PTS x MedSoc 2a Questions - Neuro

Questions

1. A 68-year-old woman presents to her GP with a headache that started 3 days ago. It is particularly painful when touching her right temple and the pain spreads to her jaw. The doctor performs a blood test and the result indicates an extremely elevated ESR.

   Given the diagnosis, what complication is the woman at risk of?

A. Hair loss
B. Blindness
C. Anosmia
D. Loss of facial sensation
E. Forehead sparing facial droop

2. A 24-year-old male presents to A&E after having a seizure. On questioning, he said that he felt the seizure coming on, smelt strange smells, and experienced deja vu. He then had periods where he had no idea what was happening and afterwards he was incredibly confused.

   What lobe was the patient having a complex seizure in?

A. Frontal lobe
B. Parietal lobe
C. Temporal lobe
D. Occipital lobe
E. All lobes

3. Wernicke encephalopathy is a complication of chronic alcoholism and can present with changes in mental status, gait, and oculomotor dysfunction.

   Which vitamin is deficient in Wernicke encephalopathy?

A. Vitamin B12 (cobalamin)
B. Vitamin C (ascorbic acid)
C. Vitamin K (phytonadione)
D. Vitamin B1 (thiamine)
E. Vitamin B7 (biotin)

4. A 25-year-old woman presents to her GP after suffering with urinary incontinence for the past 2 days. There is no history of trauma. The GP performs a neurological examination - this is unremarkable. On further questioning, her history reveals she had glandular fever 2 years ago. 3 months ago she visited the optician after her eyes began to hurt and she was struggling to see, this was worse after she had got out of the shower in the mornings, this has since been resolved.

   What is the most likely diagnosis?

A. Multiple Sclerosis
B. Myasthenia Gravis
C. Guillain-Barre Syndrome
D. Motor Neurone Disease
E. Cauda Equina Syndrome

5. A 5-year-old boy presents to A&E with a headache, fatigue and photophobia. He is currently being treated and recovering from mumps. An examination is positive for Kernig's sign and Brudzinski's sign. Meningitis is the suspected diagnosis. A lumbar puncture is performed.

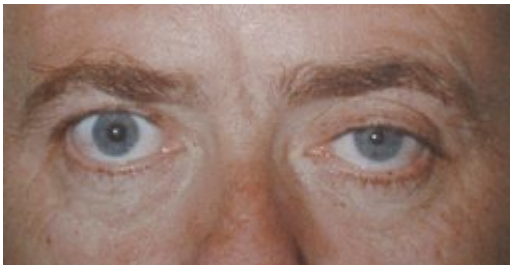
   The lumbar puncture result is as follows:

   Appearance - clear
   Opening pressure - normal
   White Blood Cell Count - slightly raised with a lymphocytic predominance
   Protein Level - slightly raised
   Glucose - normal

   What is the most appropriate treatment?

A. IV Benzylpenicillin
B. IV Ceftriaxone
C. IM Benzylpenicillin
D. IV Chloramphenicol
E. Give analgesia, antipyretics and hydrate

6. A 59-year-old man presents to his GP when he noticed one side of his face was not sweating when the other was. He also noticed some facial changes - shown below.



What might be causing this condition?

A. Small cell lung cancer
B. Cranial nerve III palsy
C. Pancoast tumour
D. Bell's Palsy
E. Glioblastoma

7. Brown-Sequard Syndrome is caused by a penetrating wound to half of the spinal cord.

Which of these is correct regarding Brown-Sequard Syndrome?

A. Ipsilateral loss of position, vibration sensation and motor control at the level of the lesion
B. Contralateral loss of position, vibration sensation and motor control at the level of the lesion
C. Ipsilateral loss of position, vibration sensation and motor control from 2 levels below the lesion
D. Ipsilateral loss of pain and temperature from 2 levels below the level of the lesion
E. Contralateral loss of pain and temperature at the level of the lesion

8. Which of these is a lower motor neurone lesion sign?

A. Hyperreflexia
B. Hypotonia
C. Muscle wasting
D. Spastic paralysis
E. Positive Babinski Sign

9. A 68-year-old man has suddenly lost function in his right leg. He has a past medical history of hypertension, type 2 diabetes and hyperlipidaemia. He smokes 20 a day and has done so for 30 years. You suspect he is having a stroke.

