might be given anti-hypertensive medication along with aspirin but this would have to be initiated by the obstetric department. Patients with a blood pressure of 160/110 or more are likely to be admitted for further monitoring and management.

Question:

A 54-year-old man is admitted to the Emergency Department with a left hemiplegia. His symptoms started around 5 hours ago and he has had no headache, visual disturbance or loss of consciousness. On examination a dense left hemiplegia is noted. Blood pressure is 120/78 mmHg, GCS is 15/15 and pupils are equal and reactive to light. An urgent CT scan is performed shortly after his arrival. This demonstrates no abnormality. What is the most appropriate initial management?

A.Enoxaparin

B.Alteplase

C.Dexamethasone

D.Warfarin

E.Aspirin

Answer:Aspirin

Explanation:

Stroke thrombolysis - only consider if less than 4.5 hours and haemorrhage excluded

Important for meLess important

This patient has had an ischaemic stroke. He is however outside the thrombolytic window and should therefore be treated with aspirin

Question:

A 35-year-old man who is known to have advanced HIV disease presents with dysphagia and odynophagia. What is the most likely cause of his problems?

A.Cytomegalovirus oesophagitis

B.Herpes simplex oesophagitis

C.Oesophageal candidiasis

D.Oesophageal Kaposi's sarcoma

E.Oesophageal lymphoma

Answer:Oesophageal candidiasis

Explanation:

Question:

A 70-year-old patient with known aortic stenosis is due to undergo a tooth extraction. They are on the waiting list for aortic valve replacement and their symptoms are currently stable. They also have a background of hypertension and hyperlipidaemia and take ramipril, amlodipine and atorvastatin. The patient has no allergies.

The patient contacts their GP as they are aware that they may need to take prophylactic antibiotics whilst undergoing the procedure to reduce their risk of infective endocarditis.

What is the most appropriate management of this patient?

A.Aortic stenosis is not a risk factor infective endocarditis so they require no further management

B.They do not need antibiotics but should be educated about infective endocarditis

C.They should be prescribed prophylactic amoxicillin

D.They should be prescribed prophylactic clindamycin

E.They should reschedule the procedure until after their valve replacement

Answer:They do not need antibiotics but should be educated about infective endocarditis

Explanation:

Antibiotic prohylaxis to prevent infective endocarditis is not routinely recommended in the UK for dental and other procedures

Important for meLess important

Those who are at increased risk of infective endocarditis include those with structural heart disease and those who have had previous endocarditis. This patient is therefore at increased risk due to their aortic stenosis. Previously, those at risk of endocarditis were given prophylactic antibiotics for some procedures, including dental procedures. The rationale was that these procedures increased the likelihood of bacteraemia, and in those with susceptible cardiac lesions, bacteraemia can cause infective endocarditis. However, since 2008, NICE has no longer recommended routine antibiotic prophylaxis for dental procedures (amongst other procedures) due to a lack of evidence for their efficacy and lack of evidence to associate dental procedures and the development of infective endocarditis. Instead, patients should be educated about infective endocarditis, including what symptoms to look out for and how to seek help.

Aortic stenosis is not a risk factor for infective endocarditis so they require no further management is incorrect. The patient has a cardiac lesion (aortic stenosis). This puts them at increased risk of developing endocarditis compared to the general population. It is clear from the NICE guidelines that they should be educated about their risk.

Prescribing amoxicillin is incorrect. Whilst amoxicillin is an antibiotic that may be used in the prophylaxis of infective endocarditis, as above, it is not routinely prescribed for dental procedures in the UK.

Prescribing clindamycin is incorrect. Whilst clindamycin is an antibiotic that may be used in the prophylaxis of infective endocarditis, as above, it is not routinely prescribed for dental procedures in the UK.

Rescheduling the procedure is unnecessary and not guideline-based. Firstly, it is clear from the brief that the patient is medically stable, so there does not seem to be a medical need to cancel the procedure. Secondly, the patient will remain at risk of infective endocarditis after surgery, as they will now have a prosthetic valve. Therefore there is no benefit in re-scheduling their dental procedure.

Question:

A 76-year-old man is admitted to hospital with sudden-onset paralysis and paraesthesia affecting his left side. He has a background of vascular dementia, coronary artery disease and chronic obstructive pulmonary disease (COPD). He has no other symptoms and observations are normal. Four days into his admission, he develops a productive cough and shortness of breath. A chest X-ray shows right lower lobe consolidation. Despite the appropriate treatment, he dies shortly afterwards. What should be written on line 1(a) on his medical certificate of cause of death (MCCD)?

A.Right-sided stroke

B.Hospital-acquired right lower lobe pneumonia

C.Aspiration pneumonia

D.Community-acquired right lower lobe pneumonia

E.Infective exacerbation of COPD

Answer:Hospital-acquired right lower lobe pneumonia

Explanation:

Hospital-acquired right lower lobe pneumonia is the correct answer. While aspiration pneumonia is a common complication of patients with strokes affecting the lower cranial nerves, this has not explicitly been stated. What we do know is that the patient has been in hospital for more than 48 hours, has developed pneumonia, and was not showing signs of infection prior to this, therefore Hospital-acquired pneumonia is the most likely. See http://patient.info/doctor/pneumonia-pro for more info on hospital acquired pneumonia and pneumonia in general. For a quick guide on completing death certificates, see http://www.oscestop.com/Deathcertification.pdf .

Question:

A 56-year-old man is seen in clinic with several months of progressive breathlessness on exertion that is worsening.

On examination, a mid-late diastolic murmur is heard, which is heard better in expiration. S1 is also loud. An ECG is performed which shows sinus rhythm.

What is the most appropriate step in his management?

A.Aortic valve replacement

B.Monitor with regular echocardiography

C.Percutaneous mitral commissurotomy

D.Pulmonary valve repair

E.Start warfarin

Answer:Percutaneous mitral commissurotomy

Explanation:

Percutaneous mitral commissurotomy is the intervention of choice for severe mitral stenosis

Important for meLess important

The mid-diastolic murmur heard better in expiration along with a loud S1 is suggestive of mitral valve stenosis. Another auscultation finding may be an opening snap which is an additional sound heard after S2 due to the forceful opening of the mitral valve.

Left-sided murmurs are typically heard better on expiration - breathing out raises the intrathoracic pressure and so more blood leaves the pulmonary vasculature entering the left side of the heart. More blood flowing through the left side leads to a louder murmur.

Percutaneous mitral commissurotomy is correct. Since this patient has symptomatic mitral stenosis, it should be corrected via either a percutaneous mitral commissurotomy or percutaneous balloon valvotomy.

Aortic valve replacement is incorrect. This surgery would be indicated for aortic stenosis or regurgitation, which presents with an ejection systolic murmur or early diastolic murmur respectively. These features are not seen in this patient. Also, S1 relates to the mitral and tricuspid valves, so a loud S1 is less likely to be heard in aortic pathologies.

Monitor with regular echocardiography is incorrect. This would be appropriate if this patient was asymptomatic, however, since this patient now has symptoms, treatment via a percutaneous mitral commissurotomy or percutaneous balloon valvotomy is now indicated.

Pulmonary valve repair is incorrect. This may be indicated for pulmonary valve stenosis, however, like aortic stenosis, this would present as an ejection-systolic murmur, which is not seen here. Also, as a right-sided valve, a pulmonary valve murmur would be heard better on inspiration.

Start warfarin is incorrect. Warfarin is indicated in patients with mitral stenosis who have co-existing atrial fibrillation (AF). The ECG shows sinus rhythm and no features of AF such as an irregularly irregular rhythm and/or absent P waves, therefore warfarin is not indicated at this point in time.

Question:

Which one of the following statements regarding croup is true?

A.Symptoms are typically worse during the day

B.Most common in children under the age of 6 months

C.Throat examination is important prior to making the diagnosis

D.Most commonly caused by parainfluenza viruses

E.More common in spring

Answer:Most commonly caused by parainfluenza viruses

Explanation:

Parainfluenza virus accounts for the majority of cases of croup

Important for meLess important

Throat examination should be avoided as it may precipitate airway obstruction.

Question:

A 9-year-old girl from Finland is admitted into the hospital with jaundiced, fatigue, and appears to be very unwell. You take an FBC and get the following results:

Hb 50 g/l

Platelets 250 \* 109/l

WBC 6 \* 109/l

Over the preceding week, she developed bright red macules on her cheeks, which her GP diagnosed as erythema infectiosum. There is a family history of similar problems. Examination revealed splenomegaly.

What is the most likely cause of her symptoms?

A.Hereditary spherocytosis

B.Acute lymphoblastic leukemia

C.Iron deficiency anemia

D.Gilbert's syndrome

E.Crigler-Najjar syndrome

Answer:Hereditary spherocytosis

Explanation:

Haemolytic crisis is a complication of hereditary spherocytosis

Important for meLess important

Erythema infectiosum is caused by parvovirus infection, which is a precipitant of a hemolytic crisis in patients with hereditary spherocytosis.

There are several clues to the diagnosis. The most important one is its hereditary nature (several family members have had similar problems). She is also of northern European descent, where the disease is more common. The jaundice, fatigue, and splenomegaly strongly suggest a hemolytic crisis.

Question:

A 39 year-old man presents to his GP for an annual review of his type 1 diabetes. His main complaints over the last year are having several episodes of vomiting after meals and chronic constipation, as well as having loss of sensation on both of his legs up to his knees and some sensory loss in his fingertips. On further questioning, you establish there has been no weight loss or haematamesis. On examination, his HbA1c is 72 mmol/mol, blood pressure is 138/88 mmHg and his pulse is regular and 84 beats per minute. Neurological examination demonstrates a lack of proprioception up to the ankle joint and loss of sensation as described above.

What is the most appropriate symptomatic treatment for the gastrointestinal symptoms described above?

A.Lansoprazole

B.Omeprazole

C.Metoclopramide

D.Mirtazapine

E.Cyclizine

Answer:Metoclopramide

Explanation:

The most likely diagnosis in this scenario is gastroparesis, caused by the type 1 diabetes. Metoclopramide is the most appropriate treatment as it is a pro-kinetic antiemetic, although erythromycin and domperidone can also be used as alternatives.

Question:

A 56-year-old man has a diagnosis of type 2 diabetes. Despite taking metformin 1g twice daily and gliclazide 160mg twice daily, his glycaemic control remains suboptimal. His latest HbA1c is 75 mmol/mol (9.0%).

He had previously tried sitagliptin but discontinued this drug due to persistent nausea.

He is overweight with a body mass index of 29 kg/m². He has no other medical conditions. He is fully compliant with his medications and attended a diabetes education programme last year. He is extremely reluctant to have any injectable treatment and does not wish to engage in any further conversation about this.

What is the most appropriate step with regards to his diabetes treatment?

A.Commence long-acting insulin

B.Commence pioglitazone

C.Refer for bariatric surgery

D.Commence glucagon-like peptide-1 analogue

E.Commence sodium-glucose cotransporter-2 inhibitor

Answer:Commence sodium-glucose cotransporter-2 inhibitor

Explanation:

SGLT-2 inhibitors have the beneficial side effect of weight loss in patient with T2DM

Important for meLess important

This man has poorly-controlled type 2 diabetes despite combination therapy with metformin and sulphonylurea, both at maximum doses. His treatment should therefore be intensified with a third agent to achieve a target HbA1c of 53 mmol/mol (7.0%).

Sodium-glucose cotransporter-2 inhibitors (SGLT-2 inhibitors) such as dapagliflozin and empagliflozin are licensed as add-on therapy. By increasing urinary glucose excretion, it effectively triggers calorie loss and therefore has the added benefit of weight reduction. As this man has is overweight, it would be the most appropriate drug to add to his treatment regimen.

Commencing insulin or a glucagon-like peptide-1 analogue (such as liraglutide) are potential treatment options, but as both involve subcutaneous injections, it is unlikely to be accepted by this patient.

Pioglitazone has a tendency to cause weight gain (from fat accumulation as well as fluid retention) which would be less desirable than an SGLT-2 inhibitor.

This man does not currently meet criteria for referral to bariatric services.

Question:

A 33-year-old patient presents to your general practice with a red, hot, swollen, and painful left shin. He has no significant past medical or medication history. He says it started off as a small red patch 5 days ago but increased in size to cover the whole anterior left shin. On examination, the patient is able to mobilise and weight bear on his left leg.

What is the next most appropriate investigation?

A.Blood cultures

B.No further investigations required

C.Skin swab

D.Ultrasound of the leg

E.X-ray of the leg

Answer:No further investigations required

Explanation:

The diagnosis of cellulitis is clinical. No further investigations are required in primary care.

Important for meLess important

Cellulitis is an inflammation of the skin and subcutaneous tissue secondary to Staphylococcus aureus or Streptococcus pyogenes. Treatment involves oral antibiotics such as flucloxacillin or clarithromycin (if penicillin allergy) in primary care.

Bloods and blood cultures may be requested if the patient is admitted into the hospital and this patient is treated in primary care.

An X-ray can be done if you suspect osteomyelitis which would present with a fever, weakness, and the patient would find it difficult to mobilise. The patient does not present with any of these symptoms or signs and is systemically well.

Ultrasound can be done if you suspect necrotizing fasciitis, an underlying deep abscess associated with cellulitis or a DVT. Necrotizing fasciitis would present more acutely and the patient would have extreme tenderness over the area affected. A DVT would present with severe calf pain and a red, swollen leg which is not exhibited by the patient in the above scenario.

Skin swab can be done if there is an open wound or ulceration. This can be useful in identifying MRSA. Consider a swab in a patient with diabetes or is immunocompromised.

Question:

A 69-year-old woman arrived at the emergency department complaining of worsening abdominal pain, bloating, reduced appetite and diarrhoea over three days. Two weeks prior she was recently discharged from the hospital after being treated for Clostridium difficile with symptom resolution following a 10-day course of oral vancomycin.

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

What treatment would be indicated now?

A.Intravenous fidaxomicin

B.Intravenous gentamicin

C.Intravenous vancomycin

D.Oral fidaxomicin

E.Oral 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

Oral fidaxomicin is considered in Clostridium difficile cases not responding to oral vancomycin. Therefore this answer is correct as it is a second-line option particularly for recurrent episodes within 12-weeks of symptom resolution. Oral vancomycin remains the first-line antibiotic for the first episode of mild, moderate or severe Clostridium difficile infection.

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

Intravenous fidaxomicin this route of administration is not typically used in Clostridium difficile infection since the oral route is most effective as it is poorly absorbed from the gastro-intestinal tract.

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

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

Question:

A 50-year-old lady is commenced on tamoxifen for the treatment of an oestrogen receptor positive breast cancer. Which of the following malignancies are associated with tamoxifen use?

A.Adenocarcinoma of the colon

B.Hodgkins lymphoma

C.Adenocarcinoma of the lung

D.Ovarian cancer

E.Endometrial cancer

Answer:Endometrial cancer

Explanation:

Endometrial cancer - risk factors include: tamoxifen

Important for meLess important

Tamoxifen is an oestrogen receptor antagonist in breast tissues. However, at other sites, such as the endometrium it may act as an agonist. Hence the reason for increasing risk of endometrial cancer.

Question:

A 31-year-old man presents with a painful swelling of his right upper eyelid for the past 3 days. On lifting the eyelid a yellow head pointing at the lid margin can be seen. What is the most appropriate management?

A.Referral to ophthalmology

B.Oral flucloxacillin

C.Analgesia + warm compresses

D.Topical chloramphenicol + cold compresses

E.Lancing of the head with a 21G needle + topical fusidic acid

Answer:Analgesia + warm compresses

Explanation:

This patient has a stye.

Question:

A 32-year-old man presents to his GP with a 2-day history of a red and painful right eye which is associated with photophobia. He normally wears contact lenses but he has been using glasses since the pain started.

The patient has a past medical history of allergic rhinitis and takes daily cetirizine.

On examination of the right eye, dilated conjunctival and episcleral vessels are seen. Mild eyelid oedema and increased lacrimation are seen. The left eye is normal. Visual acuity corrected with glasses is 6/6 in the left eye and 6/12 in the right eye.

What is the most appropriate management?

A.Prescribe chloramphenicol drops and advise the patient to avoid contact lenses until his symptoms have resolved

B.Prescribe systemic antivirals and review the patient in 3 days

C.Prescribe topical antihistamine drops and advise the patient to avoid contact lenses for the duration of treatment

D.Reassure that this condition is self-limiting and advise the use of non-steroidal anti-inflammatories

E.Refer urgently to eye casualty

Answer:Refer urgently to eye casualty

Explanation:

Contact lens wearers who present with a red painful eye should be referred to eye casualty to exclude microbial keratitis

Important for meLess important

Refer urgently to eye casualty is correct. Contact lens users who present with a red painful eye must be seen in eye casualty to exclude microbial keratitis as this is sight-threatening. Photophobia, reduced visual acuity and increased lacrimation are all seen in microbial keratitis, as are dilated conjunctival and episcleral vessels and eyelid oedema.

Prescribe chloramphenicol drops and advise the patient to avoid contact lenses until his symptoms resolve is the management of bacterial conjunctivitis. Bacterial conjunctivitis can also cause an acute red eye (which may be unilateral) with increased lacrimation, eyelid oedema and dilated conjunctival vessels. However, conjunctivitis usually causes a gritty or foreign body sensation rather than pain and is not associated with photophobia or reduced visual acuity. As this patient is a contact lens wearer, there should be a low threshold for referring him to eye casualty to exclude keratitis.

Prescribe systemic antivirals and review the patient in 3 days is incorrect. Systemic antivirals are used for herpetic keratitis, which presents with the same symptoms as microbial keratitis. However, microbial keratitis is more common in contact lens users. Furthermore, regardless of the underlying cause of keratitis, this patient should be referred to eye casualty. Keratitis would not be managed in the community. Further examination with a slit lamp is required to determine the cause and treatment of this patient's symptoms.

Prescribe topical antihistamine drops and advise the patient to avoid contact lenses for the duration of treatment is the treatment for allergic conjunctivitis. Although this can co-exist with allergic rhinitis and result in red, inflamed eyes, the symptoms of allergic conjunctivitis are typically bilateral and photophobia and reduced visual acuity are not seen. Itch is a prominent symptom. If this is not seen, an alternative diagnosis should be considered.

Reassure that this condition is self-limiting and advise the use of non-steroidal anti-inflammatories is the management of episcleritis. Episcleritis is a self-limiting condition that presents with segmental (rather than diffuse) redness. Although it causes increased lacrimation and photophobia, it is generally painless and does not affect visual acuity. As this patient has pain and is a contact lens wearer, he must be referred to exclude microbial keratitis.

Question:

The staff nurse on a stroke rehabilitation ward has asked you to prescribe fluids for a 66-year-old woman with dysphagia. She weighs 71kg. She has had three episodes of diarrhoea in the last 48 hours however is currently haemodynamically and clinically stable.

Most recent blood report:

Na+ 138 mmol/L (135 - 145)

K+ 4.2 mmol/L (3.5 - 5.0)

Bicarbonate 26 mmol/L (22 - 29)

Urea 6.1 mmol/L (2.0 - 7.0)

Creatinine 101 µmol/L (55 - 120)

When prescribing maintenance fluids for this woman, what is the recommended water requirement?

A.10-15 ml/kg/day

B.15-20 ml/kg/day

C.20-25 ml/kg/day

D.25-30ml/kg/day

E.30-35 ml/kg/day

Answer:25-30ml/kg/day

Explanation:

When prescribing maintenance fluids, 25-30 ml/kg/day of water is typically required

Important for meLess important

NICE guidelines from 2013 state for routine maintenance fluids the water requirement is approximately 25-30 ml/kg/day.

Question:

A 70 year old man has decompressive surgery for degenerative cervical myelopathy. Three years later he presents with neck pain and hand paraesthesias. Which one of the following management strategies is recommended?

A.Trial of neuropathic analgesia and cervical nerve root injections

B.Investigate with nerve conduction studies and EMG in the first instance

C.Urgent AP/lateral cervical spine radiographs as an MRI scan is contraindicated

D.Urgent referral to spinal surgery or neurosurgery

E.Refer to physiotherapy services

Answer:Urgent referral to spinal surgery or neurosurgery

Explanation:

Postoperatively, patients with cervical myelopathy require ongoing follow-up as pathology can 'recur' at adjacent spinal levels, which were not treated by the initial decompressive surgery.

Recurrent symptoms should be treated with a high degree of suspicion. Although peripheral neuropathy can occur in any patient, this should not be the diagnosis that is the most strongly suspected as delays in diagnosis and treatment of DCM affect outcomes. Therefore, B is false.

All patients with recurrent symptoms should be evaluated urgently by specialist spinal services (A and E, false). Axial spine imaging is necessary and a MRI scan is first line. In patients unable to to have a MRI, CT or CT myelogram may be considered. AP and lateral radiographs are of limited use when myelopathy is suspected (C, false).

References

1. Kong L, Cao J, Wang L, Shen Y. Prevalence of adjacent segment disease following cervical spine surgery: A PRISMA-compliant systematic review and meta-analysis. Medicine (Baltimore). 2016 Jul;95(27):e4171.

Question:

A 79-year-old gentleman presents with a 3 months history of a red swollen left upper eyelid. He remembers initially developing a bump on the eyelid which was uncomfortable but then got bigger forming a hard lump. He reports no pain currently and has not noted any problems with his vision and the eye itself appears healthy.

What is the most likely diagnosis?

A.Hordeolum externa

B.Hordeolum internum

C.Chalazion

D.Blepharitis

E.Ectropion

Answer:Chalazion

Explanation:

A meibomian cyst presents as a firm painless lump in the eyelid

Important for meLess important

The correct answer here is 3 a chalazion or Meibomian cyst. These occur when the Meibomian gland becomes blocked forming a cyst and often occur following an internal stye (hordeolum internum). Patients will describe a firm painless lump in the eyelid. Cysts can resolve spontaneously but may require topical antibiotics if become infected.

The prolonged history here and absence of pain point away from either internal or external stye.

Blepharitis and ectropion would not cause a lump in the eyelid.

Question:

A 56-year-old female is being admitted to intensive care following a road collision where she sustained a head injury. She gradually becomes less responsive and you notice that her heart rate is beginning to fall whilst her blood pressure paradoxically increases. Concerned that she is displaying characteristic signs of raised intracranial pressure, the team elect to perform controlled hyperventilation.

What is the mechanism of the above intervention?

A.Increase blood carbon dioxide to induce cerebral vasoconstriction

B.Increase blood carbon dioxide to induce cerebral vasodilation

C.Reduce blood carbon dioxide to induce cerebral vasoconstriction

D.Reduce blood carbon dioxide to induce cerebral vasodilation

E.Reduce blood oxygen to limit oxygen-related free-radical injury to the brain

Answer:Reduce blood carbon dioxide to induce cerebral vasoconstriction

Explanation:

Controlled hyperventilation may be used in patients with raised ICP

Important for meLess important

Reduce blood carbon dioxide to induce cerebral vasoconstriction is the correct answer. Hyperventilation reduces blood carbon dioxide, in turn causing cerebral vasoconstriction and a reduction in intracerebral pressure (ICP). This must be controlled so as to avoid under-perfusion of potentially ischaemic brain regions.

Increase blood carbon dioxide to induce cerebral vasoconstriction is incorrect. Increasing carbon dioxide would cause vasodilation and thus raise ICP, and would be achieved via hypoventilation.

Increase blood carbon dioxide to induce cerebral vasodilation is incorrect. Increasing blood carbon dioxide would induce vasodilation, however this would raise ICP further.

Reduce blood carbon dioxide to induce cerebral vasodilation is incorrect. Reducing blood carbon dioxide would cause vasoconstriction.

Reduce blood oxygen to limit oxygen-related free-radical injury to the brain. Controlled hyperventilation would not reduce blood oxygen.

Question:

A 32-year-old woman presents with recurrent deep vein thromboses and pulmonary embolisms. She has a past medical history of recurrent miscarriages. Blood results reveal a prolonged APTT.

What is the most appropriate test from the options below?

A.Factor IX assay

B.Factor VII assay

C.Anti-dsDNA antibody

D.Anti-Cardiolipin Antibody

E.Anti-CCP (cyclic citrullinated peptide) antibody

Answer:Anti-Cardiolipin Antibody

Explanation:

The clinical features are suggestive of antiphospholipid syndrome. A positive anti-Cardiolipin antibody can assist in making the diagnosis.

Question:

Which one of the following infections is most strongly associated with the development of Guillain-Barre syndrome

A.Shigella

B.Salmonella

C.E. coli H7:0157

D.Herpes simplex

E.Campylobacter jejuni

Answer:Campylobacter jejuni

Explanation:

Campylobacter jejuni is strongly associated with the development of Guillain-Barre syndrome.

Question:

The barium enema shown below was performed on a 28-year-old man who presented with persistent diarrhoea.

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Sigmoid carcinoma

B.Crohn's disease

C.Constipation with overflow diarrhoea

D.Coeliac disease

E.Ulcerative colitis

Answer:Ulcerative colitis

Explanation:

This image demonstrates the complete loss of haustral markings in the distal part of the bowel ('lead pipe colon'), consistent with ulcerative colitis.

Question:

Which of the following is a live attenuated vaccine?

A.Pneumococcus

B.Meningococcus

C.Rabies

D.Oral polio

E.Diphtheria

Answer:Oral polio

Explanation:

Live attenuated vaccines

BCG

MMR

oral polio

yellow fever

oral typhoid

Important for meLess important

Question:

A 72-year-old male presents to his general practitioner with back pain. He describes feeling a sharp, burning pain in the middle of his back over the last few days. The pain is sometimes so severe that it wakes him from sleep in the night. He has experienced minimal pain relief with paracetamol and he would like to be prescribed 'something stronger'. He denies leg weakness, urinary incontinence or numbness.

He has no other medical conditions, however, he reports he was told he had an irregular prostate when he last saw his general practitioner 6 months ago. He remembers receiving letters in the post for further investigations but he failed to attend these appointments.

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

A.Advise bed rest and for him to return if his pain does not resolve

B.Immediately refer him to the hospital for urgent assessment

C.Prescribe stronger pain relief and advise him to refrain from gardening until the pain resolves

D.Repeat digital rectal exam and send an up-to-date prostate-specific antigen

E.Make a 2 week wait referral for him to be seen regarding his irregular prostate

Answer:Immediately refer him to the hospital for urgent assessment

Explanation:

Thoracic pain is a red flag in patients presenting with back pain

Important for meLess important

The patient has several red-flag features of his back pain that are concerning. These are its location (middle or thoracic back pain), its sudden onset and progression, night pain, and his recent prostate examination results. Together, these findings are highly suspicious for metastatic prostate cancer with spinal cord compression. This represents an oncological emergency and requires urgent hospital assessment with magnetic resonance imaging (MRI) of the whole-body and treatment (high dose dexamethasone, and potentially radiotherapy and surgery).

Any answer that does not recognise this as a clinical emergency requiring urgent assessment is inappropriate and therefore incorrect.

Question:

Maxine is a 23-year-old woman who was diagnosed with generalised anxiety disorder 6 months ago. She was commenced on sertraline 3 months ago and feels that her symptoms have not significantly improved since.

