# PTS 3a Mock SBA Series 2020
# **Paper 2**- [Answers]- Version 1

**Marking instructions:**

- Award **1 mark for each question** on the paper
- Multiple 'correct' answers may exist, a mark is awarded for the **single *best* answer**
- There are **100 marks** in total
- There is **no identified 'pass mark'**

**Disclaimer:**

The following paper has been **written for students by students** and **bares no reflection on the real exam.** This is a **learning tool** that has **not been reviewed by the University of Sheffield** and therefore the **use of this paper** for learning are **at the student's discretion.**

Please **do not share** this document on **google drives** or **directly** to **future 3a students,** ths takes away from their opportunity to complete the mock SBA in the run up to their exams when it has maximal impact as a revision resource. **This mock paper will be edited and repeated in future years.** Thank you.


**Chief Exam Editor**

*Andrew Maud*

**SBA Question Contributors**

*Sadie Hughes*
*Heather Keys*
*Shaun Bagchi*
*Deepika Sharma*
*Natalie Myatt*
*Katherine Neo*
*Molly Garner*
*Charlotte Dawson*
*Nick Sanderson*
*Amelia Smith*
*Tom Hill*

# Summary of Topics Assessed- Paper 2

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|---|---|---|
| **Paediatrics- 1.33**<br>1. DKA - fluids<br>2. DKA - investigations<br>3. Measles - symptoms<br>4. Turner's syndrome - clinical features<br>5. Immunisation schedule<br>6. JIA - treatment<br>7. JIA - complications<br>8. Stephen-Johnson syndrome - drug causes<br>9. Developmental delay<br>10. Developmental milestones | **Paediatrics- 1.44**<br>11. Diagnosis of epilepsy subtype<br>12. Investigation of epilepsy<br>13. Complications of chickenpox<br>14. Meningitis CSF interpretation<br>15. Scarlet fever diagnosis<br>16. Wilms tumour diagnosis<br>17. Fragile X syndrome diagnosis<br>18. Kallmann syndrome diagnosis<br>19. Chickenpox diagnosis<br>20. Causative organism of bacterial meningitis | **Psychiatry- 2.2**<br>21. Suicide risk factors<br>22. First-rank symptoms<br>23. Management of EPSEs<br>24. Management of PTSD<br>25. Differentiating hypomania from mania<br>26. Schizophrenia mental state examination findings<br>27. Opioid maintenance prescribing<br>28. Lithium side effects<br>29. Recognition and management of delirium tremens<br>30. OCD management |
| **Psychiatry- 2.9**<br>31. Mild depression treatment<br>32. Antidepressant pharmacology<br>33. Psychotic symptom terminology<br>34. Suicide risk factors<br>35. Capacity Assessment<br>36. Obsessional thoughts<br>37. Cognitive screening in primary care<br>38. Medication induced delirium<br>39. Clozapine monitoring<br>40. Antipsychotic side effects | **Obs&Gynae - 3.33**<br>41. Presentation of placental abruption<br>42. Risk factors for VTE in pregnancy<br>43. Investigation of male factor infertility<br>44. Ultrasound- viable vs non-viable pregnancy<br>45. Cervical screening<br>46. Maternal Group B strep risk factors<br>47. Presentation of cervical cancer<br>48. Management of placental abruption and fetal distress<br>49. Types of miscarriage<br>50. types of vaginal cancer | **Obs&Gynae- 3.44**<br>51. Risk factors for placenta praevia<br>52. Presentation of vasa praevia<br>53. Management of vasa praevia<br>54. Causes of dysmenorrhoea<br>55. Hormones of menstrual cycle<br>56. Hormones of menstrual cycle<br>57. Mechanism of fetal delivery<br>58. UTI in pregnancy<br>59. Diagnosis of polyhydramnios<br>60. Causes of polyhydramnios |

# Summary of Topics Assessed- Paper 2

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|---|---|
| **Care of the Elderly- 5.1**<br>61. Subtypes of dementia<br>62. Presentation of stroke<br>63. Diagnosis of osteoporosis<br>64. Definition of polypharmacy<br>65. Components of a confusion screen<br>66. Diagnosis of stress incontinence<br>67. Presentation of stroke<br>68. Treatment of stress incontinence<br>69. Subtypes of dementia<br>70. Diagnosis of delirium | **Neurology- 7.22**<br>71. Presentation of Horner's syndrome<br>72. Treatment of MND<br>73. Treatment of trigeminal neuralgia<br>74. Types of dementia<br>75. Triggers of migraine<br>76. Prevention of migraine<br>77. Presentation of Parkinson's Disease<br>78. Pharmacology of Parkinson's Disease treatments<br>79. Management of TIA<br>80. TIA risk factors |
| **O&G/Gen Med- WC2**<br>81. Management of heavy menstrual bleeding<br>82. Diagnosis of PCOS<br>83. Metformin pharmacology<br>84. Inhaled corticosteroid advice<br>85. DKA fluid calculations<br>86. Deprescribing<br>87. Abnormal antepartum LFTs<br>88. Recurrent miscarriage<br>89. Gestational diabetes management<br>90. Abdominal mass in a neonate | **General Medicine- TB2**<br>91. Causes of Cushing Syndrome<br>92. Conn syndrome biochemistry + management<br>93. Investigations of renal colic<br>94. Stages and causes of AKI<br>95. Management of suspected bladder cancer<br>96. Management of H.pylori peptic ulcers<br>97. Stages of CKD<br>98. Management of status epilepticus<br>99. Parkinsonism differential diagnosis<br>100. Management of COPD |

Question 1- Correct Answer (B)- IV fluids (0.9% NaCl 10ml/kg) + SC insulin (0.1units/kg/hr)

*This is (B) the treatment pathway if the child is not alert, is nauseated/vomiting or is clinically dehydrated. Dehydration should be corrected over 48 hours as rapid rehydration may lead to cerebral oedema. Do not give PO fluids to a child or young person who is receiving IV fluids for DKA unless ketosis is resolving, they are alert, and they are not nauseated or vomiting. The insulin should be started after IV fluids have been running for 1 hour. Option A is the wrong pathway due to incorrect fluid and incorrect route as the child in question is alert, not nauseated and not clinically dehydrated so should be treated with PO fluids. Option C is the wrong pathway as the insulin dose is too high. Option D is the treatment pathway if the child is alert, not nauseated/vomiting and not clinically dehydrated. The child should be monitored for resolution of ketonaemia and acidosis. E is the wrong pathway as the insulin should be giving SC not IM, and the fluids would only be PO if the child is alert/not nauseated/not clinically dehydrated.*

Question 2- Correct Answer (B)- mildly raised creatinine

*Mildly raised creatinine (B) is correct as it is a sign of dehydration which is often seen in DKA. Bicarbonate is low in DKA (A). Potassium (C) may be initially high due to the acidosis. It will fall following treatment with insulin and hydration, and so potassium replacement must be initiated as soon as maintenance fluids are started.. Sodium (D) may be slightly elevated due to dehydration but it can also be normal. The most common abnormality seen would be mildly raised creatinine (E).*

Question 3- Correct Answer (D)- Measles

*Measles (D) - features such as fever, coryza, conjunctivitis, cough and buccal mucosa Koplik spots precede the rash which starts behind the ears and spreads downwards. Reduced uptake of the MMR vaccine in recent years has seen a resurgence in measles cases in UK. Chickenpox (A) - pyrexia is often the first feature of a chickenpox infection and the characteristic skin lesions appear in crops and pass through stages (papules > vesicles > pustules > crusts). The rash in this case would be very itchy. The runny nose (B) and feeling under the weather may be features of the common cold/influenza. However the type of rash seen in this case makes this diagnosis less likely. HSP (C) is a vasculitis affecting children aged 3-10 years. As well as a rash which has a typical distribution over the buttocks, extensor surface of limbs and ankles, there is often joint and abdominal pain seen. Although fever is one of the common symptoms seen in meningococcal septicaemia (E), cough and conjunctivitis are less so. The characteristic rash in this case would be a non-blanching purpuric rash.*
*Top tip – 4Cs of measles – cranky, cough, coryza, conjunctivitis (+ Koplik's spots)*

Question 4- Correct Answer (B)- hyperthyroidism

*Usually hypothyroidism rather than hyperthyroidism (B) is seen in people with Turner's. A - while this may not be seen as a clinical feature, people with Turner's often have congenital heart defects, particularly coarctation of the aorta. C is the most common clinical finding in Turner Syndrome and it can be the only clinical abnormality seen in children with Turner's. Another hallmark feature of Turner Syndrome (D) is a webbed or thick neck. People with Turner's also commonly have widely spaced nipples (E).*

Question 5- Correct Answer (C)- 6-in-1 + rotavirus + MenB

*These vaccinations (C) are all part of the 8 week vaccinations. Of course, this question is worded 'should have' as not all parents decide to vaccinate their children. Option A - 8 weeks (6-in-1 + MenB) and Hib/MenC (1st dose) is 1 year old. Option B - 8 weeks (6-in-1 + MenB) and MMR (1st dose) is 1 year old. Option D – 12 weeks. Option E – 8 weeks (6-in-1) and influenza (2-10 years old)*

*Top tip - You don't need to know the whole vaccination schedule off by heart, however it is important to have an idea of which sorts of vaccination are given at which age.*