   What artery is likely to be implicated in this stroke?

A. Right anterior cerebral artery
B. Left anterior cerebral artery
C. Right middle cerebral artery
D. Left middle cerebral artery
E. Right posterior cerebral artery

10. Which artery is commonly implicated in an extradural haematoma?

A. Basilar artery
B. External carotid artery
C. Posterior deep temporal artery
D. Middle cerebral artery
E. Middle meningeal artery

11. A 45-year-old man presented to A&E with a sudden onset thunderclap occipital headache and painful eye movements. A CT head revealed a subarachnoid bleed from a posterior communicating artery aneurysm. He has been reviewed by neurosurgery and has been booked for an urgent PCOMM aneurysm coiling.

    Which of the following drugs should he be started on?

A. Mannitol
B. Aspirin + clopidogrel
C. Nimodipine
D. Nothing - surgical treatment only
E. Nifedipine

12. A 20-year-old presented with progressive ascending weakness and numbness in his legs. Lumbar puncture confirmed the diagnosis of Guillain Barre syndrome (GBS).

    Which of the following is the most common cause of GBS?

A. Cytomegalovirus (CMV)
B. EBV
C. Campylobacter jejuni
D. E. coli
E. Salmonella

13. A man presents to his GP complaining of severe unilateral right sided headaches, which wake him up every morning at 5am. He also mentions his right eye gets very red and watery during these headaches. He feels completely incapacitated by these headaches. His father suffered from similar headaches.

    What is the most likely diagnosis?

A. Tension headache
B. Migraine
C. Subarachnoid haemorrhage
D. Cluster headache
E. Primary brain tumour

14. A 23-year-old student presents with left sided painful eye movements and blurred vision. She also mentions that 3 months ago her left forearm went numb but that it went back to normal after about a month.

    Which is the most appropriate first line investigation?

A. CT head
B. MRI head
C. Lumbar puncture
D. CT angiography
E. None of the above

15. An 80-year-old man tripped down the stairs 3 weeks ago and hit the left side of his head. He was initially fine but then developed a pounding headache, which has gotten progressively worse. The headache has been waking him up from sleep the past few nights. He has also noticed his right leg is feeling weaker.

    What is the most likely diagnosis?

A. Subarachnoid haemorrhage (SAH)
B. Tension headache
C. Extradural haemorrhage (EDH)
D. Subdural haemorrhage (SDH)
E. Space occupying lesion (SOL)

16. A 25-year-old presents complaining of a 2-year history of once weekly severe headaches. They are usually unilateral, last around an hour and make her feel nauseous. She prefers to lay in the dark when she gets them and loud noise makes the pain worse.

    Given the likely diagnosis, what is the first line acute treatment?

A. Sumatriptan
B. Propranolol
C. 100% 15L oxygen
D. Verapamil
E. Paracetamol

17. A 50-year-old woman presents complaining of weakness in her legs. She says her legs normally feel fine when she wakes up but towards the end of the day, they feel weaker and she struggles to get up the stairs. She also finds it hard to read in the evenings. She has a past medical history of pernicious anaemia. On examination she has normal reflexes but has bilateral partial ptosis.

    What is the most likely diagnosis?

A. Lambert Eaton myasthenic syndrome
B. Multiple sclerosis
C. Motor neurone disease
D. Myasthenia gravis
E. Cauda equina

18. A 65-year-old man presents complaining of double vision. On examination his left eye is facing down and outwards and his left eyelid is drooping.

    Where is the lesion?

A. Optic chiasm
B. Trochlear nerve
C. Left oculomotor nerve
D. Left abducens left
E. Optic nerve

19. A 72-year-old man attends the GP with his wife. His wife is concerned about him. She says he is not himself anymore - he has tried to hit her on multiple occasions and she once found him urinating in the living room. But he has no memory of this and refuses to believe he has done these things.

    What is the most likely diagnosis?

A. Transient ischaemic attack (TIA)
B. Alzheimers
C. Vascular dementia
D. Parkinsons
E. Frontotemporal dementia

20. A 70-year-old man has recently been diagnosed with Parkinson's disease, after his son noticed he was walking funny and was only swinging one of his arms.