Maxine is not keen on continuing sertraline and would like to try a different medication.

Which of the following is the most appropriate drug to start?

A.Bupropion

B.Mirtazapine

C.Pregabalin

D.Propranolol

E.Venlafaxine

Answer:Venlafaxine

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

Maxine has tried a selective serotonin reuptake inhibitor line (SSRI), sertraline, which is first-line treatment that has not been effective for her. Second-line options for generalised anxiety disorder (GAD) include a different SSRI, such as paroxetine or escitalopram or a selective serotonin-noradrenaline reuptake inhibitor (SNRI), such as duloxetine or venlafaxine.

Therefore from the options listed, venlafaxine is the correct answer as it is a SNRI.

Bupropion is licensed to aid smoking cessation in combination with motivational support in nicotine-dependent patients. Although not included in the current NICE guidance, bupropion may be considered to treat depression (off-label) if the other treatment options have failed or are not tolerated. Consultant psychiatrist must be consulted prior to initiation.

Mirtazapine is a noradrenergic and specific serotonergic antidepressant (NaSSA) and can be used to treat depression. It is not used as a first or second-line treatment for GAD.

Pregabalin can be offered in generalised anxiety disorder if SSRIs or SNRIs are contraindicated or not tolerated.

Propranolol can be used for anxiety with symptoms such as palpitations, sweating and tremor. This helps with acute symptoms of anxiety but is not a specific treatment option for GAD.

Question:

A 68-year-old male attends for spirometry testing after progressively worsening shortness of breath over the last year. He has a past medical history of asthma, chronic kidney disease and type 2 diabetes. He as a 18 pack year smoking history. Spirometry shows:

FEV1 0.62 litres

FVC 0.64 litres

Transfer factor Reduced

Transfer coefficient Reduced

From the following options what is the most likely diagnosis?

A.Idiopathic pulmonary fibrosis

B.Cystic fibrosis

C.Asthma

D.Chronic obstructive pulmonary disease (COPD)

E.Pulmonary embolism

Answer:Idiopathic pulmonary fibrosis

Explanation:

Spirometry shows a restrictive picture with reduced transfer factor and coefficient.

In idiopathic pulmonary fibrosis, lung expansion (and therefore FVC) and lung elasticity (and therefore FEV1) are reduced, leading to a normal or increased FEV1/FVC ratio. There is reduced diffusion per alveolar volume, hence the reduced transfer factor and transfer coefficient.

Cystic fibrosis is a restrictive lung disease with a similar FEV1 and FVC profile shown here. However, while the transfer factor would be reduced due to incomplete alveolar expansion, the transfer coefficient would be normal as it corrects for alveolar volume.

Asthma and COPD are obstructive lung diseases and would have reduced FEV1/FVC ratios.

Pulmonary embolism would produce the same reduction in transfer factor and transfer coefficient, but not the restrictive spirometry pattern.

Question:

A 54-year-old man presents with a lesion on his forearm. This has been slowly developing over the past 2-3 months and has bled on one occasion. His past medical history includes Alport syndrome for which he had a renal transplant ten years ago. He currently takes ciclosporin as immunosuppression. He also takes ramipril and amlodipine for hypertension. The lesion is shown below:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Squamous cell carcinoma

B.Basal cell carcinoma

C.Pyogenic granuloma

D.Haemangioma

E.Pyoderma gangrenosum

Answer:Squamous cell carcinoma

Explanation:

The clue here is immunosuppression. Patients on ciclosporin and other immunosuppressants have a much higher risk of squamous cell carcinoma.

Question:

A 24-year-old woman presents to your surgery with vaginal discharge. She says it smells quite strongly, but isn't itchy. She has no dysuria or dyspareunia. She has no post-coital bleeding.

On examination, there is a watery discharge with an odour. There is no erythema to the labia. Her cervix looks healthy and there is no cervical excitation.

What is the most likely diagnosis?

A.Gonorrhoea

B.Bacterial vaginosis

C.Chlamydia

D.Herpes simplex

E.Candidiasis

Answer:Bacterial vaginosis

Explanation:

Clearly, you would want more information about sexual history for this lady, and in all likelihood would send triple swabs regardless. However, a diagnosis of Gonorrhoea is unlikely given the healthy looking cervix. You would also expect a more green and purulent discharge for Gonorrhoea rather than a watery discharge. Gonorrhoea is particularly problematic as it can present with a normal examination, however, is not often associated with an odour.

In a similar line, you would expect to see more problems with the cervix for a diagnosis of Chlamydia and a more mucopurulent discharge. Chlamydia can also cause cervical excitation which this lady does not have.

Herpes simplex doesn't tend to cause vaginal discharge, and would instead present as a crop of ulcers or tingling type sensations around the vulva. Patients can have a flu-like illness, and may have some lymphadenopathy.

For candidiasis, or thrush, you would expect a lot more itching in the history. It would also be more likely to have a thick creamy consistency like cottage cheese. There is a higher probability with thrush that you would get vulval irritation.

Bacterial vaginosis is the most likely diagnosis on balance. It gives a characteristic fishy odour, and is often a thin watery discharge that can have a green or white hue. It often doesn't cause irritation or soreness and can be completely asymptomatic. Diagnosis would be confirmed with a vaginal pH > 4.5 and clue cells on microscopy.

References: BASHH guidelines

Question:

A 23-year-old female presents to your GP clinic on Monday morning, worried as she took off her week 2 contraceptive patch on Friday evening, and she was unable to obtain a replacement over the weekend. She has not been sexually active in the last 10 days.

What is the most appropriate action to take?

A.No action required

B.No emergency contraception required, but apply new patch and advise barrier contraception for the next 7 days

C.Issue emergency contraception, apply new patch and advise barrier contraception for the next 7 days

D.Replace patch immediately, no additional precautions required

E.Continue patch-free period for 7 days and then replace patch

Answer:No emergency contraception required, but apply new patch and advise barrier contraception for the next 7 days

Explanation:

Action required if delayed patch change over 48 hours: barrier protection for 7 days and emergency contraception if required

Important for meLess important

In this case, there has been a delayed patch change of over 48 hours, but no sexual activity within the past 10 days. Therefore, emergency contraception is not currently required, however she must use barrier contraception for the next 7 days and apply a new patch immediately.

If she was not having sex in the next 7 days, there no action would be required, but you cannot assume this, and should advise her to use barrier contraception over the next 7 days anyway.

The patch should be replaced as soon as possible, to ensure adequate contraceptive cover, therefore option 5 would not be appropriate.

Question:

A 27-year-old woman presents to her general practitioner complaining of vaginal soreness, itchiness, and discharge. On examination, the doctor can observe an inflamed vulva and some white, lumpy and thick vaginal discharge. The cervix looks normal and there is discomfort on bimanual examination.

She has a past medical history of asthma, is well-controlled with salbutamol, and type one diabetes and has no known allergies.

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

A.Prescribe oral fluconazole as a single oral dose

B.Prescribe oral metronidazole as a single oral dose

C.Take a high vaginal swab

D.Take a high vaginal swab and oral metronidazole as a single oral dose

E.Take a low vaginal swab and prescribe oral fluconazole as a single dose

Answer:Prescribe oral fluconazole as a single oral dose

Explanation:

Vaginal candidiasis: Diagnosis does not require a high vaginal swab if the symptoms are highly suggestive

Important for meLess important

The correct answer is prescribe oral fluconazole as a single oral dose. This patient is presenting with a history of vulval soreness, itching, and thick, white vaginal discharge. These features are highly characteristic of vaginal candidiasis, an infection mostly caused by Candida albicans.

In the community setting, if the symptoms are highly suggestive as in this case, a high vaginal swab is not required to diagnose the condition and initiate treatment which is usually oral fluconazole as a single dose.

Prescribe oral metronidazole as a single oral dose is incorrect as it is used to treat Trichomonas vaginalis infections, which would present with offensive, yellow-green discharge, and strawberry cervix. Alternatively, it can be used to treat bacterial vaginosis presenting with offensive thin, white-grey, 'fishy' discharge.

Take a high vaginal swab is incorrect, as her symptoms are highly suggestive of vaginal candidiasis, making the investigation unnecessary for the initiation of treatment.

Take a high vaginal swab and oral metronidazole as a single oral dose is incorrect as her symptoms are highly suggestive of vaginal candidiasis, making the investigation unnecessary for the initiation of treatment. Additionally, oral metronidazole is used to treat Trichomonas vaginalis infections.

Take a low vaginal swab and prescribe oral fluconazole as a single dose is incorrect as her symptoms are highly suggestive of vaginal candidiasis, making the investigation unnecessary for the initiation of treatment. Additionally, the vaginal swab should be high in any case, not low.

Question:

A 57-year-old woman is receiving radiotherapy following a lumpectomy for ductal carcinoma in situ. Her treatment has been successful, however, she has developed nausea and vomiting and is prescribed metoclopramide.

What is the most likely side effect she may experience?

A.Constipation

B.Diarrhoea

C.Galactorrhoea

D.Gynaecomastia

E.Hallucinations

Answer:Diarrhoea

Explanation:

Diarrhoea is a common side-effect of metoclopramide

Important for meLess important

Diarrhoea is correct in this case. Metoclopramide is a D2 receptor antagonist and is a pro-kinetic antiemetic, meaning it promotes gut peristalsis. It also has some 5-HT3/5-HT4 antagonist properties, which alongside the D2 receptor antagonism, inhibit receptors in the chemoreceptor trigger zone (CTZ) of the medulla. These effects both decrease nausea. Because of the increased peristalsis, this can lead to diarrhoea, which is a common side effect according to the BNF and the most common out of the options listed.

Constipation is incorrect in this case. Because metoclopramide is a pro-kinetic antiemetic and promotes gut peristalsis, patients are more likely to experience diarrhoea, not constipation. Constipation would be possible if the drug worked through limiting gut peristalsis, however, this is not the case.

Galactorrhoea is incorrect in this case. Due to the inhibition of dopamine's effects, metoclopramide can lead to increased prolactin secretion, which can cause galactorrhoea, however, this is a rare or very rare side effect according to the BNF. Of the options listed, diarrhoea is the most common.

Gynaecomastia is incorrect in this case. Although this is also another recognised side effect, it is not common and listed under 'frequency not known' in the BNF.

Hallucinations is incorrect in this case. Similarly to the above, this may be a side effect of metoclopramide, but is not common and listed in the BNF as 'rare or very rare'.

Question:

John comes to see you for a medication review. He is a 60-year-old man, with a past medical history of chronic kidney disease stage 3, hypertension and gout. His current medication are amlodipine 10mg daily and allopurinol 100mg daily. His blood pressure today is 151/93 mmHg. A recent urine dip was normal and his blood results are shown in the table below.

Na+ 137 mmol/L (135 - 145)

K+ 4.7 mmol/L (3.5 - 5.0)

Bicarbonate 27 mmol/L (22 - 29)

Urea 5.6 mmol/L (2.0 - 7.0)

Creatinine 130 µmol/L (55 - 120)

eGFR 55 ml/min/1.73m2 (>90)

What changes should you make to his medications?

A.No changes - offer lifestyle advice only

B.Stop amlodipine and switch to indapamide

C.Continue current medications, add ramipril

D.Continue current medications, add furosemide

E.Stop amlodipine and switch to ramipril

Answer:Continue current medications, add ramipril

Explanation:

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

Important for meLess important

This gentleman has uncontrolled stage 1 blood pressure (clinic measurement above 140/90) in the context of established renal disease. He is on the maximum dose of calcium channel blocker, so the next step would be to add in an ACE inhibitor, a angiotensin 2 receptor blocker or a thiazide-like diuretic.

His blood pressure is not controlled and needs further therapy, lifestyle advice alone is not correct.

Combination therapy is required so amlodipine should be continued.

Question:

You review a 60-year-old man in resus who has been admitted with a 30 minute history of cardiac-sounding chest pain. His ECG is shown below:

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

Where is the lesion most likely to be?

A.Right coronary

B.Left main stem

C.Posterior intraventricular artery

D.Left anterior descending

E.Left circumflex

Answer:Left anterior descending

Explanation:

Ischaemic changes in leads V1-V4 - left anterior descending

Important for meLess important

ST elevation can be seen in V2-V4 which is highly suggestive of a left anterior descending lesion. A left main stem occlusion would result in more widespread changes.

Question:

A man you are treating for tuberculosis describes how, since starting treatment, he has noticed that his urine has turned orange.

What drug is responsible?

A.Rifampicin

B.Isoniazid

C.Pyridoxine

D.Pyrazinamide

E.Ethambutol

Answer:Rifampicin

Explanation:

Rifampicin may cause orange tears and urine

Important for meLess important

Side effects of TB medication are commonly asked. Rather strangely, rifampicin can cause bodily secretions to turn orange. The others are all medications that would be used in TB treatment, but none of these cause bodily secretions to turn orange. Side effects of the other medications are outlined in the notes below.

Question:

A 28-year-old man presents with shortness of breath on exertion which has progressively worsened over the last few weeks. On examination his heart rate is regular at 115 beats per minute, blood pressure 125/45 mmHg, and SpO2 94% on room air. On examination, you note bibasal coarse crepitations and an early diastolic murmur. A chest x-ray demonstrates evidence of pulmonary oedema.

What condition is associated with the likely underlying cardiac defect?

A.Ankylosing spondylitis

B.Down syndrome

C.Noonan syndrome

D.Pulmonary hypertension

E.Williams syndrome

Answer:Ankylosing spondylitis

Explanation:

Aortic regurgitation typically causes an early diastolic murmur

Important for meLess important

The presence of an early diastolic murmur and wide pulse pressure make aortic regurgitation (AR) the most likely diagnosis.

Causes of AR can be due to valve disease (e.g. bicuspid aortic valve, aortic dissection, spondyloarthropathies (e.g. ankylosing spondylitis) and connective tissue disease) or due to aortic root disease (e.g. rheumatic fever, calcific valve disease, infective endocarditis and connective tissue diseases). Therefore the most likely diagnosis is ankylosing spondylitis.

Pulmonary hypertension (PH) presents with a raised JVP (with giant v waves), a right ventricular heave, loud P2, and a pan-systolic murmur (i.e. tricuspid regurgitation from PH). Although PH can also present with an early diastolic murmur at the pulmonary area (Graham-Steele murmur) the presence of a wide pulse pressure favour the diagnosis of aortic regurgitation in this case.

Most patients with Noonan syndrome have some form of congenital heart disease. The most common heart defect in these individuals is pulmonary valve stenosis which would present with an ejection systolic murmur loudest on inspiration over the pulmonary area.

Down syndrome classically presents with either an atrial septal defect (soft mid-systolic murmur), VSD (pan systolic murmur) or PDA (continuous murmur).

Williams syndrome is most commonly associated with a supravalvular aortic stenosis which would present with an ejection systolic murmur.

Question:

A 24-year-old male with no past medical history presents to the Emergency Department with pleuritic chest pain. There is no history of a productive cough and he is not short of breath. Chest x-ray shows a right-sided pneumothorax with a 1 cm rim of air and no mediastinal shift. What is the most appropriate management?

A.Immediate 14G cannula into 2nd intercostal space, mid-clavicular line

B.Discharge with outpatient chest x-ray

C.Aspiration

D.Intercostal drain insertion

E.Admit for 48 hours observation

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

It would of course be prudent to give advice about what he should do if his symptoms worsen and also suggest routine follow-up with his GP

Question:

A 47-year-old woman is admitted to the emergency department with a left upper lobe pneumonia. She has a routine set of bloods taken for a review of systems which show the following:

Cortisol 431 nmol/l (68-357 nmol/l)

Thyroid stimulating hormone (TSH) 2.1 mu/l (0.5-5.5 mu/l)

Free thyroxine (T4) 4 pmol/l (9-18 pmol/l)

Free triiodothyronine (T3) 1.9 pmol/l (3.5-7.8 pmol/l)

Na+ 141 mmol/l

K+ 4.1 mmol/l

Urea 4.9 mmol/l

Creatinine 88 µmol/l

What is the most likely cause of her deranged thyroid function?

A.Sick euthyroid syndrome

B.De Quervain's thyroiditis

C.Hashimoto's thyroiditis

D.Panhypopituitarism

E.Addison's disease

Answer:Sick euthyroid syndrome

Explanation:

Sick euthyroid syndrome = low T3/T4 and normal TSH with acute illness

Important for meLess important

In the context of an acute illness, a normal TSH and low T3 and T4 levels are diagnostic of sick euthyroid syndrome. The TSH would be raised if the cause was De Quervain's or Hashimoto's thyroiditis as the fall in thyroid hormone levels in both these conditions occurs slowly over time. Panhypopituitarism and Addison's disease would both cause a fall in the cortisol levels which is clearly not the case here, in fact the cortisol is above the upper limit of the normal range because of the normal stress response to her acute infection.

Question:

A 16-year-old girl is seen by the GP as she has never menstruated. She also has not developed other secondary sexual characteristics.

On examination, she is very short but is in proportion. She also has wide-spaced nipples and low-set ears. There is a very subtle webbing of the neck.

Which of the following is she most likely to have?

A.Mitral regurgitation

B.Aortic coarctation

C.Hypertrophic cardiomyopathy

D.Pulmonary stenosis

E.Atrial septal defect

Answer:Aortic coarctation

Explanation:

Turner's syndrome is associated with aortic coarctation

Important for meLess important

This girl has Turner's syndrome (XO). A webbed neck with low set ears and wide-spaced nipples is a classic descriptor of the bodily appearance of people with this condition. Whilst the dysmorphism varies greatly between individuals, most will have short stature and primary amenorrhoea with a degree of puberty failure. Other things to look for in these patients are a wide carrying angle, down-sloping eyes with partial ptosis, and low posterior hairline.

Turner's syndrome is particularly associated with a bicuspid aortic valve and aortic coarctation.

The other cardiac abnormalities may be associated with other genetic conditions.

Question:

A 37-year-old man sees his GP complaining of 'a flu that won't go away'. On further questioning he has had a 2-week history of fever, nausea and vomiting, myalgia and weakness, and a sensation of itchiness. He also describes a few episodes of red urine. He denies any cough, haemoptysis or any other respiratory symptoms. On examination you notice he has some slight scleral icterus, alongside small palpable purpura on his lower legs and arms.

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

A.Eosinophilic granulomatosis with polyangiitis

B.Polyarteritis nodosa

C.Polymyalgia rheumatica

D.Granulomatosis with polyangiitis

E.Microscopic polyangiitis

Answer:Polyarteritis nodosa

Explanation:

Systemic vasculitic symptoms in the presence of hepatitis B signs and in the absence of pulmonary symptoms/signs suggests a diagnosis polyarteritis nodosa

Important for meLess important

The stem may seem overwhelming at first but breaking it down will help reveal clues to the question. His symptoms/signs appear to be rather viral, with the exception of the itchiness, scleral jaundice, haematuria, and purpura. With the systemic symptoms alongside the haematuria and purpura the first thought should be vasculitis, thus eliminating polymyalgia rheumatica.

The scleral jaundice and itchiness suggest a obstructive hepatic impairment. Alongside this, we are also told that the patient has not had any respiratory symptoms. Combining these would help exclude a further three answers and lead to the correct answer of polyarteritis nodosa, which is strongly associated with hepatitis B infection and does not tend to have respiratory features unlike the other 3 vasculitides.

Question:

A 1-week-old boy has his hearing checked through the Newborn Hearing Screening program. He had a complicated delivery via caesarean section due to foetal distress at 35 weeks. He required a short stay in the neonatal intensive care unit and was discharged well and thriving a few days later. The hearing screening was abnormal and you are sent a letter saying the patient requires a follow-up test to confirm.

What is the follow-up test in this situation?

A.Auditory brainstem response test

B.Distraction test

C.Newborn otoacoustic emission test

D.Pure tone audiometry

E.Speech discrimination tests

Answer:Auditory brainstem response test

Explanation:

If a newborn baby has an abnormal hearing test at birth they are offered the auditory brainstem response test

Important for meLess important

The follow-up to an initially abnormal screening test is an auditory brainstem response in newborns and infants. This test involves electrodes placed onto the scalp to measure auditory evoked potentials after sounds are played. A lack of response can indicate reduced hearing ability.

A distraction test is not appropriate for a newborn. They do not have the development to be able to be tested this way. This test is used for 6-9-month-old toddlers and requires two staff. Sounds are produced to the right or left of the baby out of their field of view and the loudness required until they react to these is assessed.

Newborn otoacoustic emission testing is the initial screening assessment in this patient. This is only a screening test and further investigations are required to confirm the hearing loss. The test works by generating a click sound through an earpiece and measuring for the presence of a soft echo that indicates a healthy cochlea.

Pure tone audiometry is used in school-aged children and is not an appropriate second-line hearing investigation in a newborn. This requires the input of the participant when they hear specific sounds and therefore is obviously not useful in newborns.

Speech discrimination tests are also inappropriate in newborns as they do not have the developmental capability to participate. These are done in young children over 2-years-old and assess the child's ability to understand speech and differentiate it from background noise.

Question:

A 24-year-old female is due to undergo urgent surgery after sustaining traumatic injuries to her left leg in a car crash. She has a family history of malignant hyperpyrexia and last ate solid food 90 minutes ago.

Which of the following would be unsafe to use in this patient?

A.Endotracheal tube

B.Ketamine

C.Laryngeal mask

D.Non-depolarising muscle relaxants

E.Sodium thiopentone

Answer:Laryngeal mask

Explanation:

Laryngeal mask airway provides poor control against reflux of gastric contents therefore is unsuitable in non fasted patients

Important for meLess important

The correct answer is a laryngeal mask.

As this patient is not fasted, there is a risk of aspiration of gastric contents during induction of anaesthesia. A laryngeal mask is, therefore, contraindicated as this cannot protect the trachea and bronchial tree from aspirate.

An endotracheal tube is incorrect as a correctly sited endotracheal tube with an inflated cuff can provide a secure airway that protects the trachea and bronchial tree from aspirate.

Ketamine is incorrect. This patient has a family history of malignant hyperpyrexia, which is caused by an inherited mutation in the ranitidine receptor which interferes with calcium regulation in skeletal muscle. Anaesthetic agents known to trigger an episode of malignant hyperpyrexia include all potent inhaled general anaesthetic agents (e.g. halothane, thiopental) and all depolarising muscle relaxants (e.g. suxamethonium). As ketamine is not in either of these classes of drug, it will not cause malignant hyperpyrexia in this patient.

Non-depolarising muscle relaxants is incorrect as these drugs will not cause malignant hyperpyrexia.

Sodium thiopentone is incorrect, this is an induction agent and is not known to cause malignant hyperpyrexia.

Question:

A 78-year-old woman is admitted to hospital with nausea, abdominal pain, constipation and low mood with generalised musculoskeletal pain and weakness. On examination she appears dehydrated.

Blood tests demonstrate a marked electrolyte abnormality.

Which of the following is most likely to be seen on her ECG?

A.Lengthening of the PR interval

B.Shortening of the QT interval

C.T wave inversion

D.Torsades de pointes

E.U waves

Answer:Shortening of the QT interval

Explanation:

The main ECG abnormality seen with hypercalcaemia is shortening of the QT interval

Important for meLess important

The correct answer is 'shortening of the QT interval'. The cluster of signs and symptoms being described here is typical of hypercalcaemia - 'stones, bones, groans and psychiatric moans'. This patient will most likely have been commenced on intravenous fluids and, depending on severity, a bisphosphonate. The most commonly seen ECG change in hypercalcaemia is shortening of the QT interval.

Lengthening of the PR interval may be seen in abnormalities with potassium levels. Higher levels of potassium lead to progressive paralysis of the atria, lengthening the PR interval. Severe hypokalaemia may also cause this change. This is not usually seen with hypercalcaemia.

T wave inversion is seen in a number of problems, including hypokalaemia. It is not, however, typically associated with hypercalcaemia.

Torsades de pointes may rarely be seen in hypocalcaemia, not hypercalcaemia. It is more commonly associated with hypokalaemia and hypomagnesaemia.

U waves are small deflections immediately following the T wave and usually in the same direction. They are most commonly seen with bradycardia and severe hypokalaemia. There is a rarer association with hypocalcaemia - not hypercalcaemia.

Question:

A 3-year-old boy presents to the GP with his mother who explains he has been unwell for the past 24 hours. The mother explains that the boy has been feverish and has not been eating his food. There is no past medical history of note. On general inspection, the child looks sickly and flushed. There is a diffuse maculopapular rash across his chest and back and small white papules on the inside of his cheeks.

Given the likely diagnosis, what is the most frequent complication?

A.Bronchitis

B.Encephalitis

C.Meningitis

D.Orchitis

E.Otitis media

Answer:Otitis media

Explanation:

The most common complication of measles is otitis media

Important for meLess important

The most likely diagnosis here is measles due to the characteristic fever, maculopapular rash, and koplik spots (white papules on the buccal mucosa that often present before the rash).

The most common complication of measles is otitis media because the respiratory virus can easily spread to the ear canals. This would likely present with unilateral ear pain and fever, as well as redness/swelling of the tympanic membrane on examination.

Bronchitis, a lower respiratory infection, is a complication of measles but is not as common as otitis media. This would typically present with a persistent productive cough, dyspnoea, wheezing and malaise. Bronchitis would not account for the rash seen in this patient.

Encephalitis, a central nervous system infection, is a serious but uncommon complication of measles. Encephalitis would typically present with fever, headache, altered consciousness, seizures and focal neurology.

Similarly, meningitis is a life-threatening complication of measles but is not as common as otitis media. Meningitis would typically present with fever, headache, photophobia, neck stiffness, non-blanching rash and altered consciousness.

Orchitis is inflammation of the testes and is a common complication of mumps rather than measles. Orchitis would typically resent with scrotal pain.

Question:

A 73-year-old man has a 3-month history of intermittent dysphagia and regurgitation of solid food without unexplained weight loss. There are no problems with liquids. He has a past medical history of an ischaemic stroke 20 years ago and takes atorvastatin and clopidogrel.

An abdominal examination is unremarkable and on examination of his neck, a small swelling is felt. He denies any changes in bowel habits and has no nausea or vomiting. Endoscopy is performed which demonstrates no abnormality.

Given the likely diagnosis, what is the diagnostic investigation of choice?

A.24-hour pH monitoring

B.Barium swallow with fluoroscopy

C.Cervical spine X-ray

D.Oesophageal manometry testing

E.Refer to speech and language therapy for swallow screen

Answer:Barium swallow with fluoroscopy

Explanation:

Barium swallow combined with dynamic video fluoroscopy is the investigation of choice for a suspected pharyngeal pouch

Important for meLess important

Barium swallow with fluoroscopy is correct. In all cases of new-onset dysphagia, malignancy should be sought as this is a red-flag symptom. The absence of unexplained weight loss and abdominal masses makes a diagnosis of malignancy less likely, along with normal endoscopy. Given his age, and the presence of neck swelling, a diagnosis of pharyngeal pouch is likely. The diagnostic investigation of choice for a pharyngeal pouch is a barium swallow with fluoroscopy which shows protrusion of the pharynx posteriorly. An upper gastrointestinal endoscopy may sometimes detect a pharyngeal pouch, but not always.

