PTS 3a Mock SBA Series 2020 Paper 5- [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
Eloise Marsland
Anuj Thakkar
Jack Hogg
Je Ern Chooi
Sarah Ibrahim
Emma Hartick
Megan Taylor-West
Philip Holcroft
Robert Croft
Joanna George
Matt Mank

Summary of Topics Assessed- Paper 5

Paediatrics- 1.85 1. Management of eczema 2. Risk factors of eczema 3. Presentation of pyloric stenosis 4. Cause of Edward's syndrome 5. Presentation of varicoceles 6. Risk factors- cerebral palsy 7. Causes- neonatal jaundice 8. Management of DKA 9. Diagnosis of T1DM 10. Side effects of corticosteroids	**Paediatrics- 1.901** 11. Inheritance of sickle cell 12. Managemnet of JIA 13. Febrile Convulsions 14. Meningitis CSF 15. Cause of Scarlet Fever 16. Management of Croup 17. Admissions to hospital 18. Intussusception USS 19. Histology- Coeliac disease 20. Failure to thrive	**Psychiatry- 2.91** 21. Types of personality disorder 22. Risk factors for suidcide 23. Features of alcohol dependence 24. Treatment for alcohol dependence 25. Treatment for depression 26. Contraindications for ECT 27. Panic disorders 28. Schizophrenia 29. Drug-induced psychosis 30. Delirium
Psychiatry- 2.33 31. Side effects of SSRIs 32. Investigations for postnatal depression 33. Diagnostic criteria of delirium 34. Diagnosis of learning disabilities 35. Differential diagnosis of chest pain 36. Management of ADHD 37. Anxiolytic effects 38. Medication for delirium 39. Complications of antipsychotics 40. ADHD medication interactions	**Obs&Gynae- 3.8** 41. Symptoms / signs of PCOS 42. Emergency contraception 43. Caesarean section associations 44. Hyperemesis gravidum 45. Gestational diabetes complications 46. Congenital birth abnormalities and sodium valproate 47. Inheritance pattern in Marfan's syndrome 48. Primary causes of post-partum haemorrhage 49. Contraceptive decisions/ advice 50. Surgical management of post-partum haemorrhage	**Obs&Gynae- 3.91** 51. Diagnosis of fibroids 52. P-PROM 53. Risk factors of ectopic pregnancy 54. Antenatal screening 55. Management of miscarriage 56. Management of pre-eclampsia 57. Investigating ovarian malignancy 58. Down syndrome screening 59. Endometriosis risk factors 60. Menorrhagia

Summary of Topics Assessed- Paper 5

Sexual Health- WC4.25 61. Treatment of Gonorrhoea 62. Clinical presentation of Herpes 63. Diagnosis of Bacterial Vaginosis 64. Diagnosis of Neisseria Gonorrhoea 65. Management of Erectile Dysfunction 66. Contraindications to the combined OCP 67. Disadvantages of Progesterone injection 68. Consent to contraception 69. Options for emergency contraception 70. Treatment of dysmenorrhoea	**Neuro- 7.99** 71. Cauda-Equina Syndrome Rx 72. Guillain-Barre Syndrome Rx 73. Trigeminal Neuralgia Dx 74. Optic tract lesion Ix 75. Optic Neuritis Sx 76. BPPV Hx 77. Complications of PD 78. Stroke Ix 79. Cranial Nerve Lesion 80. Brown-Sequard Syndrome
General Medicine- WC6 81. Management of essential tremor 82. Features of parkinsons 83. Management of seizure 84. Types of seizure 85. Presenting complaint- haematemesis 86. Prescribing NSAIDS 87. Pharm- bisphosphonates 88. Interpreting CXRs 89. Presenting complaint- visual loss 90. Presenting complaint- visual loss	**General Medicine- TB5** 91. Management of heart failure 92. Prescribing alendronic acid 93. Contraindications for joint aspiration 94. 2nd line prevention of gout 95. Management of biliary colic 96. LFT pattern for alcoholic liver disease 97. BPH management 98. Complications of acute bacterial prostatitis 99. Microbiology of COPD exacerbation 100. Genetics of alpha-1-antitrypsin deficiency

Question 1 - C – Emollients

C - NICE guideline states that all patients with eczema should be prescribed an emollients which should be used liberally and frequently.

A – A non-sedating antihistamine (e.g. cetirizine) may be used in patients with severe itching but this is not a 1st line treatment.

B – Bandaging the inflamed skin may be used in severe eczema. However, this patient has mild eczema and so bandaging the skin is not an appropriate treatment.

D – A short course of oral corticosteroids can be used in severe extensive eczema. As this patient has mild eczema it is not an appropriate treatment. 30mg of prednisolone OD for 7 days is usually prescribed.

E – Topical corticosteroids should be considered in patients with mild eczema. However, all patient should be prescribed emollients and so C is the best answer.

Tip: see the nice guideline for how to manage eczema -
https://cks.nice.org.uk/topics/eczema-atopic/management/mild-eczema/

Question 2 - E – Use of skin irritants, such as detergents

E – Use of skin irritants such as detergents, wool, perfumes and soap can trigger/exacerbate eczema, however it is not a risk factor for the condition.

A – A number of food allergies are associated with eczema such as egg, soy, gluten, nuts and fish allergies. Patients with these allergies are at an increased risk of also having eczema compared to those without. B/C/D – Atopy is a genetic tendency to develop an allergic disease, such as atopic eczema, allergic rhinitis (hayfever) and asthma. Patient with a personal or family history of one of these conditions are therefore more likely to develop another of the atopic conditions.

Tip: There are multiple types of eczema. Some other common types include contact dermatitis and seborrheic dermatitis.

Question 3- E – Palpable olive-sized pyloric mass

E – This presentation is classical for a baby with pyloric stenosis. Pyloric stenosis is when hypertrophy and hyperplasia of the muscular layers in the pylorus results in an obstruction of the gastric outlet. Obstruction of the gastric outlet prevents milk from passing into the small intestine. Initially the baby may be vomiting small amounts. Over several days, this can worsen to projectile vomiting after every feed. As the baby is taking in only small amounts of milk they can become dehydrated (signs of dehydration include less wet nappies, agitated, sunken fontanelle). The enlarged pylorus, due to hypertrophy and hyperplasia of the muscle, is classically felt as an olive-sized mass on examination. This is usually palpable in the right upper quadrant. Gastric peristalsis may also be seen.

A – A distended abdomen occur as a result of a number of causes, including Hirschsprung disease, intestinal atresia, necrotising enterocolitis, appendicitis, intussusception, organomegaly, ascites, constipation and masses. The presentation described in this question is classical for pyloric stenosis making it the most likely diagnosis. As pyloric stenosis causes an obstruction high in the gastrointestinal system, abdominal distension is likely to be minimal if present at all.

B – This is what you would expect on examination in a patient with appendicitis. The presentation is not typical of someone with appendicitis.

C – Hepatomegaly does not occur in patients with pyloric stenosis. It may occur in children with viral/bacterial hepatitis, hepatic tumours, biliary obstruction, congestive heart failure or obesity.

D – Patients with pyloric stenosis uncommonly present with no findings on examination.

Question 4 – D – Trisomy 18

D – Edward's syndrome is a result of trisomy 18.
A – 45 XO results in Turner's syndrome
B – A single nucleotide mutation on chromosome 11 results in sickle cell disease.
C – Trisomy 13 results in Patau's syndrome.
E – Trisomy 21 results in Down's syndrome.