    Which of the following is not a non-motor symptom of Parkinson's disease?

A. REM sleep disorder
B. Postural hypotension
C. Constipation
D. Urinary incontinence
E. Depression

21. A 52 year-old male presents to A&E following a fall. He tells you that he feels fine and that he trips quite a lot. You ask about this some more and learn that over the last few months the patient has started to stumble quite a bit and has been struggling to do simple things around the house like open jars. He tells you that he has had no issues with passing urine or his bowel function. On examination you notice he also has foot drop.

    Given the likely diagnosis, which of these medications would be the most appropriate?

A. Levodopa
B. Paracetamol
C. Riluzole
D. Baclofen
E. Carbamazepine

22. A 25 year-old woman has been visiting her GP for a few weeks with the same complaint. She is tired all the time, says that legs are getting weaker (and that this can sometimes be worse after a bath), she's been getting dizzy for no reason, and her libido has disappeared. She also thinks her vision is getting worse, however she isn't sure.

    Given the symptoms, which test(s) would you order, if any?

A. MRI and Lumbar puncture
B. CT and Lumbar puncture
C. MRI only
D. CT only
E. No tests are needed

23. You see an 8 year-old child in your clinic. His mother tells you that he has been complaining of weakness in his legs, particularly his feet. So far, he hasn't complained of any issues above his knees. The child doesn't have any pain. On examination you note that he has decreased touch and vibration sensation in his feet and that he has Pes cavus.

    What is the most likely diagnosis for this child?

A. Guillain-Barre Syndrome
B. Charcot-Marie Tooth
C. Vasculitis
D. MND
E. Amyloidosis

24. A 20 year-old woman presents to A&E following a suspected seizure. She lost consciousness and her boyfriend reported jerking movements that lasted about a minute.

    Which of the following should be prescribed?

A. Sodium Valproate
B. Carbamazepine
C. Keppra
D. Lamotrigine
E. Topiramate

25. A 37 year-old male goes to see his GP. He complains of a recurrent headache that comes and goes. He says that he can feel it all over his head and it's like ‘something is pressing against his scalp’. You ask him how he is outside of the headache, and he tells you that he has just started a new job and his daughter has been really unwell recently so he hasn’t slept very well.

    Which of the following is the most likely diagnosis?

A. Migraine
B. Giant cell arteritis
C. Brain tumour
D. Cluster headache
E. Tension headache

26. Mr. Smith is a 67 year-old gentleman whose wife is concerned about his memory. She tells you that he has been forgetting simple things, like where he left the car keys, and that he can get irritable when she mentions certain things. She said it has been happening for around 6 months now, and is slowly getting worse. She ended up bringing him in for a check-up as yesterday he forgot the name for the cheese grater.

    What is the mechanism behind this condition?

A. Brain damage due to recurrent strokes
B. An accumulation of beta-amyloid plaques and neurofibrillary tangles, resulting in memory loss
C. Underlying Parkinson’s disease
D. Atrophy of the frontal lobe, causing changes in memory and behaviour
E. A loss of neurons in the neocortex, resulting in issues with speech and language

27. A 43 year-old lady goes to her GP complaining of pain in her hand at night. It has become worse over the last week, even waking her up. She tells you that she sometimes gets tingling in her index and middle fingers as well.

    You suspect a particular mononeuropathy, how would you confirm your diagnosis?

A. Phalen's test
B. Trendelenburg's test
C. Jobe's test
D. Simmonds' test
E. Lachman's test

28. On placement, you see a 38 year-old lady who has very jerky, uncontrolled movements. She struggles to sit still as you talk to her, and she has very unclear speech. Afterwards as you look in her notes, you see that she also suffers from anxiety, depression, dysphagia, and mild psychotic symptoms.

    Which of the following would you *not* expect this patient to be taking?

A. Haloperidol
B. Sertraline
C. Sulpiride
D. Diazepam
E. Levodopa

29. You see a 62 year-old man who has severe fatigue that gets worse as the day goes on. He also has issues swallowing, his speech is slurred, and he complains of diplopia. On examination, you notice that he has ptosis.

    Which of the following is affected in this condition?