Cervical spine X-ray is incorrect. This is considered as an initial investigation for problems such as foreign body aspiration or osteophytes due to cervical osteoarthritis. This patient does not have any problems with breathing, nor has any foreign body sensation, making foreign body aspiration less likely, and does not have any neck pain or stiffness, ruling out cervical osteoarthritis.

Oesophageal manometry testing is incorrect. This would be the investigation of choice for achalasia, which would present with dysphagia to both food and liquids from the start (unlike this patient who has no problems with liquids), and dyspepsia (which is absent in this case). This diagnosis would also not explain the neck mass on examination.

Refer to speech and language therapy for swallow screen is incorrect. This is considered in patients following a stroke. Although this patient has had a previous history of stroke, it is unlikely that they would have gone 20 years without seeking help for dysphagia earlier, and the history of dysphagia is 3 months.

24-hour pH monitoring is incorrect. This is the gold-standard diagnostic test for gastro-oesophageal reflux disease (GORD), which can present with regurgitation and dysphagia but also presents with heartburn. There is no heartburn in this scenario.

Question:

A 1-year-old infant is brought in by ambulance after suffering from a seizure-like episode witnessed by his mother. She filmed the episode on her mobile phone, which lasted 40 seconds, and shows this to the paediatric team. He has never had a seizure before and has no medical history. His mother reports that for the past 3 days, he has had a cough and a runny nose. She also reports that he had poor sleep last night and needed paracetamol for a temperature of 39.5ºC. In the department, he is grizzly and coughing but he experiences no further seizures. The paediatric team inform his mother that this episode is not concerning and advise her that he should grow out of them.

By what age do children typically stop having these episodes?

A.3 years old

B.5 years old

C.7 years old

D.9 years old

E.11 years old

Answer:5 years old

Explanation:

Febrile convulsion typically occur in children between the age of 6 months to 5 years

Important for meLess important

This infant has had an episode that is consistent with a febrile convulsion. These usually occur in children aged 6 months to 5 years. Children appear hot and flushed before losing consciousness during a febrile convulsion. Typically, these are tonic-clonic seizure-like episodes and there will be a post-ictal period. Parents should be informed that many children never have more than one episode. In children over 1-year-old experiencing their first febrile convulsion, there is a 1 in 3 chance of it happening again - this is higher in children under 1.

While most children experience their first febrile convulsion by 3 years, these can continue up to 5 years (especially in children who have had previous febrile convulsions).

Children over 5 years old are less likely to experience febrile convulsions - children aged 7, 9, or 11 years who are experiencing convulsions should be referred for neurological testing as this may indicate the child has epilepsy.

Question:

A 21-year-old man is involved in a road traffic accident. After a transient period of concussion he is found to have a GCS of 15 by the paramedics. On arrival at hospital he is monitored in a side room of the emergency department. When he is next observed he is noted to have a GCS of 3 and a blown right pupil. Which of the processes below best accounts for this deterioration?

A.Hydrocephalus

B.Intraventricular bleed

C.Sub dural bleed

D.Trans tentorial herniation

E.Sub arachnoid haemorrhage

Answer:Trans tentorial herniation

Explanation:

The presence of a blown right pupil is a sign of a third cranial nerve compression. The most likely cause is an extradural bleed. However, since this option is not listed the process of trans tentorial herniation would be the most applicable answer. Intraventricular bleeds are typically more common in premature neonates, deterioration due to hydrocephalus is more chronic.

Question:

A 42-year-old male presents to your clinic with knee pain. He has been experiencing severe pain in his left knee for the past 4 days, and he describes the joint as being incredibly hot. On examination you note erythema and swelling of the affected joint. Aspiration of the knee shows no evidence of septic arthritis, but does reveal depositions of calcium pyrophosphate dihydrate crystals.

Which of the following is a risk factor for this condition?

A.Hypermagnesemia

B.Hyperparathyroidism

C.Hyperphosphatemia

D.Hyperuricemia

E.Hypoparathyroidism

Answer:Hyperparathyroidism

Explanation:

Hyperparathyroidism is a risk factor for pseudogout

Important for meLess important

From the history you can deduce that this patient is experiencing pseudogout. A monoarthropathy which affects large joints, associated with erythema and swelling is suggestive of this condition. Aspiration of calcium pyrophosphate dihydrate crystals is diagnostic.

Hyperparathyroidism is a risk factor for pseudogout, due to the increased serum calcium which results from excess parathyroid hormone. Hypoparathyroidism would not be a risk factor since there is less serum calcium available for synovial deposits to form.

Both hypomagnesemia and hypophosphatemia are risk factors for pseudogout, not their elevated counterparts.

Hyperuricemia is a risk factor for gout, not pseudogout, due to the increased likelihood of urate crystal formation.

Question:

Samantha, a 30-year-old Afro-Caribbean woman attended her GP with a variety of symptoms. She mentioned over the past few months that she had felt intermittently feverish, fatigued and had noticed some unintentional weight loss (around 2kg) alongside general muscle aches and pains. She was taking no medication.

The examination was normal, as were all her observations.

Her GP requested a full blood count, results of which are as follows:

Hb 109 g/L Female: (115 - 160)

Platelets 155 \* 109/L (150 - 400)

WBC 4.4 \* 109/L (4.0 - 11.0)

Lymphocytes 3.2 \* 109/L (1.0 - 4.5)

Mean corpuscular volume 90 fL (76 - 98)

Mean corpuscular haemoglobin 30 pg (27 - 32)

Ferritin 35 ng/mL (20 - 230)

Her GP thought this could be systemic lupus erythematosus (SLE) and organised further blood tests.

Which test, if positive, would best indicate Samantha likely has this condition?

A.ANA

B.Anti-dsDNA

C.Anti-histone antibodies

D.Erythrocyte sedimentation rate (ESR)

E.Anti U1 ribonucleoprotein

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 SLE (>99%) so, if positive, would provide good evidence for this patient to have SLE.

ANA has high sensitivity which makes it a useful rule out test for SLE, but it has low specificity.

Anti-histone antibodies are generally used as a marker for drug-induced SLE.

ESR is not a serum antibody and is not used for the diagnosis or for ruling out SLE.

Anti U1 ribonucleoprotein, formerly known as anti-RNP, is not specific for SLE. It is found in about 40% to 60% of patients with SLE.

Question:

A 38-year-old woman attends the gynaecology outpatient clinic. She complains of a 5-month history of pelvic pain and intermenstrual bleeding. The pain is worse around the time of her periods and during sexual intercourse. Her periods have also become heavier. The patient is not experiencing any urinary or bowel symptoms. You arrange a transvaginal ultrasound (TVUS), which shows several masses in the uterine wall.

The patient is keen to have the masses surgically removed. However, the waiting time for the operation is five months. She asks if there is a medication that will help reduce the size of the masses in the meantime.

What is the most appropriate management option whilst this patient awaits surgery?

A.Endometrial ablation

B.Ibuprofen

C.Mefenamic acid

D.Tranexamic acid

E.Triptorelin

Answer:Triptorelin

Explanation:

For patients with uterine fibroids, GnRH agonists may reduce the size of the fibroid but are typically useful for short-term treatment

Important for meLess important

The patient has uterine fibroids. This is suggested by her symptoms (intermenstrual bleeding, pelvic pain and menorrhagia) and the fact that she is in the later years of reproductive age. The 'masses in the uterine wall' seen on the TVUS scan are fibroids.

Triptorelin is the correct answer. Triptorelin is a gonadotropin-releasing hormone (GnRH) agonist. Over time, GnRH agonists' stimulation of the pituitary gland causes desensitisation of the pituitary gland to GnRH. This leads to reduced secretion of luteinising hormone (LH) and follicle-stimulating hormone (FSH), thereby inhibiting androgen and oestrogen production. Thus, the woman enters a state of 'pseudomenopause' in which the fibroids shrink in size. GnRH agonists are useful for short-term, pre-operative management of fibroids.

Endometrial ablation is incorrect. This is itself a surgical procedure in which the endometrial lining of the uterus is destroyed.

Ibuprofen is incorrect. Ibuprofen is a non-steroidal anti-inflammatory drug (NSAID) that can be used as an analgesic in patients with painful, uterine fibroids. However, it will not reduce the size of the fibroids.

Mefenamic acid is incorrect. This is also an NSAID. Although it can be used to treat the patient's pain and heavy menstrual bleeding, it will not reduce the size of the fibroids.

Tranexamic acid is incorrect. This medication can be used to treat menorrhagia and excessive blood loss. Nevertheless, it would have no effect on the size of the fibroids.

Question:

Which one of the following ethnic groups have an increased incidence of prostate cancer?

A.Afro-Caribbean

B.Ashkenazi Jews

C.Chinese

D.Indian subcontinent

E.White

Answer:Afro-Caribbean

Explanation:

Prostate cancer - more common in the Afro-Caribbean population

Important for meLess important

Question:

A 66-year-old man comes to see you as he has had numbness in his right hand which has gradually progressed over 48 hours and now he reports that the whole of his right-hand side is numb. You suspect that he is having a stroke and arrange a blue-light ambulance. 6 weeks later he comes to see you to thank your for your help and also discuss his medications.

Assuming there are no contraindications, which one of the following antiplatelet regimens is recommended following an acute ischaemic stroke?

A.Aspirin 75mg for 1 year with clopidogrel 75mg to be continued long term

B.Aspirin 75mg for 2 weeks with clopidogrel 75mg to be continued long term

C.Rivaroxaban to be continued long term

D.Aspirin 300 mg daily for 2 weeks then clopidogrel 75 mg daily long-term

E.Aspirin 75mg for 1 month then clopidogrel daily long term

Answer:Aspirin 300 mg daily for 2 weeks then clopidogrel 75 mg daily long-term

Explanation:

Patient presenting with acute stroke should be sent urgently to the local stroke centre and treatment should be delayed until an ischaemic stroke is confirmed.

Once an ischaemic stroke is confirmed the patient should be given aspirin 300 mg daily for 2 weeks then clopidogrel 75 mg daily long-term. A statin should also be offered if the patient is not already on statin therapy.

Question:

A 57-year-old gentleman presents with shortness of breath. He does not get chest pain. On respiratory examination, he has fine bibasal crackles which clear on coughing. He informs you he drinks half a bottle of vodka every day and has done for most of his life. You arrange for him to have an echocardiogram. What is the echocardiogram likely to report?

A.Left ventricular ejection fraction = 65%, dilated left ventricle, no wall motion abnormalities

B.Left ventricular ejection fraction = 65%, ventricular hypertrophy, no wall motion abnormalities

C.Left ventricular ejection fraction = 40%, dilated left ventricle, no regional wall motion abnormalities

D.Left ventricular ejection fraction = 40%, ventricular hypertrophy, no regional wall motion abnormalities

E.Left ventricular ejection fraction = 40%, regional wall motion abnormalities noted

Answer:Left ventricular ejection fraction = 40%, dilated left ventricle, no regional wall motion abnormalities

Explanation:

Alcoholics are at risk of dilated cardiomyopathy

Important for meLess important

This gentleman has a dilated cardiomyopathy secondary to alcohol excess. The echo report would, therefore, state a reduction in the LVEF (normal range is 55-70%). It would also comment on there being a dilated left ventricle and no regional wall motion abnormalities. Ventricular hypertrophy is more likely to be seen in hypertrophic cardiomyopathy and regional wall motion abnormalities in cardiac disease secondary to infarction in a coronary territory.

Question:

You are performing a routine examination of a woman who is 37 weeks pregnant. She mentions she is short of breath. Which of the following new signs during a cardiac examination would not be considered normal and prompt referral for further evaluation?

A.Third heart sound

B.Pulmonary oedema

C.Peripheral oedema

D.Ejection systolic murmur

E.Forceful apex beat

Answer:Pulmonary oedema

Explanation:

Acute pulmonary oedema is the fourth most common cause of maternal morbidity and a frequent cause of ITU admission during pregnancy. Peripheral oedema is caused by increased fluid pressure both from sodium and water retention and venous stasis from pelvic obstruction, whereas pulmonary oedema is caused by a change in hydrostatic pressure, either from the heart or from reduced osmotic pressure. These are associated with more sinister underlying conditions, such as sepsis, cardiac disease and from iatrogenic sources. If pulmonary oedema presents with hypertension the diagnosis is likely to be pre-eclampsia, an obstetric emergency.

The increased cardiac output and volume increase which occur normally during pregnancy lead to the above signs; an ejection systolic murmur is heard in 96% of women and 84% have a third heart sound. Forceful apex beat is not a cause for concern provided it is still within 2cm of the mid-clavicular line

Question:

A neonate is born at 32 weeks gestation after prolonged premature rupture of membranes (PROM). Approximately 12 hours after birth the neonate presents with temperature instability, respiratory distress and lethargy. Sepsis is confirmed by blood cultures. What is the most likely infectious agent?

A.Staphylococcus aureus

B.E. coli

C.Staphylococcus epidermidis

D.Listeria monocytogenes

E.Group B Streptococcus

Answer:Group B Streptococcus

Explanation:

Sepsis in the neonate often presents with non-specific features. Therefore, one must have a high index of suspicion and a low threshold for investigation. Sepsis in the neonate can broadly be divided into early-onset (<48 hours since birth) and late-onset (>48 hours from birth). Early-onset sepsis is associated with acquisition of micro-organisms from the mothers birth canal. Late-onset sepsis normally occurs due to hospital acquired pathogens such as Staphylococcus epidermidis and Staphylococcus aureus.

The neonate in this question has early onset sepsis. The most likely pathogen is Group B Strep which is a common commensal of the female genital tract.

Question:

A 35-year-old woman has been diagnosed with hypertension following ambulatory blood pressure monitoring. She has no symptoms and no risk factors for essential hypertension, so she is further investigated for secondary hypertension.

Blood tests reveal the following:

Na+ 144 mmol/L (135 - 145)

K+ 3.1 mmol/L (3.5 - 5.0)

Bicarbonate 24 mmol/L (22 - 29)

Urea 4.2 mmol/L (2.0 - 7.0)

Creatinine 97 µmol/L (55 - 120)

Subsequent testing reveals a raised plasma aldosterone/renin ratio. She is given a high-resolution CT of her abdomen which is reported as inconclusive.

What is the most appropriate next investigation?

A.Adrenal venous sampling

B.MRI pituitary

C.MR angiography of the renal arteries

D.Overnight dexamethasone suppression test

E.Short Synacthen test

Answer:Adrenal venous sampling

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 has presented with hypertension and hypokalaemia, indicating hyperaldosteronism. Primary hyperaldosteronism can be differentiated from secondary hyperaldosteronism using the aldosterone/renin ratio:

High ratio - indicates aldosterone is being produced independently of renin, so the cause is primary (originating in the adrenals).

Low ratio - indicates aldosterone is raised due to renin being raised, so the cause is pathology of the renin-angiotensin-aldosterone axis.

The next stage of diagnosing primary hyperaldosteronism is to image the adrenals in an attempt to differentiate unilateral adenoma from bilateral hyperplasia. If the imaging does not produce adequate results, adrenal venous sampling can be used. This would give bilaterally increased aldosterone in the adrenal veins if the cause was bilateral hyperplasia, and unilaterally increased aldosterone if the cause was Conn's syndrome.

MRI pituitary is not indicated as there is no suggestion of a pituitary pathology. Aldosterone secretion is independent of the hypothalamic-pituitary-adrenal axis and is controlled by the renin-angiotensin-aldosterone system.

MR angiography of the renal arteries would potentially be used in the investigation of secondary hyperaldosteronism, where the most common cause is renal artery stenosis. This causes reduced renal perfusion and therefore an elevation in renin, resulting in hyperaldosteronism. This would cause a low aldosterone/renin ratio, and so this patient does not require work-up for secondary hyperaldosteronism.

Overnight dexamethasone suppression test is used in the investigation of suspected Cushing's syndrome. This occurs due to excessive cortisol production and can cause hypertension, but would also cause weight gain and striae, which this patient has not noted. It may have been worth investigating for Cushing's if the aldosterone/renin ratio had not been altered, but the most appropriate investigation currently is AVS.

Short Synacthen test is used in the investigation of adrenal insufficiency. This would cause aldosterone deficiency and so the patient would be more likely to present with hypotension, hyponatraemia and hyperkalaemia.

Question:

A 10-month-old boy is seen in the Emergency Department due to fever, cough and breathlessness. His observations are as follows: temperature 38.1˚C, heart rate 180 bpm, respiratory rate 64/min, oxygen saturations 93% on room air, blood pressure 95/60 mmHg, capillary refill time is 2 seconds. His parents report a history of poor feeding over the past week. He has had a high temperature the past day. A senior clinician has admitted him and given intravenous (IV) antibiotics, IV fluids and supplementary oxygen. The patient is currently alert.

Which is the following in his presentation is a red flag according to the NICE paediatric traffic light system?

A.Capillary refill time

B.Tachycardia

C.Temperature

D.Tachypnoea

E.Oxygen saturations

Answer:Tachypnoea

Explanation:

A respiratory rate of >60 per minute (at any age) is a red flag according to the NICE paediatric traffic light system

Important for meLess important

A respiratory rate of >60 per minute (at any age) is a red flag according to the NICE paediatric traffic light system, and so this is the only red flag in the options above.

His oxygen saturation of 93% on room air is an amber flag (oxygen saturations <95%).

His capillary refill time is within normal range - greater than 3 seconds would be considered an amber flag as per the NICE traffic light system.

His tachycardia is also an amber flag - for his age, a heart rate over 160 bpm is considered an amber flag. Reduced skin turgor would be a red flag indicating very poor circulation and hydration based on the traffic light system, but this is not listed as an option above.

Due to his age, his temperature is not a red flag (a temperature above 38˚C is a red flag in babies under 3 months old).

Question:

A 67-year-old male is on the respiratory ward being treated for severe community-acquired pneumonia with amoxicillin. He has a past medical history of a heart attack 3 years ago, hypertension, and diabetes type 2. His medications are aspirin 75mg, atorvastatin 40mg, ramipril 5mg, bendroflumethiazide 5mg, and metformin 500mg BD. On day three of treatment, the junior doctor noticed that the patient's creatinine rose to 190 micromol/litre from a 67 micromol/litre baseline. His eGFR is found to be 25 ml/min, and he is diagnosed with an acute kidney injury.

Which of the following drugs can the patient continue taking in his current condition?

A.Aspirin

B.Bendroflumethiazide

C.Metformin

D.All drugs should be stopped

E.Ramipril

Answer:Aspirin

Explanation:

NSAIDs should be stopped in AKI except aspirin at cardio-protective dose

Important for meLess important

Acute kidney injury (AKI) can be caused by pre-renal injury, renal injury, or post-renal obstruction. The cause of this patient's AKI could be hypovolaemia due to dehydration or acute interstitial nephritis caused by amoxicillin.

AKI is defined as a rise in creatinine by 26 micromol/litre from the baseline within 48 hours, a 50% or greater rise in serum creatinine known or presumed to have occurred within the past 7 days, or a fall in urine output to less than 0.5 ml/kg/hour for more than 6 hours.

This patient is on aspirin for secondary prevention of acute coronary syndrome. The dose he is taking is 75 mg per day, which is the cardioprotective dose. There is strong evidence supporting the use of aspirin for this purpose. Aspirin is a COX-inhibitor and exhibits antithrombotic effects by inhibiting thromboxane synthesis via the COX-1 pathway. Aspirin at 75 mg should be continued in AKI.

Drugs that need to be stopped in AKI as they worsen renal function include aminoglycosides, ACE inhibitors/ ARBs, diuretics, and NSAIDs that are not at cardioprotective doses. Drugs that don't worsen renal function but can result in toxicity include metformin, lithium, and digoxin.

A helpful mnemonic to remember the drugs to stop in AKI is DAMN AKI:

Diuretics

Aminoglycosides and ACE inhibitors

Metformin

NSAIDs.

Ramipril is an ACE inhibitor used to treat hypertension. This patient is on it because he has diabetes, and ACE inhibitors are the anti-hypertensives of choice in this case.

Metformin is a biguanide used to treat diabetes type 2. It works by increasing insulin sensitivity. It should be stopped if the eGFR falls below 30 ml/min as it can result in lactic acidosis.

Question:

A 2-year-old boy is seen by the general practitioner as his parents are concerned that he is struggling to gain weight and is excessively short of breath on exertion. He was previously diagnosed with congenital pulmonary stenosis which was managed conservatively however the parents are now questioning whether surgical intervention may be required.

What murmur is likely to be heard on examination?

A.Ejection systolic, louder on expiration

B.Ejection systolic, louder on inspiration

C.Holo-systolic, louder on expiration

D.Holo-systolic, louder on inspiration

E.Late systolic

Answer:Ejection systolic, louder on inspiration

Explanation:

Pulmonary stenosis is louder on inspiration

Important for meLess important

Pulmonary stenosis causes an ejection systolic murmur that is louder on inspiration. This is due to blood flowing through the narrow pulmonary valve throughout systole. It is affected by inspiration as this increases venous blood return to the right side of the heart.

An ejection systolic murmur that is louder on expiration is characteristic of aortic stenosis as expiration increases blood flow to the left side of the heart but decreases return to the right, therefore causing the murmur in tricuspid regurgitation to be quieter not louder.

A holo-systolic murmur that is louder on expiration is indicative of mitral regurgitation.

A holo-systolic murmur that is louder on inspiration is indicative of tricuspid regurgitation.

Late systolic murmurs indicate mitral valve prolapse and coarctation of the aorta but not pulmonary stenosis.

A mid-systolic click is caused by prolapse of the mitral valve, not pulmonary stenosis.

Question:

A 32-year-old woman had presented to her GP with cyclical labile mood and irritability, usually occurring around one week before menstruation and resolving a few days after a period. The GP prescribed a combined oral contraceptive pill (COCP) for these symptoms after reviewing a symptom diary the patient had been keeping.

She returns to her GP after 3 months of oral contraceptive treatment reporting that her symptoms have not improved around the time of menstruation. She feels that this is making her a bad mother as she is losing her patience with her children easily when symptomatic, and therefore she is looking for further treatment if possible.

Which of the following treatments is most appropriate?

A.Co-cyprindiol

B.Levonorgestrel-releasing intrauterine system

C.Mirtazapine

D.Copper coil

E.Sertraline

Answer:Sertraline

Explanation:

SSRIs, either continuously or during the luteal phase, may help premenstrual syndrome

Important for meLess important

The patient presented with a history suggestive of premenstrual syndrome (PMS). This patient's symptoms are now impacting her day-to-day life significantly and have not improved since first-line treatment with a combined oral contraceptive pill. Therefore, antidepressant treatment is indicated with the recommended class being SSRI medications.

Co-cyprindiol is not indicated in the management of PMS. It is a combined oral contraceptive with anti-androgen properties which is used in the management of polycystic ovarian syndrome.

Levonorgestrel-releasing intrauterine systems are the first-line treatment for heavy menstrual bleeding but are not indicated in the management of PMS.

Mirtazapine is a noradrenaline and specific serotonergic antidepressant indicated for major depressive disorders, not indicated for the management of PMS.

The copper coil can make periods heavier and more painful and is not a treatment for PMS.

Question:

You are reviewing a 21-year-old male with depression, who has previously tried several antidepressants and counselling with little success. You decide to commence him on a trial of mirtazapine.

Which of the following can you inform him is a characteristic side effect of this antidepressant?

A.The tyramine cheese reaction

B.Tardive dyskinesia

C.Headache

D.Increase in appetite

E.Agranulocytosis

Answer:Increase in appetite

Explanation:

Mirtazapine - increased appetite is a characteristic side effect

Important for meLess important

Mirtazapine is an effective antidepressant which is an alpha-2 receptor antagonist, but is often not tolerated by patients as it commonly causes increased appetite and sedation.

The tyramine cheese reaction is a classic side effect of MAOI (monoamine oxidase inhibitor) antidepressants, such as phenelzine. Consumption of foods high in tyramine (such as cheese) can result in a hypertensive crisis.

Tardive dyskinesia is a movement disorder than is characteristically caused by typical antipsychotics, though very rarely can be a result of some antidepressants also.

Headache is a common withdrawal symptom of mirtazapine, not a side effect during its administration.

Agranulocytosis is a side effect monitored for in clozapine, an antipsychotic.

Question:

A 38-year-old soldier presents to the emergency department due to pain in her shin that has been present now for 2 months. Specifically, the pain is located over the tibia. Although the pain is generally relieved by rest, it is concerning her as she has an upcoming three-day hike with the army. She has currently not had any in-hospital investigations. Examination reveals diffuse tenderness over the tibia.

She apologizes for coming to the emergency department and says her GP did not have any appointments available for 2-weeks and needs advice before the weekend is over.

What should you do next with regard to the management of this patient?

A.Advise going home and resting

B.Refer to orthopaedics

C.Undertake an x-ray of the legs

D.Perform a CT-scan of the legs

E.Place the leg in a plaster-cast

Answer:Undertake an x-ray of the legs

Explanation:

A stress fracture of the tibia is an important differential for tibial stress syndrome

Important for meLess important

The most likely diagnosis is tibial stress syndrome. However, it would be unwise to discharge this patient without definitively ruling out a stress fracture of the tibia. Therefore it would be appropriate to order an x-ray of the patient's legs. This is the initial investigation of choice. Symptoms often precede x-ray changes by a few weeks but this patient has had symptoms now for 2 months.

Note that you cannot use Ottawa ankle rules to determine if an x-ray is needed. Ottawa rules are used to determine if an ankle and/or foot x-ray are needed. It is not sensitive for a tibial stress fracture.

Although CT and MRI are more sensitive, an x-ray would be performed first. If there is no definitive answer, further imaging may be required.

A plaster cast would be inappropriate at this stage as tibial stress syndrome is the most likely diagnosis.

An orthopaedic referral is currently inappropriate at this stage.

Assuming the x-ray rules out a tibial stress fracture, rest, elevation of the leg and repeated ice-packing of the leg would be an appropriate management plan.

Question:

A 32-year-old woman has had an uncomfortable rash around her mouth for the past 2 months.

She uses a skin-cleansing face wash daily and also applies hydrocortisone 1% ointment twice a day. She has also spoken to a pharmacist who suggested clotrimazole 2% cream and has recently started using an old tube of fusidic acid cream.

She has also bought iron supplements after reading online that her symptoms may be attributable to iron deficiency. Despite all of this, she finds that her rash is worsening.

On examination, you notice clusters of papules with surrounding erythema around her mouth, with sparing of her lip margins. There are no comedones, cysts or nodules.

Which of her current treatments should be stopped as a priority?

A.Clotrimazole cream

B.Fusidic acid

C.Hydrocortisone

D.Iron supplements

E.Skin-cleansing face wash

Answer:Hydrocortisone

Explanation:

Perioral dermatitis can be made worse by topical steroids

Important for meLess important

The most likely diagnosis is perioral dermatitis. This is a condition that manifests as an erythematous eruption of small papules and papulopustules with distribution primarily around the mouth. The rash does not affect the lips, hence sparing of the lip border is typical.