Question 6- Correct Answer (A)- antibiotics

*Antibiotics (A) - while the symptoms here may be consistent with an infection, the onset of joint disease helps steer us towards an MSK diagnosis in which antibiotics would be inappropriate. A biologic (B) which can be used to treat JIA. It is costly and has to be given under strict supervision. Intra-articular steroid injection (C) is increasingly done under ultrasound guidance. This is the first line treatment for oligoarticular JIA. For polyarticular JIA, multiple joint injections are used as a bridging agent when starting methotrexate. It can be painful so requires sedation or inhaled anaesthesia (Entonox). Early use (D) reduces joint damage in JIA. It is more effective in polyarthritis and less effective in systemic features of JIA. It is given as a weekly dose (tablet, liquid or injection) and requires regular blood monitoring (for abnormal liver function and bone marrow suppression). There would be no problem in giving paracetamol (E) /alternative form (calpol) in a child with a fever to try and bring the temperature down.*

Question 7- Correct Answer (A)- chronic anterior uveitis

*Chronic anterior uveitis (A) is strongly associated with JIA and it will be seen in up to 1/3 of children with JIA. It may be seen prior to the arthritis or it may appear subsequently, however in children, it is usually a silent condition which has no signs or symptoms. It would only be recognised by an ophthalmologist seeing inflammatory cells in the anterior chamber. There is a national screening programme for all children with JIA to have their eyes screened on a 3 monthly basis. Coeliac disease (B) is an autoimmune condition which is not known to be a complication of JIA. Coeliac disease can cause delayed puberty, which is something that can be seen in JIA. Crohn's disease (C) is another condition affecting the GI tract which is not known to be a complication of JIA. Hypothyroidism (D) is not known to be a complication of JIA. Rheumatoid arthritis (E) is another autoimmune condition but it is not known to be a complication of JIA. Rheumatoid arthritis is rarely seen in children, in fact reactive arthritis is the most common arthritis seen in children which usually follows a viral infection.*

Question 8 - Correct Answer (C)- levothyroxine

*Stephen-Johnson syndrome is a rare but serious condition which affects multiple parts of the body. The syndrome often begins with flu-like symptoms followed by a red/purple target-like rash that spreads and forms blisters. The affected skin eventually dies and peels off. The mucous membranes of the mouth, throat, eyes and genital tract may also become blistered and ulcerated. Allopurinol (A), Lamotrigine (B), Penicillin (D) and Phenytoin (E) are all common causes of Stephen-Johnson syndrome.*

*Top tip – this is just a learn and churn of which drugs can cause SJ syndrome. As well as being caused by an adverse reaction to some medications, it can also be caused by viral infection (mumps, flu, HSV, EBV).*

Question 9 - Correct Answer (E)- normal development

*This infant (E) appears to have normal development but in many cases, delayed development does not become apparent until the child is older and when there are more milestones to assess. Option A is marked by delayed development in all domains. Option B is marked by delay in development of sitting/walking. Option C would be marked by delay in development of words. It may be too early to diagnose this as a 7 month old would not be expected to say recognisable words. Option D delay in language and gross motor domains. Both of these domains appear to be developing as expected, but subtle abnormalities in development may become apparent later on once more milestones may be used. Top tip – another learn and churn question. It is important to know common milestones in all 4 domains of development.*

Question 10 - Correct Answer (E)- 6 weeks

*6 weeks (E) smiles spontaneously, beginning to raise head, follow movements by turning head*
*Each child will reach their milestones at different ages and no two children are the same in terms of milestones. It is important to assess child development in all four domains:*

- *Gross motor*
- *Vision and fine motor*
- *Hearing, speech and language*
- *Social, emotional and behavioural*

*Grasp object, laugh/squeal (A); sit unsupported, rolls, finger feeds (B); pulls to stand, take cube in each hand, say mama/dada (C) and beginning to walk, say one word (D).*

Question 11- C- Juvenile myoclonic epilepsy

*Juvenile myoclonic epilepsy. This is because it is characterised by myoclonic jerks up to 2 hours after waking up. You can have periods of absence which disrupt schooling, but learning is normal. Age of onset 10-20 years. Benign rolandic epilepsy- tonic clonic seizures in sleep, or focal seizures with abnormal sensation in tongue/ face. This does not fit with the case details given. Juvenile absence epilepsy- right age for onset and has absences. However, you wouldn't expect the classic early morning myoclonic jerks. Lennox-Gastaut syndrome- age of onset 1-3 years so too young. Also would expect neurodevelopmental arrest or regression. Tonic-clonic seizures- rhythmic contraction and jerking of all limbs, often fall to floor. Would expect a post-ictal phase of unconsciousness. Doesn't fit with case history. Would expect these seizures to happen at any time of day, not just early morning.*

Question 12- D- request an EEG and follow up when results are back

*Request an EEG- indicated whenever an epilepsy is diagnosed. Helps to categorise the epilepsy type and severity to aid subtype diagnosis and to decide if and what anti-epileptic would be appropriate. Head MRI/ CT- only if unclear history or atypical features. Wouldn't be the first step. MRI over CT due to less radiation risk. May grow out of seizures depending on subtype but wouldn't be appropriate to not investigate first. Wouldn't immediately start an anti-epileptic without knowing the subtype of epilepsy and investigating first.*

Question 13- E- pyelonephritis

*Chickenpox does not directly cause pyelonephritis. The other four are recognised complications of chickenpox.*

Question 14- C- Turbid appearance, raised polymorphs, raised protein, low glucose

*Most likely diagnosis is bacterial meningitis due to untreated cellulitis infection causing bacteraemia and spread via blood stream. Bacterial meningitis- turbid appearance, raised polymorphs, raised protein, low glucose (C). Viral meningitis- clear appearance, raised lymphocytes, normal/raised protein, normal/low glucose (B/E). TB meningitis- turbid/clear appearance, raised lymphocytes, raised protein, low glucose (E). Encephalitis- clear appearance, normal/raised lymphocytes, normal/raised protein, normal/low glucose (B).*

Question 15- C- scarlet fever

*Scarlet fever (C) is correct, because it often starts with a sore throat and fever. A sandpaper rash is classic of scarlet fever. Kawasaki disease (B)- would expect desquamation of hands and feet. Hand, foot and mouth disease (A)- rash would be discrete blisters/papules, contained to hands, feet and mouth, unlike scarlet fever. Slapped cheek syndrome (D)- rash on cheeks, child usually quite well, may have a fever. Tonsillitis (E)- would expect exudate on tonsils and wouldn't expect a rash with tonsillitis.*

Question 16- E- Wilms tumour

*Wilms tumour (E) presents between the age of 5-10 years. Presentation is abdominal mass and painless haematuria. Prognosis is good but important to detect and treat early. Constipation (A)- could result in abdominal mass but not haematuria. Neuroblastoma (B)- can present as abdominal mass but unlikely to cause haematuria. Urinary tract infection (C)- could cause haematuria but unlikely to have abdominal mass. Vesicoureteral reflux (D)- reflux of urine back into the kidneys could result in hydronephrosis, detectable on USS as dilated kidneys and ureters. Unlikely to directly cause haematuria.*

Question 17- B- fragile X syndrome

*Fragile X (B)- characteristic features described in stem. Prader-Willi syndrome (D)- hypotonia, faltering growth, developmental delay, learning difficulties, facies- almond shaped eyes, narrow bridge of nose, narrowing of forehead at temples, thin upper lip. Noonan syndrome (C)- mild learning difficulties, short webbed neck, pectus excavatum, short stature, congenital heart disease, facies- broad forehead, drooping eyelids, wide distance between eyes. Down syndrome (A)- learning difficulty, decreased muscle tone, facies- small chin, slanted eyes, poor muscle tone, flat nasal bridge, single palmar crease, protruding tongue. Williams syndrome (E)- short stature, congenital heart disease, mild-moderate learning difficulties, facies- broad forehead, short nose, full cheeks, wide mouth.*

Question 18- B- Kallmann syndrome

*Kallmann syndrome (B)- features described in stem. Idiopathic hypogonadotropic hypogonadism (A)- reduced or absent puberty however would not expect anosmia, like in Kallmann syndrome. Klinefelter syndrome (C)- delayed puberty, lack of secondary sexual characteristics, tall stature, learning disability. Prader-Willi syndrome (D)- hypotonia, faltering growth, developmental delay, learning difficulties, facies- almond shaped eyes, narrow bridge of nose, narrowing of forehead at temples, thin upper lip. Turner syndrome (E)- (female only), premature ovarian failure, delayed/absent puberty, short stature, learning disability, congenital heart defects, horseshoe kidney.*

Question 19- A- chickenpox

*The rash is classic of chickenpox (A), along with a mild fever and her age. Contact dermatitis (B)- would expect a pattern with an irritant or a longer history of recurrent rash. Dermatitis herpetiformis (C)- itchy bullous rash affecting usually extensor surfaces, arise on reddened skin, lesions grow in centrifugal pattern.Impetigo (D)- small pustules that develop a honey-coloured crusted plaques, usually on face, no surrounding erythema, often not itchy. Urticaria (E)- blanching, raised, palpable, itchy wheals, usually in response to an allergen.*