A. Steroid Type-4 Nuclear receptors
B. Insulin receptors
C. Nicotinic acetylcholine receptors
D. Muscarinic acetylcholine receptors
E. Adrenoreceptors

30. Jane is a 28 year-old lady who is complaining of pain in the back of her legs, and the outer side of her right leg. She also says that she is having problems lifting her ankle up.

    Which nerve root would cause this type of radiculopathy?

A. Compression of the C6 root
B. Compression of the C7 root
C. Compression of the L2-3 root
D. Compression of the L5 root
E. Compression of the S4 root

Answers

Answer	Explanations
1. B	A. Hair loss is not a complication of giant cell arteritis. One of the common complaints in people with GCA is pain whilst brushing hair. B. The patient has giant cell arteritis for which blindness is a complication and makes GCA a medical emergency. It is caused by emboli occluding the retinal artery and causes a descending painless temporary loss of vision (amaurosis fugax) C. Anosmia is the loss of sense of smell. It could be caused by a lesion to the olfactory nerve or by a virus e.g. COVID. D. Loss of facial sensation could be caused by a lesion to the facial nerve or a stroke. It is not a complication of GCA. E. Forehead sparing facial droop (Bell's palsy) is damage to the upper motor neuron on the affected side - the forehead is spared and the lower face is paralysed.
2. C	A. Frontal lobe has motor features e.g. Posturing, peddling movements of legs. Jacksonian march (seizures march up and down the motor homunculus). Post-ictal Todd's palsy (weakness, starts distally in limb then up to face) B. Parietal lobe has sensory disturbances - tingling or numbness C. Temporal lobe is the most commonly affected in complex partial seizures. Presents with aura (deja vu, hallucinations, funny smells). Post-ictal confusion is also common in complex seizures. D. Occipital lobe would have visual phenomena E. Partial seizures can go onto become generalised seizures where symptoms from all lobes would be present.
3. D	A. Vitamin B12 deficiency can lead to neurological symptoms through damage to the myelin sheath. B12 deficiency often leads to anaemia and symptoms of fatigue, palpitations and shortness of breath. B. Vitamin C deficiency leads to scurvy C. Vitamin K deficiency leads to clotting disorders D. Vitamin B1 deficiency leads to Wernicke encephalopathy. It is important in many biochemical pathways.

<table>
<tr><td></td><td>E. Vitamin B7 deficiency is rare as it is widely available and gut bacteria can synthesise it, it can lead to alopecia and rashes</td></tr>
<tr><td>4. A</td><td>A. Multiple Sclerosis is an autoimmune condition caused by demyelination which is often relapsing and remitting. This causes neurological symptoms which are disseminated in time and space (i.e. different places, different times). EBV (glandular fever / mononucleosis) is a risk factor. Optic neuritis is a common initial symptom. Uhthoff's phenomena is when symptoms are worse with heat (after shower). Lhermitte's sign (not mentioned) is an electric jolt down spine on neck flexion.

B. MG - is autoimmune against nAChR at the neuromuscular junction. The most common complaint is weakness worse after exertion.

C. GBS is an autoimmune condition causing demyelination of the PNS - movement and sensation affected. Its sudden onset, progressive, symmetrical and descending in character. The time frame is also weeks not months.

D. MND (ALS) presents with both UMN and LMN signs. Muscle spasms, weakness, gait changes, speech changes are all common.

E. Cauda equina syndrome would present with urinary incontinence but often has a history of trauma. Visual symptoms and Uhthoff's phenomenon would not be present.</td></tr>
<tr><td>5. E</td><td>This question needs you to be able to distinguish between bacterial and viral meningitis from the history and LP. Mumps is viral and can often lead to meningitis. The LP result can be interpreted as follows:
<table><tr><th></th><th>Appearance</th><th>Opening Pressure mmHg</th><th>WBC (cell/μL)</th><th>Protein (mg/dl)</th><th>Glucose (mg/dL)</th></tr><tr><td>Normal</td><td>Clear</td><td>90-180</td><td>< 8</td><td>15-45</td><td>50-80</td></tr><tr><td>Bacterial Meningitis</td><td>Turbid</td><td>Elevated</td><td>>1000-2000</td><td>>200</td><td><40</td></tr><tr><td>Viral Meningitis</td><td>Clear</td><td>Normal</td><td><300; Lymphocytic predominance</td><td><200</td><td>Normal</td></tr><tr><td>Fungal Meningitis</td><td>Clear</td><td>Normal-elevated</td><td><500</td><td>>200</td><td>Normal - Low</td></tr></table>Bacterial is cloudy/turbid and the bacteria use glucose for energy so this is lower than normal. In this case its viral therefore antibiotics are not indicated.
A. IV BenPen might be given in a secondary care setting if bacterial meningitis is suspected