The absence of comedones, cysts and nodules makes acne vulgaris unlikely. Acne rosacea - which is usually associated with flushing and telangiectasia of the cheeks - is also unlikely.

The exact cause is not understood, but topical steroids are well-known to both trigger and exacerbate the condition. Other triggers include certain cosmetics, moisturisers and sunscreens.

In this patient, the initial precipitant is not clear, but the ongoing use of hydrocortisone 1% ointment will invariably be making her symptoms worse.

The mainstay of treatment is to avoid topical steroids, hence this is the priority.

Some patients may also benefit from topical erythromycin or clindamycin. In more severe cases, oral antibiotics such as tetracycline or doxycycline can be considered.

Although clotrimazole and fusidic acid are not associated with perioral dermatitis, it is prudent to advise stopping all of her topical creams and advise using only a gentle non-soap-based cleanser to wash her face.

Oral iron is not associated with the development or worsening of perioral dermatitis. It is possible that the patient mistakenly attributed her symptoms to angular cheilitis, which is associated with iron deficiency.

Question:

A 38-year-old woman re-presents to her general practitioner after lifestyle changes and three months of pelvic floor exercises fail to control her urinary stress incontinence. She tells the doctor that she is keen for further treatment but does not want surgical management.

What is the most appropriate next step in this patients management?

A.Bladder re-training

B.Prescription of duloxetine

C.Prescription of oxybutynin

D.Referral for urodynamic testing

E.Try a further 3 months of pelvic floor exercises

Answer:Prescription of duloxetine

Explanation:

Duloxetine may be used in patients with stress incontinence who don't respond to pelvic floor muscle exercises and decline surgical intervention

Important for meLess important

According to NICE guidance published in 2019, duloxetine is the only non-surgical management option recommended for stress incontinence, following a failed course of pelvic floor exercises.

Bladder re-training would be wrong as this is the first line management for urge incontinence.

Prescription of oxybutynin would be wrong as this is indicated in urge incontinence if bladder re-training fails to improve symptoms.

Referral for urodynamic testing would be wrong as NICE recommend a referral to urogynaecology rather than urodynamics, if a patient is deemed to be in need of secondary care.

A further 3 months of pelvic floor exercises would be wrong as this is not recommended by NICE.

Question:

A 42-year-old man presents a two-month history of steatorrhoea, abdominal discomfort, and diarrhoea. He is particularly worried, as three years ago, he required colonic resection following ischaemic colitis, leaving him with short bowel syndrome. He also reports paraesthesia and feeling unsteady on his feet. The endoscopic appearance of the small bowel is unremarkable. Biopsy samples show non-specific eosinophilia. Colonoscopy is also unremarkable. Abdominal examination is unremarkable, and his weight has remained stable.

What investigation is most likely to be diagnostic?

A.CT abdomen

B.CT colonoscopy

C.Faecal calprotectin

D.Hydrogen breath test

E.Serum lipase

Answer:Hydrogen breath test

Explanation:

Hydrogen breath testing is an appropriate first line test for diagnosis of small bowel overgrowth syndrome

Important for meLess important

Hydrogen breath test is the correct answer. Small bowel overgrowth syndrome (SBOS) is where excessive microbes colonise the bowel. As in this case, anatomic disorders can predispose to SBOS due to intestinal stasis. In the majority of cases, it presents as bloating and steatorrhoea. In patients with vitamin B12 deficiency, neurological symptoms can also co-exist. The diagnosis can be established with a positive hydrogen breath test. The mucosal histology is variable, and may include modest villous blunting accompanied by increased lamina propria and epithelial inflammation. It is often normal.

CT abdomen is incorrect. Subjecting this man to ionising radiation at this stage in the diagnostic workup would be inappropriate. There is no suggestion of intra-abdominal malignancy. Non-invasive hydrogen breath testing is the first-line investigation for SBOS.

CT colonoscopy is incorrect. There is little additional information that a CT colonoscopy would offer in evaluating intraluminal disease than an upper GI endoscopy and a colonoscopy.

Faecal calprotectin is incorrect. Faecal calprotectin is a protein biomarker associated with active inflammatory bowel disease (IBD). His previous history of bowel resection for ischaemic colitis predisposes him to SBOS. If inflammatory bowel disease were active, you would expect to see suggestive findings on endoscopy. Furthermore, steatorrhoea would be an uncommon symptom of IBD.

Serum lipase is incorrect. Serum lipase is a helpful investigation in the assessment of acute pancreatitis. There is little convincing evidence for pancreatitis as a diagnosis, aside from steatorrhoea, which could be caused by biliary obstruction. The clinical picture fits with a diagnosis of SBOS due to the presence of abdominal discomfort and history of colonic resection.

Question:

A 19-year-old man presents with a history of palpitations. These typically occur after exercise. During these episodes his heart beat feels fast and regular. On one occasion he describes feeling light-headed like he may pass out. You arrange a 12 lead ECG:

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

What is the most likely diagnosis?

A.Wolff-Parkinson White

B.Hypertrophic obstructive cardiomyopathy

C.Arrhythmogenic right ventricular cardiomyopathy

D.Brugada syndrome

E.Pulmonary embolism

Answer:Wolff-Parkinson White

Explanation:

The ECG shows a short PR interval associated with a slurred upstroke (delta wave). Note the non-specific ST-T changes which are common in Wolff-Parkinson White and may be mistaken for ischaemia.

Question:

Mr Jain is a 57-year-old patient who has recently seen the practice nurse for his type 2 diabetes annual review. She found his blood pressure (BP) to be raised and he has subsequently borrowed a friend's BP monitor and has done some home readings which he has brought to show you on a spreadsheet. He has already worked out the average BP, which is 141/90mmHg. He has been reading about it on the internet and is keen to commence medication to reduce his cardiovascular risk, especially as he already has diabetes.

Which antihypertensive does NICE recommend for Mr Jain?

A.Alpha-blocker or beta-blocker

B.Angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker

C.Calcium channel blocker

D.No antihypertensive treatment - monitor annually

E.Thiazide-like diuretic

Answer:Angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker

Explanation:

Newly diagnosed patient with hypertension who has a background of type 2 diabetes mellitus - add an ACE inhibitor or an angiotensin receptor blocker regardless of age

Important for meLess important

Alpha-blocker or beta-blocker. This is usually a 4th-line option.

Angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker. This is the correct answer. NICE updated the hypertension guidelines in 2019; one of the changes is that the first-line medication for hypertensive patients with type 2 diabetes is an angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker - regardless of age.

Calcium channel blocker. Prior to the updated NICE guidelines this would have been the correct answer as the patient is aged 55 or over, but now the first-line medication for hypertensive patients with type 2 diabetes is an angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker - regardless of age.

No antihypertensive treatment - monitor annually. Incorrect, this patient has confirmed stage 1 hypertension, and he also has a risk factor (diabetes) which indicates commencing treatment.

Thiazide-like diuretic. This would be a 2nd-line option.

Question:

A 33-year-old woman who is breastfeeding her 3-month-old child presents to the GP for the second time this week. She first presented 24 hours ago with symptoms of pain and redness in one of her breasts.

The patient was advised at the time to continue breastfeeding along with the use of simple analgesia and warm compresses. Symptoms have not improved and she has presented again today. She has no known drug allergies.

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

A.Co-amoxiclav for 10 days

B.Erythromycin for 10 days

C.Flucloxacillin for 10 days

D.Flucloxacillin for 3 days

E.Fluconazole for 3 days

Answer:Flucloxacillin for 10 days

Explanation:

If effective removal of milk has not improved the symptoms of lactational mastitis after 12-24 hours flucloxacillin is the 1st line empirical treatment

Important for meLess important

Flucloxacillin for 10 days is the correct answer. According to NICE guidelines, the management of mastitis in lactating women should first involve supportive measures including continuing to breastfeed, simple analgesia, and the use of warm compresses. In this patient, these measures have not been sufficient and therefore the next step is oral antibiotics as the patient has no features suggesting she is septic or requiring secondary care referral. Flucloxacillin is the first-line antibiotic for mastitis and the recommended antibiotic course is 10-14 days.

Co-amoxiclav for 10 days is incorrect. Co-amoxiclav is the first-line recommendation for antibiotic treatment in women who are not lactating. This should be prescribed 3 times a day for 10-14 days. However, this question's stem clearly states that the patient is lactating.

Erythromycin for 10 days is incorrect. Erythromycin is an appropriate second-line option for a lactating woman suffering from mastitis. This could be used for example in the case of a penicillin allergy. However, this patient clearly states that they have no known drug allergies.

Flucloxacillin for 3 days is incorrect. Flucloxacillin is an appropriate choice of antibiotic for the treatment of mastitis in lactating women. However, this treatment course is too short and flucloxacillin should be prescribed for 10-14 days rather than 3 days.

Fluconazole for 3 days is incorrect. Fluconazole is an anti-fungal agent used in the treatment of conditions such as vaginal candidiasis. It does not have a role in the treatment of mastitis.

Question:

A 10-year-old boy comes in to see his GP with a week history of reduced hearing and worsening otalgia.

Weber's test lateralises to the right ear and Rinne's test is negative in the right ear.

What is the type of hearing loss?

A.Bilateral sensorineural hearing loss, worse on the left

B.Left sided conductive hearing loss

C.Left sided sensorineural hearing loss

D.Right sided conductive hearing loss

E.Right sided sensorineural hearing loss

Answer:Right sided conductive hearing loss

Explanation:

Rinne's test negative means that bone conduction > air conduction and thus there is a conductive hearing loss in that ear

Important for meLess important

Weber's test can lateralise to the right either because the right ear has a conductive hearing loss, or the left ear has a sensorineural hearing loss. Thus, Rinne's test is used to distinguish from these two possibilities. Rinne's test negative means that conduction of sound is greater through bone than air, so there is a conductive hearing loss on the right.

Question:

A 45-year-old office-clerk had come in to see her GP regarding a rash around the right nipple area. She complains that the areola region is itchy and sore. Further questioning also reveals that the rash has been there for 6 weeks and has not improved with E45 cream. She has a history of eczema that is well controlled with E45 only. She also reported that the rash started on the nipple and spreads outwards to the areola On examination the rash looks erythematous and crusty, it does not extend beyond the nipple-areola complex. What further steps should be taken?

A.Prescribe emollient with higher moisturising properties

B.Breast clinic referral to be seen urgently by breast specialist

C.Lifestyle changes

D.Carry on with E45 cream and observe for another 2 weeks

E.Refer for routine dermatology opinion

Answer:Breast clinic referral to be seen urgently by breast specialist

Explanation:

The key to this question is in the history, the rash started on the nipple and spreads outwards involving the areola. Even if she has a history of eczema, this needs urgent attention by a breast consultant to rule out Paget's disease.

Question:

A 45-year-old type 1 diabetic arrives at the GP for his annual diabetic review. Which of the following should be performed in this patient to assess if he has any signs of diabetic nephropathy?

A.Albumin:creatinine ratio (ACR) in an early morning specimen

B.Albumin:creatinine ratio (ACR) in an late night specimen

C.24-hour urinary protein

D.Serum urea and electrolytes

E.Renal ultrasound

Answer:Albumin:creatinine ratio (ACR) in an early morning specimen

Explanation:

All diabetic patients require annual screening for albumin:creatinine ratio (ACR) in early morning specimens

Important for meLess important

This question is asking about the type of screening performed in patients to assess for diabetic nephropathy. Every year diabetics should undergo a diabetic review that will include an albumin:creatinine ratio from an early morning sample as well as other tests and a medication review.

24-hour urinary protein is now an outdated investigation for assessing for proteinuria

Serum urea and electrolytes may be performed in patients however they are not required as part of an annual diabetic review to look for chronic kidney disease.

A renal ultrasound may be ordered if there are other signs of chronic kidney disease present, but will not be used as a screening tool.

Question:

A 56-year-old woman presents with an acutely painful red right eye. She denies any history of foreign body injury and has had no coryzal symptoms. There is a medical history of systemic lupus erythematosus which is currently controlled with hydroxychloroquine. The patient is afebrile and examination reveals an erythematous injected sclera with a bluish hue. The pupils are equal and reactive and the visual acuity is maintained bilaterally. There is no significant discharge noted.

What is the most likely diagnosis in this situation?

A.Acute angle closure glaucoma

B.Episcleritis

C.Foreign body injury

D.Scleritis

E.Viral conjunctivitis

Answer:Scleritis

Explanation:

Scleritis classically presents with an exquisitely tender red-eye in a patient with SLE

Important for meLess important

This patient most likely has scleritis given the autoimmune history, painful red-eye, and bluish hue with no other features consistent with the alternative diagnoses. This is an eye emergency and the patient needs urgent ophthalmology review.

Episcleritis is usually not painful and is not medically concerning. It presents with an erythematous injection of the sclera and usually does not have a blue-violet tinge which occurs with scleritis.

Acute angle closure glaucoma is a valid differential in cases of an acutely painful red eye. This patient has clear and reactive pupils. In acute glaucoma, the pupils would be expected to be sluggish and the cornea hazy. In any case, the intraocular pressure should be checked to exclude this diagnosis.

A foreign body injury is also a valid differential in this situation. The fact that there is no recalled history of eye injury and no discharge from the eye detracts from making this diagnosis.

Viral conjunctivitis is a less likely differential in this situation. There are no features of a coryzal illness which would be typical with viral conjunctivitis and there is no discharge which is a characteristic feature of conjunctivitis.

Question:

A 32-year-old man is involved in a motorcycle accident and sustains a closed unstable spiral tibial fracture. This is managed with an intramedullary nail. On return to the ward he is noted to have increasing pain in the limb and on examination the limb is swollen and tender with pain on passive stretching of the toes. The most likely diagnosis is:

A.Tibial nerve neuropraxia

B.Displaced tibial nail

C.Compartment syndrome

D.Deep vein thrombosis

E.Sciatic nerve injury

Answer:Compartment syndrome

Explanation:

Severe pain in a limb should raise suspicions of compartment syndrome especially in tibial fractures following fixation with intra medullary devices.

Question:

A 33-year-old woman who is 32 weeks pregnant is referred to the obstetrics team as she has had a two-week history of itchy hands and feet with no rash present. This is often worse at night for her and she also has elevated liver function tests, with a bile acid level of 106mmol/l.

In view of the history and results above, a discussion is offered by the obstetrician with this patient regarding induction of labour (IOL) after which week of gestation?

A.34 weeks

B.35 weeks

C.36 weeks

D.37 weeks

E.39 weeks

Answer:37 weeks

Explanation:

Intrahepatic cholestasis of pregnancy increases the risk of stillbirth; therefore induction of labour is generally offered at 37-38 weeks gestation

Important for meLess important

The symptoms and blood results above in a pregnant woman who is in the third trimester would point to a diagnosis of obstetric cholestasis. Although this typically occurs beyond 30 weeks gestation, symptoms can sometimes occur earlier than this. The main concern is the foetal risk of intrauterine death in obstetric cholestasis.

According to the Royal College of Obstetricians and Gynaecologists (RCOG), a discussion should take place with women regarding induction of labour after 37+0 weeks of gestation. However, in most cases, IOL is best avoided unless there are significantly deranged LFT's/bile acid levels. Women should be informed that the case for intervention (after 37+0 weeks of gestation) may be stronger in those with more severe biochemical abnormality (transaminases and bile acids).

Induction of labour is not advised nor recommended at earlier gestation periods (prior to 37 weeks) hence, 34, 35, and 36 weeks is the incorrect answer.

Literature has supported the IOL from 37 weeks and beyond when balancing the risk of early delivery vs the risk of obstetrics cholestasis complications and so IOL at 39 weeks may be too late in the gestation period and is therefore incorrect.

Question:

Each one of the following is a recognised complication of gastro-oesophageal reflux disease, except:

A.Oesophageal carcinoma

B.Barrett's oesophagus

C.Anaemia

D.Achalasia

E.Benign strictures

Answer:Achalasia

Explanation:

Question:

A 14-year-old boy who plays basketball begins to experience pain whilst playing. He attends his GP and is diagnosed with Osgood-Schlatter disease.

This condition occurs as a result of inflammation at which bony prominence?

A.Fibular head

B.Greater trochanter

C.Ischial tuberosity

D.Medial femoral condyle

E.Tibial tuberosity

Answer:Tibial tuberosity

Explanation:

Osgood-Schlatter disease is a type of osteochondrosis caused by inflammation (apophysitis) at the tibial tuberosity

Important for meLess important

Palpating the tibial tuberosity often reveals the diagnosis. This condition is very common in young, active children.

Trochanteric tenderness may occur in trochanteric bursitis.

Tenderness below the patella on examination suggests patellar tendonitis.

The medial femoral condyle may be affected in sporting injuries.

Fibular head pain is uncommon.

Question:

A 35-year-old man has been recently diagnosed with Hodgkin's lymphoma. He started the first day of his chemotherapy yesterday, but since then has not been feeling well. The FY2 on the ward checked his U&E and found some abnormalities including hyperkalaemia, hyperphosphataemia and hypocalcaemia. Which of the following is used as prophylaxis against the complication this man has suffered?

A.Allopurinol

B.Dexamethasone

C.Loop diuretics

D.Radiotherapy

E.Thiazide-like diuretics

Answer:Allopurinol

Explanation:

High potassium, high phosphate, and low calcium are the metabolic abnormalities in tumour lysis syndrome

Important for meLess important

The history above is clearly that of tumour lysis syndrome- person with lymphoma being started on chemotherapy with high potassium, high phosphate, and low calcium. The most commonly used prophylaxis is allopurinol (either IV or oral), with rasburicase an alternative. Diuretics are not used for many reasons, including the fact they will worsen any acute kidney injury. Steroids and radiotherapy are actually rare causes of tumour lysis syndrome.

Question:

A 26-year-old male patient has been referred for EMG testing following ongoing muscle weakness. The results showed a diminished response with repetitive stimulation.

Which of the following conditions would account for these results?

A.Lambert-Eaton syndrome

B.Myotonic syndrome

C.Motor neurone disease

D.Guillain-Barré

E.Myasthenia gravis

Answer:Myasthenia gravis

Explanation:

Myasthenia gravis is associated with a diminished response to repetitive stimulation on EMG

Important for meLess important

Myasthenia gravis is an autoimmune condition causing destruction of acetylcholine receptors at the neuromuscular junction leading to impaired transmission. This is evidenced clinically by rapid fatiguing of the muscles which explains the EMG results shown here.

Lambert-Eaton syndrome is a rare autoimmune condition that also affects the neuromuscular junction but muscle strength tends to improve after exercise and EMG will show incremental response to repetitive stimulation.

Motor neurone disease is a neuropathy, as is Guillain-Barré, so both will show increased action potential duration and amplitude on EMG.

Myotonic syndrome will show extended series of repetitive discharges lasting up to 30 seconds.

Question:

A 72 year-old woman presents to the GP with an itchy, sore white plaque on her vulva. The patient has a past medical history of type 1 diabetes and no personal or family history of cancer. Which of the following is the most likely diagnosis?

A.Vitiligo

B.Lichen sclerosus

C.Vulval dermatitis

D.Squamous cell carcinoma of the vulva

E.Vaginal thrush

Answer:Lichen sclerosus

Explanation:

This patient has the characteristic description of lichen sclerosus which is more commonly seen in elderly women. Diagnosis is made on clinical findings. Lichen sclerosus is associated with other autoimmune conditions and as such the history of type 1 diabetes is relevant.

Vitiligo is an autoimmune skin condition that involves a loss of skin pigment, this would not cause pain or itch if present in the vulva. While vaginal thrush may cause an itchy and uncomfortable vulva, it does not present as single or multiple white plaques on the vulval skin. Similarly, vulval dermatitis is more likely to present with erythema rather than pale plaques. Squamous cell carcinoma of the vulva can present with a similar picture to lichen sclerosus but as the question asks which is more likely, this is not the correct answer.

Guidelines: http://www.bashh.org/documents/113/113.pdf

Question:

A 74-year-old man presents with severe haematemesis. His blood pressure is 86/44 mmHg with a heart rate of 128/min. This patient has a past medical history of atrial fibrillation (AF) and a gastric ulcer thirty years ago. He is currently taking dabigatran for his AF. Although he is prescribed omeprazole, he says that he stopped taking this due to diarrhoea. The patient is given initial management including blood transfusion and immediate endoscopy is arranged.

You are concerned that dabigatran is exacerbating the bleeding and would like to reverse its effect.

What is the most appropriate medication to start?

A.Oral omeprazole

B.Idarucizumab

C.Vitamin K

D.Terlipressin

E.Protamine sulphate

Answer:Idarucizumab

Explanation:

Bleeding on dabigatran? Can use idarucizumab to reverse

Important for meLess important

Idarucizumab is a monoclonal antibody used to reverse the effects of dabigatran. It is licensed for use in the context of life-threatening bleeding as is the case in this patient.

Oral omeprazole is inappropriate in the context of haematemesis in a patient about to undergo endoscopy. Typically intravenous proton-pump inhibitors (PPI) are used in acute upper gastrointestinal bleeding.

Vitamin K is used to reverse the effects of warfarin, which this patient is not taking.

Terlipressin is used in the context of variceal bleeding. This patient has no history of liver cirrhosis, portal hypertension or variceal bleeding. Moreover, he has a history of previous gastric ulceration and has stopped his PPI, which would explain the bleeding.

Protamine sulphate is used to reverse unfractionated heparin, which this patient is not taking.

Question:

A 38-year-old man is admitted to the Emergency Department with shortness-of-breath and a non-productive cough. He has recently emigrated from Russia and has just started anti-retroviral therapy for HIV.

Examination of his chest is unremarkable. His temperature is 37.7ºC and oxygen saturations are 95% on room air.

A chest x-ray is performed:

© Image used on license from Radiopaedia

What is the most likely diagnosis?

A.Rhinovirus infection causing common cold

B.Mediastinal lymphoma

C.Heart failure secondary to anti-retroviral medication

D.Pulmonary embolism

E.Pneumocystis jiroveci pneumonia

Answer:Pneumocystis jiroveci pneumonia

Explanation:

The key to answering this question is to look at the history rather than the x-ray. A combination of HIV + chest symptoms + unremarkable auscultatory findings in an exam are highly suggestive of Pneumocystis jiroveci pneumonia (more commonly known as PCP). X-ray changes in Pneumocystis jiroveci pneumonia are generally too subtle for non-radiologists to detect. The x-ray should however help you to exclude some of the other diagnoses.

The chest x-ray shows hazy, perihilar mid and upper zone opacification with some interstitial prominence. A few discrete cysts (termed pneumatocoeles) measuring up to 1cm are present. The presence of pneumatocoeles in a HIV patient suggests Pneumocystis jiroveci pneumonia.

Whilst the common cold is by definition a prevalent diagnosis in all patients (whether they have HIV or not) it would not explain the low oxygen saturations.

Question:

A 75-year-old man presents to the emergency department with his partner after a fall. A collateral history is taken. At the time, he tripped over a loose rug and fell, with his head hitting the ground first, and lost consciousness for 2 minutes. On examination, there is upper limb bruising, no neurological deficits, and his Glasgow coma score (GCS) is 15. The patient himself recalls the events prior to and after the fall, and has not vomited or had a seizure since the fall and there are no signs of a skull fracture. He has a past medical history of hypertension controlled with amlodipine.

What is the next best step?

A.Discharge with safety-netting and advice

B.Perform CT head within 1 hour

C.Perform CT head within 8 hours

D.Perform MRI head within 1 hour

E.Perform MRI head within 8 hours

Answer:Perform CT head within 8 hours

Explanation:

All patients > 65-years-old who experienced some loss of consciousness or amnesia following a head injury should have a CT scan

Important for meLess important

Perform CT head within 8 hours is correct. Head injuries commonly present in the emergency department and in exams, and it is important to assess the risk of the patient developing complications of the head injury. NICE has set out specific guidelines to assist in deciding who should be offered a CT head. This patient does not have any features that would warrant an immediate CT head (e.g. GCS <13 on initial assessment, suspected skull fractures, seizures, focal neurological deficits, or vomiting), however at the time of the injury, he lost consciousness. Although there is no amnesia of the events before and after the fall, he lost consciousness during it and NICE recommends that any patient >65 years of age who experiences a loss of consciousness or amnesia following a fall should be offered a CT head 8 hours post-injury. This can help identify potential causes or complications that arise due to the fall (e.g. intracranial bleeds).

Perform CT head within 1 hour is incorrect. This would be indicated if the patient had features such as a GCS <13 on initial assessment, suspected skull fractures, seizures, focal neurological deficits, or vomiting. These do not apply to this patient, however, the patient lost consciousness during the fall and is >65 years of age. NICE recommends that any patient >65 years of age who experiences a loss of consciousness or amnesia following a fall should be offered a CT head 8 hours post-injury. This can help identify potential causes or complications that arise due to the fall (e.g. intracranial bleeds).

Perform MRI head within 8 hours is incorrect. An MRI is not the first investigation of choice following a head injury as this can take time and delay potential treatment.

Perform MRI head within 1 hour is incorrect. An MRI is not the first investigation of choice following a head injury as this can take time and delay potential treatment.

Discharge with safety-netting and advice is incorrect. Due to this patient being over 65 years of age and losing consciousness during the fall, it would be inappropriate to discharge him without further investigation. NICE recommends that any patient >65 years of age who experiences a loss of consciousness or amnesia following a fall should be offered a CT head 8 hours post-injury. This can help identify potential causes or complications that arise due to the fall (e.g. intracranial bleeds).

Question:

A 69-year-old man attended his GP complaining of easy bruising, loss of appetite and weight loss that had worsened over the last 6 months. On examination, he had extensive non-tender lymphadenopathy affecting cervical and axillary nodes and hepatosplenomegaly. Suspecting haematological malignancy, his GP sends for an urgent full blood count and a peripheral blood smear. The results suggest a likely diagnosis of chronic lymphocytic leukaemia (CLL).

Which of the following cell types was most likely seen on the patient’s blood film?

A.Smear/smudge cells

B.Reed-Sternberg cells

C.Rouleaux formation

D.Auer Rods

E.Pseudo Pelger-Huet cells

Answer:Smear/smudge cells

Explanation:

Smear cells (also called smudge cells) are a characteristic blood film finding of CLL

Important for meLess important

Smudge or smear cells are cell remnants that arise during slide preparation and are the result of abnormally fragile lymphocytes in CLL.

Reed-Sternberg cells are associated with Hodgkin's lymphoma.

Rouleaux formation is associated with multiple myeloma.

Auer rods are a feature of AML.

Pseudo Pelger-Huet cells arise in CML.

Question:

A 76-year-old man presents to his GP complaining of widespread pain in his bones. This has been ongoing for a few months. On examination, he has proximal muscle weakness and spinal tenderness on palpation. Blood results are shown below:

Calcium 1.98 mmol/L (2.1-2.6)

Phosphate 0.62 mmol/L (0.8-1.4)

ALP 130 IU/L (30 - 100)

Parathyroid hormone 7.1 pmol/L (1.6-6.9)

What is the most likely diagnosis?