Question 20- A- group B streptococcus

*In neonates, most common causative organisms are: Group B streptococcus (A), Escherichia coli and listeria monocytogenes. The others (B, C, E) are all possibilities in older children. Staph aureus (D) is usually seen after surgery or from skin infection.*

Question 21- Correct Answer A - An impulsive act

- *Suicide attempts in which there has been planning as to the method/location/timing are more likely to lead to further suicide attempts. An impulsive act is therefore the correct answer, as the lack of planning is less likely to increase the risk of future completed suicide*
- *Taking precautions to avoid discovery, terminating utilities contracts (i.e.. carrying out final acts), leaving a note, using a violent method (hanging, jumping) are all high-risk features that increase the risk of future completed suicide*

Question 22- Correct Answer E – Visual hallucinations

- *The first rank symptoms of schizophrenia/psychosis are:*
    - *3rd person auditory hallucinations (auditory hallucinations in which the voice(s) talks about you/talks to other people, but not directly to you)*
    - *Delusional perceptions (including persecutory delusions)*
    - *Somatic passivity (the belief that external forces that control your actions, thought and perceptions)*
    - *Though alienation (including thought insertion, thought withdrawal, and thought broadcast)*
- *Visual hallucinations are regarded as a second rank symptom of schizophrenia/psychosis*

Question 43- Correct Answer C - Procyclidine

- *Antipsychotics act mainly via dopamine D2 receptor antagonism in the mesolimbic pathway. This, in combination with dopamine receptor antagonism in the nigrostriatal pathway, causes an imbalance of dopaminergic and cholinergic neurotransmission. The relatively increased cholinergic neurotransmission is thought to give rise to EPSEs (parkinsonism, dystonia, tardive dyskinesia, akathisia). Therefore, anti-cholinergics (e.g. procyclidine) are used to treat these side effects. Please note that according to the BNF, procyclidine is not indicated in to treat tardive dyskinesia (for which tetrabenazine is indicated)*
- *Flumazenil is used to reverse the sedative effects of benzodiazepines (particularly in benzodiazepine overdose)*
- *Protamine sulphate is a peptide that is used to reverse the effects of heparin/low-molecular-weight heparin (particularly in overdose)*
- *Lorazepam is a benzodiazepine that has multiple indications, including management of status epilepticus, short-term use in anxiety and acute panic attacks*
- *Pyridostigmine is long-acting acetylcholinesterase inhibitor that is commonly used for symptomatic management in myasthenia gravis*

Question 24- Correct Answer E – Trauma-focussed CBT

- *This patient is presenting with a stereotypical history of post-traumatic stress disorder (PTSD). Martin meets the ICD-10 for PTSD in the following ways: He has experienced an exceptional stressor (witnessing the death of his friend) which would cause pervasive distress in almost anyone; he describes persistently relieving the event; he describes an avoidance of the circumstances resembling the stressor (by not wanting to take public transport) and he describes symptoms of hyperarousal (being on edge).*
- *NICE recommends that Trauma-focussed CBT should be offered first line to patients with PTSD, presenting at least 1-month after the trauma (NICE recommend active monitoring in patients who present within 1 month of a trauma)*
- *EMDR is also used in PTSD, but is recommended in patients who have presented between 1 and 3 months after a non-combat related trauma who specifically prefer EMDR over trauma-focussed CBT*
- *Dialectical behavioural therapy is used first line in patients with emotionally unstable (borderline) personality disorder*
- *Exposure-response prevention is a specific type of CBT that is offered first line to patients with OCD*
- *Sertraline is an SSRI antidepressant that has multiple indications, including use in PTSD. NICE guidance recommends using an SSRI such as sertraline, on an SNRI (e.g. venlafaxine) in patients with PTSD if they prefer drug treatment*

Question 25- Correct Answer B – Grandiose delusions

- *The presence of psychotic symptoms in a patient presenting with elevated mood automatically warrants a diagnosis of mania rather. Grandiose delusions is a psychotic symptom, and so this would not be in keeping with hypomania.*
- *Flight of ideas (frequent changes in topic that follow some logical train of thought), irritability, reduced need for sleep and sexual disinhibition are features that are common to both hypomania and mania.*

Question 26- Correct Answer A – Knight's move thinking

- *This man is presenting with typical features of a psychotic episode (3rd person auditory hallucinations and delusional perceptions). His use of cannabis also hints at him having a psychotic disorder, as cannabis use increases the risk of psychosis.*
- *Knight's move thinking is the correct answer, as this describes a phenomenon where a patient's thoughts move from one topic to another, without any logical connection between them. It is a feature that is common in schizophrenia*
- *Flight of ideas is similar to knight's move thinking. However, there is increased rate of thought and there is at least some logical links between the frequent changes of topics that a patient is talking about. It more commonly a feature of mania/hypomania*
- *While this patient does have evidence of third person auditory hallucinations, this phenomenon is regarded as a perception of external stimuli, as opposed to thought form, and is therefore incorrect*
- *Circumstantiality describes a phenomenon where a patient talks about details that are irrelevant to the question asked, but there is a logical progression of thought. This differs to knight's move thinking as understandable associations are preserved in circumstantiality. Circumstantiality differs from flight of ideas in that the rate of thought is normal in circumstantiality.*
- *Perseveration is the repetition of a certain word/phrase/thought after the absence or cessation of a stimulus (e.g. a question).*

Question 27- Correct Answer C - Methadone

- *The symptoms of rhinorrhoea and watery eyes, drowsiness and evidence of needle tracks suggests that this patient is misusing opiates.*
- *Methadone is a long-acting synthetic opiate that is a first-line drug of choice for opioid detoxification/maintenance regimes. It is a coloured liquid that is designed to be unsuitable for IV use and is taken on a daily basis. Buprenorphine (a partial opiate agonist) can also be prescribed first-line. Lofexidine is an alpha-adrenergic agonist that can be used as an alternative in patients who have made a clinically informed decision not to use methadone or buprenorphine, as well in patients with a mild or uncertain level of dependence*
- *Chlordiazepoxide is a benzodiazepine that is regarded as a first-line drug of choice for alcohol detoxification regimes, but is not used in opiate detoxification*
- *Loperamide is mu-opioid receptor that specifically acts in the large intestine, producing anti-motility effects in the gut. In the context of opioids, it can be prescribed for a patient experiencing diarrhoea as a symptom of opioid withdrawal. It is not, however, prescribed as part of a detoxification regime.*
- *Naloxone is an opioid receptor antagonist, that is used for the rapid reversal of the effects of opioids, particularly in overdose*
- *Naltrexone is a long-acting opioid receptor antagonist that can be used in opioid and alcohol maintenance regimes, but is not considered first line*

Question 28- Correct Answer B- There is a significant risk of agranulocytosis

- *Lithium does not carry a significant risk of agranulocytosis (a significant drop in WBCs). Clozapine, an atypical antipsychotic, carries a significant risk of agranulocytosis. Lithium is associated with leucocytosis (increased leucocytes).*
- *Thyroid and renal function should be checked every 6 months, as lithium can cause hypothyroidism and is nephrotoxic*
- *Lithium is teratogenic and is therefore contraindicated in pregnancy. It is associated with Ebstein's anomaly, a congenital heart defect characterised by an enlarged right atrium, shrunken right ventricle, and a pansystolic murmur caused by a defective tricuspid valve*
- *Lithium has a narrow therapeutic index. Lithium levels are therefore checked every 3 months*
- *Tremor is a recognised side effect. Within therapeutic levels, a fine tremor can be present. In toxicity, a coarse tremor is more common.*

Question 29- Correct Answer A – Admission to hospital for medically assisted alcohol withdrawal

- *This patient has a classical presentation of delirium tremens (confusion, disorientation, hallucination, tremor, sweating).*
- *NICE advises admission to hospital for medically-assisted alcohol withdrawal for any patient who is at high risk of developing alcohol withdrawal seizures or delirium tremens. This woman has delirium tremens, and therefore hospital admission is most appropriate. Oral lorazepam is the first-line treatment for delirium tremens. If symptoms persist or oral medication is declined, offer haloperidol or IV lorazepam*
- *Carrying out a mental health act assessment would lead to a likely delay in treatment and is therefore less appropriate than admitting to hospital. There is no suggestion that this patient would not willingly be admitted to hospital, and the risk of the patient developing alcohol withdrawal seizures warrants urgent action. Her visual hallucinations are a feature of delirium tremens, and so treating this is likely to stop her hallucinations*
- *Given that this patient has delirium tremens, outpatient alcohol withdrawal management is inappropriate*
- *Watch and waiting is inappropriate, as the patient could develop alcohol withdrawal seizures, and could be a risk to themselves.*

Question 30- Correct Answer C – Switch fluoxetine to clomipramine

- *Nice states that for patients with OCD who have trialled a combination of SSRI and ERP CBT for at least 12 weeks, either try a different SSRI or switch the SSRI to clomipramine (a TCA). Clomipramine has specific anti-obsessional properties and should be offered after an adequate trial of at least one SSRI or if the patient prefers to take clomipramine. The patient in this case has expressed a desire to stop taking SSRIs, and therefore switching fluoxetine to clomipramine is most appropriate*
- *Encouraging adherence to the current treatment regimes is inappropriate, as 12 weeks of therapy is regarded as an adequate trial, and the patient has not had a good response to this*
- *Switching to a different SSRI (fluvoxamine) would be inappropriate given the patient's preference not to take SSRIs*
- *Switching to risperidone would be less appropriate as there is no mention of psychotic features in this case*
- *Psychodynamic therapy is not indicated in OCD*