B. IV ceftriaxone is an Abx and can be chosen depending on trust policy and bacteria causing meningitis.</td></tr>
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<tr><td></td><td>C. IM BenPen is given in a primary care setting when bacterial meningitis is suspected. Usually as soon as meningisms are present with a non-blanching rash.

D. IV Chloramphenicol is an Abx and can be chosen depending on trust policy and bacteria causing meningitis

E. Analgesia, antipyretic and hydration are indicated in viral meningitis. It is often self-resolving after 7-10dys. If severe aciclovir may be indicated.</td></tr>
<tr><td>6. C</td><td>The man has Horner’s syndrome - anhydrosis (reduced sweating), miosis (pupil constriction), ptosis (eyelid droop). Damage to the sympathetic nerves.

A. A SCLC can cause various paraneoplastic syndromes including SIADH and Lambert-Eaten syndrome

B. CN III palsy causes the eye affected to deviate down and out.

C. A Pancoast tumour in the upper part of the lung can interfere with the sympathetic chain and cause Horner’s syndrome

D. Bell’s palsy is forehead sparing unilateral motor loss in the face.

E. Glioblastoma is unlikely to cause facial changes and changes in sweating. Commonly headaches and changes in visual fields.</td></tr>
<tr><td>7. A</td><td>Nerve fibres usually decussate (cross) high up in the CNS either the thalamus or pyramids. This occurs except in spinothalamic sensory nerves carrying pain and temperature which decusate 1-2 levels above their point of entry into the spinal cord. This means that there is proprioceptive, vibration and motor loss on the ipsilateral side and pain and temperature loss on the contralateral side 2 levels below the lesion.</td></tr>
<tr><td>8. B</td><td>
<table>
<tr><th>Features</th><th>UMN</th><th>LMN</th></tr>
<tr><td>Pathway</td><td>UMN starts from motor cortex to the cranial nerve nuclei in brain and anterior horn cells in spinal cord</td><td>LMN is the motor pathway from anterior horn cell (or cranial nerve nucleus) via peripheral nerve to the motor end plate</td></tr>
<tr><td>Function</td><td>Inhibitory effect on muscle stretch reflex</td><td>Motor component of muscle reflex</td></tr>
<tr><td>Type of paralysis</td><td>Spastic</td><td>Flaccid</td></tr>
<tr><td>DTR</td><td>Hyperreflexia</td><td>Hyporeflexia</td></tr>
<tr><td>Muscle tone</td><td>Hypertonic</td><td>Hypotonic</td></tr>
<tr><td>Muscle mass</td><td>Disuse atrophy</td><td>Wasting atrophy</td></tr>
<tr><td>Fasciculation’s</td><td>Absent</td><td>Present</td></tr>
<tr><td>Babinski sign</td><td>Positive</td><td>No</td></tr>
<tr><td>Clasp-knife</td><td>Present</td><td>Absent</td></tr>
<tr><td>Other reflexes</td><td>Abdominal and cremasteric absent</td><td>-</td></tr>
<tr><td>Voluntary movement</td><td>Decreased speed</td><td>Lost</td></tr>
<tr><td>Area of body involved</td><td>Large area</td><td>Small area</td></tr>
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9. B	Unlikely to be right ACA as motor control is contralateral Looking at the vasculature supply to the cortex and the homunculus of where each body part is controlled the area with the leg is in the medial portion supplied by the ACA. As motor control crosses hemisphere a left sided stroke will cause right sided weakness. ACA supplies leg, foot, genitals. Unlikely to be right MCA as motor control is contralateral The left MCA controls shoulder, arm, hand and face. Posterior cerebral artery strokes tend to affect vision and coordination.
10. E	Extradural hematomas are typically situated in the temporoparietal region and are associated with fracture of the temporal bone with resultant damage to the middle meningeal artery.
11. C	A. Mannitol is an osmotic diuretic used to reduce intracranial pressure (ICP). It can be given in a SAH if they have a reduced GCS or focal neurological signs, which indicate a raised ICP. This man has no signs of a raised ICP. B.Aspirin and clopidogrel are given after an ischaemic stroke (dual antiplatelet therapy). They should not be given in a SAH. C.Nimodipine is a calcium-channel-blocker given to all with a SAH to prevent vasospasm. It should be started as soon as possible after a SAH is confirmed. Vasospasm is a common complication of a SAH and can lead to ischaemic damage and new neurological deficits. D.Nimodipine should always be given E.Nifedipine is another type of calcium channel blocker - but it is not licensed to prevent vasospasm - unlike Nimodipine
12. C	A.CMV can cause GBS but is not as common as C. jejuni B.EBV can cause GBS but is not as common as C. jejuni C.Campylobacter jejuni is the most common cause of GBS. C. jejuni is the most common cause of bacterial gastroenteritis. D.E. coli can lead to GBS but is not as common as C.jejuni E.Salmonella can lead to GBS but is not as common as C. jejuni
13. D	A.Tension headaches are typically bilateral and would not be severe enough to wake someone up from sleep.