A.Osteomalacia

B.Osteopetrosis

C.Osteoporosis

D.Paget's disease

E.Primary hyperparathyroidism

Answer:Osteomalacia

Explanation:

Low serum calcium, low serum phosphate, raised ALP and raised PTH - osteomalacia

Important for meLess important

The correct answer is osteomalacia. This patient is displaying symptoms of osteomalacia. Most patients with vitamin D deficiency and osteomalacia have elevated parathyroid levels with normal or low serum calcium. This hyperparathyroidism is described as secondary hyperparathyroidism and resolves with the correction of vitamin deficiency.

Osteopetrosis is incorrect. It is a rare disorder that causes bones to grow abnormally and become overly dense, and blood tests would show normal calcium, phosphate, ALP and parathyroid hormone (PTH).

Osteoporosis is incorrect. Osteoporosis is a systemic skeletal disorder characterized by low bone mass, micro-architectural deterioration of bone tissue leading to bone fragility, and consequent increase in fracture risk. Blood tests would show normal calcium, phosphate, ALP and PTH.

Paget's disease is incorrect. Paget's disease of bone disrupts the normal cycle of bone renewal, causing bones to become weakened and possibly deformed. Blood tests would show normal calcium, phosphate and PTH with raised ALP due to increased osteoblastic activity and bone formation.

Primary hyperparathyroidism is incorrect. This is a condition in which one or more of the parathyroid glands makes too much hormone, and blood tests would reveal a high PTH, ALP and calcium with decreased phosphate. This is due to the phosphaturic effects of the parathyroid hormone.

Question:

A 22-year-old woman presents with widespread bruising and bleeding gums. She also complains of increasing lethargy over the last week.

Blood results are as follows:

Hb 96 g/L Male: (135-180)

Female: (115 - 160)

Platelets 28 \* 109/L (150 - 400)

WBC 1.4 \* 109/L (4.0 - 11.0)

Neuts 0.1 \* 109/L (2.0 - 7.0)

Prothrombin time (PT) 28 secs (10-14 secs)

Activated partial thromboplastin time (APTT) 64 secs (25-35 secs)

Fibrinogen 0.6 g/L (2 - 4)

D-Dimer 80,640 ng/mL (< 400)

A CT scan is performed:

CT head Right-sided intracerebral haemorrhage

What mutation would be expected on genetic analysis?

A.t(11,14)

B.t(14,18)

C.t(15;17)

D.t(8,14)

E.t(9,22)

Answer:t(15;17)

Explanation:

Acute promyelocytic leukaemia - t(15;17)

Important for meLess important

t(15;17) is correct. The presence of pancytopenia with DIC should immediately alert you to the possibility of acute promyelocytic leukaemia (APML). Acute promyelocytic leukaemia is characterised by t(15;17), which results in the fusion of the promyelocytic leukaemia (PML) gene at 15q22 with the retinoic acid α‑receptor (RARA) gene at 17q21. It is a haematological emergency which requires prompt diagnosis and treatment.

t(11,14) is incorrect. This translocation is associated with mantle cell lymphoma. Mantle cell lymphoma generally presents with lymphadenopathy and B-symptoms. Bowel involvement is also common (e.g. GI bleeding). Whilst pancytopenia can occur due to marrow infiltration, the presence of a profound coagulopathy, and the absence of B-symptoms and lymphadenopathy favours the diagnosis of APML.

t(14,18) is incorrect. This translocation is associated with follicular lymphoma. Follicular lymphoma is a low-grade B-cell lymphoma which presents with lymphadenopathy and B symptoms. Whilst pancytopenia can occur due to marrow infiltration, the presence of a profound coagulopathy, and the absence of B-symptoms and lymphadenopathy favours the diagnosis of APML.

t(8,14) is incorrect. This translocation is associated with Burkitt's lymphoma. Burkitts's lymphoma is an aggressive high-grade B-cell lymphoma which presents with rapidly enlarging lymphadenopathy and B-symptoms. Bowel involvement is also common (e.g. GI bleeding and obstruction). The absence of B-symptoms and lymphadenopathy favours the diagnosis of APML.

t(9,22) is incorrect. This translocation is associated with chronic myeloid leukaemia. This condition is a type of myeloproliferative disorder which would present with leukocytosis and thrombocytosis. The absence of leukocytosis and thrombocytosis favours the diagnosis of APML.

Question:

A 68-year-old male presents to the emergency department with a two-hour history of crushing left-sided chest pain radiating to the jaw. He has a past medical history of dyslipidaemia and hypertension. You perform an electrocardiogram and serum troponin which confirm an anterior ST-elevated myocardial infarction (STEMI). The nearest primary percutaneous coronary intervention (PPCI) centre is three hours away by ambulance.

What is the most appropriate management of this patient?

A.Offer urgent fibrinolysis

B.Prescribe medical therapy with aspirin and ticagrelor

C.Refer the patient for urgent coronary artery bypass graft

D.Transfer the patient for PPCI to be performed as soon as possible

E.Refer the patient for PPCI to be performed within 72 hours of admission

Answer:Offer urgent fibrinolysis

Explanation:

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

Important for meLess important

The correct answer is to offer urgent fibrinolysis.

Patients with acute ST-elevation myocardial infarction (STEMI) should be offered primary percutaneous coronary intervention (PPCI) if they present within 12 hours symptom onset symptoms (which is the case here) and primary PCI can be delivered within 120 minutes of the time when fibrinolysis could be given.

In this case, the patient has presented within 12 hours of onset, but primary PCI cannot be delivered within 120 minutes. Therefore thrombolysis should be given in favour of PPCI.

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

'Refer the patient for urgent coronary artery bypass graft (CABG) surgery' is incorrect as this has no role in immediate revascularisation post-STEMI.

'Transfer the patient for PPCI to be performed as soon as possible' is unsuitable for the reasons above - it would take longer than 120 minutes to deliver.

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

Question:

A 27-year-old patient presents with new-onset paralysis 4 weeks after being in a road traffic accident. At the time, they were discharged from the hospital with no injuries.

They now cannot move their right leg and left arm. This paralysis came on when they woke up this morning, and they were fine the night before. This new paralysis is associated with significant distress, but no pain.

On examination, there is no visible injury, normal and equal tone, and intact sensation in all 4 limbs. All upper and lower limb reflexes are normal. Power in the right leg and left arm were MRC 0/5 but the contralateral limbs were MRC 5/5. Hoover's sign is positive on the affected leg. A cranial nerve exam is unremarkable.

What is the likely diagnosis?

A.Conversion disorder

B.Factitious disorder

C.Lacunar stroke

D.Malingering

E.Somatisation disorder

Answer:Conversion disorder

Explanation:

Conversion disorder - typically involves loss of motor or sensory function. May be caused by stress

Important for meLess important

Conversion disorder is normally a neurological symptom presenting after a period of stress. This patient has presented after a stressful accident. There appears to be a level of functional paralysis, as she has no capability for voluntary movement, but involuntary movements are possible due to present reflexes and positive Hoover's sign. Hoover's sign is a compensatory movement of the other leg, due to synergistic contraction - when the unaffected leg is flexed against resistance, the affected leg involuntarily extends.

Factitious disorder is the feigning of symptoms in order to receive compassion from healthcare professionals - in this scenario, conversion disorder is more likely due to the presenting symptom being neurological, and the recent stressful event. Additionally, the presence of Hoover's sign points more towards conversion disorder. A patient who is feigning paralysis would not have Hoover's sign positive, as when asked to try and move their leg, they would not try to do so.

Lacunar strokes would not appear delayed to the accident, and also would not present with this pattern of paralysis - it may cause paralysis on one side with contralateral sensory loss.

Malingering is not likely as there is nothing at this stage to suggest the patient is going to be gaining anything because of this presentation.

Somatisation disorder could follow this presentation but would need to have multiple, recurring and frequently changing presenting complaints for at least 2 years.

Question:

A 51 year old man presents with symptoms of dyspepsia intermittently over the past few months. He denies any symptoms of bleeding, dysphagia or weight loss, does not drink alcohol and is normally fit and well. He is not on any current repeat medication and has only been taking antacids over the counter which do help a little with his symptoms. Examination is normal. What ongoing management should you recommend?

A.Proton pump inhibitor

B.H2-receptor antagonist

C.Refer for endoscopy

D.Faecal occult blood testing

E.Alginate

Answer:Proton pump inhibitor

Explanation:

Question:

A 58-year-old woman presents with facial redness. This has been worsening since her holiday to Spain but she is otherwise asymptomatic.

She has a background of hypertension and takes amlodipine 5mg OD. She has no allergies and has not started any new medications recently.

On examination, telangiectasia are present with papules and pustules clustered around her nose and cheeks. She is afebrile.

What is the most likely diagnosis?

A.Acne vulgaris

B.Drug reaction

C.Erysipelas

D.Rosacea

E.Systemic lupus erythematous

Answer:Rosacea

Explanation:

Rosacea features:

nose, cheeks and forehead

flushing, erythema, telangiectasia → papules and pustules

Important for meLess important

This is a typical example of acne rosacea, presenting as a pronounced facial rash in middle-age, which has worsened after recent exposure to sunlight on holiday. Telangiectasia are common, which later develop into papules and pustules on the nose, cheeks and forehead.

Acne vulgaris is a good differential, however, this usually presents with skin lesions in adolescence. While rosacea is usually limited to the face, acne vulgaris can additionally affect the neck, chest and back.

Drug reactions take various forms, including urticarial rashes or – at the more extreme end of the spectrum – Stevens-Johnson syndrome. There is however no indication of new a medication being started and cutaneous adverse reactions to calcium channel blockers are extremely rare.

Erysipelas is a superficial cellulitis caused by group A beta-haemolytic streptococci. It has a characteristic butterfly distribution on the cheeks with a sharp, raised border. The skin appears firm, bright red and swollen.

Systemic lupus erythematous similarly presents with a butterfly-shaped rash across the cheeks and bridge of the nose, which tends to have a purple hue. This is an important differential to consider but, without clues towards multi-system involvement, rosacea is the most likely diagnosis.

Question:

An 80-year-old female is seen on the ward complaining of severe nausea. She is unable to keep food down because she feels too sick and is asking for medication to help her feel better. She is being currently managed by the palliative care team because of incurable late stage lunge cancer with secondary cerebral metastases.

What is the most appropriate management?

A.Cyclizine

B.Domperidone

C.Lorazepam

D.Metoclopramide

E.Ondansetron

Answer:Cyclizine

Explanation:

Cyclizine is a good first line anti-emetic for intracranial causes of nausea and vomiting

Important for meLess important

The most likely cause of this woman's nausea is due to her intracranial metastases. As a result, the most appropriate management to treat this nausea is cyclizine. Cyclizine is a histamine H1-receptor antagonist with direct effects on the vestibular system and chemoreceptor trigger zone. These zones, when activated by, for example, direct pressure from cerebral metastases, can cause nausea and vomiting.

Domperidone and metoclopramide are the recommended first line medications for nausea resulting from gastric dysmotility and stasis.

Lorazepam may be an effective treatment for anticipatory nausea.

Ondansetron is one of the first-line medications for the treatment of chemically mediated nausea, such as due to opioid medications.

Question:

A 35-year-old man presents to the emergency department following an episode of syncope.

An ECG is performed, which demonstrates sinus rhythm at rate 85 bpm. The QRS duration is 110 ms, PR interval is 180ms and corrected QT interval is 500ms.

Of the following, what is the cause for the abnormality seen on the ECG?

A.Cyclizine

B.Hypercalcaemia

C.Hypokalaemia

D.Pyrexia

E.Subdural haemorrhage

Answer:Hypokalaemia

Explanation:

Hypokalaemia can lead to long QT syndrome

Important for meLess important

The abnormality seem on the patient's ECG is a prolonged corrected QT interval. A normal corrected QT interval is less than 430 ms in males and 450 ms in females.

Long QT syndrome commonly presents in young people, as cardiac syncope, tachyarrhythmias, palpitations or cardiac arrest.

Long QT syndrome may occur both as a result of inherited mutations (resulting in channelopathies affecting myocardial repolarisation) or due to acquired causes.

Acquired causes include:

Electrolyte imbalance: hypokalaemia, hypocalcaemia and hypomagnesaemia

Medications: in addition to those listed in the subject notes below: tramadol, metoclopramide and domperidone.

CNS lesions: subarachnoid haemorrhage and ischaemic stroke

Malnutrition

Hypothermia

In this scenario, hypokalaemia is the only cause listed of long QT syndrome.

Hypercalcaemia is associated with a shortened QT interval.

Question:

A 22-year-old woman presents to her general practitioner with some green, foul-smelling vaginal discharge. It has been present for the last month and it is associated with pain. She is sexually active and had non-protected intercourse two months ago. She is not on any contraception. After a negative pregnancy test, the doctor performs a vaginal examination and measures the vaginal pH that is equal to 5.2.

Which one of the following is the most likely organism causing her symptoms?

A.Candida albicans

B.Chlamydia trachomatis

C.Neisseria gonorrhoeae

D.Treponema pallidum

E.Trichomonas vaginalis

Answer:Trichomonas vaginalis

Explanation:

Trichomonas vaginalis + bacterial vaginosis are associated with a pH > 4.5

Important for meLess important

The correct answer is Trichomonas vaginalis. Trichomonas vaginalis and bacterial vaginosis have similar symptoms and are associated with a vaginal pH > 4.5. It usually presents with offensive, yellow/green, and frothy discharge, accompanied by vulvovaginitis and strawberry cervix.

Candida albicans is the bacteria responsible for candidiasis. This would present as 'cottage cheese', non-offensive discharge, whilst here the patient is complaining of foul-smelling vaginal discharge.

Chlamydia trachomatis is the organism responsible for Chlamydia. This condition is symptomatic in 70% of women and 50% of men. When symptomatic in women it causes cervicitis and dysuria, none of which are seen above.

Neisseria gonorrhoeae is the causative organism of gonorrhoea. The classic symptom of this disease in women is cervicitis. This patient has pain but the discharge and vaginal pH point more towards a diagnosis of Trichomonas vaginalis.

Treponema pallidum is the causative organism of syphilis. The most common symptom of this disease is a chancre, a painless ulcer at the site of sexual contact. This patient has no lesions.

Question:

A 24-year-old man presents to the sexual health clinic for review. He reports a two-day history of dysuria and yellow-green urethral discharge. He is normally fit and well, with no past medical history. He reports that he had unprotected sexual intercourse ten days before.

Urethral swabs are taken and sent off for culture and sensitivities. Preliminary results are shown below:

Urethral swab Gram-negative diplococci

Based on the likely diagnosis, what is the most appropriate treatment for this patient?

A.Intramuscular ceftriaxone

B.Intramuscular ceftriaxone and oral azithromycin

C.Oral ceftriaxone

D.Oral ciprofloxacin

E.Oral doxycycline

Answer:Intramuscular ceftriaxone

Explanation:

Intramuscular ceftriaxone is the treatment of choice for Gonorrhoea

Important for meLess important

The correct answer is intramuscular ceftriaxone. This patient has classic symptoms of gonorrhoeal infection: namely, dysuria and urethral discharge, which may be white, yellow or green in colour. The diagnosis of Gonorrhoea infection is favoured over other sexually transmitted infections such as Chlamydia trachomatis by the presence of gram-negative diplococci, suggestive of Neisseria gonorrhoeae. As of 2019, the recommended first-line treatment for Gonorrhoea infection without any information on microbiological sensitivities is a single dose of intramuscular ceftriaxone.

Intramuscular ceftriaxone and oral azithromycin is incorrect. This was previously advised by the British Society for Sexual Health and HIV (BASHH), but as of 2019, up-front azithromycin in the absence of any sensitivity data is not recommended.

Oral ceftriaxone is incorrect. Oral ceftriaxone is not licensed for the treatment of gonorrhoeal infection.

Oral ciprofloxacin is incorrect. Due to high levels of ciprofloxacin resistance amongst gonorrhoeal infections in the UK, ciprofloxacin monotherapy is not recommended in the absence of sensitivity data suggesting that the causative organism is susceptible.

Oral doxycycline is incorrect. This would be an appropriate first-line antibiotic regimen for Chlamydia trachomatis rather than gonorrhoeal infection.

Question:

A 19-year-old man presents to his general practitioner complaining of increased thirst throughout the day. He has found it increasingly difficult to do everyday tasks around the house. Recently he was treated for a urinary tract infection with ciprofloxacin. The patient's father has a history of diabetes, but when questioned about this further, he wasn't sure which type of diabetes it was. He also mentions that he drinks about 8 units of alcohol a week, mostly on weekends with friends.

Fasting plasma glucose 17.1 mmol/L (3.9-5.6)

Ketone bodies 0.4 mmol/L (< 0.6 mmol/L)

C-Peptide level 2.87 ng/mL (0.51-2.72)

Given the patient's presentation, what is the most likely diagnosis?

A.Acute liver failure

B.Acute pancreatitis

C.Diabetic ketoacidosis

D.Type 1 diabetes

E.Type 2 diabetes

Answer:Type 2 diabetes

Explanation:

C-peptide levels and diabetes-specific autoantibodies are useful to distinguish between type 1 and type 2 diabetes

Important for meLess important

Type 2 diabetes is the correct answer. Polydipsia is seen in patients with a fasting plasma glucose of >16.6 mmol/L. The increasing fatigue is also a characteristic symptom. Whilst older patients are at risk of type 2 diabetes, the incidence of type 2 diabetes in children and adolescents is increasing. The elevated fasting plasma glucose points towards diabetes and we can use the C-peptide level to deduce that it is type 2. In type 1 diabetes, we would expect a low or undetectable level of plasma C-peptide due to absolute insulin deficiency. The elevated levels here point towards type 2 diabetes.

Acute liver failure is not the correct answer. We would expect signs such as jaundice, coagulopathy, and hepatic encephalopathy. Patients with acute liver failure also tend to be over 40 which doesn't match our patient here. Our patient does also not have a significant intake of alcohol which is a pertinent risk factor for the development of ALF. This patient is also presenting with hyperglycemia and conversely, ALF tends to cause hypoglycemia.

Acute pancreatitis is not the correct answer. We would expect to see the characteristic mid epigastric or left upper quadrant pain, which often radiates to the back. Nausea and vomiting are also seen in around 80% of patients. This option would also not explain the polydipsia and C-peptide level.

Diabetic ketoacidosis is also incorrect. DKA is an acute metabolic complication of diabetes. It tends to occur in patients with a known diagnosis of type 1 diabetes and will present with nausea and/or vomiting, abdominal pain, and hyperventilation at later stages. Infection is the most common precipitating factor and whilst the recent UTI in our patient supports this, the other aspects of the presentation do not support this differential, such as the low ketone levels. We would expect this to be raised in diabetic ketoacidosis.

Type 1 diabetes is incorrect. While other aspects of the presentation fit this differential, we would expect a low or undetectable C-peptide level due to the absolute insulin deficiency.

Question:

A 55-year-old woman presents to the GP with a 3-month history of breathlessness on exertion, fatigue and ankle swelling. She reports that she requires 2 pillows to sleep at night. Her past medical history is significant only for a feverish illness 4-months previously. On examination, there is a mid-diastolic murmur present and a loud S1 opening snap consistent with mitral stenosis. You also notice an annular erythematous rash on her chest. On further investigation, her ECG reveals signs of right ventricular hypertrophy and P-mitrale.

Which is the most likely cause of her clinical findings?

A.Congenital defect

B.Infective endocarditis

C.Libman-Sacks endocarditis

D.Mucopolysaccharidoses

E.Rheumatic fever

Answer:Rheumatic fever

Explanation:

Rheumatic fever is the most common cause of mitral stenosis

Important for meLess important

This patient has mitral stenosis characterised by her signs of heart failure, mid-diastolic murmur and loud S1 opening snap. Her ECG findings of right ventricular hypertrophy and P-mitrale further support the diagnosis.

The underlying cause of mitral stenosis in this patient is most likely to be rheumatic fever. This is suggested by the prodromal illness and the annular (ring-like) erythematous rash, commonly known as erythema marginatum. The rash commonly affects the trunk and inner surfaces of the arms and legs and can persist for several months. The rings are barely raised and are non-pruritic. Erythema marginatum is pathognomonic for rheumatic fever. Please note, the face is generally spared.

Complications of rheumatic fever include valvulitis which can lead to valvular damage, particularly stenosis of the mitral valve.

The other options are less common causes of mitral stenosis:

Congenital defect- this would be apparent in children and infants who present with recurrent respiratory infections, failure to thrive, orthopnoea, and dyspnoea.

Infective endocarditis- this may present with a fever, history of intravenous drug use, predisposing heart condition, and vascular phenomena including emboli, clubbing and splinter haemorrhages.

Libman-Sacks endocarditis- this is a cause of non-infectious endocarditis, usually found in patients who have a history suggestive of SLE. Skin changes such as a discoid rash may be present, but this would usually affect the face, neck and scalp.

Mucopolysaccharidoses- these are a rare group of inherited storage disorders which may present with short stature, bone dysplasia, learning difficulties and recurring respiratory infections. Many patients may also have enlarged or diseased heart valves.

Question:

A 15-year-old girl presents to her GP as she has been suffering with wheeze and shortness of breath on exertion. She has also had a night-time cough for the past year. There is a family history of eczema and she suffers from a peanut allergy.

She undergoes spirometry testing, the results of which are normal with no bronchodilator reversibility.

What is the next best step for this patient?

A.Consider an alternative diagnosis

B.Fraction of exhaled nitrous oxide (FeNO) testing

C.Peak flow variability monitoring

D.Serum IgE testing

E.Start a salbutamol inhaler

Answer:Fraction of exhaled nitrous 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

FeNO testing is correct. This is the next investigation in children aged 5-16 who have a normal spirometry result but a high clinical suspicion of asthma. A positive test is a result of ≥ 35ppm.

Consider an alternative diagnosis is incorrect. A negative spirometry result does not exclude asthma as a diagnosis, especially in this patient who has a very typical history of asthma, so clinical suspicion would remain high.

Peak flow variability monitoring is incorrect. Peak flow can be measured over 2-4 weeks in children being investigated for asthma, however, according to NICE guidance, FeNO testing should be performed first and this test is reserved for those with normal FeNO levels.

Serum IgE testing is incorrect. Although it may be used in the investigation of asthma, FeNO testing is usually performed first due to its higher specificity. Furthermore, this patient has a peanut allergy and therefore may already have high serum IgE.

Starting a salbutamol inhaler is incorrect. It would be the first-line management if this patient were to be diagnosed with asthma, however, it is important to confirm the diagnosis first with FeNO testing.

Question:

A 54-year-old man presents to his GP with a rash.

On examination, he has several well-demarcated purple papules on his forearms. The papules have thin visible white lines running across them. The patient describes the lesions as very itchy, but not painful, and is keen to know if there is anything that can help with the symptoms.

What is the most appropriate management?

A.No treatment required

B.Oral steroids

C.Topical retinoids

D.Topical steroids

E.Topical vitamin D analogues

Answer:Topical steroids

Explanation:

Potent topical steroids are the first-line treatment for lichen planus

Important for meLess important

Topical steroids is correct. The rash described is lichen planus, characterized by itchy purple polygonal papules. The white lines are Wickham's striae. Lichen planus can persist for up to 18 months, and topical steroids are the first-line treatment.

Oral steroids is incorrect. The itching of lichen planus usually responds well to topical steroids. Oral steroids may be required in severe or extensive disease, but this is not seen here.

No treatment required is incorrect. While lichen planus may resolve spontaneously, it can take up to 18 months and this patient is asking for help with the symptoms of itching. Topical steroids is therefore the correct option.

Topical retinoids is incorrect. The rash described here is lichen planus. Topical retinoids are used in acne vulgaris.

Topical vitamin D analogues is incorrect. The rash described here is lichen planus. Topical vitamin D analogues are used in plaque psoriasis.

Question:

On a ward round you see a 70-year-old female who’s recently had a resection of her bowel for colon cancer, and has been bed bound for several days. She complains of a sore, red calf, and a feeling of breathlessness. A pulmonary embolism is suspected, and a CT-pulmonary angiogram (CTPA) is ordered, however it comes back negative for a pulmonary embolism (PE).

What is the next most appropriate action to aid diagnosis?

A.Perform a D-dimer test

B.Perform a proximal leg vein doppler ultrasound

C.Perform a ventilation-perfusion (V/Q) scan

D.Perform an emergency electrocardiogram (ECG)

E.Repeat CTPA after 24 hours

Answer:Perform a proximal leg vein doppler 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

Perform a ventilation-perfusion (V/Q) scan is incorrect because it would not be completed before a leg vein ultrasound. In diagnosing a PE, a ventilation perfusion (V/Q) scan can be performed after a negative CTPA in certain clinical circumstances, though this is rare as CTPA is considered the gold standard. However a proximal leg vein doppler should be performed first (it is faster, cheaper, and exposes the patient to less radiation).

Proximal leg vein CT-venogram is incorrect, as it is not used for diagnosing DVT, and is mostly reserved for research due to the primary role of ultrasound as a faster, cheaper, radiation-free alternative.

Perform an emergency electrocardiogram (ECG) is incorrect, because while it is appropriate to do an ECG, this would not be diagnostic of a PE and would not diagnose the painful, erythematous calf. However, an ECG would invariably be done to rule out certain dyspnoea differentials, if all else came back negative.

Repeat CTPA after 24 hours is incorrect because CTPA is very unlikely to change after 24 hours, and would also re-expose the patient to significant amounts of radiation.

While an ECG will undoubtedly be performed in such a scenario, PE can not be diagnosed on ECG and must be further investigated, usually with doppler ultrasound and/or a CTPA.

Question:

A 54-year-old female presents with a 3 month history of dysphagia affecting both food and liquids from the start, along with symptoms of heartburn. What is the most likely underlying diagnosis?

A.Pharyngeal pouch

B.Gastric adenocarcinoma

C.Benign stricture

D.Oesophageal cancer

E.Achalasia

Answer:Achalasia

Explanation:

Dysphagia affecting both solids and liquids from the start - think achalasia

Important for meLess important

This is a classic history of achalasia with dysphagia affecting both solids and liquids from the start

Question:

A 19-year-old man is brought unconscious to the emergency department following a road traffic accident where he crashed a stolen motorcycle into a wall at 90 mph. On arrival he has a 3mm left pupil and a 4 mm right pupil and the direct and consensual reflexes are present and normal. He is not eye opening and making groaning sounds to a pain stimulus. On application of supraorbital pressure he flexes his arms at the elbow to bring his hands up to approximately his costal margin.

What is his total Glasgow coma score?

A.3

B.4

C.5

D.6

E.7

Answer:6

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

He is scoring 1 out of 4 for not eye opening on the eye component and 2 out of 5 for incomprehensible sounds on the vocal component. The description of slight elbow flexion would not be good enough to be described as a localising response as for this the hand needs to be meaningfully brought up to the painful stimulus meaning a response where the hand reaches above the level of the clavicle. Therefore he would score 3 out of 6 on the motor component for flexion to pain. Although he is not demonstrating a full decorticate posturing, patients often do not due to many other factors and so this is the most common response you will see scored as ‘flexing’. His total score is therefore E1 V2 M3 for a total of 6.