Question 31- Answer D- Prescribe nothing and review patient in 2 weeks

*Citalopram (B) is an SSRI, so would be correct choices as first-line antidepressants, however Miss X's PHQ score indicates mild depression. NICE Guidelines state that you should watch and wait (D) and consider referral to IAPT for step 2 (low intensity) psychological interventions. Amitriptyline (A) is a tricyclic antidepressant and would not be prescribed as a first-line treatment. Zopiclone (E) can be prescribed for insomnia for short-term use (up to 4 weeks) but in this instance would be very inappropriate, as they can have serious side effects and patients can become dependent on them. They are rarely prescribed, and when they are it is only when a patient's insomnia is severe, or other treatments have not worked. Lithium(C) is a mood stabiliser and can be used in individuals with recurrent depression, where treatment with other medications have not worked.*

Question 32- Answer A- A response should be seen within 1 week

*Response to antidepressant treatments are usually seen between 2-4 weeks, but could take up to 6 weeks (A). Patients should be encouraged to stay on antidepressant treatment for at least 4 weeks, at an effective dose, before deciding if the medication has worked or not. Citalopram can cause discontinuation symptoms when stopped e.g. restlessness, trouble sleeping, unsteadiness, sweating. Citalopram can cause hyponatremia secondary to SIADH (syndrome of inappropriate antidiuretic hormone secretion) (C). This is more commonly seen in elderly patients who are taking diuretic medicines for high blood pressure, or patients who have decreased amounts of fluid in the body due to severe diarrhoea or vomiting. Starting a patient on an antidepressant, could in the short-term increase their risk of suicide, as SSRIs have shown to occasionally bring on suicidal thoughts and patients have more energy to act on new/preexisting suicidal thoughts (especially for under 30s). It is important to review patients regularly to monitor this (approximately every 2-4 weeks in the first 3 months, then at longer intervals if response is good) (D). Patients should be advised to take their antidepressants 6 months - 1 year after they no longer feel depressed, any less than this increases the risk of relapse (E).*

Question 33- Answer A- Delusion of passivity

*Delusion of passivity is the delusion of being controlled, where someone experiences one's feelings/impulses/thoughts/actions as not one's own, but as being imposed on by some external force. He is convinced his headteacher has the ability to control his actions (A). Delusional perception is when someone sees something in reality (e.g. a stranger coughing) and attributes a false meaning to this (e.g. the fact the stranger coughed means that they are an undercover spy following them) (B). Running commentary is a type of auditory hallucination where the voices comment on a patient's actions or thoughts e.g. the patient is talking to a nurse and the voice says "why the hell are you talking to her?" (C). Somatic hallucinations are tactile hallucinations e.g. feeling bugs crawling under skin (D). Thought broadcast is the fixed idea that other people can read your thoughts (E).*

Question 34- Answer A- Being married if female

*Being married is a protective factor for both men and women (B). Older age (E), being male (A) and comorbid substance abuse/psychiatric illness (D/C) are all risk factors for suicide and should be part of your suicide risk assessment.*

Question 35- Answer A- A person's ability to make a decision has three features – an ability to understand, retain and weigh-up

*A capacity assessment regarding a specific decision involves four features - the ability to understand, weigh-up, retain and communicate the decision made (A). A person can communicate their decision verbally or by other means such as in writing or via sign language, the assessor must take into account the patients' primary communication method (B). It is enough for the patient to understand the salient details of the decision and when assessing capacity, you must ensure that the level of understanding required is not set too high and that you only give the patient information relevant to the decision itself (C). A patient shouldn't be expected to understand before given the information (D). Capacity is time and decision specific, for example a patient can have capacity to choose what they are having for dinner but might not necessarily have the capacity to decide where they are going to live (decision specific). A patient may have capacity that morning but then doesnt have capacity for the same decision later - often seen in delirious patients (time specific) (E).*

Question 36 – Answer A – they are usually egosyntonic

*Obsessive thoughts are usually egodystonic (very different to the patient's normal beliefs and values) (D). Sexual content is a relatively common theme in obsessive thoughts (A). Obsessive thoughts are usually intrusive (stuck in the patient's mind) and repetitive (B). Intrusive and obsessive thoughts can occur in depressive disorders e.g. ruminating about past mistakes (C). Obsessive thoughts are usually resisted (E).*

Question 37- Answer C – 6CIT

*The Six Item Cognitive Impairment Test (6CIT) is a brief cognitive function test which takes less than five minutes and is widely used in primary care settings (C). PHQ-9 (E) and Beck's (B) are for depression, AUDIT (A) is for alcohol use, GAD-7 (D) is for anxiety.*

Question 38 – Answer A – Adcal-D3

*Adcal-D3 is a vitamin D supplement and has not been associated with delirium (A). The other medications have been associated with confusion and drug induced delirium. If this patient has recently started/stopped these medications, this could be a differential cause to her increased confusion. Furosemide is a diuretic (B), oxybutynin (C) is for urinary symptoms, propranolol (D) is a beta blocker and ranitidine (E) is a H2 blocker to decrease stomach acid production.*

Question 39 – Answer D – Every week for 18 weeks

*Any patient commenced on Clozapine needs to have a minimum of 1 blood test per week for the first 18 weeks. This is reduced to fortnightly until 1 year. After this monthly blood tests are needed. (This is only if no abnormalities are found on blood tests - if monitoring shows concerning results, then monitoring may not step down).*

Question 40 – Answer B – Akathisia

*He is describing akathisia (B). An acute dystonic reaction is characterized by involuntary contractions of muscles of the extremities, face, neck, abdomen, pelvis, or larynx in either sustained or intermittent patterns that lead to abnormal movements or postures (A). Tardive Dyskinesia causes stiff, jerky movements of your face and body that patients cannot control. Patients may blink their eyes, stick out their tongue, or wave their arms without meaning to do so (E). Neuroleptic malignant syndrome (NMS) is a life-threatening reaction that can occur in response to neuroleptic or antipsychotic medication. Symptoms include high fever, confusion, rigid muscles, variable blood pressure, sweating, and fast heart rat*e (D). Parkinsonism mimics symptoms of Parkinson's e.g. tremor, slow movements (C).

Question 41- Correct Answer (B)- (Placental abruption)

*Placental abruption- typically presents with abdominal pain with mild vaginal bleeding (can get a concealed abruption with maternal distress and haemorrhage much greater than vaginal loss). Risk factors include hypertension, intrauterine growth restriction. Uterus is typically tender and if severe can be hard and "woody".*

*A is incorrect as miscarriage is a cause of early pregnancy bleeding (under 24 weeks gestation)*

*C is incorrect as this typically presents with a large amount of painless vaginal bleeding. The fetus often presents with an abnormal lie (breech/ transverse)*

*D is incorrect as uterine rupture occurs during active labour due to incorrect use of oxytocins. There is almost always a history of previous C section. Contractions may cease*

*E is incorrect- typically occurs with rupture of the membranes, usually painless with severe foetal distress*

*TOP TIP: placenta praevia vs placental abruption*

| | *abruption* | *placenta praevia* |
|---|---|---|
| *shock* | *inconsistent with external loss* | *consistent with external loss* |
| *pain* | *common, severe* | *none. contractions occasionally* |
| *bleeding* | *may be absent, often dark* | *red and often profuse. often history of small APHs* |
| *tenderness* | *usual. uterus may be hard* | *rare* |
| *fetus* | *lie normal, often engaged. may be dead/ distressed* | *lie abnormal/ head high. Heart rate usually normal* |

Question 42- Correct Answer D- Low BMI

*Low BMI is not associated with an increased risk of VTE in pregnancy. Previous venous thromboembolism (A), factor V leiden deficiency- a congenital thrombophilia (B), multiple pregnancy (C) and pre-eclampsia (E) increase the risk of VTE.*

Question 43. Correct answer: C- Semen analysis

Not A or D because you would only test FSH, LH and serum karyotype if there was azoospermia (no sperm present) in the semen analysis. You would only do MRI of the brain to rule out pituitary or hypothalamic tumours which are less common than abnormal semen. You would get a testicular biopsy if you suspect arrested spermatogenesis, which is less common than abnormal semen.

Question 44- Correct Answer B- Repeat the Ultrasound scan in 7 days

*Explanation…B is correct as due to the Crown rump length being less than 7mm, it may be too early to tell whether this is viable but very early pregnancy, or a possible non-viable pregnancy (miscarriage). A repeat scan is necessary.*

*A is incorrect as you can not say for sure whether a miscarriage has occurred yet*

*C is incorrect as this is the medical management of an ectopic pregnancy, the ultrasound found an intrauterine pregnancy*

*D is incorrect as you can't be sure this pregnancy is viable*

*E is incorrect as the patient is haemodynamically stable and there is no formal diagnosis of miscarriage*

Question 45- Correct Answer C- Do not treat- discharge and screen again at 12 months in the community.