	B.Migraines are typically unilateral with visual disturbance or photophobia and nausea/vomiting. C.A subarachnoid haemorrhage causes a sudden onset severe 'thunderclap' headache D.This man's symptoms are in keeping with cluster headaches. Cluster headaches are the most severe primary headaches, they tend to be unilateral and occur every day for months at a time. They also cause unilateral autonomic symptoms such as rhinorrhoea, miosis, ptosis, bloodshot eyes and lacrimation. There tends to be a family history and they are more common in men and smokers. E.Despite the headaches waking him from sleep, which is a red flag for a space occupying lesion - he describes no other symptoms of a brain tumour. He describes no nausea/vomiting, seizures or focal neurological symptoms such as numbness/weakness etc.
14. B	A.Head CT - will not show the demyelinating white matter plaques associated with multiple sclerosis B.MRI head is the most appropriate investigation for suspected multiple sclerosis. This woman is showing neurological symptoms disseminated in time and space - classical of MS. The visual symptoms she is describing is likely optic neuritis - the most common first presentation of MS. An MRI will show the multiple plaques of central nervous system demyelination. C.A lumbar puncture can be used to help diagnose MS but it is not the most appropriate first line investigation. A lumbar puncture in MS would show oligoclonal IgG bands. D.CT angiography will not help diagnose MS E.None of the above is incorrect, as an MRI head is the most appropriate investigation for suspected multiple sclerosis.
15. D	A.a SAH causes an acute sudden onset 'thunderclap' headache, not a progressive chronic headache like this man is having B.Tension headaches cause a bilateral 'tight band' like headache which typically lasts 30 minutes - 7 days but not weeks like this headache C.An EDH typically causes a loss of consciousness followed by a lucid interval and then rapid onset neurological deficits D.This man likely has a SDH. Subdural bleeds are common in the elderly after a minor fall as they have friable bridging veins and smaller brains - meaning more blood can collect before causing neurological symptoms. As the subdural collection of blood gets broken down it has an osmotic effect - pulling more water in and causing a mass effect