Question:

A 3-day-old baby boy is brought to the emergency department by his parents who describe a history of reduced oral intake and irritability. When questioned, they also note that has been vomiting a green liquid and has not opened his bowels since passing meconium, although he has had wet nappies.

He was delivered vaginally at 38+2 weeks and there were no pregnancy or birth complications.

An upper gastrointestinal contrast study showed intestinal rotation.

What is the best definite management option?

A.IV antibiotics

B.Ladd’s procedure

C.Laparoscopic pyloromyotomy

D.Rectal air insufflation

E.Surgical resection with end ileostomy

Answer:Ladd’s procedure

Explanation:

Paediatric intestinal malrotation with volvulus → Ladd's procedure (includes division of Ladd bands and widening of the base of the mesentery)

Important for meLess important

This patient has presented in his first few days of life with bilious vomiting and signs of acute bowel obstruction. As there is bilious vomiting an upper gastrointestinal contrast study is indicated which showed intestinal rotation. This presentation and investigation results indicates intestinal malrotation with a volvulus for which a Ladd's procedure is the most appropriate management option. If signs of vascular compromise were present, an urgent laparotomy would be required.

IV antibiotics would not be appropriate here as there are no signs of infection and this would not treat intestinal malrotation. Antibiotics may be indicated if necrotising enterocolitis (NEC) was suspected, but this would present as dilated loops of bowel and pneumatosis intestinalis on abdominal x-ray and it is more commonly associated with premature infants. Presenting features include feeding intolerance, abdominal distension and bloody stools.

Surgical resection with end ileostomy would not be appropriate here as this is a treatment option for conditions affecting the large bowel, whereas intestinal malrotation affects the small bowel. If NEC or Hirschsprung disease were suspected then this would be considered. However, this patient does not have the typical symptoms or imaging findings of NEC and he has passed meconium so is therefore unlikely to have Hirschsprung disease.

Laparoscopic pyloromyotomy is the management option to treat pyloric stenosis would present as gastric contents in the antrum and an elongated pylorus on abdominal ultrasound. It is most common in the second to fourth weeks of life and is associated with projectile vomiting.

Rectal air insufflation is the recommended treatment for intussusception which may be identified as a target/doughnut sign on abdominal ultrasound and would be associated with an abdominal mass and recurrent redcurrant jelly stool. If there were signs of peritonitis, surgery would be indicated.

Question:

A 23-year-old woman presents unconscious to the Emergency Department (ED). A passerby told the ambulance crew that the woman had been jogging and then suddenly grabbed the back of her head and screamed like she was in intense pain before becoming unconscious. At this time, no past medical history, drug history, social history, or family history is known.

She is stabilised in the ED. On examination, her GCS is 11 (E3V3M5) and pupils are equal and reactive to light. Her respiratory and cardiovascular examination is unremarkable. On examination of her abdomen, there is a horizontal scar on her right flank. Palpation of the left flank demonstrates a ballotable mass.

What is the most likely underlying condition?

A.Renal carcinoma with metastasis

B.Marfan syndrome

C.Systemic vasculitis

D.Polycystic kidney disease

E.Multiple endocrine neoplasia

Answer:Polycystic kidney disease

Explanation:

ADPKD is associated with berry aneurysms (rupture can cause SAH)

Important for meLess important

Despite the lack of a clear history, a story of sudden onset intense head pain is suggestive of subarachnoid haemorrhage. Given the lack of a history of trauma and the young age, this is most likely be due to rupture of an intracerebral aneurysm. She also has a flank masses and a flank scar (reflecting previous kidney surgery). Taken together, the most likely diagnosis is polycystic kidney disease which is associated with cranial aneurysms as well as cysts in the kidneys, liver, ovaries and spleen.

Other answers:

1) Renal carcinoma with metastasis: whilst this could fit with a flank mass, it would be unusual for renal cancer to metastasise to the brain. Further, this type of cancer is typically seen in more elderly patients

2) Marfan syndrome: can be associated with aneurysms but would not explain the flank mass

3) Systemic vasculitis: would not explain the subarachnoid haemorrhage or flank mass although it is worth remembering that kidneys are liable to involvement with vasculitides

4) Multiple endocrine neoplasia: this could cause adrenal masses, although whether these would be palpable is questionable. Further, it would not explain the presentation of subarachnoid haemorrhage

Question:

A 28-year-old woman who is 6 weeks postpartum and breastfeeding presents with a history of a painful, erythematous breast for the past 12 hours.

Her blood pressure is 120/80 mmHg, her heart rate is 75 beats per minute and her temperature is 37.0 degrees celsius. On examination her right breast is tender and erythematous and warm to touch. There is no palpable lump and no visible fissure. You take a sample of breast milk to send for culture.

What is the most appropriate first line management?

A.Advise to continue breastfeeding and use simple analgesia and warm compresses

B.Advise to continue breastfeeding and give a course of oral flucloxacillin

C.Advise to stop breastfeeding and use simple analgesia and warm compresses

D.Refer to hospital for review by the surgical team

E.Advise to stop breastfeeding and give a course of oral flucloxacillin

Answer:Advise to continue breastfeeding and use simple analgesia and warm compresses

Explanation:

This is a question regarding the management of mastitis in breastfeeding women.

The correct answer is to continue breastfeeding and use simple analgesia and warm compresses.Milk stasis is often the initiating factor for lactational mastitis, therefore if breastfeeding is too painful women are advised to express milk by hand or using a pump.

According to NICE clinical knowledge summaries (CKS), the following are indications for oral antibiotics: an infected nipple fissure, symptoms not improving after 12-24 hours despite effective milk removal and/or breast milk culture positive. Therefore in this question, the patient did not have an indication for oral antibiotics. If antibiotics are indicated, first line would be flucloxacillin for 10-14 days or erythromycin or clarithromycin if penicillin allergic.

Referral to hospital for review by the surgical team is only appropriate if a breast abscess is suspected. This patient has no palpable lump therefore an abscess is unlikely.

Question:

A 4-year-old male presents to the emergency department after his mother brings him in, concerned about his increasing lethargy over the past few days. He has a temperature of 38.6ºC, and his mother says he is looking more pale than usual. Physical examination reveals petechiae and bruising of the lower extremities.

Blood results are as follows:

Hb 94 g/L (135-180)

Platelets 86 \* 109/L (150 - 400)

WBC 26 \* 109/L (4.0 - 11.0)

Neutrophils 1.0 \* 109/L (2.0 - 7.0)

What is the most likely diagnosis?

A.Acute lymphoblastic leukaemia

B.Aplastic anaemia

C.Beta thalassaemia

D.Idiopathic thrombocytopenic purpura

E.Bacterial meningitis

Answer:Acute lymphoblastic leukaemia

Explanation:

ALL is the most common childhood leukaemia and presents with anaemia, neutropaenia and thrombocytopaenia

Important for meLess important

ALL is the most common form of childhood cancer and characteristically presents with pallor, lethargy, splenomegaly, and petechiae. In addition, laboratory testing typically reveals anaemia, neutropaenia, leukocytosis, and thrombocytopaenia, as seen in this patient.

Aplastic anaemia is characterised by pancytopenia and hypoplastic bone marrow. While this condition can cause fatigue, pallor, thrombocytopaenia and neutropaenia, the presence of leukocytosis rules out aplastic anaemia as there would be leukopenia (low white blood cells) instead.

Thalassaemia is a group of genetic conditions whereby incorrect production of haemoglobin results in anaemia. Beta thalassaemia is a defect specifically in beta-globin chain production and can present with fatigue, hepatomegaly, splenomegaly, and jaundice. It commonly features target/teardrop cells on blood film. However, this does not match with the patient's blood film nor his clinical presentation.

Idiopathic thrombocytopenic purpura (ITP) is an immune-mediated reduction in platelet count. ITP would explain the fatigue, pallor, and petechiae/bruising of the patient but would not explain the leukocytosis and neutropaenia seen in the patient. It is also common for ITP to eventuate following a recent viral illness.

Meningitis is a cause of fever and purpura, as seen in this patient. However, you would expect to see neutrophilia in bacterial meningitis, not neutropaenia; therefore, bacterial meningitis is unlikely here.

Question:

A 60-year-old woman who has recently been diagnosed with chronic obstructive pulmonary disease (COPD) presents for review. She is still occasionally breathless despite using a short-acting muscarinic antagonist (SAMA) as required. Her FEV1 is 45% of predicted and she has managed to stop smoking. Looking at her past medical history, you see that she also has been diagnosed as being asthmatic in the past, but only required salbutamol as required when she was exercising. She last had a prescription for salbutamol 10 years ago.

Of the following options, which one is the most appropriate next step in management?

A.Switch to a combined short-acting beta2-agonist and muscarinic antagonist inhaler (e.g. Combivent)

B.Long-acting beta2-agonist

C.Long-acting beta2-agonist + inhaled corticosteroid (ICS)

D.Inhaled corticosteroid

E.Use the SAMA regularly (e.g. 2 puffs qds)

Answer:Long-acting beta2-agonist + inhaled corticosteroid (ICS)

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

If patients with COPD don't respond to either short-acting beta-agonists (SABA) or short-acting muscarinic antagonist (SAMA) then further inhaler therapy is indicated. Following the 2018 NICE guidelines an assessment should be made whether there are 'asthmatic features/features suggesting steroid responsiveness'. In this case there are - a previous diagnosis of asthma. Therefore, the next step is to add a long-acting beta2-agonist (LABA) and an inhaled corticosteroid (ICS).

Question:

A 70-year-old man presents to his GP with a 3-month history of lethargy, weight gain, constipation and hair loss.

His extensive past medical history includes a number of co-morbidities including hypertension for which he is taking ramipril, hypercholesterolaemia medicated with atorvastatin and persistent atrial fibrillation, which required treatment with amiodarone. He has recently been diagnosed as type 2 diabetic and commenced metformin therapy. He also suffers from severe back pain, controlled with tramadol.

Which of the patient's regular medications is most likely to have caused this presentation?

A.Atorvastatin

B.Amiodarone

C.Ramipril

D.Metformin

E.Tramadol

Answer:Amiodarone

Explanation:

Amiodarone can cause thyroid dysfunction due to its high iodine content (Am-IOD-arone) and direct toxic effect on the thyroid

Important for meLess important

The patient has presented with many of the classic symptoms of hypothyroidism. Amiodarone is strongly associated with thyroid dysfunction and can give rise to both hypo- and hyperthyroidism. Each 200mg tablet of amiodarone releases around 6mg of free iodine (the UK recommended daily allowance is 0.15 mg), increasing the iodine load on the thyroid.

None of the other possible answers are associated with hypothyroidism.

Question:

A 36-year-old multiparous woman is in advanced labour at 37 weeks gestation. An ultrasound confirms a breech presentation. She is fully dilated and has been pushing for an one and a half hours, however the buttocks are still not visible. How should this situation be managed?

A.Ventouse delivery

B.Non-rotational forceps

C.Caesarean section

D.Oxytocin infusion

E.External cephalic version

Answer:Caesarean section

Explanation:

Due to the foetal presentation and station, vaginal delivery is likely to be difficult. Breech extraction is not recommended for singleton pregnancies and requires considerable skill. Therefore Caesarean section should be advised.

Question:

Which one of the following drugs has been associated with an increased risk of atypical stress fractures of the proximal femoral shaft?

A.Spironolactone

B.Alendronate

C.Quetiapine

D.Venlafaxine

E.Clopidogrel

Answer:Alendronate

Explanation:

Bisphosphonates are associated with an increased risk of atypical stress fractures

Important for meLess important

Question:

A 50-year-old man presents to the GP with concerns about weight gain. The patient reports that the weight gain had occurred over the last few months, with fat gain particularly evident at the back and buttocks. Purple abdominal striae, a pendulous abdomen, muscle wasting, and several bruises are also observed.

Both 24-hour urinary free cortisol and dexamethasone suppression tests were found to be positive. However, both pituitary MRI and adrenal CT were negative, as well as a CT of the chest, abdomen, and pelvis.

What is the most likely cause of this individual’s symptoms?

A.Chronic processed meat consumption

B.Current infection

C.Excess alcohol consumption

D.Increased stress from losing his job 6 months ago

E.Smoking

Answer:Excess alcohol consumption

Explanation:

Alcohol excess can mimic Cushing's disease

Important for meLess important

This patient presents with symptoms of Cushing’s syndrome but without any positive imaging findings. This suggests that the patient may have pseudo-Cushing’s syndrome, which has different causes, including depression, HIV infection, and excess alcohol consumption.

The other options are incorrect:

Chronic processed meat consumption is incorrect. Eating processed meats is thought to raise cortisol levels, but is not a known cause of Cushing's or pseudo-Cushing's disease.

Current infection is incorrect. Although a current infection can increase cortisol levels, it is not a known cause of Cushing's or pseudo-Cushing's disease.

Increased stress is incorrect. Although raised stress levels can raise cortisol levels, it is unlikely that so many different symptoms of Cushing's disease will be seen purely from increased psychological stress.

Smoking is incorrect. Smoking may acutely increase serum cortisol levels but is not a known cause of Cushing's or pseudo-Cushing's disease.

Question:

A 56-year-old man presents to the emergency department with pleuritic chest pain, dyspnoea and pyrexia. His past medical history is significant for alcohol abuse and he smells strongly of alcohol. During his stay at the department, he starts coughing currant jelly sputum. You admit him and prescribe the appropriate antibiotics. You culture the sputum and the causative agent has been identified. Which of these conditions is associated with this organism too?

A.Pleural empyema

B.Addison's disease

C.Aplastic anaemia

D.Erythema multiforme

E.Erythema nodosum

Answer:Pleural empyema

Explanation:

Klebsiella can cause empyema formation

Important for meLess important

Klebsiella infections are common among alcoholics. They have distinctive features such as currant jelly-like sputum. They are implicated in many other disorders such as ascending cholangitis. Following pneumonia, patients can develop an empyema. This translates to a 'bag of pus'. It should not be confused with an abscess as an abscess is a collection of pus inside a newly formed cavity. An empyema is a collection of pus in an already existing cavity such as the pleural space.

Addison's disease would be associated with tuberculosis.

Aplastic anaemia would be associated with a parvovirus B19 infection on an individual with sickle cell anaemia.

Erythema multiforme can have many causes but Klebsiella pneumoniae is not one of them. Mycoplasma Pneumonia is most commonly associated with this finding.

Erythema nodosum can have many causes but Klebsiella pneumoniae is not one of them. Combined oral contraceptive pill and tuberculosis infections are some of the causes of this finding.

Question:

A 26-year-old woman with a history of type 2 diabetes mellitus, back pain, anxiety and depression comes to see you as an emergency appointment. She books emergency appointments with the surgery almost every week with sometimes vague, and often mild generalised symptoms; you saw her a few weeks ago and diagnosed her with a case of self-limiting gastroenteritis.

She is now complaining of weakness in both her legs that has been worsening and moving up her legs from her feet over the last few days. This weakness is combined with some shooting pains and she thinks her back pain is worse than normal. She denies any new incontinence or saddle anaesthesia.

On examination, she has normal observations and good power in her upper limbs although there appears to be some numbness in both hands as well. She seems to have reduced sensation and power in both lower legs symmetrically up to just below her knees and she has absent plantar reflexes and reduced ankle reflexes.

What is your management plan?

A.Admit her to hospital for further investigations and treatment

B.Increase her anti-depressants, and advise her to go home and rest

C.Arrange for some non-urgent blood tests including HbA1c to look for a possible cause

D.Advise her to go home and rest and return in 2 weeks if her symptoms have not improved

E.Organise a 2 week wait referral to neurology

Answer:Admit her to hospital for further investigations and treatment

Explanation:

Worsening lower limb weakness following gastroenteritis - think Guillain-Barre

Important for meLess important

While it might be tempting to dismiss these symptoms as non-specific and unconcerning in a frequently attending patient, there are several key elements to the history that point to a more concerning diagnosis of Guillain-Barre syndrome that warrants immediate admission to hospital for further investigation.

Firstly, this patient has abnormal neurological findings on examination including reduced and absent reflexes and the typical progressive 'glove and stocking' distribution. Secondly, she recently had a case of gastroenteritis - 1 to 3 weeks prior is the typical timeframe. Finally, she is typical of the age that this condition (15-35 years and 50-75 years).

Any answer that delays immediate investigations and treatment of this condition are incorrect.

Question:

A 2-year-old boy with meningococcal septicaemia arrests on the ward. You are the first person to attend. After confirming cardiac arrest and following paediatric BLS protocol, what is the rate you should perform chest compressions at?

A.140-160 compressions per minute

B.160-180 compressions per minute

C.120-140 compressions per minute

D.100-120 compressions per minute

E.80-100 compressions per minute

Answer:100-120 compressions per minute

Explanation:

The UK Resuscitation Council's Paediatric Basic Life Support guideline states that chest compressions for children of all ages must be performed at a rate of 100-120 per minute. Compressions should depress the sternum by at least a third of the depth of the chest.

Lay persons and those not trained in paediatric resuscitation are advised to use the adult chest compression to rescue breaths ratio of 30:2, however those caring for children and trained to do so should use a ratio of 15:2.

Note that you must still carry out your initial danger-response-airway-breathing-circulation sequence.

For the full paediatric BLS guideline please see https://www.resus.org.uk/resuscitation-guidelines/paediatric-basic-life-support/#sequence

Question:

A 27-year-old man presents as he is feeling generally unwell. Around 5 days ago he started having a sore throat associated with myalgia and lethargy. Yesterday he developed a fever and over the course of the past 24 hours a rash has appeared. His past medical history includes anxiety and atopic eczema. On examination he has a widespread erythematous rash, with many of the lesions having a 'target' appearance. Some of the lesions are becoming bullous. His pulse is 120/min and temperature 38.4º. He also has conjunctivitis and some ulceration and sloughing around the mouth:

© Image used on license from DermNet NZ

What is the most likely diagnosis?

A.Eczema herpeticum

B.Pemphigus vulgaris

C.Erythema multiforme major

D.Impetigo

E.Necrotizing fasciitis

Answer:Erythema multiforme major

Explanation:

Question:

A 20-year-old male is stabbed outside a nightclub, he has a brisk haemoptysis and in the ED has a drain inserted into the left chest. This drained 750ml frank blood. He fails to improve with this intervention. He has received 4 units of blood. His CVP is now 13. What is the best definitive course of action?

A.Thoracotomy in theatre

B.Thoracotomy in ED

C.CT angiogram

D.Bronchoscopy

E.MRI aortic arch

Answer:Thoracotomy in theatre

Explanation:

This man has cardiac tamponade. The raised CVP in the setting of haemodynamic compromise is the pointer to this. The definitive management of this, would be an emergency thoracotomy. Since he still has a cardiac output, this should occur in theatre and a clam shell approach will give the best access. If there is a significant delay if operating some may consider a pericardiocentesis. However, this is not a widely practiced option.

Question:

A 28-year-old man presents with a 5-month history of worsening generalised fatigue, polyuria, and unexpected weight loss. He has a past medical history of recurrent urinary tract infections over the last year.

On examination, his abdomen is soft and non-tender, his BMI is 32 kg/m², his blood pressure is 143/75 mmHg, and his heart rate is 98 bpm. There is no relevant family history.

Baseline investigations are performed:

Fasting plasma glucose 9.3 mmol/L (3.9 - 5.6 mmol/L)

What is the most appropriate next step in his management?

A.Arrange C-peptide and diabetic autoantibodies

B.Diagnose impaired fasting glucose

C.Diagnose maturity-onset diabetes of the young

D.Diagnose type 1 diabetes mellitus

E.Diagnose type 2 diabetes mellitus

Answer:Arrange C-peptide and diabetic autoantibodies

Explanation:

Suspected T1DM: atypical factors that would prompt further tests include: age 50 years or above, BMI of 25 kg/m² or above, slow evolution of hyperglycaemia or long prodrome

Important for meLess important

Arrange C-peptide and diabetic autoantibodies is correct. This patient has signs and symptoms of diabetes mellitus due to the presence of fatigue and polyuria. The raised fasting blood glucose also supports this diagnosis. The presence of unexpected weight loss points in the direction of type 1 diabetes mellitus (T1DM), however, the onset of symptoms in T1DM is more acute, with patients often presenting in diabetic ketoacidosis. This patient's presentation is also atypical for type 1 diabetes mellitus, as they have a BMI of 32 kg/m² and their symptoms have developed over a long time period. Because of this, it is difficult to discern whether he has T1DM or type 2 diabetes mellitus (T2DM), therefore further testing with C-peptide levels (which are low in T1DM and normal/high in T2DM) and diabetes autoantibodies (which may be present in T1DM and are absent in T2DM).

Diagnose impaired fasting glucose is incorrect. This is defined as a fasting glucose measurement greater than or equal to 6.1 mmol/L but less than 7.0 mmol/L. This patient's fasting glucose measurement is 9.3 mmol/L, and the presence of associated symptoms (polyuria and polydipsia) makes diabetes mellitus a likely diagnosis. Due to this patient's atypical presentation, further testing is needed to determine whether it is T1DM or T2DM.

Diagnose maturity-onset diabetes of the young is incorrect. This is an autosomal dominant condition characterised by the development of T2DM in patients under 25 years of age. Since there is no family history of any similar problems, this diagnosis is less likely.

Diagnose type 1 diabetes mellitus is incorrect. The presence of unexpected weight loss points in the direction of T1DM, however, the onset of symptoms in T1DM is more acute, with patients often presenting with diabetic ketoacidosis. This patient's presentation is also atypical for type 1 diabetes mellitus, as they have a BMI of 32 kg/m² and their symptoms have developed over a long time period. Because of this, it is difficult to discern whether he has T1DM or type 2 diabetes mellitus (T2DM), therefore further testing with C-peptide levels (which are low in T1DM and normal/high in T2DM) and diabetes autoantibodies (which may be present in T1DM and are absent in T2DM).

Diagnose type 2 diabetes mellitus is incorrect. Although polyuria and polydipsia are present in T2DM, the unexplained weight loss points in the direction of T1DM. This patient's presentation is also atypical for type 1 diabetes mellitus, as they have a BMI of 32 kg/m² and their symptoms have developed over a long time period. Because of this, it is difficult to discern whether he has T1DM or type 2 diabetes mellitus (T2DM), therefore further testing with C-peptide levels (which are low in T1DM and normal/high in T2DM) and diabetes autoantibodies (which may be present in T1DM and are absent in T2DM).

Question:

A 45-year-old male is being discharged from the gastroenterology ward following acute admission with variceal bleed on a background of liver cirrhosis.

Following stabilisation, he had endoscopic band ligation. He has not had any rebleed since his endoscopy 4 days ago and the consultant is happy for him to be discharged.

Upon discharge, what is the most appropriate prophylaxis for prevention of rebleeding?

A.Amlodipine

B.Ceftriaxone

C.Propranolol

D.Terlipressin

E.Tranexamic acid

Answer:Propranolol

Explanation:

A non-cardioselective B-blocker (NSBB) is used for the prophylaxis of oesophageal bleeding

Important for meLess important

A non-cardioselective beta-blocker (such as propranolol) is the most appropriate option for prevention of rebleeding.

Portal hypertension secondary to liver cirrhosis is common due to the scarred liver causing increased pressure in the portal venous system. In order to accommodate the pressure, the oesophageal, gastric and rectal veins enlarge and form thin-walled varices.

Beta-blockers that are non-cardioselective (i.e. they act on beta-2 adrenoreceptors on vascular smooth muscle as well as cardiac beta-1 adrenoreceptors) will cause vasodilation in these engorged vessels and reduced heart rate which lowers the blood pressure in the variceal veins and reduces the risk of rupture.

Amlodipine is a calcium channel blocker and would provide no benefit as they primarily act on arterial vessels and have minimal effect on veins.

Ceftriaxone is a common intravenous antibiotic prescribed during an acute variceal bleed. This would be inappropriate as it has no effect on rebleeding and the patient would be unlikely to be discharged with an intravenous drug to take home.

Terlipressin is an intravenous vasopressin analogue which is administered in acute variceal bleed to reduce bleeding. While this is an appropriate management step in the acute management of a patient, it would be inappropriate to prescribe it as a prophylactic medication for the patient to take home.

Tranexamic acid is an antifibrinolytic which is used to treat / prevent excess blood loss in major surgery, menstruation, and trauma. Currently, there are trials to assess whether this drug is beneficial for prophylaxis however guidelines do not endorse administration at the moment.

Question:

You are an F1 doctor coming to the end of your first foundation year. You have recently been discharged from hospital after developing gradual weakness and paraesthesia, you have also had optic neuritis in the past and so a diagnosis of relapsing-remitting multiple sclerosis has been made. You are now feeling better and are due to go back to work in the next few days. You think you will be able to cope at work as you have a good team and are aware of your limitations in the workplace. What would be the best course of action?

A.Return to work as normal, this is no different to anyone else taking some time off work for health reasons

B.Inform your team members of your recent health issues so they can help support you at work

C.Ask your clinical supervisor for advice for returning to work

D.Inform the occupational health service of your recent health issues

E.Stay off work for another two weeks until you're absolutely ready to cope with the workload

Answer:Inform the occupational health service of your recent health issues

Explanation:

Option 4 is correct. In line with Good Medical Practice, you must seek advice from a suitably qualified colleague if there are any concerns over your health which could affect your performance in caring for patients as it states the following 'If you know or suspect that you have a serious condition that you could pass on to patients, or if your judgement or performance could be affected by a condition or its treatment, you must consult a suitably qualified colleague. You must follow their advice about any changes to your practice they consider necessary. You must not rely on your own assessment of the risk to patients'. Option 3 would be sensible as you are asking a senior but consulting with occupational health who specialise in this area would be better. Option 1 is incorrect for the above reasons. Option 2 would make your colleagues aware so they can support you but you would still need to seek advice. Even if you stayed for work for a longer period of time there would still be concerns over your health and performance in the long term.

GMC Good Medical Practice (2013)

http://www.gmc-uk.org/guidance/goodmedicalpractice.asp

Question:

A 44-year-old female, 32 weeks pregnant, is referred to a nephrology consultant by her general practitioner for querying renal stones. She has a past medical history of hypertension and ischemic heart disease.

A CT-KUB report shows a renal stone, approximately 1.5cm in size.

Which one of the following is the preferred definitive management in this lady?

A.Shockwave lithotripsy plus urinary alkalinization

B.Ureteroscopy

C.Percutaneous nephrolithotomy

D.Urinary alkalinization

E.Diclofenac

Answer:Ureteroscopy

Explanation:

Ureteroscopy is preferred over lithotripsy for removal of renal stones in pregnant women

Important for meLess important

With a stone burden of less than 2cm, the preferred definitive option of management would be lithotripsy. However, this option is contraindicated in pregnant females and therefore ureteroscopy is preferred.

Percutaneous nephrolithotomy would be the preferred option for complex renal calculi and staghorn calculi.

Diclofenac is used in the management of renal colic pain - not the definitive option. Diclofenac is a potent NSAID and is strongly associated with gastric ulceration. It should be remembered that diclofenac, in general, is now less commonly used following the MHRA warnings about cardiovascular risk and because this lady has a past medical history of ischemic heart disease, diclofenac should be avoided.