Question 5 – A – Asymptomatic

A – A varicocele is a scrotal swelling which occurs due to dilated testicular veins. It is usually asymptomatic but some patients may present with a dull ache. Varicoceles occur in 15% of boys usually around puberty and in the left testicle.
B – Varicoceles may present with a dull discomfort in the scrotum, but are more commonly asymptomatic.
C – Varicoceles can cause low sperm production and decrease sperm quality, which can cause infertility. But this is not the most common presentation.
D – A red, swollen and warm testicle is suggestive epididymitis or orchiditis.
E – Severe sharp pain in the scrotum is suggestive of testicular torsion. This is a medical emergency.
Tip: learn the differentials of testicular torsion and how to manage accordingly.

Question 6 – B – Macrosomia

B – Macrosomia alone is not a risk factor for cerebral palsy. Low birth weight is a risk factor.
A, C, D and E are all risk factors for cerebral palsy as they increase the risk of brain damage occurring before or during birth.
A – Birth complications such as placental abruption and over conditions which disrupt the blood supply to the foetus increase the risk of brain damage due to hypoxia.
C – Maternal infections result in cytokine release which can cause inflammation and damage of the brain.
D – maternal thyroid dysfunction also increases the risk of brain damage associated with cerebral palsy. The reason why is not currently fully understood but may be due to altering myelination, differentiation and migration of nerve cells.
E – Prematurity increases the risk of bleeding and fluid accumulation in the brain, both of which can result in brain damage.

Question 7 – D – Pyloric Stenosis

D – Pyloric stenosis can present with jaundice due to high gastrointestinal obstruction, but this is most common in neonates >2-weeks-old. Neonates with pyloric stenosis also present with non-bilious projectile vomiting after feeds. They may also present with dehydration and weight loss.

A – Polycythaemia typically causes jaundice in neonates between 24 hrs and 2 weeks of age.

B – Infection can cause jaundice in neonates from 24hrs old. In neonates younger than 24hrs, jaundice may be due to congenital infection.

C – Physiological jaundice is the most common cause of jaundice and typically present after 24hrs from birth.

E – Rhesus incompatibility is a cause of jaundice which typically presents any time from birth to 2 weeks old.

Tip: Neonatal jaundice is common. The age of onset is useful in determining the likely cause, as different causes are likely to present with jaundice at different ages. See the "Illustrated Textbook of Paediatrics" for a breakdown of causes based on when they present.

Question 8 – C – IV sodium bicarbonate

C - IV sodium bicarbonate may be considered in adults in DKA with a pH <6.9 but should not be used in children.

A – IV fluid replacement should be given to patients who are clinically dehydrated, not alert or are vomiting/nauseated. Patients should initially be given a fluid bolus of 10ml/kg 0.9% NaCl (20ml/kg if shocked). Once circulating volumes have been restored, children should be given fluid replacement to meet any fluid deficit as well as maintenance fluid needs.

B – IV insulin infusion should be started 1-2 hours after beginning IV fluid therapy. Soluble insulin should be added 0.9% NaCl and given at a rate of 0.05-0.1 units/kg/hr. Some patients may be managed with subcutaneous insulin.

D – All fluid, except initial boluses, should contain 40mmol/l potassium chloride to reduce the risk of hypokalaemia cause by insulin driving potassium into cells.

E – Oral fluid replacement may be used in patients who are alert, not clinically dehydrated and not nauseated or vomiting.

Tip: Read the BSPED guideline on the management of DKA
https://www.sort.nhs.uk/Media/Guidelines/BSPED-DKA-guideline-2020-update.pdf

Question 9 - C – Type 1 Diabetes

C – The blood tests show a raised random blood glucose (>11mmol/litre) which indicates diabetes. The symptoms are also typical of T1DM. As this patient is 7 years old, T1DM is more likely than T2DM.
A – Addison's disease is also known as primary adrenal insufficiency and is where the adrenal glands do not produce sufficient steroid hormones. This would result in low sodium, potassium and glucose.
B – Patients with leukaemia will typically have a raised WBC and low RBC, and would not typically have a raised blood glucose. They may present with weight loss and tiredness like in this presentation. But may also present with fever, night sweats, repeated infections and bruising/bleeding.
D – Patients with T2DM may present similarly and have similar blood test results. However, T2DM is uncommon in children. T2DM should be considered in patients who have a strong family history of T2DM, are obese at presentation, are of black or Asian family insulin, have no insulin requirement or show evidence of insulin resistance.
E – Children with a UTI would typically present with fever, frequency, dysuria, abdominal pain, loin tenderness or changes in continence. You would expect to see a raised WBC and CRP on the blood test results.

Question 10 – B – Oedema

B – Oedema is not a side effect of corticosteroids.
A – Acne may occur due to the sebaceous gland susceptible to inflammation and infection.
C – Striae (stretch marks) may occur following topical corticosteroid use but to the impact steroids have on dermal connective tissue.
D – The mechanism of how steroids cause telangiectasia is unknown.
E – Topical steroids can cause skin thinning due to reduced collage synthesis.
Tip: Systemic steroids can have different side effects to topical steroids. It is important to learn these too.

Question 11- Correct Answer: A- 100%

Sickle cell anaemia is a common genetic disorder seen mostly in those from Africa, India and from the Middle East and Southern Europe. It follows an autosomal recessive (AR) pattern of inheritance. Let's say the gene for a sickle cell anaemia carrier is 'a' and for a non carrier is 'A'. As the mother has Sickle Cell she must be homozygous (aa) and we know that the father is a non-carrier (AA). Therefore, using the Mendelian inheritance pattern, the child will 100% be a carrier (Aa).

Question 12- Correct Answer D: Refer to Ophthalmology

Juvenile Idiopathic Arthritis = A patient presenting with joint swelling of >6 weeks duration presenting before the age of 16 in the absence of infection or any other defined cause.
It is more common in girls than boys.
A CT scan (A) would not be indicated as this is a clinical diagnosis supported by blood tests. An anti-TNF-alpha inhibitor (B) could be used further down the line but is not indicated at this stage. Prednisolone (C) could be an option if the initial treatment fails, however you want to avoid giving long term steroid treatment in children in order to minimise the risk of osteoporosis and growth suppression. Referring to ophthalmology (D) is the correct answer as children with Juvenile Idiopathic Arthritis are at a high risk of anterior uveitis which can lead to blindness. Trauma and Orthopaedics (E) have no role in this scenario

Question 13- Correct Answer C: Febrile Convulsion

Encephalitis (A) could cause a similar picture, however the history suggests that the child is suffering from otitis media leading us to think this is likely a febrile convulsion. Although this could be an epileptic seizure (B), the history of infection and high grade fever points us away from this, especially as this is the only time this has occurred. Febrile convulsions (C) occur in concurrence with infections that cause a rapid rise in temperature, therefore, this is the most likely diagnosis in this scenario. A febrile convulsion is a tonic clonic seizure. A family history increases the chance of one occurring by 10%.
Hypoglycaemia (D) and hyponatraemia (E) can both cause fits, however there is nothing in the history to suggest that these are the causes.

Question 14- Correct Answer E: Cloudy, Low Glucose, High Protein, Polymorphic Neutrophils

This history is classic of meningococcal septicaemia secondary to Bacterial Meningitis. It is essential that you carry out the sepsis six (BUFALO - blood cultures, urine output, IV fluids, antibiotics, lactate measurement, oxygen if indicated) and start broad spectrum antibiotic cover. As there is no altered consciousness or signs of a raised ICP, a lumbar puncture is indicated. The findings would be as follows:
Bacterial (E) - cloudy appearance, low glucose, high protein and polymorphic neutrophils.
Viral (B) - clear/cloudy, slightly low glucose, normal or raised protein and lymphocytes.
Tuberculosis - fibrinous, low glucose, high protein, lymphocytes.
(A, C, D are just mixtures of the above but they are all not quite right).