	which leads to the evolution of neurological symptoms over time. E.A SOL can cause similar progressive headaches, which can wake a person up from sleep but the preceding fall makes a SDH more likely.
16. A	A.Sumatriptan is a serotonin 5-HT1 receptor agonist, it causes vessel constriction which counteracts the vasodilatation occurring as part of the pathophysiology of migraines. Sumatriptan is the first line acute treatment for migraines. B.Propranolol is a beta blocker which is used for migraine prophylaxis, not acute treatment C.100% 15L of oxygen in used in the acute treatment of a cluster headache, not a migraine D.Verapamil is a calcium channel blocker which is used for cluster headache prophylaxis E.Paracetamol can be used for migraine and tension headaches, but it is not as effective as sumatriptan and can lead to medication overuse headaches over time
17. D	A.Lambert Eaton myasthenic syndrome (LEMS) is a pre synaptic neuromuscular junction (NMJ) disorder, unlike MG which is a post synaptic NMJ disorder. LEMS tends to cause hyporeflexia and weakness improves **after** exercise unlike in MG. B.Multiple sclerosis can cause weakness but it will not worsen towards the end of the day and it can cause painful eye movements but not eyelid weakness, as it only affects the central nervous system. C.Motor neurone disease does not affect the eyes D.This woman likely has myasthenia gravis (MG) - an autoimmune disease mediated by antibodies against the nicotinic acetylcholine receptors on the post synaptic side of the NMJ. It causes proximal muscle and extraocular muscle weakness which both get worse towards the end of the day or after repeated exertion. MG does not affect the reflexes. Since it is an autoimmune disease it can be associated with other autoimmune disorders such as pernicious anaemia. E.cauda equina is a neurosurgical emergency causing bilateral sciatica and bladder dysfunction. It does cause bilateral leg weakness but the weakness will be constant and progressive and the leg reflexes will be affected.
18. C	A.A lesion of the optic chiasm would present with bitemporal hemianopia B.A trochlear nerve palsy would cause the eye to rotate upwards and inwards causing difficulty in looking downwards

	C.This man is showing signs of oculomotor nerve palsy - the eye usually remains down and outwards with ptosis and mydriasis D.In a left abducens nerve palsy the eye would be medial and the patient would have difficulty with lateral movement E.Optic nerve lesion would cause blindness or a quadrantanopia/hemianopia
19. E	A.A TIA would cause sudden onset neurological symptoms which would resolve within 24 hours, it can cause personality changes but these would've resolved by now if he was having a TIA B.Alzheimer's causes early memory loss but does not tend to cause early personality changes C.Vascular dementia tends to cause mixed motor and cognitive symptoms and follows a stepwise progression. There is no mention of a cardiovascular disease history in this man, making vascular dementia less likely. D.Parkinson's disease causes bradykinesia, rigidity and a tremor - none of these symptoms are mentioned for this patient E.This man is showing symptoms of frontotemporal dementia (FTD). FTD causes early personality changes e.g. aggression and disinhibition e.g. hypersexuality etc.
20. D	A.REM sleep disorder is a common non-motor symptom of Parkinson's disease. REM sleep disorders can occur up to 10 years before the motor symptoms of parkinsons occur, it usually involves people acting out dreams. B.Postural hypotension is a common non-motor symptom of Parkinson's disease. C.Constipation is also a common non-motor symptom of Parkinson's disease D.urinary incontinence is **not** a non-motor symptom of Parkinson's but urinary urgency is E.Depression is a common non-motor symptom of Parkinson's
21. C	A. Levodopa is medication given to those with Parkinson's disease. As this patient does not have Parkinson's, it would not be appropriate. B. Paracetamol is not indicated here, as there is no pain C. Riluzole is the only life prolonging medication available to those with

	MNDs, in particular ALS. This patient is displaying a mixture of UMN and LMN signs, and his bladder/bowel function is preserved. He also has foot drop, which all indicate an ALS diagnosis. D. Baclofen can be given to treat cramps in MNDs, however there is no indication that this patient is suffering from camps. E. Carbamazepine can be given to treat cramps in MNDs, however there is no indication that this patient is suffering from camps.
22. A	A. This woman is likely suffering from multiple sclerosis. The gold standard testing here is an MRI to look for plaques, and a lumbar puncture to look for oligoclonal bands in the CSF. B. CT scanning is not indicated in multiple sclerosis. C. Whilst an MRI is gold standard, a lumbar puncture should also be ordered. D. CT scanning is not indicated in multiple sclerosis. E. This is incorrect, tests are required with these symptoms.
23. B	A. GBS would often present with weakness in the toes-to-nose fashion, however the weakness here has stopped at the knee and is not rising. You also tend to see a recent infection before a GBS diagnosis. B. This patient is presenting with the characteristic ‘champagne bottle weakness’ that is associated with CMT. He also has sensory deficits following the same pattern and is under 10 years old. Some patients also present with Pes cavus (high arches). C. Vasculitis would likely present with some form of rash or purpura. D. MND would present with a mix of UMN and LMN symptoms, in addition you would expect the patient to report changes to their gait or issues involving grip. E. Amyloidosis is a condition caused by protein build-up within the body. It is seen with liver failure, and presents with peripheral neuropathy, GI upset, carpal tunnel syndrome, easy bruising and lightheadedness.
24. D	A. Valproate is generally the first line treatment for tonic-clonic seizures, however this is a young woman of child-bearning age so valproate is contra-indicated as it is teratogenic. B. Carbamazepine can be used in focal seizure, however is not first line. C. Keppra is prescribed in juvenile myoclonic epilepsy D. Lamotrigine is the next best option for tonic-clonic seizures. It is not