Urinary alkalinization is used to prevent the formation of uric acid stones.

Question:

A 63-year-old man presents to his general practitioner with a three-week history of an itchy rash over the face and upper chest. His only past medical history is HIV for which he is poorly compliant with his anti-retroviral medications.

On examination, areas of erythema over the eyebrows, nasolabial folds, and upper chest are noted. Excoriations surrounding the rash are present.

What is the most appropriate initial treatment?

A.Oral fluconazole

B.Oral prednisolone

C.Topical hydrocortisone

D.Topical ketoconazole

E.UV therapy

Answer:Topical ketoconazole

Explanation:

Seborrhoeic dermatitis - first-line treatment is topical ketoconazole

Important for meLess important

This man has presented with a rash consistent with seborrhoeic dermatitis, which he is at particular risk of given his past medical history of HIV. The first-line treatment for this condition is topical ketoconazole.

Oral fluconazole can be used to treat various fungal infections and has a role in antifungal prophylaxis in HIV however is not used in the treatment of seborrhoeic dermatitis.

Oral prednisolone may be used in short courses to treat extensive inflammatory skin disease such as atopic dermatitis, however has no role in seborrhoeic dermatitis.

Topical steroids such as hydrocortisone can be used for short periods to treat seborrhoeic dermatitis however are not the most appropriate initial therapy.

UV therapy has a role in various skin diseases, notably psoriasis, however is not used in the management of seborrhoeic dermatitis.

Question:

A 63-year-old man presents to his general practitioner for a blood pressure check. Ambulatory blood pressure readings are constantly above 140/90 mmHg. His past medical history includes gout and types two diabetes mellitus, for which he takes metformin and allopurinol. He is of black African ethnicity.

What drug is the most appropriate to prescribe him?

A.Amlodipine

B.Bendroflumethiazide

C.Diltiazem

D.Irbesartan

E.Spironolactone

Answer:Irbesartan

Explanation:

Hypertension in diabetics - ACE inhibitors/A2RBs are first-line regardless of age

Important for meLess important

The correct answer is irbesartan. This medication is an angiotensin II receptor blocker (A2RB). It is used to manage hypertension in diabetic patients, as it has a renoprotective effect.

Black African and Afro-Caribbean patients are prescribed calcium channel blockers first-line for hypertension. However, as the patient is diabetic, ACE inhibitors/A2RBs are preferred due to their renoprotective effect. In black African and Afro-Caribbean patients, A2RBs are preferred over ACE inhibitors.

Amlodipine is a calcium channel blocker used as first-line management of patients > 55 years old or black African and Afro-Caribbean patients. However, as the patient is diabetic, ACE inhibitors and A2RBs take precedence, making this option incorrect.

Bendroflumethiazide is a medication used as a second-line option in the management of hypertension. This patient has not trialled any first-line options yet, making the option incorrect. Additionally, these drugs are contraindicated in patients with gout.

Diltiazem is a calcium channel blocker used as first-line management of patients > 55 years old or black African and Afro-Caribbean patients. However, as the patient is diabetic, ACE inhibitors and A2RBs take precedence, making this option incorrect.

Spironolactone is a potassium-sparing diuretic that can be used in the management of hypertension when a triple combination of drugs has failed and if the potassium is < 4.5 mmol/L. This patient has not trialled any first-line options yet, making this option incorrect.

Question:

A 28-year-old woman presents to the Emergency Department with a 2-day history of feeling generally unwell. Her legs feel weak and she feels increasingly short of breath.

She has rheumatoid arthritis and hypothyroidism. She takes methotrexate and levothyroxine. She recently saw her GP for a urinary tract infection, for which she received treatment.

Her blood results are shown below:

Hb 108 g/L Male: (135-180)

Female: (115 - 160)

Platelets 97 \* 109/L (150 - 400)

WBC 1.9 \* 109/L (4.0 - 11.0)

Na+ 139 mmol/L (135 - 145)

K+ 4.1 mmol/L (3.5 - 5.0)

Urea 5.9 mmol/L (2.0 - 7.0)

Creatinine 87 µmol/L (55 - 120)

What is the most likely cause of this patient's presentation?

A.Cefalexin

B.Co-trimoxazole

C.Levothyroxine

D.Nitrofurantoin

E.Trimethoprim

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

This patient has presented feeling generally unwell with blood results that show pancytopenia. The patient takes methotrexate for her rheumatoid arthritis. An adverse effect of this medication is myelosuppression. Increased risk of myelosuppression can result from renal impairment and certain drugs. Trimethoprim is an anti-folate drug that can be used as a first-line option in the treatment of urinary tract infections (UTIs). When co-prescribed with methotrexate, it can cause life-threatening myelosuppression that can present with infection, anaemia or bleeding.

Cefalexin is an antibiotic used in the treatment of pyelonephritis. Co-prescribing cefalexin with methotrexate can increase the risk of nephrotoxicity, but it is not known to be associated with an increased risk of myelosuppression. Unless the first-line treatments for UTIs had failed or urine culture showed sensitivity to cefalexin and resistance to first-line agents, it would be unlikely to be used as a first-line option in general practice.

Co-trimoxazole is a combination of sulfamethoxazole and trimethoprim. As it contains trimethoprim, it can cause myelosuppression, however, it is unlikely to be used in general practice for a UTI, so it is more likely that trimethoprim alone, rather than in combination with sulfamethoxazole caused this presentation.

Levothyroxine is not known to interact with methotrexate.

Nitrofurantoin is one of the first-line options for the treatment of uncomplicated UTIs. It is not known to interact with methotrexate. It is, therefore, unlikely to have been the culprit for this presentation.

Question:

A 60-year-old man presents to the GP with a 4-week history of generalised fatigue and weakness. He finds that he can no longer walk or stand for a period of time, and finds getting up out of chairs difficult. On examination, there is a violaceous non-oedematous rash around the eyes, extremely dry hands and rough red papules over the extensor surfaces of the fingers. He has smoked 20 cigarettes a day for the last 40 years.

Given the likely diagnosis, what is the most important next step in his management?

A.Electromyogram

B.Fundoscopy

C.Malignancy screening

D.Referral to ophthalmology

E.Skin biopsy

Answer:Malignancy screening

Explanation:

Dermatomyositis is commonly a paraneoplastic phenomenon

Important for meLess important

Malignancy screening is correct. The presence of proximal muscle weakness, heliotrope rash (violaceous non-oedematous rash around the eyes), extremely dry hands, and Gottron's papules (rough red papules on the extensor surfaces of the fingers) make a diagnosis of dermatomyositis likely. Due to the association of underlying malignancy with dermatomyositis, all patients with dermatomyositis should be offered urgent screening for malignancy. This can involve chest x-rays, CT scans of the chest, abdomen, and pelvis, and blood tests (e.g. bone profile to assess for bone metastases).

Electromyogram is incorrect. This investigation may be considered to aid the diagnosis of dermatomyositis, however, it is not essential for its diagnosis. A more important investigation would be to screen for an underlying malignancy, as dermatomyositis is often associated with one.

Fundoscopy is incorrect. This patient has signs and symptoms of dermatomyositis. There are no features involving the eye itself (e.g. vision changes, watering, redness), only the skin surrounding it, therefore making fundoscopy a less vital investigation. A more important investigation would be to screen for an underlying malignancy, as dermatomyositis is often associated with one.

Referral to ophthalmology is incorrect. This patient has signs and symptoms of dermatomyositis. There are no features involving the eye itself (e.g. vision changes, watering, redness), only the skin surrounding it, therefore making an ophthalmology referral inappropriate. A more important investigation would be to screen for an underlying malignancy, as dermatomyositis is often associated with one.

Skin biopsy is incorrect. Skin biopsies can be used in patients that do not present with the classic signs and symptoms of dermatomyositis. This patient does as characterised by the signs and symptoms mentioned above in the correct answer's explanation, meaning this investigation is less important. A more important investigation would be to screen for an underlying malignancy, as dermatomyositis is often associated with one.

Question:

A 72-year-old man presents to the emergency department with a wound to his left hand. He was gardening earlier today and accidentally cut his ring finger with a secateurs. The finger is wrapped in a clean tea towel, and he has tried applying compression and elevating the wound but it has not stopped bleeding for the past 4 hours.

Cardiovascular examination is normal. INR is 5.6.

He has a history of atrial fibrillation, hypercholesterolemia, hypertension and benign prostatic hypertrophy. His current medications include warfarin, atorvastatin, amlodipine and tamsulosin.

What is the most appropriate management regarding his anticoagulation?

A.Withhold warfarin that day and monitor INR

B.Continue warfarin and give 3mg IV vitamin K

C.Stop warfarin and give 3mg IV vitamin K

D.Stop warfarin and give 3mg oral vitamin K

E.Stop warfarin and give 5mg IV vitamin K and prothrombin complex concentrate

Answer:Stop warfarin and give 3mg IV vitamin K

Explanation:

INR 5.0-8.0 (minor bleeding) - stop warfarin, give intravenous vitamin K 1-3mg, restart when INR < 5.0

Important for meLess important

Stop warfarin and give 3mg IV vitamin K is the correct answer and is recommended in this patient, who has a non-major bleed and INR 7.6.

Withhold warfarin that day and monitor INR is recommended in a non-bleeding patient with INR 5.0-7.9 - this patient is bleeding and so this answer is incorrect.

Continue warfarin and give 3mg IV vitamin K is incorrect as warfarin would initially be stopped in a bleeding patient.

Stop warfarin and give 3mg oral vitamin K is recommended in a non-bleeding patient with INR >8.0 - this patient is bleeding and so this answer is incorrect.

Stop warfarin and give 5mg IV vitamin K and prothrombin complex concentrate is recommended in a patient with a major limb or life-threatening bleed. This injury is not life-threatening and so this answer is incorrect.

Question:

A 48-year-old male presents with a solitary skin nodule on his forearm which he first noticed a few weeks ago. He reports he was bitten by some form of insect prior to noticing the skin nodule.

On questioning, he describes the site as original very itchy with some tenderness after the bite but by the time he noticed the skin lesion, the area was and has remained, non-painful with only a mild itch.

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He is otherwise well with no systemic symptoms.

What is the most likely diagnosis?

A.Basal-cell carcinoma

B.Dermatofibroma

C.Prurigo nodularis

D.Leiomyoma

E.Keratoacanthoma

Answer:Dermatofibroma

Explanation:

This patient has presented with a dermatofibroma, also called a histiocytoma. These are fibrous solitary, slow-growing papules caused by abnormal growth of dermal dendritic histiocyte cells. As seen in the picture they are raised and normal brown in colour. Although they can be itchy they are rarely painful and are associated with 'dimple sign', where applying lateral pressure produces a central depression. They can occur anywhere but are commonly seen on the arms and leg as they are often precipitated by an injury such as an insect bite (as with this patient) or a thorn prick.

Basal-cell carcinomas (BCC) are the most common form of skin cancer and often appear over several months, in sun-exposed areas. They are normally painless, slightly raised/macular areas of skin with a shiny, vascular appearance. BCC are rarely symmetrical and are unrelated to previous skin trauma.

Prurigo nodularis, also known as nodular prurigo, is a dermatological condition characterised by multiple, pruritic nodules commonly affecting the legs and arms. Unlike in dermatofibroma, itching only develops after the nodules have formed and increases in intensity as the condition progresses. Due to their pruritic nature patients commonly present with multiple excoriated lesions due to scratching and symptoms may only be alleviated by steroid use.

A leiomyoma, also known as a fibroid, is a smooth muscle tumour that is most commonly benign, only progressing to cancer in extremely rare cases (0.1%). As they arise in the smooth muscle they are seen within organs, commonly the uterus, small bowel, or oesophagus. Cutaneous leiomyomas are rare but when they do occur they are seen as multiple, freely movable nodules seen with overlying reddish skin.

A keratoacanthoma is a common, normally benign skin lesion that is thought to originate from the hair follicle. They are often dome-shaped and symmetrical, similar to a dermatofibroma however keratoacanthomas are surrounded by a smooth wall of inflamed skin and have a characteristic cap made of keratin scales and debris. The exact cause of keratoacanthomas is unclear but they are believed to be linked to ultraviolet light, chemical carcinogens and immunosuppression.

Question:

A 62-year-old woman presents to the emergency department complaining of worsening somnolence and confusion. She denies any shortness of breath or any other symptoms.

She has a past medical history of morbid obesity, chronic obstructive pulmonary disease, hypertension, heart failure and diabetes mellitus.

On examination, lower extremity oedema is noticeable. The doctor orders some blood tests which show the following:

Hb 115 g/L (115 - 160)

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

WBC 5.6 \* 109/L (4.0 - 11.0)

Na+ 105 mmol/L (135 - 145)

K+ 3.3 mmol/L (3.5 - 5.0)

What medication has most likely caused her symptoms?

A.Amlodipine

B.Bisoprolol

C.Furosemide

D.Ramipril

E.Spironolactone

Answer:Furosemide

Explanation:

Loop diuretics may cause hyponatraemia

Important for meLess important

The correct answer is furosemide. The patient is presenting with signs of hyponatraemia such as worsening somnolence, confusion and lower limb oedema. The blood tests confirm hyponatraemia accompanied by hypokalaemia.

The only medication among the options which can cause these blood results is furosemide. This medication is a loop diuretic which may be used to manage heart failure, even if it has not been shown to reduce mortality. It can cause hyponatraemia by inhibiting the Na+-K+-Cl- (NKCC) in the thick ascending limb of the loop of Henle, reducing the absorption of NaCl, and hence the blood concentration of sodium.

Amlodipine is a calcium channel blocker used in the management of hypertension. Side effects of this medication include flushing, headache, and ankle swelling. Hyponatraemia is not a recognised side effect.

Bisoprolol is a beta-blocker used as a first-line management for heart failure. Side effects of this medication include confusion and fatigue. Hyponatraemia is not a recognised side effect.

Ramipril is an angiotensin-converting enzyme inhibitor used in the management of hypertension. Side effects of this medication include hyperkalemia, due to lowering of the levels of aldosterone, thereby promoting potassium retention. Hyponatraemia and hypokalemia aren't recognised side effects.

Spironolactone is an aldosterone antagonist used in the management of both heart failure and hypertension. By inhibiting the levels of aldosterone, it reduces the amount of sodium being reabsorbed, and hence increases the amount of potassium in the bloodstream, causing hyperkalemia. Hyponatraemia and hypokalemia are not recognised side effects.

Question:

Which one of the following is the main criteria for determining whether a patient with chronic obstructive pulmonary disease (COPD) should be offered long-term oxygen therapy?

A.Two arterial blood gases measurements with pO2 < 6.3 kPa

B.One arterial blood gas measurement with pO2 < 7.7 kPa

C.One arterial blood gas measurement with pO2 < 8.3 kPa

D.One arterial blood gas measurement with pO2 < 8.0 kPa

E.Two arterial blood gases measurements with pO2 < 7.3 kPa

Answer:Two arterial blood gases measurements with pO2 < 7.3 kPa

Explanation:

COPD - LTOT if 2 measurements of pO2 < 7.3 kPa

Important for meLess important

Question:

A 65-year-old man with a history of dyspepsia is found to have a gastric MALT lymphoma on biopsy. What treatment should be offered?

A.Gastrectomy

B.Laser ablation

C.None

D.CHOP chemotherapy

E.H. pylori eradication

Answer:H. pylori eradication

Explanation:

Gastric MALT lymphoma - eradicate H. pylori

Important for meLess important

Question:

A 76-year-old man is reviewed. He was recently admitted after being found to be in atrial fibrillation. This was his second episode of atrial fibrillation. He also takes ramipril for hypertension and has a history of mitral stenosis but has no other history of note. During admission, he was warfarinised and discharged with planned follow-up in the cardiology clinic. However, on review today he is found to be in sinus rhythm. What should happen regarding anticoagulation?

A.Stop warfarin

B.Continue warfarin for 1 month

C.Stop warfarin + start aspirin

D.Continue lifelong warfarin

E.Continue warfarin for 6 months

Answer:Continue lifelong warfarin

Explanation:

Warfarin should be continued indefinitely as this is his second episode of atrial fibrillation and he has risk factors for stroke (age, hypertension). As he has a history of valvular heart disease, warfarin is still preferred to a direct oral anticoagulant.

Question:

You are a doctor working in gynaecology. One of your patients on the ward has endometrial hyperplasia. Which medication is associated with the development of this condition?

A.Cerelle (progesterone only pill)

B.Tamoxifen

C.Levothyroxine

D.Microgynon (combined oral contraceptive pill)

E.Orlistat

Answer:Tamoxifen

Explanation:

Tamoxifen is a risk factor for endometrial hyperplasia

Important for meLess important

Endometrial hyperplasia develops due to the presence of unopposed oestrogen. Oestrogen stimulates endometrial growth while progesterone stimulates shedding of this tissue.

Tamoxifen is used for oestrogen receptor-positive breast cancer, in the breast, it has anti-oestrogenic effects. However, on the endometrium, it has pro-oestrogenic effects. This effect, if unopposed by progesterone, can result in endometrial hyperplasia.

Combined oral contraceptive pills and progesterone only pills both contain progesterone and thus do not result in unopposed oestrogen stimulation.

While thyroid problems and obesity can be associated with the development of endometrial hyperplasia, taking levothyroxine or orlistat as a treatment for these conditions don't increase the risk.

Question:

A 45-year-old woman suffered from sudden onset central crushing chest pain. Her electrocardiogram showed ST-segment elevation. Troponin is slightly raised. She was rushed for an emergency invasive angiogram but this revealed slight wall irregularities with no luminal obstruction. Subsequently, cardiovascular MR (CMR) showed an apical ballooning of the myocardium resembling an octopus pot.

She did not have any significant past medical history. There is a family history of premature coronary artery disease. Her partner recently passed away of prostate cancer.

What is the most likely cause of the ST-segment elevation?

A.Coronary artery disease

B.Takotsubo cardiomyopathy

C.Left ventricular aneurysm

D.Myocardial infarction

E.Hypertrophic cardiomyopathy

Answer:Takotsubo cardiomyopathy

Explanation:

Takotsubo cardiomyopathy is a differential for ST-elevation in someone with no obstructive coronary artery disease

Important for meLess important

The differential diagnosis for ST-elevation:

myocardial infarction

pericarditis/myocarditis

normal variant - 'high take-off'

Takotsubo cardiomyopathy

Left ventricular aneurysm

Prinzmetal angina

Subarachnoid haemorrhage

Takotsubo cardiomyopathy also known as 'Broken heart syndrome' and 'Takotsubo apical ballooning syndrome' describes a cardiomyopathy induced by severe stressful triggers (e.g. emotional upset). It is commoner in women. In this scenario, we assume that the patient is in bereavement which precipitated the stress cardiomyopathy.

Takotsubo is a Japanese word that describes an octopus trap; this is used to describe the appearance of the heart on left ventriculogram, CMR or echocardiogram. This apical ballooning appearance occurs due to severe hypokinesis of the mid and apical segments with preservation of activity of the basal segments. In simple terms, the bottom of the heart (the apex) does not contract and therefore appears to balloon out. However, the area closer to the top (the base) continues to contract (creating the neck of the octopus trap).

Myocardial infarction and coronary artery disease are incorrect as it has been ruled out by the invasive coronary angiogram. Besides, CMR would show regional wall motion irregularities in infarcted area.

Left ventricular aneurysm is a possible complication of myocardial infarction (MI). Given that there is no past medical history of MI, this is unlikely. Besides, left ventricular aneurysms would be clearly visible as a discreet dyskinetic area

Hypertrophic cardiomyopathy would appear as asymmetric septal hypertrophy with systolic anterior movement (SAM) of the anterior leaflet of the mitral valve.

Question:

A 16-year-old girl presents to her GP complaining of heavy menstrual bleeding that affects her day-to-day activities. She reports that on her first day of her period she would go through a full box of tampons. She has read on a patient pamphlet that Menorrhagia is characterised by abnormally heavy bleeding experienced during menstruation. Before making the diagnosis of menorrhagia her GP checks the diagnostic criteria.

What definition is used to classify bleeding as 'abnormally heavy'?

A.>60ml total blood loss per menses

B.>80ml total blood loss per menses

C.>120ml total blood loss per menses

D.Greater than 12 pads/tampons used in 24 hours

E.An amount that the woman considers to be excessive

Answer:An amount that the woman considers to be excessive

Explanation:

The definition of menorrhagia has changed to reflect the woman's subjective experience rather than trying to quantify blood loss

Important for meLess important

'Heavy bleeding' in menorrhagia was previously defined as a total amount of blood loss >80ml for the duration of the menstrual cycle. However, the definition of menorrhagia has changed to reflect the woman's subjective experience rather than trying to quantify blood loss. The shift from a quantitative to a qualitative definition of menorrhagia has been driven by difficulties in measuring actual blood loss, and also because treatment to reduce heavy bleeding can result in quality of life improvements regardless of the actual amount of blood lost.

Question:

An 8-year-old girl is brought to the emergency department with worsening redness and swelling around her right eye for the past 2 days.

On examination of the child, there is tenderness and erythema over the right eyelid and during the assessment of her eye movements, she complains of pain and 'seeing double'. Her temperature is 38°C.

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

A.Intravenous cefotaxime

B.Oral co-amoxiclav

C.Surgical drainage

D.Topical ciprofloxacin

E.Warm compresses

Answer:Intravenous cefotaxime

Explanation:

Orbital cellulitis differentiated from preseptal cellulitis by presence of: reduced visual acuity, proptosis and pain with eye movements

Important for meLess important

The presence of painful eye movements and visual disturbance ('seeing double' referring to diplopia) in the context of a red, swollen, tender eye is concerning for orbital cellulitis. Urgent empirical intravenous antibiotics covering gram-positive and anaerobic organisms (e.g. Intravenous cefotaxime or clindamycin) should be given to all those with suspected orbital cellulitis.

Oral co-amoxiclav with close follow-up is used to manage preseptal cellulitis, which does not cause painful eye movements or visual disturbance and is less likely to cause fever.

Surgical drainage describes the treatment of subperiosteal or orbital abscess, which may rarely complicate orbital cellulitis. These conditions typically present with proptosis, headache (facial, throbbing) and reduced visual acuity, and they more commonly complicate sinusitis (rather than orbital cellulitis). Even in the presence of an abscess, intravenous empirical antibiotics would form an important part of treatment.

Topical ciprofloxacin is used to treat bacterial keratitis, which presents with eye pain, watering and photophobia and is more common in contact lens users. It would not present with eyelid swelling, diplopia or fever.

Warm compresses are used to treat blepharitis, which does present with eyelid swelling and pain, however, it does not cause fever, diplopia or painful eye movements. Further, blepharitis is more likely to involve crusty plaques around the eyelid margin and eyelashes.

Question:

An 8 week old male infant is brought in by his mother to see the GP. She states that his right testis is undescended since birth. She was advised by a doctor when the child was born that she should take him to a doctor at 6 to 8 weeks of age if the problem persisted which is why she has brought him to the GP. On examination the GP confirms that there is a unilateral undescended testis on the right; the penis appears normal. What would be the next step in management?

A.Review at 3 months of age

B.Review at 6 months of age

C.Arrange genetic and hormonal testing

D.Arrange ultrasound scan

E.Refer to paediatric surgeon

Answer:Review at 3 months of age

Explanation:

Unilateral undescended testicle - review at 3 months - if persistent refer

Important for meLess important

If the testis is undescended by 3 months of age, the child should be referred to a paediatric surgeon and seen before 6 months of age. This is in line with NICE guidelines on undescended testes.

Question:

A 64-year-old man is seen by ENT, following a referral for a neck lump. He has a lump in front of his ear which has been slowly growing for the past 5 years and is now the size of a 50 pence coin. He has no associated symptoms, is feeling well in himself, and no past medical history of note.

Fine needle aspiration is performed and shows a benign pleomorphic adenoma, which is confirmed by histology.

What is the most appropriate management?

A.Urgent surgical resection

B.Routine surgical resection

C.Radiotherapy alone

D.1-yearly outpatient surveillance

E.5-yearly outpatient surveillance

Answer:Routine surgical resection

Explanation:

Malignant transformation may occur in patients with a pleomorphic adenoma, therefore they should be surgically removed

Important for meLess important

Routine surgical resection is the correct answer, as pleomorphic adenomas are normally surgically resected to avoid the chance of malignant transformation. There is no indication for this surgery to be urgent, and therefore routine is appropriate. Pleomorphic adenomas are the most common benign salivary neoplasm. They normally present as a slow-growing, movable, painless mass in the region of the parotid gland. They may affect the facial nerve due to their course through the parotid gland. They have the capacity to undergo a malignant transformation or may grow to exceedingly large proportions.

Urgent surgical resection is incorrect. This may be indicated if there were facial nerve symptoms, airway obstruction or evidence of malignant transformation - none of which is evident here.

Radiotherapy alone is incorrect. Radiotherapy may be offered if a patient refuses, or is not suitable for surgery, but surgical resection is the first line. Neo-adjuvant radiotherapy may be used alongside surgery to shrink the tumour and allow easier removal.

1-yearly outpatient surveillance is incorrect. This may be appropriate if the patient refuses active treatment, but it not recommended as malignant transformation may occur if the tumour is not removed.

5-yearly outpatient surveillance is incorrect. Even if a patient refuses active management, 5-yearly surveillance has the possibility is missing any malignant transformation, and making treatment much more difficult.

Question:

A 62-year-old man under the care of addiction services for alcoholism presents with pins and needles in his right arm. This has been becoming gradually worse for the past week. He is currently still drinking upwards of 20 units of alcohol per day and is currently taking regular disulfiram and citalopram.

On examination, there is no associated weakness, abnormal movements or changes to tone. His sensation is intact in all dermatomes.

A set of blood tests revealed the following clinically significant result:

Mg2+ 0.5 mmol/L (0.65 - 1.05)

He is started on magnesium sulfate, which is an oral magnesium salt. His doctor tells him about a potential side effect of taking this drug.

What side effect was he likely warned about?

A.Constipation

B.Diarrhoea

C.Loss of appetite

D.Nausea

E.Vomiting

Answer:Diarrhoea

Explanation:

Diarrhoea is the major dose-limiting side effect of magnesium salts

Important for meLess important

Hypomagnesaemia can present with symptoms that are similar to that of hypokalemia, including paraesthesia. In individuals with heavy alcohol consumption, there can be a loss of magnesium from tissues and increased urinary loss of magnesium. If hypomagnesaemia is above 0.4 mmol/L, then treatment is with oral magnesium salts, such as magnesium sulfate. If hypomagnesaemia is less than 0.4 mmol/L, then treatment is with intravenous magnesium sulfate.

The primary side effect of oral use of magnesium salts is severe diarrhoea, and therefore this is the correct answer.

Constipation could be a result of a paralytic ileus, which is a rare side effect of oral magnesium salts, but diarrhoea is more clinically likely to be seen.

Loss of appetite is not a known side effect of oral magnesium salts.

Nausea may be found in an overdose of oral magnesium salts, but not with use at therapeutic levels.

Vomiting may also be found in an overdose, but again, not with use at therapeutic levels.