Question 15- Correct Answer E: Strep Pyogenes

This presentation of a sandpaper rash and bright red 'strawberry' tongue is indicative of Scarlet Fever. This is associated with strep-throat so can present similar to tonsillitis. The biggest causative agent is Strep. Pyogenes (E) which you should manage with PO Phenoxymethylpenicillin for 10 days. It is a notifiable disease to Public Health England
Neisseria Meningitidis (A) causes a non-blanching petechial rash.
Paramyxovirus (B) causes Measles and Mumps.
Parvovirus B19 (C) causes slapped cheek syndrome where facial flushing is present and the rash is on the extensor surfaces rather than flexures.
Staph. aureus (D) can lead to scalded skin syndrome which leads to crusting around the nose and mouth.

Question 16- Correct Answer C: Nebulised Adrenaline

The barking cough and high pitched stridor are classical symptoms of croup which is caused by parainfluenza virus. If a patient presents with severe Croup or does not respond to oral dexamethasone, then you should give Oxygen + Nebulised Adrenaline (C).
IV Cefotaxime (A) is often given for GU infections or Meningitis.
IV Hydrocortisone (B) can be used for severe acute asthma or adrenal insufficiency. Nebulised Salbutamol (D) may also be used in cases of severe acute asthma/respiratory distress.
Oral Chlorphenamine (E) is an antihistamine that may be used for symptomatic relief of allergy.

Question 17- Correct Answer D: Respiratory Rate 40

A respiratory rate >70 (not 40) is an indication for admission. All of the others are indications for admission as they are suggestive of serious acute respiratory illness.

Question 18- Correct Answer E: Target-like mass

This is a classic history of intussusception: sausage shaped mass and red-jelly currant stool. The telescoping of the bowel will show up as a 'target-like mass' on abdominal ultrasound.
Double Bubble (A) - dilatation of the proximal duodenum and stomach in; duodenal atresia, duodenal web, duodenal stenosis, annular pancreas, midgut volvulus and external compression of the duodenum.
Fluid in the peritoneum (B) - ascites. Often caused by hepatobiliary pathology.
Perforation of the bowel (C) - would appear as free gas in the abdomen.
Rigler's sign (D) - seen on X-ray and is gas outlining both sides of the bowel wall and indicates pneumoperitoneum, usually as a result of perforation.

Question 19- Correct Answer A: Cobblestone Appearance

Histological examination of the mucosa in Coeliac Disease classically shows intraepithelial lymphocytes (C). The mucosa is often of a normal thickness (D) as villous atrophy (E) is compensated by crypt hyperplasia (B). Cobblestone appearance (A) is typically seen in Crohn's disease.
(All the other answers are seen on Coeliac Disease histology).

Question 20- Correct Answer D: Toddlers Diarrhoea

Failure to thrive is a descriptive term not a diagnosis. It refers to less than expected growth over time during the first three years of life when growth is recorded on appropriate growth charts (age and sex specific).
There are 4 key drivers for failure to thrive:

1) *Inadequate intake: which can be caused by issues with feeding and may be associated with maternal depression (C) and socio-economic background (B).*
2) *Inadequate retention: including vomiting (E) or severe GORD.*
3) *Malabsorption: diseases such as Coeliac Disease (A).*
4) *Increased requirements: thyrotoxicosis, congenital heart failure or malignancy.*

Although toddler's diarrhoea (D) may be concerning for parents, most children will 'grow out' of their symptoms by age 5. The loose stools are likely due to increased intestinal motility and not related to malabsorption. Therefore, children with toddler's diarrhoea tend to have normal growth and development.

Question 21 – Correct answer (C) Emotionally unstable (borderline) personality disorder

C. Emotionally unstable borderline personality disorder is most common in females in their mid 20s, associated with mood instability, suicidal behaviour, unstable relationship; risk factors such as poor work history, single marital status, victim of abuse, co-morbid depression, substance abuse and anxiety.
Antisocial personality disorder – associated with school drop-out, conduct disorder, reckless, remorseless, co-morbid with substance abuse.
Avoidant personality disorder – associated with social phobia.
Schizoid personality disorder – detached affect, enjoys being alone, and indifferent to people's opinion.
Paranoid personality disorder – suspicious of surrounding, questions spouse fidelity, unforgiving towards people.

Question 22 – Correct answer (C) Females in 20s-30s.

Other risk factors of suicide: male in early 40s, history of childhood sexual/ physical abuse, psychiatric illness (depression, personality disorder, schizophrenia), unemployed, low socioeconomic status, isolated, recent bereavement/ family breakdown.

Question 23 – Correct Answer (D): Increase variety of alcohol consumed

Alcohol dependence can be identified using the Edwards & Gross criteria

- *Narrowing of repertoire*
- *Salience of drink-seeking behaviour*
- *Increased tolerance to alcohol*
- *Repeated withdrawal symptoms*
- *Relief or avoidance of withdrawal symptoms by further drinking*
- *Subjective awareness of compulsion to drink*
- *Reinstatement after abstinence*

Question 24 – Correct Answer (A) Acamprosate reduces craving by inhibiting GABA transmission

Acamprosate enhances GABA transmission. Other non-pharmacological treatment for alcohol dependence includes motivational interviewing and CBT, supportive programmes offered by Alcoholics Anonymous (AA).

Question 25 – Correct Answer (E) Mirtazapine

Mirtazapine is an SNRI that could be used in older patients who struggle with insomnia and weight loss due to its side effect of drowsiness (therefore should be taken at night) and weight gain.

Question 26 – Correct Answer (D) Raised intracranial pressure

There is only one absolute contraindication for ECT, the rest are relative contraindications. Indications for ECT include severe depression refractory to medication (e.g. catatonia) and those with psychotic symptoms.

Question 27 – Correct answer (C) Generalised anxiety disorder

GAD is a syndrome of ongoing, uncontrollable, widespread worry about many events or thoughts that the patient recognised as excessive and inappropriate. It is important to rule out other possible alternative causes of anxiety: hyperthyroidism, cardiac disease and drug-induced such as salbutamol, theophylline, corticosteroids, antidepressants and caffeine.

Question 28 – Correct Answer (D) Premorbid high IQ

Gradual onset psychosis, low premorbid IQ, strong family history, premorbid social withdrawal and no obvious precipitant are poor prognostic factor for schizophrenia.

Question 29 – Correct Answer (D) Metoclopramide

Drug-induced psychosis is not uncommon! Other substances that could cause psychosis include alcohol, cocaine, amphetamine, MDMA, cannabis, mephedrone, LSD, ketamine.