*Individuals with CIN 1 have low grade abnormal changes in the transformation zone, they are at lower risk of developing cervical cancer so are often not treated but still need follow up after 12 months and further colposcopy if necessary.*

*A is incorrect as the individual had CIN 1 seen at colposcopy so requires follow-up, if they had low grade dyskaryosis on cytology and a normal colposcopy exam they could be discharged with routine recall.*

*B is incorrect as see and treat is not offered for low grade dyskaryosis- this would be unnecessary treatment.*

*D- the follow up time here is incorrect. If an individual is treated for CIN (i.e. with LLETZ) a screen is done at 6 months as a test of cure.*

*E is incorrect. A biopsy could be taken to confirm CIN 1 but this would not normally be treated. CIN 2 or 3 are treated if confirmed on biopsy.*

Question 46- Correct Answer A- Foetal macrosomia

*All the other answers are risk factors. Infants may be more exposed to maternal GBS during labour and subsequently develop potentially serious infections*

Question 47- Correct Answer B- Cervical cancer

*The diagnosis is B because:*

- *Postcoital bleeding*
- *Purulent discharge*
- *Red brown discharge!*
- *Aged 45-49 is a risk factor*
- *Smoker (risk factor)*
- *Multiple sexual partners (risk factor)*

*Although bacterial vaginosis may have a 'fishy' odour, the colour is usually grey-white. Not a pelvic infection because no signs of infection and doesn't experience dyspareunia (although many are asymptomatic). Endometriosis doesn't tend to present with postcoital bleeding.*

Question 48- A - Caesarean section

*The diagnosis here is a placental abruption because:*

- *Maternal smoker (risk factor)*
- *Painful bleeding*
- *'woody' hard uterus*

*Late decelerations in the CTG indicate fetal distress so an immediate Caesarean section is indicated. If both the mother and fetus was stable, dexamethasone would be indicated to promote fetal lung maturation. If both were stable and >34 weeks, vaginal delivery would have been appropriate. Surgical ligation would be indicated in severe cases post-delivery, where bleeding is unresponsive to delivery and to administration of utero-tonic agents*

Question 49- Correct Answer A- Incomplete miscarriage

*See table below:*

**Classification of spontaneous abortion**

| Type | Clinical presentation | Cervix | Ultrasound findings |
|---|---|---|---|
| Missed | • Variable presentation from no symptoms to light vaginal bleeding<br>• Pregnancy symptoms may decrease | Closed | Nonviable fetus |
| Inevitable | • Vaginal bleeding, uterine cramps<br>• Possible intrauterine fetus with heartbeat | Open | Fetus with possible heartbeat |
| Incomplete | • Vaginal bleeding with passage of large clots or tissue<br>• Uterine cramps<br>• Products of conception often visualized in dilated cervical os | Open | Products of conception often in cervix |
| Threatened | • Variable amount of vaginal bleeding<br>• Pregnancy can proceed to viable birth | Closed | Viable pregnancy |
| Septic | • Fever, malaise, signs of sepsis<br>• Foul-smelling vaginal discharge, cervical motion & uterine tenderness<br>• Rarely occurs after spontaneous abortion<br>• Usually with induced abortions, can be life-threatening | Usually open | Usually retained products of conception |

Question 50- C- Secondary (metastatic) vaginal cancer

*About 80% of vaginal cancers are metastatic- primarily from the cervix or endometrium.*
*Primary vaginal cancer is rare.*
*Squamous cell carcinoma (A) is the most common primary vaginal cancer (85%). This initially spreads superficially within the vaginal wall and later invades the paravaginal tissues and the parametria.*
*Distant metastases occur most commonly in the lungs and liver.*
*Approximately 10% of primary vaginal carcinoma is adenocarcinoma (B)*
*D- clear cell adenocarcinoma is associated with mothers who took the drug diethylstilbestrol (DES)- a synthetic oestrogen- during pregnancy between the late 1940s and 1971.*
*E- very rare*

Question 51- Correct Answer C – Nulliparity

*It is actually high parity that increases the risk of placenta praevia. All other risk factors are correct.*

Question 52- Correct Answer E- Vasa praevia

*Vasa praevia is most likely to present at the rupture of membranes (either spontaneous or artificial) with painless bleeding and acute fetal compromise, she has had no history of antenatal bleeding up to this point. Approximately 50% of cases are detected antenatally and these require caesarean section delivery.*
*Ectopic pregnancy – would most likely be painful*
*Placental abruption – causes painful bleeding*
*Placenta praevia would most likely cause intermittent bleeding in earlier stages of pregnancy.*

Question 53- Correct Answer B- Digital vaginal examination

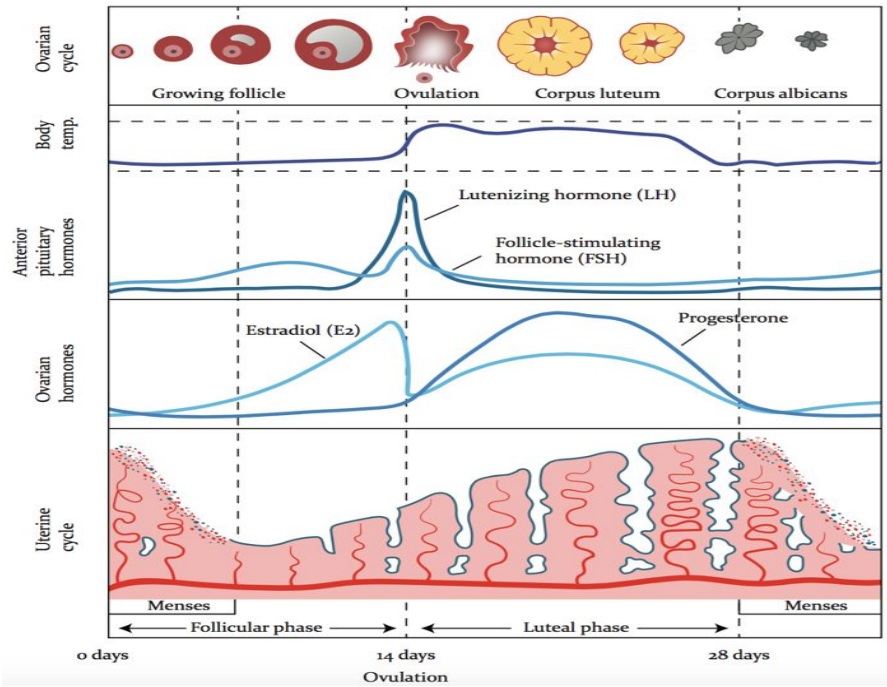
*Vaginal examinations are contraindicated in any pregnancy where vasa praevia is suspected. This is due to the risk of rupturing the exposed blood vessels.*

Question 4 - Correct Answer - D – endometriosis

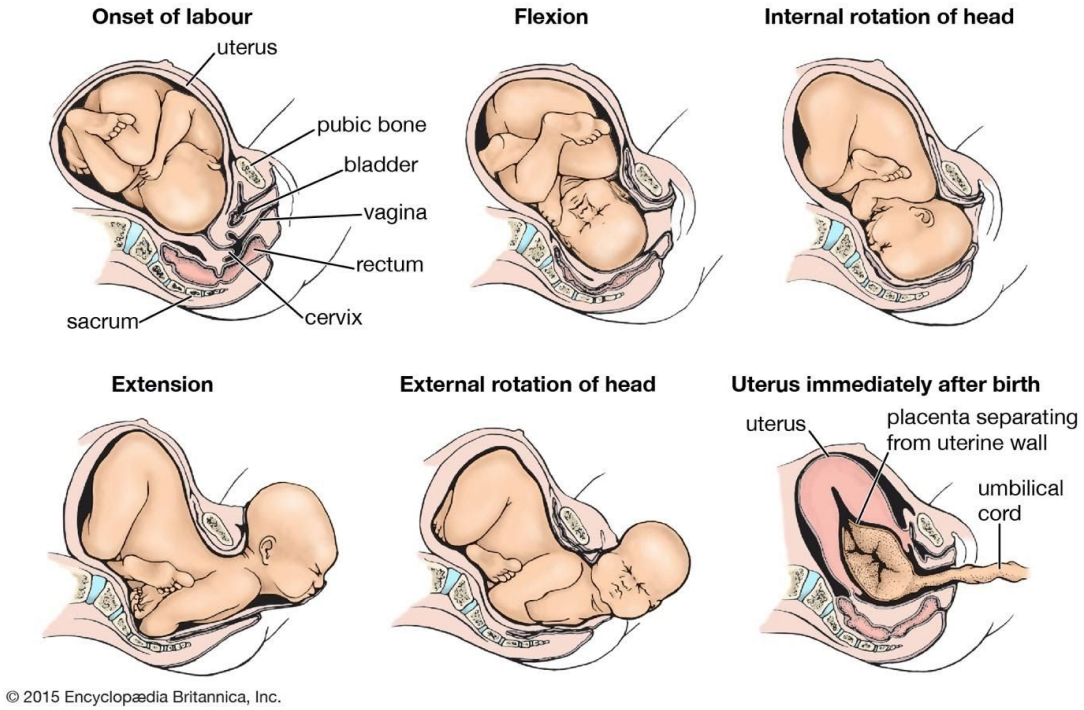
*Endometriosis causes cyclical pelvic pain, dysmenorrhoea, deep dyspareunia and subfertility. The oral contraceptive can mask these symptoms and then they can recur when this is stopped.*
*Adenomyosis is mostly asymptomatic, but it can cause dysmenorrhoea. It is not associated with subfertility. Chronic PID, chronic pelvic pain and irritable bowel syndrome do not explain the menstrual symptoms*