Question:

A 65-year-old woman presents with a sudden loss of vision in her left eye. She denies any pain, or ocular trauma, and does not wear glasses or contact lenses.

On examination, her right eye is normal. The left eye has vision reduced to hand movements only.

Fundoscopy is performed:

She has a past medical history of hypertension and type 2 diabetes mellitus and takes ramipril, amlodipine, indapamide, metformin and empagliflozin.

What is the most likely diagnosis?

A.Branch retinal artery occlusion

B.Branch retinal vein occlusion

C.Central retinal artery occlusion

D.Central retinal vein occlusion

E.Subconjunctival haemorrhage

Answer:Branch retinal vein occlusion

Explanation:

Branch retinal vein occlusion is correct. This patient has presented with sudden-onset painless vision loss in her left eye. The vision loss is so severe that only hand movements can be made out. Fundoscopy shows severe retinal haemorrhages (red patches) confined to a limited area of the retina, making the diagnosis branch retinal vein occlusion.

Branch retinal artery occlusion is incorrect. This would present with cotton wool spots (white/yellowish cloud-like deposits with softer margins), and retinal pallor in a limited area.

Central retinal artery occlusion is incorrect. Fundoscopy would show generalised retinal pallor with a 'cherry red spot'. There may also be a relative afferent pupillary defect.

Central retinal vein occlusion is incorrect. This would have severe retinal haemorrhages throughout, rather than confined to a limited area.

Subconjunctival haemorrhage is incorrect. Patients may have preceding trauma or a history of straining (e.g. repeated coughing or heavy lifting), followed by the development of eye redness that is restricted to one small area that is well-demarcated. Since the bleeding here is superficial, there are no fundoscopy signs. There is also no mention of any eye redness in the question.

Question:

A 60-year-old man is being investigated for chronic breathlessness. After a respiratory review, he is sent for a high-resolution CT scan to assess for any interstitial lung disease. Upper zone fibrosis is noted on the CT report.

Which of the following is the most likely diagnosis?

A.Asbestosis

B.Cryptogenic fibrosing alveolitis

C.Amiodarone induced fibrosis

D.Coal workers' pneumoconiosis

E.Scleroderma

Answer:Coal workers' pneumoconiosis

Explanation:

Coal workers' pneumoconiosis typically causes upper zone fibrosis

Important for meLess important

Of the above conditions, only coal workers' pneumoconiosis (a form of industrial dust disease) typically causes upper zone fibrosis. All the other conditions listed are those that typically cause lower zone fibrosis.

The causes of upper lobe fibrosis can be remembered with the mnemonic 'CHARTS'

Coal workers’ pneumoconiosis

Histiocytosis

Ankylosing spondylitis/Allergic bronchopulmonary aspergillosis

Radiation

Tuberculosis

Silicosis (progressive massive fibrosis), sarcoidosis

Question:

You see a 3-year-old boy as a follow-up appointment. Two weeks ago he presented with left-sided otalgia associated with a purulent discharge. You prescribed amoxicillin and arranged to see him today. His mum reports that he is much better and says she has managed to keep the ear dry. On examination of the left side a perforation of the tympanic membrane is noted. What is the most appropriate action?

A.Advise to keep ear dry and see in a further 4 weeks time

B.Prescribe gentamicin ear drops to prevent infection + see in a further 6 weeks time

C.Advise to keep ear dry and see in a further 12 weeks time

D.Refer to ENT

E.Prescribe prophylactic dose amoxicillin to prevent infection + see in a further 4 weeks time

Answer:Advise to keep ear dry and see in a further 4 weeks time

Explanation:

When he presented initially with the perforation this boy was given amoxicillin which is consistent with NICE guidelines. There is no indication for continuing the antibiotics if the ear is dry.

If there is still a perforation when the boy is reviewed in 4 weeks time (i.e. 6 weeks since the perforation occurred) then ENT referral should be considered.

Question:

A 22-year-old male comes to see you the GP. He explains that there are strange spots on his body that he first noticed over 2 months ago. The spots are slightly itchy and he assumed they would go away without treatment. He has no past medical history and states he leads an active life with regular exercise. On examination, there are 6 hypopigmented spots on the left posterior aspect of his neck.

What is the most likely diagnosis?

A.Pityriasis rosea

B.Pityriasis versicolor

C.Vitiligo

D.Tinea corporis

E.Guttate psoriasis

Answer:Pityriasis versicolor

Explanation:

Pityriasis versicolor presents with hypopigmented patches

Important for meLess important

Pityriasis versicolour is a fungal infection that characteristically causes light patches on the trunk which can be mildly pruritic. It affects many groups including the healthy, the immunocompromised and physically active individuals. Vitiligo would typically present with a more symmetrical pattern. The other options present with different looking lesions.

Question:

John is a 62-year-old man who was diagnosed with congestive heart failure 2 years ago. His condition has deteriorated considerably. He now experiences marked shortness of breath on minimal activities. Light activities such as walking from the bedroom to his kitchen would make him breathless. His carer helps him with most things at home. He does not feel breathless at rest but gets palpitations sometimes.

Which NYHA class is most appropriate for this patient?

A.Class I

B.Class II

C.Class III

D.Class IV

E.Class V

Answer:Class III

Explanation:

Patients with heart failure of NYHA Class III experience marked limitation of physical activity and are only asymptomatic at rest

Important for meLess important

The NYHA classification is based on the severity of cardiac failure symptoms (e.g. shortness of breath on exertion, angina pain, palpitations, fatigue). Here is a simple way of determining the NYHA Class:

Class III: only comfortable at rest (any form of activity will precipitate symptoms)

Class IV: symptomatic at rest

Differentiating Class I from Class II may be tricky. If ordinary physical exercise (e.g. climbing stairs) triggers the symptoms, Class II is more appropriate. Note that palpitation is not considered in NYHA classification.

NYHA class is important for prognosis and to determine if further treatment is justifiable

Question:

You are about to prescribe amiodarone for one of your patients.

From the following, which is the most important laboratory index to monitor?

A.Full blood count

B.Urea and electrolytes

C.Thyroid function tests

D.Lipid profile

E.Creatine kinase

Answer:Thyroid function tests

Explanation:

Thyroid dysfunction is an important side effect of amiodarone that requires monitoring of thyroid function

Important for meLess important

Out of the options given, thyroid function tests are the most appropriate for amiodarone.

Full blood count, urea and electrolytes, lipid profile and creatine kinase are less appropriate for side effects of amiodarone as these are not typically affected.

Question:

An elderly diabetic man with a background of peripheral vascular disease presents with severe sepsis and multi-organ failure. Examination reveals an area of cellulitis on his right leg with blood filled bullae and surgical emphysema. A diagnosis of necrotising fasciitis is suspected.

What is the most appropriate action?

A.Surgical debridement if no response to IV antibiotics

B.MRI to evaluate the extent of soft tissue and bone involvement prior to debridement

C.IV antibiotics and immediate surgical debridement

D.Hyperbaric oxygen therapy

E.IV antibiotics and surgical debridement once patient stabilised

Answer:IV antibiotics and immediate surgical debridement

Explanation:

Management of necrotising fasciitis revolves around immediate surgical debridement nd IV antibiotics

Important for meLess important

Swift surgical debridement of all infected and devitalised tissue is the mainstay of management of necrotising fasciitis. IV antibiotics should also be given according to local policy, but will not be sufficient in isolation.

Surgical debridement should not be delayed to wait for the patient to stabilise as they may not do so and any delay in debridement will worsen the prognosis.

The use of hyperbaric oxygen is controversial and not well established.

Question:

A 30-year-old male develops an intensely itchy rash over his shins and knees over a course of 3 months. He has also noticed some weight loss recently but reports no other symptoms.

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Which of the following best describes the most likely underlying pathophysiological process?

A.Release of epidermal toxins A and B

B.Release of IgE from plasma cells

C.Formation of IgA antibodies

D.Latent reactivation of herpes zoster virus

E.Release of histamine from mast cells

Answer:Formation of IgA antibodies

Explanation:

This patient has characteristic dermatitis herpetiformis. This is characterised by intense itchy bumps and blisters in a rash-like form. This condition is closely related to coeliac disease, a potential cause of this patient's weight loss. Dermatitis herpetiformis rash is diagnosed by skin biopsy which shows a granular pattern of IgA deposition.

Release of epidermal toxins A and B can cause a severe rash in staphylococcal scalded skin syndrome (SSSS). This is far more common in children and causes a widespread blistering rash that is distinct from the rash pictured in this patient.

IgE is released from plasma cells in dermatitis such as atopic dermatitis; however, this patient does not have a rash characteristic of atopic dermatitis.

Latent reactivation of herpes zoster virus can cause shingles. This causes a painful rash in a dermatomal distribution.

Release of histamine from mast cells occurs in allergic reactions such as urticaria. The timeline and appearance of this rash makes urticaria very unlikely in this patient.

Question:

A 12-month-old child is brought into surgery for her next routine immunisations. She has received all the recommended immunisations to date. What should be given at this stage?

A.MMR + PCV

B.Hib/Men C + MMR + PCV

C.Hib/Men C

D.MMR + Men C

E.Hib/Men C + MMR + PCV + Men B

Answer:Hib/Men C + MMR + PCV + Men B

Explanation:

12-13 months immunisations: Hib/Men C + MMR + PCV + Men B

Important for meLess important

Question:

Mr. Rowan, a 55-year-old gentleman, is admitted to the Acute Medical Unit (AMU) with worsening tiredness and complaints of bruising. He is known to the hepatology team as a patient with chronic liver disease secondary to chronic hepatitis C. The registrar who admits Mr. Rowan suspects his disease may have progressed to cirrhosis.

What is the single laboratory finding that should prompt an immediate consideration of liver cirrhosis and urgent review by hepatology?

A.Platelet count = 90 x 10^9/ L

B.AST = 80 U/ L with ALT=85 U/ L

C.ALP = 155 g/ L

D.Urea = 11 mmol/L

E.Hb = 85 g/ L

Answer:Platelet count = 90 x 10^9/ L

Explanation:

Thrombocytopenia (platelet count <150,000 mm^3) is the most sensitive and specific lab finding for diagnosis of liver cirrhosis in those with chronic liver disease

Important for meLess important

Patients with cirrhosis often develop a rise of >2.5 in the ratio of the AST to ALT, the AST being a more reliable and durable marker for the degree of necroinflammatory activity in patients with cirrhosis. In chronic hepatitis, you would expect AST to be 10x raised.

Urea would be expected to decrease in advanced liver disease, as the liver is responsible for urea production.

Anaemia can be found in chronic liver disease, due to factors like splenomegaly or alcohol effects on bone marrow. However, Hb levels are not indicative of transitioning from chronic liver disease to cirrhosis.

ALP is more of a marker for cholestasis, and is not a sensitive indicator of severity of liver disease.

Thrombocytopenia (platelet count <150,000 mm^3) is the most sensitive and specific lab finding indicating liver cirrhosis in the setting of patients with chronic liver disease.

'Multiple factors, including splenic sequestration, reduced activity of the hematopoietic growth factor thrombopoietin, bone marrow suppression by chronic hepatitis C virus infection and anti-cancer agents, and antiviral treatment with interferon-based therapy, can contribute to the development of thrombocytopenia in cirrhotic patients'. From https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3949268/

Question:

A 13-year-old boy presents to the GP with gradual onset right groin pain and a limp. He is otherwise well, with no past medical or family history. On examination, there is a restricted range of motion of the right leg, which appears shortened and externally rotated. There is no swelling or warmth felt over the joints. His notes document normal vital signs, height in the 50th percentile and weight in the 90th percentile.

Which of the following is the most appropriate first-line investigation?

A.Computed tomography (CT)

B.Magnetic resonance imaging (MRI)

C.Plain X-ray of both hips (AP and frog-leg views)

D.Plain X-ray of the right hip (AP and frog-leg views)

E.Ultrasound

Answer:Plain X-ray of both hips (AP and frog-leg views)

Explanation:

AP and frog-leg view x-ray are the most commonly used views for suspected SUFE

Important for meLess important

The correct option is to perform a plain X-ray of both hips (AP and frog-leg views) as the most likely condition is slipped upper femoral epiphysis (SUFE). Factors suggesting this include being male, aged 10-15, obese and an externally rotated leg. Plain X-rays should be requested for all patients with suspected SUFE. The diagnosis can be confirmed and graded if Klein's line (drawn along the superior edge of the femoral neck) intersects less of the femoral head.

Since SUFE is bilateral in 20% of cases, both hips should be imaged to exclude involvement of the other hip, even if there are no suggestive symptoms currently.

MRI is not a first-line investigation for SUFE. Rarely, it may be performed if clinical suspicion remains high despite normal X-rays.

Although CT is sensitive for SUFE, the radiation dose administered means that it is not a first-line investigation in children.

Ultrasound is incorrect as findings are usually non-specific and so it is not a first-line investigation.

Question:

A 23-year-old female is due to undergo implantation of a middle ear prosthesis for sensorineural hearing loss. Her previous surgical history includes an appendectomy, for which she developed severe post-op nausea and vomiting.

Which of the following anaesthetic agents would be most appropriate to use?

A.Nitrous oxide

B.Isoflurane

C.Ketamine

D.Midazolam

E.Propofol

Answer:Propofol

Explanation:

Propofol is an antiemetic and is therefore particularly useful for patients with a high risk of post-operative vomiting

Important for meLess important

Propofol is a useful medication that provides both anaesthetic effects and anti-emetic effects. Previously developing severe post-operative nausea and vomiting (PONV), and ENT surgery put her at higher risk.

Nitrous oxide increases the risk of developing PONV.

Volatile liquid anaesthetics like isoflurane increase the risk of developing PONV.

IV ketamine can increase the chances of developing PONV. Additionally, it carries the risk of the patient developing hallucinations and nightmares.

IV midazolam may be used during anaesthetics. However, it can increase the risk of nausea, rather than decrease it.

Question:

Which one of the following is least associated with acanthosis nigricans?

A.Oral contraceptive pill

B.Obesity

C.Polycystic ovarian syndrome

D.Insulin-resistant diabetes mellitus

E.Hyperthyroidism

Answer:Hyperthyroidism

Explanation:

Question:

Which of the following investigations is the most important for diagnosing degenerative cervical myelopathy?

A.Nerve conduction studies and EMG

B.MRI Cervical spine

C.CT myelogram

D.CT C-spine

E.AP and lateral C-spine radiographs

Answer:MRI Cervical spine

Explanation:

An MRI of the cervical spine is the gold standard test where cervical myelopathy is suspected. It may reveal disc degeneration and ligament hypertrophy, with accompanying cord signal change.

Other answers:

CT imaging is reserved for patients with contraindications to magnetic resonance imaging. A CT myelogram is the first line investigation in this case.

Radiographs are not clinically useful in the workup of these patients, though osteoarthritic changes (e.g. osteophytes) can be visible if they are performed.

Other investigatons (e.g. nerve conduction studies, EMG) may be performed when the clinical picture is unclear. These can help to exclude mononeuropathies and other lower motor neuron disorders. However, where there is strong clinical suspicion and the diagnosis is suspected, an MRI of the cervical spine should be performed.

Question:

A 37-year-old G3P2 woman at 14 weeks gestation presents to her general practitioner as she is concerned about a new rash that she noticed on her 4-year-old son's abdomen 2 days ago. The rash appears vesicular, and the mother reports that there is a chickenpox outbreak at school. The patient is uncertain if she had chickenpox as a child.

What is the most appropriate course of action?

A.Administer the varicella zoster vaccine

B.Administer varicella-zoster IV immunoglobulin

C.Check the patient's varicella-zoster antibodies

D.No further action required

E.Prescribe a course of aciclovir

Answer:Check the patient's varicella-zoster antibodies

Explanation:

Chickenpox exposure in pregnancy - first step is to check antibodies

Important for meLess important

The correct answer is check the patient's varicella-zoster antibodies. If the woman is uncertain about whether she has had chickenpox in the past, the first step is to confirm her immunity by measuring her serum varicella-zoster antibodies. If the test confirms that she does indeed have antibodies to the varicella-zoster virus, no further action is required.

Administer the varicella-zoster vaccine is incorrect, as vaccination plays no role in the management of chickenpox exposure in pregnancy. If the woman has already been exposed to the varicella-zoster virus then vaccination will not prevent her from developing chickenpox.

Administer varicella-zoster IV immunoglobulin is incorrect, as this is only appropriate if the woman has never had chickenpox and has been exposed to a confirmed case of chickenpox in the previous 10 days. As this woman is unsure whether she has previously had chickenpox, this answer is incorrect.

No further action required is incorrect, as this woman may come to harm if she is not immune to chickenpox and has been exposed to the varicella-zoster virus by her son. Her serum antibodies to varicella-zoster must be checked before she can be reassured.

Prescribe a course of aciclovir is incorrect, as this woman does not have any signs or symptoms of active chickenpox. The RCOG recommends that aciclovir should only be given to pregnant women beyond 20 weeks gestation presenting within 24 hours of the onset of a vesicular rash.

Question:

A 34-year-old woman has an unplanned and unwanted pregnancy. She has two children and also had a miscarriage 5 years ago. Her past medical history includes subclinical hypothyroidism but she is otherwise fit and well. An ultrasound scan is done and shows an intrauterine pregnancy and estimates her gestation as 7 weeks. She has been counselled on her options and decides she wants a medical termination of pregnancy.

What medical treatment would she be offered?

A.IM methotrexate

B.Methotrexate and vaginal misoprostol

C.Oral mifepristone and vaginal prostaglandins

D.Oral mifepristone only

E.Vaginal prostaglandins only

Answer:Oral mifepristone and vaginal prostaglandins

Explanation:

Medical abortions are undertaken using mifepristone followed by prostaglandins

Important for meLess important

Oral mifepristone and vaginal prostaglandins is correct. This woman is only 7 weeks pregnant, which makes a medical termination more suitable than a surgical one as it has lower failure rates. Women in the UK are given mifepristone followed by one or more doses of prostaglandins (usually vaginal misoprostol). Medical terminations are appropriate at any gestation, but the dosing schedule and location of administration can vary e.g. home vs clinic.

IM methotrexate is used in the medical management of ectopic pregnancies, not in terminations of pregnancy. Methotrexate can also be used to treat cancers and rheumatoid conditions, but with different methods of administration.

Methotrexate and vaginal misoprostol is incorrect. This combination is sometimes used in the US although rarely. Methotrexate is mainly used in ectopic pregnancies. Vaginal misoprostol is commonly used in abortions but alongside mifepristone.

Oral mifepristone only is incorrect. This is sometimes used in cervical priming for surgical abortion if misoprostol is contraindicated, but not alone in medical terminations of pregnancy.

Vaginal prostaglandins only is incorrect. This has been studied and while possible the failure rates are higher than using misoprostol and mifepristone in combination. Vaginal prostaglandins are used in isolation in the induction of labour or for cervical priming in surgical abortions.

Question:

You receive the bloods tests which were requested by the practice nurse in advance of the annual diabetes review of Mr Perry, a 55-year-old patient. Mr Perry was diagnosed with type 2 diabetes about 5 years ago, and after 2 years of attempting to control it with lifestyle measures, he commenced metformin and is now prescribed 1g BD. His full blood count, renal profile and liver function tests are normal, his total cholesterol is 5.3mmol/L. His HbA1c is 60mmol/mol.

According to NICE, what action should be taken regarding his blood sugar control?

A.Reinforce lifestyle and diet measures only

B.Commence a second blood glucose lowering drug and reinforce lifestyle and diet measures

C.Stop metformin and commence a more effective blood glucose lowering drug

D.Change to modified-release metformin

E.Increase dose of metformin

Answer:Commence a second blood glucose lowering drug and reinforce lifestyle and diet measures

Explanation:

A second drug should be added in type 2 diabetes mellitus if the HbA1c is > 58 mmol/mol

Important for meLess important

Reinforce lifestyle measures. Incorrect answer, although lifestyle advice should be reinforced, NICE advises if HbA1c is 58mmol/mol or higher on a single drug, 'intensify drug treatment.'

Commence a second blood glucose lowering drug and reinforce lifestyle and diet measures. Correct answer, NICE advises if HbA1c is 58mmol/mol or higher on a single drug, 'intensify drug treatment, as well as revisiting lifestyle and dietary advice with the patient.

Stop metformin and commence a more effective blood glucose lowering drug. Incorrect answer, unless metformin is contraindicated or not tolerated, it should be continued.

Change to modified-release metformin. Incorrect answer, this can be done if a patient is experiencing gastrointestinal side effects on standard release metformin but will not improve blood sugar control.

Increase dose of metformin. Incorrect answer, he is already on the maximum dose (1g BD).

Question:

A 30-year-old man presents to his general practitioner with a three-day history of fever and a rash. He has a maculopapular rash on his trunk and palms. There are palpable lymph nodes in his axilla and groin. He has mouth ulcers and some flat white wart-like lesions around his anus.

On further questioning, he reports having a lesion on his penis a couple of months ago.

What is the most appropriate treatment?

A.Antiretroviral therapy

B.Cryotherapy

C.Intramuscular benzathine penicillin

D.No specific treatment except hydration and rest

E.Oral azithromycin

Answer:Intramuscular benzathine penicillin

Explanation:

Syphilis: intramuscular benzathine penicillin is first-line

Important for meLess important

Intramuscular benzathine penicillin is the correct treatment as it is the first-line management for syphilis, which is the most likely diagnosis. The rash (specifically on the palms), lymphadenopathy, buccal ulcers, and condylomata indicate that this is likely to be secondary syphilis. The lesion was described was likely the chancre of primary syphilis. .

Antiretroviral therapy is the correct treatment for HIV, which can present with rash and lymphadenopathy. HIV can coexist with syphilis so it is important to test for both. However, the fact that the rash is on the palms strongly points to a diagnosis of syphilis. Only a few other conditions cause this sign (e.g. hand foot and mouth disease), and with the other features, syphilis seems very likely.

Cryotherapy is a treatment option for genital warts. This is not the most likely diagnosis given the wart-like lesions described here are more likely to be condylomata lata due to their flat white appearance.

No specific treatment except hydration and rest is incorrect. This would be the advice for Epstein–Barr virus or other self-limiting viral illnesses. This is a potential differential when regarding rash and lymphadenopathy. However, syphilis is the more likely diagnosis given the characteristic rash and history.

Oral azithromycin can be used to treat syphilis, but it is not the first-line management as described by NICE in the UK. It is more often used for syphilis during pharmaceutical shortages or in developing nations. Intramuscular benzathine penicillin is the recommended first-line treatment and therefore is a more appropriate answer.

Question:

A 42-year-old man presents to the emergency department complaining of long-standing muscle weakness and headaches. His blood pressure is 176/78 mmHg, but all other observations are within normal limits. Examination is unremarkable.

Blood results are as follows:

Na+ 145 mmol/L (135 - 145)

K+ 2.8 mmol/L (3.5 - 5.0)

Bicarbonate 34 mmol/L (22 - 29)

Urea 4 mmol/L (2.0 - 7.0)

Creatinine 72 µmol/L (55 - 120)

What is the most appropriate first-line investigation?

A.Adrenal vein sampling

B.CT abdomen

C.Dexamethasone suppression test

D.Plasma aldosterone/renin ratio

E.Short synacthen test

Answer:Plasma aldosterone/renin ratio

Explanation:

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

Important for meLess important

Features of hypokalaemia coupled with hypertension are suggestive of primary hyperaldosteronism. This can be caused by an adrenal adenoma (Conn's syndrome) or bilateral idiopathic adrenal hyperplasia. The first line investigation for this is a plasma aldosterone/renin ratio, which should show high aldosterone levels alongside low renin levels.

Adrenal vein sampling and CT abdomen can be useful in differentiating between the different causes of primary hyperaldosteronism, but would not be appropriate first-line investigations.

The short synacthen test is the first-line investigation for adrenal insufficiency. This would typically present with hyponatraemia and hypotension.

Dexamethasone suppression tests are useful in the investigation adrenal gland function and is typically used to investigate for Cushing's disease.

Question:

An 8-year-old child is brought in to the emergency department by his parents as he is suffering acutely from breathing problems. The family do not speak English and so you cannot elicit any medical history from them. On examination there is reduced air entry on the right side. The right side of the chest is dull to percussion. A chest x-ray shows a mass in the region of the carina on the right side.

What is the most likely underlying cause of this patient's deterioration?

A.Right superior lobe bronchus - inhaled foreign body

B.Right inferior lobe bronchus - inhaled foreign body

C.Left inferior lobe bronchus - inhaled foreign body

D.Left superior lobe bronchus - inhaled foreign body

E.Tumour

Answer:Right inferior lobe bronchus - inhaled foreign body

Explanation:

Inhaled foreign objects are most likely to be found in the right main bronchus

Important for meLess important

This patient has presented with a group of signs that, collectively indicate an inhaled foreign body. Inhaled foreign bodies usually end up passing into the right main bronchus as this is the most direct pathway. From there, they usually pass into the inferior or middle lobe bronchi.

A tumour would unlikely cause an acute deterioration in this patients health.

Question:

A 64-year-old lifelong smoker presents with worsening breathlessness, cough and sputum production over the past 3 months after being diagnosed with COPD after spirometry.

He currently uses salbutamol and notes a relatively good response to this initially but not a long-lasting effect. His breathlessness is worse in the morning and night. He is not acutely unwell and does not report any cardiac symptoms.

His past medical history is unremarkable. Recent blood tests were normal aside from a slightly raised eosinophil count.

What treatment would be the most appropriate next step for this patient?

A.Azithromycin

B.LABA/ ICS inhaler

C.LAMA inhaler

D.LAMA/LABA inhaler

E.Theophylline

Answer:LABA/ ICS inhaler

Explanation:

COPD - still breathless despite using SABA/SAMA and asthma/steroid responsive features → add a LABA + ICS

Important for meLess important

A LABA/ ICS inhaler is the most appropriate next step in treatment here due to the asthmatic features and features suggesting steroid responsiveness such as the raised eosinophil count and diurnal variation.

Azithromycin prophylaxis is recommended in select patients, who have optimised standard treatments and continue to have exacerbations and is, therefore, less appropriate at this point.

A LAMA inhaler is less appropriate here than the above two options and is not a stepwise increase in his treatment. A LAMA may be introduced to one of the above as a triple therapy combination in future if control remained poor.

A LAMA/LABA inhaler would be a suitable option if the patient has no asthmatic features, or features suggesting steroid responsiveness. However, the diurnal variation with raised eosinophil count does suggest this may be the case.

NICE only recommends theophylline after trials of short and long-acting bronchodilators or to people who cannot use inhaled therapy. Its use should be with respiratory specialist input and is not an appropriate next step here.

Question:

A 45-year-old man is admitted due to haematemesis. He reports drinking 120 units of alcohol a week. When is the peak incidence of seizures following alcohol withdrawal?

A.2 hours

B.6 hours

C.12 hours

D.24 hours

E.36 hours

Answer:36 hours

Explanation:

Alcohol withdrawal

symptoms: 6-12 hours

seizures: 36 hours

delirium tremens: 72 hours

Important for meLess important