Question 30 – Correct answer (D) Normal consciousness

Delirious patients will have impaired consciousness whereas patients with dementia may have normal consciousness. Confusion Assessment Method (CAM) can be used to diagnose delirium: 1 + 2 + either 3 or 4

1. *Acute onset and fluctuating course*
2. *Inattention*
3. *Disorganised thinking*
4. *Alteration in consciousness*

Question 31- Answer E- Serotonin Syndrome

St. John's Wort may interact with SSRIs to cause serotonin syndrome.
Serotonin Syndrome (E) is a life-threatening condition associated with increased serotonergic activity in the central nervous system (CNS) and is usually seen with changes to SSRI medication (overlapping thus increased dose uptake). It can also be seen with prescription medication use and inadvertent interactions between other drugs, for example SSRIs with St John's wort.
Anticholinergic toxicity (A) normally presents with hyperthermia, agitation, altered mental status, mydriasis, dry mucous membranes, urinary retention and decreased bowel sounds. Muscular tone and reflexes are normal in anticholinergic poisoning.
Malignant hyperthermia (B) occurs in susceptible individuals exposed to halogenated volatile anaesthetics and depolarising muscle relaxants (e.g. succinylcholine). It usually presents with increased concentrations of end-tidal carbon dioxide, muscle rigidity, tachycardia, hyperthermia, and acidosis.
Meningitis (C) normally presents with fever, neck stiffness and a change in mental status and usually of sudden onset. The most common clinical features include a severe headache, which was not part of this presentation, fever greater than 38ºC, a stiff neck, Glasgow Coma Score < 14 and nausea.
Serotonin syndrome is often misdiagnosed for neuroleptic malignant syndrome (NMS) (D). However, NMS develops over days to weeks, whereas serotonin syndrome develops over 24 hours. NMS is more characterised by rigidity and bradyreflexia. Hyperreflexia and myoclonus are rare in NMS.

Question 32- Correct Answer (B)- Edinburgh Scale

Edinburgh Scale used to specifically screen for postnatal depression
Beck Depression Inventory is used for measuring the severity of depression
The Hamilton Depression Rating Scale is used to provide an indication of depression and as a guide to evaluate recovery
PHQ-4 is a brief screening questionnaire for anxiety and depression.
PHQ-9 is used to provisionally diagnose depression and grade severity of symptoms in general medical and mental health settings

Question 33- Correct Answer B – Fluctuating course

Fluctuating course (B) is a diagnostic criterion for delirium. In dementia syndromes, the course usually involves a steady or stepwise decline in functioning without return to baseline, as in delirium.
Memory loss (D) can be present in both delirium and dementia. Slow onset is characteristic of dementia, not delirium, which has an acute onset.
Poor judgement (E) is a symptom of dementia.
NICE recommends using the Confusion Assessment Method (CAM) to carry out a clinical assessment which is based on DSM-V. Scoring is based on the following 4 criteria:

- *Acute onset and fluctuating course*
- *Inattention*
- *Disorganised thinking*
- *Altered levels of consciousness*

Question 34- Correct Answer E – Dyspraxia

Dyspraxia (E) affects a person's motor skills. Motor skills help us with movement and coordination. A young child with dyspraxia may bump into things or have trouble holding a spoon or tying their shoelaces. Later, they may struggle with things like writing and typing

ADD (A) presents with problems with inattentiveness, but not with hyperactivity or impulsiveness. However, they do not have any learning disabilities

ADHD (B) presents with the triad of inattentiveness, hyperactivity and impulsiveness. However, they also do not have any learning disabilities

Dyslexia (D) affects how a person processes language, and it can make reading and writing difficult. It can also cause problems with grammar and reading comprehension. They do not have affected motor skills unlike what we see in dyspraxia

Dyscalculia (C) affects a person's ability to do math. It can take many forms and have different symptoms from person to person. In young children, dyscalculia may affect learning to count and recognize numbers. As a child gets older, they may have trouble solving basic math problems or memorizing things like multiplication tables. Again, their motor function is not affected.

Question 35- Correct Answer E – Panic attack

Sudden onset of symptoms and recent major changes makes a panic attack (E) the most likely diagnosis of the patient's symptoms. Alcohol intake, cannabis use and psychiatric medication were not mentioned in the history. There are also no characteristic features which point to a pulmonary embolism (history of DVT, long-haul flight etc.)

Question 36- Correct Answer E – Methylphenidate

Methylphenidate (E) is the first-line treatment for ADHD and is administered after providing parents with an educational programme and behavioural advice.

Agomelatine (A) and fluoxetine (C) are antidepressants which are not administered to for treatment of ADHD.

Carbamazepine (B) is a medication used to treat epilepsy, trigeminal neuralgia and bipolar 1 disorder (manic depression)

Melatonin (D) is used as an off-license treatment for children with sleeping disorders.

Question 37- Correct Answer D – Short acting benzodiazepines are less likely to cause behavioural disinhibition than other benzodiazepines

Short acting benzodiazepines are in fact more likely to cause behavioural disinhibition than other benzodiazepines. This is as they have a shorter half-life therefore quicker to leave the body

Q

uestion 38- Correct Answer B – Neuroleptic malignant syndrome

Patient recently started on a new antipsychotic medication, alongside presenting with fever, muscle rigidity, autonomic instability and altered mental status

Anaphylaxis would present with a reaction being more acute, and not 2 days later

Sepsis would not explain the stiff arms, even though the other clinical observations are similar

Non-compliance would present with worsening of his schizophrenia symptoms

Paracetamol overdose would present with abdominal symptoms, such as RUQ pain, nausea and vomiting and their LFTs would show raised liver enzymes (ALT, AST)

Mnemonic: FEVER

Fever, Encephalopathy, Vitals unstable, Elevated enzymes, Rigidity of muscles

Question 39- Correct Answer A – Haloperidol 0.5 mg PO

Haloperidol 0.5 mg PO or IM is first-line therapy and PO dosing can be repeated every 4 hours. Alternatively, 0.5 mg IM can be repeated hourly. Lorazepam is an acceptable choice which may be added to haloperidol as rescue for the management of delirium

Quetiapine is not currently indicated for the treatment of delirium

Question 40- Correct Answer E – Venlafaxine

Venlafaxine is an SNRI which is not known to cause any drug reaction with methylphenidate

Carbamazepine may decrease the levels of methylphenidate and therefore it is advised to monitor the response to methylphenidate.

Isocarboxazid is an MAOI and methylphenidate is predicted to increase the risk of a hypertensive crisis when given with it.

Linezolid is an antibiotic which can increase the risk of elevated blood pressure when methylphenidate is administered with it.

Risperidone is an atypical antipsychotic which can increase risk of dyskinesias when given with methylphenidate.

Question 41- Correct Answer (C)- Low blood pressure

Women with PCOS are at increased risk of developing high blood pressure, therefore 'low blood pressure' is the correct answer because it is ***not associated*** *with* ***PCOS****. Acne, difficulty conceiving, thinning of hair on the head/ hair loss from the head and weight gain are all associated with PCOS. Although thinning of the hair from the head can occur, excessive facial hair and body hair are common in PCOS.*

Question 42- Correct Answer (E- Ulipristal acetate 30mg EllaOne)

Ulipristal acetate is the correct answer in this case because the patient had unprotected sex 4 days ago (96 hours). Both ulipristal acetate and the copper coil can be used to prevent conception for up to 120 hours after unprotected sex. This patient had however recently been diagnosed with chlamydia, therefore the copper coil would not have been indicated. Levonelle is also an appropriate method of emergency contraception, however it must be taken within 72 hours, therefore it would not be appropriate for this patient. Neither the Mirena coil or the combined pill are licensed for use as emergency contraceptives.

Question 43- Correct Answer (D)- Perineal pain

Caesarean sections are associated with an increased incidence of abdominal pain, hysterectomy, bladder/ureteric injury, venous thromboembolism but a decreased incidence of perineal pain, urinary incontinence and uterovaginal prolapse.