Question 5- Correct Answer D- progesterone- *See diagram below*

Question 6- Correct Answer C- LH- *See diagram below*




Question 7 - Correct Answer B - Descent, engagement, flexion, internal rotation, crowning, extension of presenting part, external rotation of head, delivery



Question 8 - Correct Answer (B)- (Confirm presence of bacteriuria with second culture and begin culture dependent antibiotic)

*Asymptomatic bacteriuria in a pregnant woman requires treatment due to risk of pyelonephritis, and association with premature labour and ROM. However contamination of a first culture is possible and so a second test should be performed to confirm.*

Question 9 - Correct Answer (C)- (Greater than 24cm)

*Polyhydramnios is usually diagnosed at an AFI of >24cm (or 2000ml+). Oligohydramnios is usually diagnosed with an AFI of <5cm (or under 200ml).*

Question 10 - Correct Answer (C)- (idiopathic)

*50-60% of cases of polyhydramnios are idiopathic. However, all other conditions listed are possible causes.*

Question 61- Correct Answer (C)- Lewy Body Dementia

*The answer is (C) Lewy Body Dementia because he has progressive confusion, ataxia, and muttering suggests hallucinations. It is less likely to be Parkinson's disease (D) because hallucinations are a prominent early feature of Lewy Body Dementia, this happens later in Parkinson's Disease. It is not delirium (B) because of the length of progression. It is less likely to be Alzheimer's Disease (A) due to the presence of Parkinsonian symptoms (shuffling gait). It is not stroke (E) as this has an acute presentation with focal neurological signs e.g. weakness, and also speech impairment*

Question 62- Correct Answer (C)- Personality Changes

*Personality changes (C) is the correct answer because personality changes most commonly occur in anterior cerebral artery strokes. All the other options (A,B,D,E) are common presentations of left sided Middle Cerebral Artery stroke.*

Question 63- Correct Answer (B)- DEXA Scan: T score of -2.8

*The gold standard investigation for diagnosing osteoporosis is a DEXA scan score of less than -2.5. (B) Normal bone scores above -1. Osteopenia scores between -1 and -2.5. The other answers are risk factors for osteoporosis. (A,C,D,E)*

Question 64- Correct Answer (B)- A single patient taking 5 or more medications daily

*A single patient taking 5 or more medications daily is the definition of polypharmacy (B). The co-occurrence of two or more chronic conditions is the definition of multi-morbidity (D). Other answers can be disregarded (A,C,E).*

*The definition of polypharmacy can differ by the number of medications required, however the other answers in this question do not accurately reflect the meaning of polypharmacy so can be disregarded independent of the number of medications.*

Question 65- Correct Answer (C)- Electrocardiogram

*Electrocardiogram (C) is not usually part of a confusion screen as cardiac complications are less likely to cause confusion. Chest X-ray (A) is to look for an infection in the chest- pneumonia, a potential cause of delirium. C-Reactive protein (B) is an inflammatory marker which may be raised in infection and can cause delirium. Full blood count (D) is used to look at the WCC, this can be raised in an infection. Urinalysis (E) is used to look at the urine and can show a urinary tract infection, a common cause of delirium in the elderly*

Question 66- Correct Answer (C)- Stress Incontinence

*Stress incontinence (C) is the most likely diagnosis because she fulfils many risk factors for stress incontinence: vaginal deliveries, high BMI, age, pelvic surgery, female.*
*Overactive bladder (A) & urge (E) incontinence would present with symptoms of frequency & urgency. Risk factors include caffeine intake, alcohol intake & medications*
*Overflow incontinence (B) describes the inability to completely empty the bladder, which leads to overflow and leaking urine unexpectedly*
*True incontinence (D) also known as total incontinence describes when the patient has no control over urinary flow*

Question 67- Correct Answer (E)- Never presents with homonymous hemianopia

*A total anterior circulation stroke affects the parts of the brain supplied by the anterior and middle cerebral arteries. (A,B) Diagnosis requires all three of the following at presentation: unilateral weakness of face, arm and leg (C), high cerebral dysfunction (D), homonymous hemianopia.*

Question 68- Correct Answer (C)- Pelvic Floor Physiotherapy

*Pelvic floor physiotherapy (C) is the first line treatment for stress incontinence. Absorbent pads are not a treatment for leakage of urine (A). Urodynamics is an investigation into the type of incontinence that a patient experiences (E). Urethral sling surgery (D) and Colposuspension (B) are surgical procedures that can be considered for stress incontinence if pelvic floor physiotherapy is unsuccessful.*

Question 69- Correct Answer (A)- Alzheimer's Disease

*Alzheimer's Disease (A) accounts for 62% of all dementia. Vascular dementia (E) for 15%. Mixed dementia (D) for 22%. Lewy Body Dementia (C) for 4%. Frontotemporal dementia (B) for 2%.*

Question 70- Correct Answer (D)- Underlying dementia

*Underlying dementia (D) is not a key feature of delirium, while the others listed are (A,B,C,E). The symptoms of delirium can easily be confused with dementia, and people may present with delirium on a background of dementia, or no dementia at all.*

Question 71- Correct Answer (D) (Mydriasis)

*Horner's syndrome is characterised by unilateral anhidrosis (absence of sweating of the face), enophthalmos (inset eye), miosis (constricted pupil) and ptosis (drooping eyelid). Mydriasis is a dilated pupil- this is the only option that does not occur in Horner's syndrome, so this question is really just testing whether you know what Horner's syndrome is.*

*In an exam question, they usually give a patient with a history suggestive of a lung cancer who is having the above symptoms. This is because he has a Pancoast (apical) tumour which is compressing the sympathetic chain. There are other causes of Horner's syndrome, including central causes like MS or brain tumours, and other things can press on the sympathetic chain such as a large goitre.*

Question 72- Correct Answer (C) (Riluzole)

*Riluzole is the only medication currently licensed to treat MND. It extends survival by roughly 3 months. Donepezil and rivastigmine are used to treat Alzheimer's and Lewy body dementia (Donepezil first line in Alzheimer's, rivastigmine first line in Lewy body), and ropinirole is used in Parkinson's Disease. Edaravone is used to treat MND in Japan and USA but is not licensed for use in the UK.*

Question 73- Correct Answer (A) (Carbamazepine)

*Carbamazepine is first line according to NICE. If carbamazepine is contraindicated, not tolerated or not working, or if there are any red flags in the history you should refer to neurology. Red flags include deafness, sensory changes, bilateral pain, pain only in the ophthalmic division, age of onset before 40, family history of MS, optic neuritis, history of skin/oral lesions that could spread perineurally. Lamotrigine, gabapentin and phenytoin can all be used later down the line but should be started by a neurologist. Valproate is not indicated for trigeminal neuralgia.*

Question 74- Correct Answer (E) (Vascular dementia)

*The history of strokes and the vascular risk factors make vascular dementia most likely. Vascular dementia often occurs in a stepwise pattern, with declines happening after strokes. You can also get small vessel vascular dementia which is more insidious and can sometimes look like Parkinsonism so be careful, although motor problems can be residual from a stroke. Early features of vascular dementia include memory problems, speech difficulties, visuospatial difficulties, cognitive slowing, difficulty concentrating and difficulty with decision making, following instructions or planning, and apathy- Dorothy demonstrates a lot of these.*

*Mixed dementia is definitely possible here- this is where you have 2 types of dementia, usually vascular and Alzheimer's. However, Dorothy is probably a bit young for Alzheimer's, and the fact that there seemed to be a plateau between the strokes points away from her having concurrent Alzheimer's- you would expect a more gradual, continuous decline. Patient's with Alzheimer's will start with memory problems, and progress to having apraxia, confusion and difficulties with executive function. Late features include disorientation, incontinence, mood problems, agitation and difficulty eating and drinking.*

*Lewy body dementia would present with hallucinations, sleep disorder, fluctuant cognition and parkinsonism- she does not have these features.*

*FTD would present with disinhibition, personality changes, language problems, and apathy- they tend to become quite nasty. You often also see pathological gambling. It is often genetic and is associated with MND.*

| | *Cortical (AD, FTD)* | *Subcortical (LBD, Huntingtons)* |
|---|---|---|
| *Memory loss* | *Severe* | *Less severe* |
| *Mood* | *Normal* | *Low* |
| *Speech and language* | *Aphasia* | *Dysarthria* |
| *Alertness* | *Normal (early)* | *'Slowed up'* |
| *Attention* | *Normal (Early)* | *Impaired* |
| *Executive function* | *Normal (early)* | *Impaired* |
| *Praxis* | *Apraxia* | *Relatively normal* |
| *Visuospatial* | *Impaired* | *Impaired* |
| *Personality* | *Normal (but not in FTD)* | *Apathy* |
| *Coordination* | *Normal* | *Impaired* |
| *Motor* | *Usually normal* | *Usually got motor symptoms* |

*Vascular can have symptoms of both- depends on where the insult was.*

Question 75- Correct Answer (E) (Spicy food)