	contra-indicated in women of child beaning age, so it is the most appropriate here. E. Topiramate is an epilepsy medication used for myoclonic seizures, however this patient reports a classic tonic-clonic seizure so this medication is not indicated.
25. E	A. You would expect a migraine to present with an aura, or a recurrent trigger. It is also common for the patient to report wanting to lie still in a dark room when the headache comes along. B. GCA often presents with tenderness to the scalp that comes on when brushing their hair. The pain is also persistent and localised to the temple area, not bilateral generalised pain. Patients can also complain of jaw pain. C. A brain tumour can present with headache, however you would expect to see at least 2 other symptoms, including behavioural changes, nausea, seizures, speech problems, weakness etc. D. A cluster headache is typically located unilaterally and has pain around the eye. The patient also complains of needing to move around and not being able to sit due to the pain. E. Tension headaches are the most common headaches seen. They present with bilateral pain that is pressurized, and are often seen with stress. This patient has an unwell daughter, and a new job which could have led to the tension headaches.
26. B	A. This is the cause of vascular dementia. You would expect to see more profound behaviour changes with this type, and a stepwise progression. B. This is a description of Alzheimer's disease. It is caused by plaques and neurofibrillary tangles in the brain, leading to memory issues. C. Parkinson's is associated with Lewy Body dementia, however the patient has no symptoms of PD, therefore this is unlikely. D. This is the cause of fronto-temporal dementia. You would expect complains of personality changes and lowered inhibitions with this type of dementia. E. I made this up! Speech and language are controlled in Wernicke's and Broca's areas, not the neocortex. Any neocortex abnormalities are associated with Lewy body dementia.
27. A	A. Phalen's test is used to test for Carpal Tunnel, which this lady's symptoms indicate. Here, the patient will only be able to flex their wrist for 1 minute maximum. B.Trendelenburg's test assesses the strength of the hip abductors,

	specifically the gluteus medius and minimus. It is part of a hip exam. C. Jobe's test assesses the function of the supraspinatus muscle. It is part of a shoulder exam. D. Simmonds' test is used to assess for clinical evidence of Achilles tendon rupture. It is part of an ankle exam. E. Lachman's test is an alternative test assessing for laxity or rupture of the anterior cruciate ligament (ACL). It is part of a knee exam.
28. E	A.Haloperidol is an antipsychotic, which is commonly prescribed to patients with Huntington's disease. B. Sertraline is an SSRI antidepressant, and as this patient has a history of depression, you would expect her to be on this. C. Sulpiride is a neuroleptic drug, which are prescribed to those with Huntington's to depress nerve function. D. Diazepam is a benzodiazepine, these are often prescribed to patients with Huntington's to aid any anxiety or help them sleep. E. Levodopa is a Parkinson's medication, therefore would not be useful here as the patient is already suffering from Chorea.
29. C	This patient's symptoms indicate Myasthenia gravis. This is a condition that affects the nicotinic acetylcholine receptors of the neuromuscular junction. Therefore, C is the only correct answer.
30. D	A. Radiculopathies cause pain in the dermatome and weakness in the myotome of the nerve root supply area. C6 compression would see pain in the forearm, and weakness with elbow flexion. B. C7 compression would see pain in the hand, and weakness with elbow extension C. L2-3 compression would see pain in the inner leg D. L5 compression would see pain in the outer leg, and weakness with dorsiflexion of the ankle. E. S4 compression would see pain and weakness with the perianal area, resulting in bladder and bowel dysfunction