Question 44- Correct Answer (C)- Thyroid function tests

The suspected diagnosis is hyperemesis gravidum, which is excessive vomiting during pregnancy, this condition has an incidence of roughly 1/1000. Often women with hyperemesis gravidum need to be admitted to hospital. Thyroid function tests are not helpful for diagnosis because they are often transiently abnormal in women with this condition. Sometimes women with hyperemesis can mimic biochemical hyperthyroidism as hCG, at high levels, can stimulate TSH receptors. They usually have no clinical signs of hyperthyroidism and should not be treated. In this patient you could expect to see raised haematocrit in the FBC, raised transaminases and lowered albumin in the LFTs, lowered potassium, sodium and metabolic hyperchloremic alkalosis in the U+Es and ketones in the urine.

Question 45- Correct Answer (E)- (Polyhydramnios)

This is the build-up of too much amniotic fluid in pregnancy and research has shown it can be caused by gestational diabetes. Mothers with anaemia are in fact less likely to develop gestational diabetes. Gestational diabetes is usually associated with high birth weight for gestational age babies as higher than normal blood sugar in mothers can cause babies to grow too large. Gestational diabetes is also associated with preterm delivery, not overdue birth. Finally, placenta praevia is not caused by gestational diabetes.

Question 46- Correct Answer (C)- (Hypospadias)

Sodium valproate is a teratogenic drug and is linked to causing all of these congenital abnormalities. However, hypospadias are the abnormalities with the greatest risk (0.7%) followed by spina bifida (0.6%), atrial septal defect (0.5%), cleft palate (0.3%) and polydactyly (0.2%). (source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5984824/table/Tab4/)

Question 47- (A- autosomal dominant)

Marfan's syndrome is an autosomal dominant condition. The main risk of the condition is aortic dissection and rupture.

Question 48- Correct Answer (D)- (Taking tranexamic acid)

Tranexamic acid could be used as a treatment for post-partum haemorrhage and is not a primary cause for the condition. Remember 4 Ts as causes of primary post-partum haemorrhage "Tone" "Trauma", "Thrombin" and "Tissue".

Question 49- Correct Answer (C)- Copper coil

The copper coil would be the most appropriate option in these circumstances. The patient has told you she does not want to use condoms, therefore that is not the correct answer. The depot injection is associated with weight gain and because this is a concern of the patient it would not be the most appropriate option to use. As the patient experiences migraines with aura the transdermal contraceptive patch and combined pill are contraindicated because of increased risk of venous thromboembolism.

Question 50- Correct Answer (E)- Intrauterine balloon tamponade

Intrauterine balloon tamponade is the first line surgical intervention for post-partum haemorrhage, when the cause is likely to be uterine atony. Haemostatic suturing would be the next most appropriate step in the management of a post-partum haemorrhage. A hysterectomy would be the last resort as an attempt to stop the haemorrhage. Carbamazepine and ibuprofen do not have a role in the treatment of post-partum haemorrhage.

Question 51- E – Transvaginal US

The most likely diagnosis in this scenario is uterine fibroids. Hints in the question for this diagnosis are that the woman is of child-bearing age and is Afro-Caribbean. These may be asymptomatic, or present with menorrhagia, bloating, subfertility. The first line investigation in order to confirm a suspected diagnosis of fibroids is a transvaginal (or transabdominal) ultrasound. Ca-125 is used to diagnose ovarian carcinoma, colposcopy is to investigate potential cervical carcinoma (and may reveal a cervical polyp), a full blood count would be done in order to establish any anaemia however it would not confirm the diagnosis.

Question 52- Correct Answer E- PO erythromycin

Oral erythromycin is the antibiotic prophylaxis of choice for preterm prelabour rupture of the membranes. This should be continued for maximum 10 days or until the woman is in established labour (whichever is sooner). IV benzylpenicillin is used during labour for women with a temperature >38º or women with a previous group B streptococcus infection in pregnancy.

Question 53- Correct Answer C - Hypertension

Hypertension is not a known risk factor for ectopic pregnancy. All the others are known risk factors. The progesterone only pill is a risk factor because it slows the passage of the ovum through the fallopian tube. 3% of IVF pregnancies are ectopic, vs 0.5% of all pregnancies. Endometriosis can cause scar tissue and adhesions which can slow the ovum's passage. Top Tip for this question= generally the risk factors for ectopic pregnancy are anything that slows the passage of the ovum, so that might be a helpful way to think about it.

Question 54- Correct Answer C- Cytomegalovirus

Cytomegalovirus can be passed from mother to foetus if active form, and can cause congenital CMV infection. However, screening for CMV is not offered. Top tip for CMV is the rule of 3s= 3% primary infection rate in pregnancy; 30% risk of transmission to foetus; 3 per 1000 births UK incidence. 95% of affected infants are asymptomatic, but 10% may become deaf later in life. 30% mortality rate in those with severe congenital disease. Complications= low birth weight, neurological sequelae, abortion, anaemia, hydrops, pneumonitis and purpura.

Question 55- Correct Answer A – Advanced maternal age

NICE recommends expectant management of miscarriage as first line for confirmed miscarriage, for 7 to 14 days. The recommendation is to explore other management options e.g. medical or surgical in the following cases: woman is at increased risk of haemorrhage e.g. if late in the first trimester; she has had previous adverse/traumatic experience in pregnancy e.g. still birth, miscarriage, APH; increased risk of the effects of haemorrhage (coagulopathies, can not have a blood transfusion); evidence of infection.

Question 56- Correct Answer C - Nifedipine

Nifedipine would be the anti-hypertensive of choice here, due to the patient being asthmatic and therefore beta blockers are contra-indicated. Otherwise, the first line antihypertensive for pre-eclampsia is oral labetalol. The indication for lowering the blood pressure is to reduce the risk of maternal stroke, so although they don't actually alter the disease course you would definitely want to treat the hypertension. ACE inhibitors (ramipril) are contra-indicated in pregnancy due to their association with congenital abnormalities. Candesartan is an angiotensin receptor blocker; ARBs are first line antihypertensive for those >55 years old or of African-Caribbean family origin. Top Tip for this question= remember that all the information given in a question is relevant. Don't skip over the history, because it's likely that they've included certain conditions/medications which might change the management.

Question 57- Correct Answer E – US abdo pelvis

NICE recommendation for suspected ovarian cancer is to measure CA125, and if that is raised >35 IU/ml to perform pelvic and abdominal US. Alpha fetoprotein and beta hCG may be measured in women <40 with suspected ovarian cancer to identify women who may not have epithelial origin ovarian cancer. A CT abdo pelvis would be the next investigation if the Risk of Malignancy Index (made up of CA125, US score and menopausal status) indicates. MRI is not routinely used for investigating suspected ovarian cancer.

Question 58 - Correct Answer C – Nuchal translucency, beta hCG, PAPP-A

The combined test is now the standard for Down syndrome screening, and is made up of nuchal translucency measurement, serum beta hCG, and pregnancy-associated plasma protein A (PAPP-A). This should occur between weeks 11 and 13+6. A raised hCG, low PAPP-A and thickened nuchal translucency is suggestive of Down syndrome. For women who book later than 13+6 weeks should have either the triple or quadruple test. Triple test= AFP, unconjugated oestriol, hCG. Quadruple= AFP, unconjugated oestriol, hCG, and inhibin-A.

Question 59 - Correct Answer C – High body mass index

Risk factors for endometriosis include factors that would prolong the amount of bleeding a woman has in her lifetime e.g. early menarche, late menopause, delayed childbearing, and nulliparity. Other risk factors include family history, vaginal outflow obstruction, white ethnicity, low body mass index and autoimmune disease.