*A good mnemonic to remember is CHOCOLATE- Chocolate, hangover, orgasm, cheese, oral contraceptive, lie in, alcohol, tumult, exercise. Other triggers include periods, injury, certain sensory triggers (e.g. bright lights, loud noises, certain smells, etc.), being hungry, smoking, etc. NHS website has a good list: https://www.nhs.uk/conditions/migraine/causes/*

Question 76- Correct Answer (E) (Topiramate)

*Botox is last line. NICE guidelines specifically state not to use gabapentin. Acupuncture is used if both propranolol or topiramate are ineffective or contraindicated; in this situation you could also try amitriptyline.*

*Both propranolol and topiramate are first line therapies, but this patient has asthma and therefore the propranolol is contraindicated. Topiramate is teratogenic and therefore we also need to make sure she has contraception in place.*

Question 77- Correct Answer (D) (Parkinson's disease)

*He has the classic triad of Parkinson's- rigidity, bradykinesia and resting tremor. Lewy body dementia would have cognitive symptoms and hallucinations. Normal pressure hydrocephalus is a triad of incontinence, dementia and gait apraxia which can look like Parkinson's. Corticobasal degeneration and progressive supranuclear palsy are Parkinson plus syndromes- corticobasal degeneration would have alien hand syndrome (limbs moving on their own), apraxia and aphasia as well as Parkinsonism; progressive supranuclear palsy would have supranuclear opthalmoplegia (can't look down to begin with, then progresses to inability to look left and right), pseudobulbar palsy (inability to control facial movements), neck dystonia, balance issues with lots of falls, behavioural and cognitive impairment as well as the Parkinsonism.*

Question 78- Correct Answer (A) (Activates dopamine receptors to mimic the action of dopamine)

*Acetylcholinesterase inhibitors such as rivastigmine are not used the treat Parkinson's, but could be used if he developed Lewy body dementia.*

*There are many different types of serotonin receptor agonists and depending on which receptor they bind to they have very different functions. None of them are used for Parkinson's.*

*COMT inhibitors eg entacapone, and MAOB inhibitors eg rasagiline are both used in the treatment of Parkinson's. A MAOB inhibitor could have been started instead of a dopamine agonist here. COMT inhibitors would be next down the line.*

*Ropinirole is a non-ergot derived dopamine agonist, other examples are pramipexole and rotigotine. Ergot derived dopamine agonists include bromocriptine and cabergoline- these should only be used if a non-ergot derived dopamine agonist has not worked as they have worse side effects. Both types of dopamine agonist work primarily on D2-like receptors (D2, 3 and 5).*

Question 9- Correct Answer (A) (Aspirin 300mg)

*Give aspirin 300mg OD for 2 weeks before switching to clopidogrel 75mg. Remember to give PPI with aspirin. Rivaroxaban and warfarin should not be used for TIA unless he has AF. Metformin is used to treat type 2 diabetes, if this man is diabetic this may be started for secondary prevention if he is not on it already. Antihypertensives and statins may also be indicated for secondary prevention here.*

Question 80- Correct Answer (D) (Increasing Age)

*Risk of TIA doubles every decade after 55. Being male is associated with higher risk of TIA, particularly at younger ages. Being Caucasian is not necessarily protective in itself, but people from south Asian or Afro-Carribean backgrounds are at higher risk due to higher diabetes and hypertension rates. Gout is not a risk factor in itself but may be associated with risk factors such as obesity and poor diet. Physical activity is protective.*

Question 81- Correct Answer (D)- Tranexamic acid

*D - The presenting complaint of HMB and a palpable mass is highly indicative of a uterine fibroid. For fibroids greater than 3cm diameter, NICE advises that tranexamic acid and/or NSAIDs may be prescribed while definitive treatment is being arranged. See:*
*https://www.nice.org.uk/guidance/ng88/chapter/Recommendations#investigations-for-the-cause-of-hmb*

*A - The mirena may also be used for HMB and uterine fibroids, however it would not be a suitable option if the patient is trying to conceive.*

*B - A myomectomy would be the definitive treatment for a uterine fibroid, however it would not likely be an immediate management option. Myomectomy can be performed as an outpatient procedure, but would likely involve a gynaecology referral, waiting lists, and anaesthetic preparation.*

*C - While pregnancy may be in your differential for an abdominal mass in a patient who is trying to conceive, the history is not indicative of this diagnosis.*

*E - 90% of women with endometrial cancer are over 50 years of age. The most common local causes of HMB are: dysfunctional uterine bleeding, fibroids, polyps, adenomyosis, endometriosis. See:*
*https://patient.info/doctor/menorrhagia*

Question 82- Correct Answer (B)- High progesterone levels

*The Rotterdam criteria definition for PCOS, with two out of three of the following criteria being diagnostic of the condition:*

1. *Polycystic ovaries (either 12 or more follicles or increased ovarian volume [> 10 cm3]*
2. *Oligo-ovulation or anovulation*
2. *Clinical and/or biochemical signs of hyperandrogenism.*

*It should be noted that the diagnosis of PCOS can only be made when other aetiologies for irregular cycles, such as thyroid dysfunction, acromegaly or hyperprolactinaemia, have been excluded if there is clinical suspicion.Women with non-Caucasian ethnicity might need different criteria to diagnose PCOS.*

| | Reference range | PCOS | Additional notes |
|---|---|---|---|
| **Testosterone** | 0.5-3.5 nmol/L | Raised | |
| **SHBG** | 16-119 nmol/L | Low | |
| **LH** | 2-10 IU/L | Raised | Best measured during days 1-3 of menstrual bleed. LH and FSH can be within the normal range; however it is the elevated LH:FSH ratio that should be noted. A level of 3:1 is enough to disrupt ovulation. |
| **FSH** | 2-8 IU/L | Normal | |
| **Progesterone** | See additional notes | Low | Progesterone levels will vary depending on the day of the menstrual cycle. However for women with symptoms of oligo-amenorrhoea, it will remain low throughout the menstrual cycle. |

*Table 1: Routine blood tests to confirm diagnosis of PCOS.*

*https://www.rcog.org.uk/globalassets/documents/guidelines/gtg_33.pdf*
*https://teachmeobgyn.com/gynaecology/ovarian/polycystic-ovary-syndrome/*

Question 83- Correct Answer (E)- GnRH antagonist

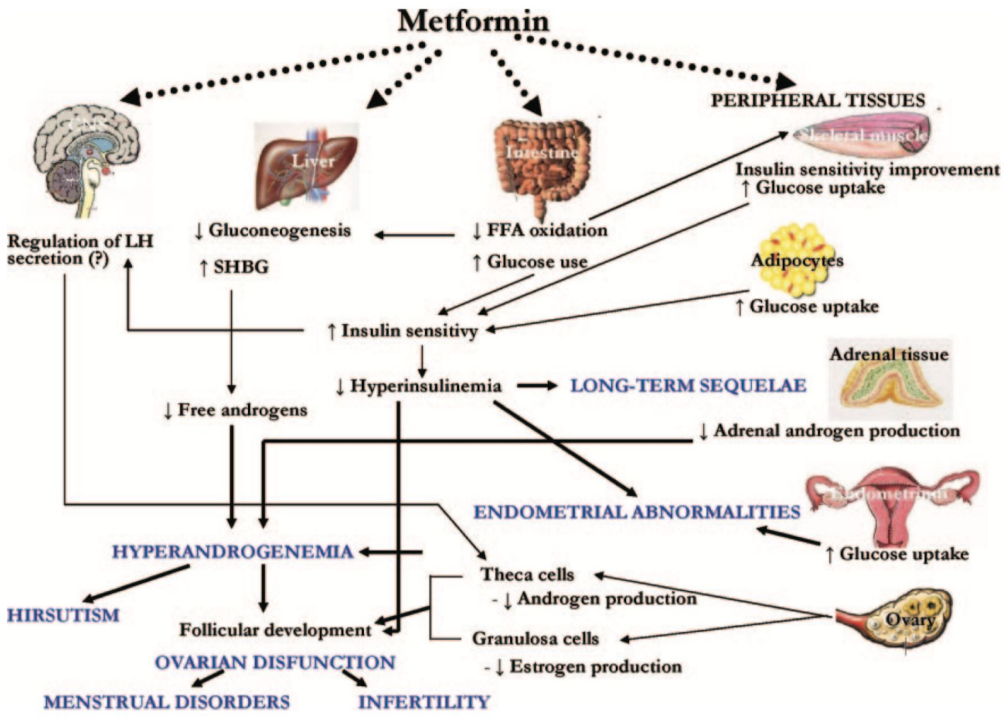



FIG. 4. Potential mechanisms of action of metformin. CNS, Central nervous system.