Question 60 - Correct Answer C - FBC

An FBC should make up part of your initial assessment of menorrhagia following the history and examination, looking for iron deficiency anaemia which would be an indication of heavy blood loss and would require treatment. In reality, if no underlying pathology is suspected and there is no need for further investigation, you would discuss the various treatment options. Mirena is first line for management of menorrhagia and COCP is second line. For women who don't want contraception e.g. if they are wanting to conceive, either tranexamic acid or mefenamic acid can be used. Further investigations, such as a TVUS, are only indicated if there is suspected underlying pathology such as fibroids, polyps or adenomyosis.

Question 61- E. Azithromycin 1g stat PO

E. Azithromycin can be used for both the treatment of gonorrhoea & chlamydia.
A. Metronidazole is used for the treatment of Trichomonas Vaginalis
B. Fluconazole is an antifungal medication used in treatment of candida
C. Doxycycline is used for the treatment of chlamydia after positive NAAT testing
D. Amoxicillin is used for the treatment of community acquired pneumonia

Question 62- C. Genital Herpes

C. Genital Herpes presents with painful lesions, dysuria & lymphadenopathy. Primary infection can lie latent for years & reactivate during times of stress- described above.
A. Chlamydia typically is asymptomatic, it does not present with painful lesions
B. Gonorrhoea typically is asymptomatic, it does not present with painful lesions
D. Genital warts typically presents with painless lesions that itch & bleed
E. HIV typically presents with a seroconversion illness- 2-6 weeks of non-specific flu like illness

Question 63- B. Bacterial vaginosis

B. Normal vaginal pH <4.5, in bacterial vaginosis or trichomonas vaginalis, the conditions can throw off the normal balance of bacteria and cause pH levels to become less acidic.
A,C,D,E In all other answers would expect pH <4.5

Question 64- C- Neisseria Gonorrhoea

C. Neisseria Gonorrhoea is visible as gram negative diplococci under a microscope
A. Chlamydia trachomatis is visible as gram negative rod shapes under a microscope
B. Escherichia Coli is visible as gram negative rod shapes under a microscope
D. Klebsiella pneumoniae is visible as gram negative rod shapes under a microscope
E Staphylococcus Aureus is visible as gram positive cocci shapes under a microscope

Question 65- D. Cycle regularly

D. Cycling can cause ED, as seat puts constant pressure on perineum- this can slow blood flow & leave to ED
A, B, C, E. All other options are healthy lifestyle changes that can help ED

Question 66- D, Combined oral contraceptive pill

D. The combined OCP is contraindicated in anyone >35 who smokes more than 15 cigarettes a day.
A, B, C, E. All other choices are appropriate & a decision would be made on patients preference

Question 67- C. It can take upto a year to return to normal fertility

C. A common side effect of depo-provera injection is that it can take time to restore normal fertility
A. Breast tenderness is a side effect of the combined pill
B. Risk of ascending infection is a side effect of the intrauterine devices
D. VTE is a side effect of the combined pill
E. Its effects cannot be reversed is a side effect of sterilisation

Question 68- C. Fraser guidelines

C. Fraser guidelines apply specifically to contraceptive advice, a doctor can give contraceptive advice and treatment to a girl under 16:
A. Gilick guidelines refer to Gillick competency, the ability to consent for medical/surgical procedure <16 yrs, without the need for parental permission or knowledge
B, D, E. are other examples of word play related to contraception

Question 69- C. Insert the copper coil as emergency contraception

C. Insert the copper coil as emergency contraception- is an effective emergency contraception upto 5 days after unprotected sex
A. Reassurance is not appropriate and does not resolve the issue at hand
B. The levonelle emergency pill is only effective upto 3 days after unprotected sex
D. The progesterone only pill is not effective as an emergency contraception
E. The mirena coil is not effective as an emergency contraception

Question 70- A. Mirena coil

A. The benefit of using the mirena coil is that it is long lasting, and can relieves painful periods (dysmenorrhoea)
B. copper coil does not have the desired effect of relieving dysmenorrhoea
C & D: both have the desired effect of relieving dysmenorrhoea, however are both not long-term options
E. progesterone only implant does not have the desired effect of relieving dysmenorrhoea

Question 71 - Correct answer - C (Dexamethasone 16 mg)

This is "high-dose Dex", an easy and quick way of reducing malignant compression, because it reduces the oedema around the tumour site, in this case reducing compression on the Cauda Equina.

Surgical Compression will definitely be considered, however this is likely to take at least a day before the surgeons operate. In the meantime, this man's nerves are dying from the compression, so medical decompression is needed to preserve his residual Neurological function.

Gabapentin can be used for neuropathic pain, however it will do nothing for this man as his problem is due to his CNS not in his Peripheral Nerves.

Thrombolysis is not indicated as the time frame is not consistent with a Vascular cause. Even if it were, we have not yet established if it is Thrombotic or Haemorrhagic

Levodopa is used for Parkinson's disease, the timeframe and his past medical history means we can be confident this is not PD.

The history depicts a classic story of Cauda Equina syndrome and whilst not always caused by a malignancy, it is certainly common! This must be on your mind when reviewing either new lower limb neurological loss, incontinence or reduced tone on PR. Never forget about things you can do for your patients before any definitive management takes place i.e. Dex before decompression.

Question 72 - Correct answer - C (Intravenous Immunoglobulin therapy)

This will help support him further. The history describes a reasonably advanced disease, thus stopping further spread and protecting his ventilation is a must. Guillain-Barre syndrome involves autoimmune demyelination of peripheral nerves, thus immunosuppression is needed. Plasma Exchange is also a viable option, but not included above.

Aciclovir is inappropriate for this man, as GBS is a purely POST-infective pathology, thus there is no virus left for Aciclovir to work on.

Whilst Methotrexate and Dexamethasone are potent immunosuppressants, there is a poor evidence base for their efficacy in GBS and are thus, not the best answer here.

Vancomycin is an antibiotic and, as above, will not bring this man any benefit, nor would it help in an antiviral sense.

Question 73 - Correct answer - E (Trigeminal Neuralgia)

This is a stereotypical history of Trigeminal Neuralgia, with neuropathic pain in the territories of CNV1+2 and later CNV3. The triggers of his pain described above are typical, in addition to cold triggering pain.
Chronic Tension headaches are usually described as a tight band across the area of the frontal bone and are generally not a concern to the patient. They also ease well with paracetamol and are exacerbated by stress, tiredness, dehydration etc.
Cluster headache is incorrect mostly because of the temporality described in this history. They occur daily for a month in a year and then the patients are pain free. In a day, they generally remit after an episode which can last for 15 minutes to 2 hours. The pain is typically debilitating and has autonomic features e.g. lacrimation, ptosis, red ear etc.
Migraines do not generally present with radiating pain and there is no description of Migrainous Aura or typical Migraine triggers. However, they are certainly a common presentation and can present in atypical fashions, but Trigeminal Neuralgia is still the best answer here.
Temporal Arteritis (AKA GCA) is something to consider in every new presentation of headache. However the history would generally include a constant, non radiating element of pain in the temple, which this history does not. The time frame is also wrong for TA, as it is a sub-acute condition, so would be present for a matter of days, not weeks.

Question 74 - Correct Answer - A (CT Head)

The Optic lesion noted is typical of Optic Chiasm compression, which is usually because of a Pituitary Tumour. The systemic symptoms described are suggestive of increased Prolactin in this lady. The 2 findings together make Prolactinoma a very likely option. We need to confirm that this is indeed the case, thus structural imaging is required. We also need to rule out any other intracranial pathologies, i.e. other malignancy, mass effect. This is why CT head is the best answer, they are quick and easily available, helping us decide if this lady requires urgent admission or if she can wait a little longer.
MRI Head will probably be needed by the surgeons before they operate, which is the definitive management, but we are not yet at that stage.
EEG is used to monitor brain activity, typically in seizures, however there is no suggestion of seizures so it is unnecessary.
EMG is used in skeletal muscle to test the activity of peripheral nerves, which is not indicated here.
PET scans indicate the metabolic activity of a particular region, but do not in themselves provide a detailed image of structure. They are useful for identifying metastatic regions in known malignancies, however Prolactinomas are generally benign adenomas, so with the information given this is so far unnecessary.

Question 75 - Correct Answer - C (Resolution of Symptoms within hours of onset)

Symptoms of Optic Neuritis typically resolve in days or weeks, not hours.
All other options are features of Optic Neuritis

Question 76 - Correct Answer - A (Benign Paroxysmal Positional Vertigo)

BPPV is the correct answer. All the features included in the history are indicative of it, especially the short episodes that occur with position. A positive Dix-Hallpike Maneuver is pathognomonic of BPPV

PCS is certainly a differential, even if it rarely presents this way, you can't miss it! It is imperative to rule out and investigate accordingly. PCS can present in a variety of ways, including CN palsy, Eye movement disorders, and Locked in syndrome

Vestibular Neuritis would cause a continuous vertigo, which doesn't fit the episodic nature here. It is also worsened by head position and there is likely to be a recent history of URTI. It is called Labyrinthitis if hearing is also affected i.e. Deafness or Tinnitus

Otitis Externa does not cause vertigo and is associated with ear pain, redness, perhaps discharge.

Postural Hypotension can cause vertigo if there is a postural drop in systolic BP, however the positional nature described above is not consistent with Postural Hypotension. There may also be episodes of syncope, which this lady did not present with.

Question 77 - Correct Answer B (Depression)

Depression is most likely in this man. PD is caused by loss of Dopaminergic neurons, which are also important in maintaining Euthymia. Endogenous Depression is very common in PD. The history gives details of Anhedonia, mood changes, reduced concentration, feelings of worthlessness. The thing that makes the other options less likely is that he is neurocognitively intact, an AMT of 9 is normal.

Alzheimers Dementia presents with the 4 A's - Amnesia (recall) Aphasia (expressive) Agnosia (naming an object in hand) and Apraxia (motor planning skills i.e. getting dressed)

Frontotemporal dementia is similar to Alzheimers, however it is typically younger onset and has more severe behaviour changes than listed in the history.

This could be a hypoactive delirium, however his cognition is fine and there is nothing else detailed that would suggest a cause of delirium, but it would be important to ask the questions.

Lewy-Body Dementia is a dementia that starts >1 year after PD diagnosis. It typically has fluctuating changes in cognition, visual hallucinations and REM sleep disorder.

Question 78 - Correct Answer - B (CT Head)

This is the best answer as it will allow the team to decide which treatment to start for her stroke. We need to rule out an intracranial haemorrhage, as this will appear on CT. You may not see ischaemic changes on a CT this soon after her onset of symptoms, but ruling out a bleed is more important. This will allow us to start Alteplase therapy, which if we gave to a bleeding patient would simply worsen the bleeding, but will remove the clot. She also has presented within the 4.5 hour window time limit for Alteplase therapy.

A clotting screen may be useful, especially if the patient is on Warfarin therapy, which may make a haemorrhage more likely, however there is no suggestion of trauma. The time frame and symptoms are also not consistent with subdural haematoma.

ECG would be useful for confirming if this lady has any arrhythmias, particularly AF, which could be thrombogenic. This lady could still have a bleed despite having AF, thus it is not confirmatory of thromboembolism.

MR angiography might be asked for if a bleed is seen and the surgeons would like to operate on a ruptured aneurysm. Firstly, we need to confirm she has a haemorrhage! Starting with this approach will delay treatments for the more likely cause (ischaemia).

TTE could be useful in later management, particularly if this lady has valve disease or Infective Endocarditis, both of which are capable of producing clots which could go to the brain. However this will not impact our immediate management for her.

Question 79 - Correct answer - B (CN III)

The 'down and out' appearance of the eye is almost pathognomonic of a lesion in CN III. This is because CN VI is spared and abducts the eye. CN II does not have any motor function. CN IV is the trochlear nerve and a lesion here would not give a 'down and out appearance'. The ophthalmic branch of CN V provides only sensory innervation, in this case it would be useful in the corneal reflex, the efferent arc of which is carried by CN VII.

Question 80 - Correct Answer - D (Right hemisection of the spinal cord)

These are typical examination findings in Brown-Sequard Syndrome. Hemisection of the cord on one side will result in paralysis and loss of proprioception and vibration on the ipsilateral side of the lesion. The contralateral side will experience lack of pain and temperature sensation (the latter is not something commonly assessed in ED). The ipsilateral sensations/motor functions decussate at the level of the lesion, and the contralateral pain and temperature sensations decussate below the level of the lesion. The best analogy for this is that the afferent fibres for pain and temperature turn onto a different road early on and then run into a traffic jam. Ofcourse pain and temperature is spared on the ipsilateral side, because they leave the road early and avoid the traffic jam, thus reaching the cortex.

Question 81- Answer B - Reassure and explain treatment is not possible

The stem is describing benign essential tremor (bilateral, worse when stretching arms out, better with alcohol). Propranolol can be used as first-line medication to improve benign essential tremor, but she is asthmatic so she cannot use that. As her symptoms are mild reassurance would be the best route forward. Levodopa and bromocriptine can both be used in Parkinson's, which this lady most likely does not have. While alcohol may improve her symptoms advising her to drink more alcohol is probably not the best option.

Question 82 - Answer B - Difficulty initiating movement

The core triad of Parkinsons: resting tremor, rigidity and bradykinesia. Difficulty initiating movement is a form of bradykinesia. Expressionless face and micrographia are features which can be seen in Parkinson's but are not one of the core features. Lewy body dementia and depression are psychiatric features which could also be associated with Parkinsons.

Question 83 - Answer C - IV Phenytoin

This is a medical emergency as the patient is in status epilepticus and it has been more than 5 minutes so you do treat it. Lorazepam and Diazepam are benzodiazepines. These are first line treatments and if the seizure is ongoing after two doses of these, IV Phenytoin is most appropriate.

Question 84 - Answer E - Non-epileptic attack disorder

The most likely diagnosis is Non-epileptic attack disorder (NEAD). 'Hip-thrusting and asymmetrical movements' point towards NEAD and not epilepsy. NEAD is mostly caused by psychological factors and is more commonly seen in women. In a generalised seizure there's usually a post-ictal recovery time.

Question 85 - Answer C - Mallory Weiss tear

This patient has a history of alcohol intake and presents with haematemesis. This is highly suggestive of a Mallory Weiss tear, which is a linear mucosal tear in the oesophagus at the gastro-oesophageal junction.

Question 86 - Answer C - Omeprazole

This patient has osteoarthritis of the knee. Second line treatment for this is an NSAID, which has to be co-prescribed with a PPI to reduce NSAID-induced gastrointestinal adverse events.

Question 87 - Answer B - Stay standing or sitting upright for at least half an hour before taking the tablets

Alendronate/alendronic acid is a bisphosphate taken PO. It must be taken while standing/sitting upright for at least 30 minutes, it should be taken before breakfast and on an empty stomach. Zoledronic acid is a form of bisphosphonate which can be taken for osteoporosis via IV, once a year, in a specialist clinic.