Question 84- Correct Answer (D)- Rinsing mouth out with water

*The risk of oral candidiasis can be reduced by using a spacer device with the corticosteroid inhaler; rinsing the mouth with water after inhalation of a dose may also be helpful. An anti-fungal oral suspension or oral gel can be used to treat oral candidiasis without discontinuing corticosteroid therapy.*
*https://bnf.nice.org.uk/drug/beclometasone-dipropionate.html#prescribingAndDispensingInformations*

Question 85- Correct Answer (A)- 0.9% NaCl plus KCl 40mmol/L, at a rate of 79ml/hour

*For most paediatric cases 20ml/kg bolus is administered in shock, however in DKA and HF give 10ml/kg bolus due to fluid overload complications, eg. cerebral oedema.*
*Estimated weight = (age +4)x2.*
*For non-shocked patients with DKA:*
*Hourly rate = ({Deficit – initial bolus} / 48hr) + Maintenance per hour*
*If they were shocked and in DKA then you would not minus the initial bolus.*
*Workings:*

- *5% deficit of 20kg:*
  - *1kg is 1000ml water*
  - *(20x1000) x 0.05=1000ml deficit*
  - *1000 deficit - 200ml bolus = 800ml to be given over 48h*
  - *16.67ml/hr for 48h*
- *Maintenance per 24h:*
  - *100ml/kg for the first 10kg*
  - *50ml/kg for the second 10kg*
  - *20ml/kg for the third 10kg*
  - *100 x 10 = 1000*
  - *50 x 10 = 500*
  - *1500ml to be given over 24h*
  - *62.5ml/hr for 24h*
- *Total:*
  - *16.7 + 62.5 = 79.2 kg/h for 48 hours*

*Fluid choice:*

- *"Use 0.9% sodium chloride with 20 mmol potassium chloride in 500 ml (40 mmol per litre) until blood glucose levels are less than 14 mmol/l "*
- *You would also want to administer IV insulin, but only start this 1-2 hours after administering IV therapy.*

*https://www.bsped.org.uk/media/1798/bsped-dka-guideline-2020.pdf*

Question 86- Correct Answer (E)- Tamsulosin

*E - Tamsulosin is an alpha blocker that is used for benign prostatic hypertension (BPH). Common side effects are dizziness and sexual dysfunction.*

Question 87- Correct Answer (A)- (Words of the correct answer for e.g strep pneumonia)

*A - This is the beginning of HELLP syndrome (haemolysis, elevated liver enzymes, low platelets). This is a severe variant of pre-eclampsia and warrants immediate delivery.*

*The risk factors for pre-eclampsia in this case are: more than 10 years pregnancy interval and chronic hypertension.*

Question 88- Correct Answer (E)- SLE

*This is a tough one! The picture above shows nail fold capillaries which are associated with scleroderma and SLE. SLE is associated with antiphospholipid syndrome which is the most important treatable cause of recurrent miscarriage. The clinical picture of a young female with arthralgia and recurrent miscarriages should make you think of rheumatological causes, and therefore help lead to the diagnosis independent of the picture. See: https://patient.info/doctor/recurrent-miscarriage*

Question 89- Correct Answer (A)- Insulin and lifestyle changes

*NICE states that for women with gestational diabetes*

- *Fasting glucose <7mmol/L: trial of diet and exercise. However if targets are not met within 1-2 weeks, start metformin. Offer insulin if metformin CI or not tolerated. Add insulin to metformin if glucose is still not controlled.*
- *Fasting glucose of 7mmol/L or above: immediate insulin +/- metformin, and diet and exercise*
- *Diagnose gestational diabetes if the woman has either:*
    - *a fasting plasma glucose level of 5.6 mmol/litre or above or*
    - *a 2-hour plasma glucose level of 7.8 mmol/litre or above.*

*https://www.nice.org.uk/guidance/ng3/resources/diabetes-in-pregnancy-management-from-preconception-to-the-postnatal-period-pdf-51038446021*

Question 90- Correct Answer (E)- NEC

*It involves serious intestinal injury following a combination of vascular, mucosal, toxic and possibly other insults to a relatively immature gut. A genetic predisposition may also play a part. Epidemic clusters have suggested an infective aetiology and viral, fungal and bacterial agents have all been isolated, although many infants have negative culture findings. The fact that organisms found in NEC babies are also found in healthy babies suggests that damage to the intestinal mucosa is the main underlying problem, resulting in spread of commensal organisms beyond their normal location. Colonisation by pathological organisms may also occur (eg, Escherichia coli, Klebsiella spp., Salmonella spp., Staphylococcus epidermidis).*

*The classical form of NEC usually occurs in preterm neonates in the first two weeks of life.*

*In premature babies there is often a history of initially making progress on enteral feeding. There is an increase in incidence after blood transfusion for asymptomatic anaemia. Feeding difficulties may be noted by nursing staff and there may be concerns about vomiting or abdominal distension.*

*https://patient.info/doctor/necrotising-enterocolitis*

Question 91- Answer D- small cell carcinoma

*This man has a lot of the signs of lung cancer, and out of the two lung cancer option given small cell carcinoma is that one that can secrete ADH (siADH) or ACTH causing Cushing syndrome. Squamous cell carcinoma is associated with parathyroid hormone secretion and therefore hypercalcaemia. Cushing's*

*disease is Cushing's symptoms caused specifically by a pituitary gland tumour. The CT scans show no pathology so Cushing's disease and an adrenal tumour are unlikely. Inhaled corticosteroids or topical corticosteroids are unlikely to cause Cushing syndrome therefore B is unlikely.*

Question 92- Answer E

This man has Conn's syndrome causing primary hyperaldosteronism. Aldosterone acts on the kidneys to increase sodium absorption and as a result causes potassium excretion leading to Hypernatremia and hypokalaemia. The management is a potassium-sparing diuretic like spironolactone.

Question 93- Answer A- CTKUB

*This man has renal colic, for which the diagnostic investigation is a CTKUB (CT scan of Kidneys, Ureter, Bladder). USS may be used first, but a CT is diagnostic. A cystogram is to look for structural problems with the bladder as a cause for repeated urinary tract infections or urinary incontinence. Abdominal CT isn't specific enough. Urinalysis wouldn't be diagnostic.*

Question 94- Answer C- Stage 3: ramipril

*Stages of AKI:*
*1: Creatinine is 1.5-1.9 times higher than baseline/ urine output < 0.5ml/kg for > 6 consecutive hours*
*2: Creatinine is 2-2.9 times higher than baseline/ urine output < 0.5ml/kg for > 12 consecutive hours*
*3: Creatinine is >3 times higher than baseline / urine output < 0.5ml/kg for > 24 consecutive hours/ anuria for > 12 hours*
*NSAIDS, ACEi, ARBs, CCBs, a-blockers, b-blockers, opioids, diuretics, acyclovir, trimethoprim, lithium and more can cause AKIs.*

Question 95- Answer D- 2 week wait urgent referral for cystoscopy and biopsy

*This man most likely has bladder cancer. Smoking and exposure to dyes (chemical factory) are risk factors. Bladder cancer causes painless haematuria. He needs urgent referral and a cystoscopic biopsy to confirm the diagnosis. All other investigations would be just time wasting.*

Question 96- Answer E- Lifestyle + 1 PPI + 2 Antibiotics

*This person has a gastric ulcer (pain IMMEDIATELY after eating- duodenal ulcers have pain a short while after eating) with H.pylori infection and therefore needs 1 PPI + 2 antibiotics e.g. clarithromycin + metronidazole/ amoxicillin. Lifestyle modifications might also help as well, because smoking, caffeine/ alcohol and NSAIDs are risk factors for peptic ulcers.*

Question 97- Answer C- Stage 3A

*Stage 1: > 90 mL/min/ 1.73m$^2$*
*Stage 2: 60-89 mL/min/ 1.73m$^2$*
*Stage 3A: 45-59 mL/min/ 1.73m$^2$*
*Stage 3B: 30-44 mL/min/ 1.73m$^2$*
*Stage 4: 15-29 mL/min/ 1.73m$^2$*

Question 98- Answer D- ABCDE then buccal midazolam

*This girl is in status epilepticus, as she has not had sufficient time to recover from her previous seizure, therefore she needs to be immediately treated with a benzodiazepine after assessing ABCDE and maintaining the airway. There is no time to establish IV access in the community so buccal midazolam is your best answer. Rectal diazepam can also be used in the community. If IV access is obtained then IV lorazepam/ diazepam should be used. Sodium valproate is for preventing further seizures but shouldn't be used any way in women of child bearing age.*

Question 99- Answer C- Drug- induced Parkinsonism

*This man is on Haloperidol which is an antipsychotic and can therefore cause Parkinsonism. Idiopathic Parkinson's disease usually causes asymmetrical Parkinsonism or symptoms worse on one side. Progressive supranuclear palsy causes an inability to control the eye and eye-lid movements along with Parkinsonism. Multi-system atrophy causes autonomic symptoms as well as Parkinsonism e.g. postural hypotension, erectile dysfunction or bladder disturbance. Lewy body dementia usually presents with cognitive impairment, visual hallucinations and Parkinsonism.*

Question 100- Answer C- LAMA + LABA

*Step 1: SABA or SAMA (short acting muscarinic agonist)*
*Step 2 (if no asthmatic features or features suggesting steroid responsiveness): Add LABA + LAMA*
*Step 3 (if no asthmatic features or features suggesting steroid responsiveness): LABA + LAMA + ICS*
*Step 2 (if they have asthmatic features or features suggesting steroid responsiveness): LABA + ICS*
*Step 3 (if they have asthmatic features or features suggesting steroid responsiveness): LABA +LAMA + ICS*

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**I hope you found this mock beneficial for your learning, thanks for taking part.**
**Andrew Maud- PTS Assessments Coordinator 2020-21. PTSassessments1@gmail.com**