Question 88 - Answer D - Tetralogy of Fallot

In some children with Tetralogy of Fallot a 'boot-shaped' heart (upturned cardiac apex) will be found on a CXR. This toe shape is due to the right ventricular hypertrophy and a flat/concave pulmonary trunk from the pulmonary stenosis. Overriding aorta is a feature in Tetralogy of Fallot. Complete AVSD (seen more commonly in those with Down's syndrome) and Transposition of the Great Arteries are cyanotic heart diseases. On CXR Transposition of the Great Arteries may show an 'egg-on-side' appearance. Patent Ductus Arteriosus is generally acyanotic.

Question 89 - Answer C - Optic neuritis

The stem of the question is describing a young woman with multiple sclerosis (fatigue, Lhermitte's sign, difficulty walking). The previous episode was most likely optic neuritis which is a common presenting feature of multiple sclerosis. None of the other options are a common feature of Multiple Sclerosis.

Question 90 - Answer A - Bitemporal Hemianopia

This patient has presented with polyuria and polydipsia, which suggests diabetes insipidus. This could be caused by a craniopharyngioma, which would compress the optic chiasm causing a bitemporal hemianopia.

Question 91 - Answer B - ACE-inhibitor + Beta-blocker

It is likely that Graham has heart failure causing symptoms of dyspnoea on exertion. Graham has significant risk factors for congestive heart failure, including Hypertension, dyslipidaemia, and ischaemic heart disease which can be inferred from his regular medications. Raised JVP, S3 and chest rales on examination are all major Framingham criteria for the diagnosis of heart failure. ACE-inhibitors and Beta-blockers (B) have been shown to decrease the morbidity and mortality associated with heart failure and should be given to all patients with symptomatic heart failure. Whilst calcium channel blockers are used to treat hypertension, a cause of heart failure, they are not indicated in the treatment of heart failure (A, C). Loop diuretics e.g Furosemide are commonly used in heart failure for symptomatic relief of oedema, but have not been shown to improve morbidity and mortality (D, E).

Question 92- Answer D - Alendronic acid should be taken at least 30 minutes before breakfast

Oral bisphosphonates are poorly absorbed, but can be enhanced with correct administration. For osteoporosis, Alendronic acid is prescribed as 70mg once weekly, with alternate days being too frequent (A), and should be taken at least 30 minutes before other medications (B). Alendronic acid can cause oesophagitis therefore the patient should remain upright for 30 minutes, not lie down (D). They should take plenty of water taking with plenty of water to reduce risk of oesophagitis, not by taking with food (C). Alendronic acid should be taken at least 30 minutes before food to maximise absorption, so (D) is correct.

Question 93 - Answer A - Debbie has prosthetic joints in both knees

Having a joint prosthesis is a relative contraindication for a joint aspirate in this case (A) - aspiration of prosthetic joints should only be done by an orthopaedic surgeon in theatre, due to the risk of infection. Other contraindications include bacteraemia, inaccessible joints, and overlying infection in the soft tissue. Options B, C, D and E are not considered contraindications to the procedure.

Question 94 - Answer C - Febuxostat

NICE recommends that urate-lowering therapy should be discussed and offered to all people with a diagnosis of gout. Second line prevention of gout after Allopurinol is Febuxostat, a non-purine selective xanthine oxidase inhibitor that reduces the production of uric acid (C). Leflunomide (A) is a DMARD used for RA and psoriatic arthritis. Colchicine (B) is used to treat gout, but only in acute attacks. Hydroxychloroquine (D) is used by rheumatologists for the control of RA and SLE. Verapamil (E) is a calcium channel blocker with no role in this scenario.

Question 95 - Answer B - Laparoscopic cholecystectomy

Laparoscopic cholecystectomy is the procedure of choice for symptomatic cholelithiasis (gallstones) (B). Observation (A) would be appropriate if Sally's gallstones were not causing symptoms. IV fluids and nasogastric decompression (C) is the treatment for a bowel obstruction, Anticoagulation (D) is not indicated and would be a bad idea prior to a patient going into a surgical procedure, the Whipple procedure (E) is a major surgical operation most often performed to remove cancerous tumours off the head of the pancreas.

Question 96 - Answer A - ↑ AST + ↑ ALT with an AST/ALT ratio of 2:1

In patients with alcoholic liver disease, AST level is almost always elevated (usually above ALT level). The classic ratio of AST/ALT >2 is seen in about 70% of cases (A). Reversal of the ratio, ALT > AST, suggests concomitant presence of viral hepatitis or possibly non-alcoholic fatty liver disease as the major cause of liver injury in alcoholic patients (B). A predominant ↑ ALP is a cholestatic picture of LFTs (C). An isolated ↑ ALP (D) indicates the breakdown of bone e.g bony metastases. An isolated ↑ Bilirubin is associated with gilberts syndrome- check if it is conjugated/unconjugated.

Question 97 - Answer C - Tamsulosin

Adam is likely suffering symptoms due to BPH. Oxybutinin (A) is used for urinary frequency, urgency and incontinence, but is not indicated for symptoms caused by BPH. Mebeverine (B) relaxes smooth muscle in the bowel and is indicated for GI disorders. Tamsulosin (C) is an alpha-1 blocker and is used for BPH acting by smooth muscle relaxation in the prostate and bladder neck. Dexamethasone (D) and bendroflumethiazide (E) would not be appropriate for the treatment of BPH.

Question 98 - Answer D - Urinary retention

It is likely that Marc is suffering with acute prostatitis, commonly of a bacterial cause. Prostatitis has not been linked to an increased risk of either BPH (A) or of prostate cancer (B). Prostatic abscess (C) is a rare complication which may develop in patients with acute bacterial prostatitis. Retention (D) is a common complication in acute bacterial prostatitis, and in some patients may be the presenting feature. May be caused by the prostate becoming oedematous with the development of infection. Acute prostatitis is not associated with bladder cancer (E), a major indicator of this condition would be history of smoking/dye exposure and painless harmaturia.

Question 99 - Answer A - Moraxella cararrhalis

Moraxella catarrhalis (A) is one of the common bacteria causing COPD exacerbations, along with Haemophilus influenzae and Streptococcus pneumoniae. Staph aureus (B) pneumonia is uncommon, and uncommon to COPD. Aspergillus fumigatus (C) is a fungus causing infection in mostly immunocompromised patients. Pseudomonas aeruginosa (D) is most commonly associated with cystic fibrosis and bronchiectasis patients. Eschericia Coli (E) is most commonly associated with urinary tract infections not respiratory.

Question 100 - Answer C - 50%

Alpha-1-antitrypsin deficiency has an autosomal inheritance pattern and codominant expression of alleles. The M gene is the most common allele of the alpha-1 gene. It produces normal levels of the alpha-1 antitrypsin protein. The Z gene is the most common variant of the gene. It causes alpha-1 antitrypsin deficiency. Given the inheritance pattern, the child of two heterozygous (MZ) parents have a 50% chance of having a heterozygous child (C), a 25% chance of having a child without the allele (MM), and a 25% chance of having a child homozygous for the variant allele (ZZ).

Google Form- Scores and Feedback

- **Record your score-** this enables us to calculate an average mark for the mock and gauge the difficulty of the paper as a whole. Please note all data collected is anonymous.
- **Inform us of mistakes-** from selling mistakes to incorrect explanations, let us know where we've gone wrong so we can improve it.
- **Ask for further clarification-** maybe you want a clearer explanation of the difference between 2 answers of more justification of the single best answer, ask us and we'll get on it!

Paper 5 Google Form -https://forms.gle/qPPUMneeM7HgRceV6

I hope you found this mock beneficial for your learning, thanks for taking part.

Andrew Maud- PTS Assessments Coordinator 2020-21. PTSassessments1@gmail.com